

A GUIDE TO THAKALI TONE*

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INTRODUCTION

One striking feature of the tone systems of Tibeto-Burman languages studied thus far by members of the Summer Institute of Linguistics in Nepal is that pitch contrasts are defined over morphologically defined domains, such as the word or the morpheme, rather than over phonologically defined domains such as the syllable. In Thakali the morpheme is the domain over which pitch contrasts are defined.

This paper gives a summary of the tone system of Thakali. All the theoretical statements are amply illustrated with data. This summary has grown out of extensive field work and also contains a few remarks on the methods of tone analysis. These are hoped to be stimulating for anyone who wants to analyse a similar tone language.

Thakali is spoken in Nepal in the northern part of the Dhaulagiri zone along the upper Kali-Gandaki River. This part of the valley is known as Thak Khola. Many Thakalis have migrated recently to other places, mainly south of the Thak Khola. This guide represents the language as spoken in Tukche, the business centre of the region.

The tone analysis was carried out with the help of Miss Nila Gauchan from Tukche, who proved to be an excellent informant.

A practical text orthography is used to represent the segmental material. This orthography is based on the phonemic analysis. For the suprasegmental features of tone phonetic and phonemic representations have been used. This variation reflects the successive stages of the tone analysis. In the Thakali text all the morpheme breaks are indicated with a dash: so-wa.

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T	retroflexed alveolar stop;
Th	retroflexed alveolar aspirated stop;
t	dental stop;
th	dental aspirated stop;
c	alveolar affricate (ts);
ch	alveolar aspirated affricate (tsh);
ng	velar nasal.

The examples presented in this guide are intended only to illustrate the tone analysis of Thakali. They are not presented for use in the study of the grammar of the language. Though care has been taken to insure the grammaticality of the utterances used, many of them are fragmentary, and many are highly idiomatic. These idiomatic utterances are used especially in jokes, figurative speech and in slang expressions even though from a grammatical or semantic point of view they are far from transparent.

I. THE CONTRAST SYSTEM

1. VOICE QUALITY CONTRAST

Introduction

All the six vowels of Thakali (i, e, aa, u, o, a) occur with tense and with lax articulation. This modification of the articulation is contrastive and also modifies the pitch of the vowels. *Tense articulation* conditions *high pitch* while *lax articulation* conditions *low pitch*. (In the pronunciation of tense vowels the Adam's apple is raised slightly. This results in a smaller resonance chamber at the back of the mouth and the vowel sounds therefore tense, non-vibrant, and high. In the pronunciation of lax vowels the Adam's apple remains lowered. This results in a larger resonance chamber at the back of the mouth and the vowel therefore sounds lax, vibrant, and low.)

The voice quality contrast is very important in Thakali and not too difficult to hear. Without contrasting the voice qualities with each other one may easily fail to hear it, but in a frame where we have the contrast at the same point of the utterance, it is quite striking.

Voice Quality Contrast on Stems

List 1

The following list is a selection of monosyllabic tense and lax nouns in the same frame. In orthographic transcription laxness is symbolised with an h after the vowel, tenseness is not marked. Thus, vowels which

are not followed by h are tense. Observe how tense and lax vowels condition the pitch of the items.

ngā-cē ke mraang-ci. *I saw a field.*

kāa

blood

tā

horse

pū

earthern pot

kaah

blister

Tih

skin

cah

son

ngā-cē me mraang-ci. *I saw a fire.*

lī

face

lē

tongue

rū

horn

roh

friend

mih

person

meh

ox

tōm

bear

cām

bridge

sīn

wood

pāy

wool

kehn

bread

kaahng

hill

pahr

garden

tihm

house

kyu

water

plaa

vegetables

pro

snack

cye

meadow

prih

root

praah

flour

ngyeh

milk

List 2: Some minimal pairs

<u>ngā</u> - <u>cē</u> <u>ke</u> <u>mraang-ci</u> .	<i>I saw a field.</i>
<u>keh</u>	<i>work</i>
<u>me</u>	<i>fire</i>
<u>meh</u>	<i>ox</i>
<u>kyu</u>	<i>water</i>
<u>kyuh</u>	<i>sheep</i>
<u>pri</u>	<i>yak cow</i>
<u>prih</u>	<i>root</i>
<u>mi</u>	<i>eye</i>
<u>mih</u>	<i>person</i>
<u>yaa</u>	<i>hand</i>
<u>yaah</u>	<i>yak</i>
<u>pen</u>	<i>toad</i>
<u>pehn</u>	<i>young fellow</i>

List 3

The numbers from 1 to 10 sorted for voice quality.

TENSE:

LAX:

<u>cūri</u> <u>som</u> 'mu-mu.	<i>Here are three.</i>	<u>cūri</u> <u>Tih</u> 'mu-mu.	<i>Here is one.</i>
<u>ngis</u>	<i>seven</i>	<u>ngih</u>	<i>Here are two.</i>
<u>ku</u>	<i>nine</i>	<u>plih</u>	<i>four</i>
<u>cyu</u>	<i>ten</i>	<u>ngaah</u>	<i>five</i>
		<u>Tuh</u>	<i>six</i>
		<u>preh</u>	<i>eight</i>

List 4

Voice quality is contrastive only on the first syllable of a morpheme. Observe this in the following groups of tense and lax bisyllabic nouns.

<u>cūri</u> <u>kolaa</u> 'mu-mu.	<i>Here is a child.</i>
<u>karu</u>	<i>wheat</i>
<u>tayaa</u>	<i>potato</i>
<u>polo</u>	<i>nettle</i>
<u>kohca</u>	<i>khukuri</i>

<u>c</u> ur <u>i</u> t <u>ih</u> ngi 'mu-mu.	<i>Here is (a) sun.</i>
t <u>uh</u> li	<i>tailor</i>
p <u>ah</u> le	<i>foot</i>
p <u>uc</u> u	<i>thorn</i>
p <u>ul</u> u	<i>cap</i>
c <u>a</u> ca	<i>salt</i>
na <u>Ti</u>	<i>bone</i>
ca <u>h</u> me	<i>daughter</i>
ca <u>h</u> ca	<i>baby</i>
T <u>i</u> hm <u>ca</u>	<i>rug</i>
ngy <u>ah</u> la	<i>mit friend (girl)</i>

The voice quality contrast occurs on all word classes. In the following list we have groups of tense and lax verb stems in alternation.

List 5

the	- <u>c</u> e	k <u>oh</u> -s <u>i</u>	'mu-mu.	<i>He is understanding.</i>
		ngy <u>oh</u> -s <u>i</u>		<i>looking</i>
		c <u>uh</u> -s <u>i</u>		<i>cooking</i>
the		ko-s <u>i</u>		<i>moving</i>
		ch <u>yu</u> -s <u>i</u>		<i>catching</i>
the		Tu-s <u>i</u>		<i>sitting</i>
		pi <u>h</u> -s <u>i</u>		<i>saying</i>
		ci <u>h</u> -s <u>i</u>		<i>biting</i>
		ke <u>h</u> -s <u>i</u>		<i>cutting</i>
		ti-s <u>i</u>		<i>spreading out</i>
		me-s <u>i</u>		<i>asking</i>
		k <u>he</u> -s <u>i</u>		<i>slinging over</i>
		pa <u>ah</u> -s <u>i</u>		<i>bringing</i>
		Ta <u>ah</u> -s <u>i</u>		<i>tearing</i>
the		ma <u>h</u> -s <u>i</u>		<i>losing</i>
		na <u>h</u> -s <u>i</u>		<i>raising</i>
the		Ta <u>a</u> -s <u>i</u>		<i>weeping</i>
		na <u>a</u> -s <u>i</u>		<i>carrying</i>

thē- <u>cē</u> sa-si 'mu-mu.	<i>He is completing.</i>
<u>cā</u> -si	<i>eating</i>
<u>kōhn</u> -si	<i>measuring out</i>
<u>nuhng</u> -si	<i>spoiling</i>
<u>caahng</u> -si	<i>sending</i>

List 6

The following examples illustrate the voice quality contrast for verb stems with minimal pairs.

<u>ko</u> -wa	<i>to move</i>	<u>cū</u> -wa	<i>to bark</i>
<u>koh</u> -wa	<i>to understand</i>	<u>cuh</u> -wa	<i>to distribute</i>
<u>so</u> -wa	<i>to live</i>	<u>tāa</u> -wa	<i>to hold out</i>
<u>soh</u> -wa	<i>to build</i>	<u>taah</u> -wa	<i>to hit</i>
<u>te</u> -wa	<i>to take out</i>	<u>rē</u> -wa	<i>to get up</i>
<u>teh</u> -wa	<i>to boil</i>	<u>reh</u> -wa	<i>to grind</i>
<u>kyu</u> -wa	<i>to break</i>	<u>tō</u> -wa	<i>to need</i>
<u>kyuh</u> -wa	<i>to buy</i>	<u>toh</u> -wa	<i>to meet</i>
<u>pī</u> -wa	<i>to leave</i>	<u>kōm</u> -pa	<i>to wear</i>
<u>pih</u> -wa	<i>to say</i>	<u>kohm</u> -pa	<i>to measure out</i>

List 7

Thakali has a whole series of aspirated consonants: ph, th, ch, Th, kh, rh, lh. After these only tense vowels may occur. Lax vowels in monosyllabic words pronounced in isolation sound quite breathy.

<u>pē</u>	<i>story</i>	<u>ngi</u>	<i>we (exclusive)</i>
<u>peh</u>	<i>wife</i>	<u>ngih</u>	<i>two</i>
<u>kāa</u>	<i>blood</i>	<u>ngā</u>	<i>I</i>
<u>kaah</u>	<i>blister</i>	<u>ngah</u>	<i>drum</i>
<u>nā</u>	<i>nose</i>	<u>Ta</u>	<i>hair, head</i>
<u>nah</u>	<i>ear</i>	<u>Tah</u>	<i>cooks comb</i>
<u>māa</u>	<i>down</i>	<u>ngo</u>	<i>hair parting</i>
<u>maah</u>	<i>son-in-law</i>	<u>ngoh</u>	<i>forehead</i>

Monosyllabic nouns with initial aspirated consonants manifest voiceless aspiration before the vowel and have all high pitch.

<u>khē</u>	<i>grandfather</i>	<u>phō</u>	<i>deer</i>
<u>Thā</u>	<i>buzzard</i>	<u>lhā</u>	<i>idol</i>
<u>thō</u>	<i>roof</i>	<u>rhe</u>	<i>ribbon</i>

In bisyllabic morphemes aspirated consonants occur only in morpheme initial position. Note the parallel to lax vowels, which also are relevant only on the first syllable of a morpheme.

<u>khotong</u> hole	phop <u>Te</u> gray, white person
<u>Thisin</u> loom, weaving stick	<u>chame</u> young girl

Aspiration of consonants and laxness of vowels are mutually exclusive in the first syllable of a morpheme. However these features are phonetically distinct and semantically contrastive. Following are a few minimal contrasts between aspiration of consonant and laxness of vowel.

<u>ngā-ce</u> <u>kaah</u> <u>mraang-ci</u> .	<i>I saw a blister.</i>
<u>khāa</u>	<i>neck</i>
<u>cahme</u>	<i>daughter</i>
<u>chame</u>	<i>young girl</i>
<u>poh</u>	<i>dough</i>
<u>phō</u>	<i>deer</i>
<u>'khayaang</u> <u>pihr-wa</u> <u>ih-me?</u>	<i>When will (he) fly?</i>
<u>phir-wa</u>	<i>shake up</i>
<u>teh-wa</u>	<i>boil</i>
<u>the-wa</u>	<i>hear</i>
<u>toh-wa</u>	<i>sow</i>
<u>tho-wa</u>	<i>be big</i>
<u>cuh-wa</u>	<i>cook</i>
<u>chu-wa</u>	<i>be happy</i>

Suffixes

The suffixes we have used in the examples up to now have all been tense, or at least nondistinctive as to voice quality. The following examples show that laxness also occurs on suffixes. Thus we cannot say that voice quality is a feature of the word. It is rather a feature of the morpheme, and it is only relevant on the first syllable of the morpheme.

List 8

In the following lists observe the different tonal behaviour of tense and lax suffixes.

FIRST LIST - TENSE SUFFIX

cū tā-ce 'la-si 'mu-mu.	<i>This is made with an axe.</i>
ru-ce	<i>horn</i>
sln-ce	<i>wood</i>
man-ce	<i>medicine</i>
Tih-ce	<i>skin</i>
roh-ce	<i>by a friend</i>
Tuhy-ce	<i>by a giant</i>
cū Tohm-ce 'la-si 'mu-mu.	<i>This is made by a shaman.</i>
aana-ce	<i>elder sister</i>
picyaang-ce	<i>younger sister</i>
cyohma-ce	<i>nun</i>
pahle-ce	<i>leg</i>

SECOND LIST - LAX SUFFIX

cūri tā-caah 'mu-mu.	<i>Here are axes.</i>
ru-caah	<i>horns</i>
sln-caah	<i>woods</i>
man-caah	<i>medicines</i>
roh-caah	<i>friends</i>
Tih-caah	<i>skins</i>
tuhy-caah	<i>giants</i>
Tohm-caah	<i>shamans</i>
aana-caah	<i>elder sisters</i>
picyaang-caah	<i>younger sisters</i>
cyohma-caah	<i>nuns</i>
pahle-caah	<i>legs</i>

Note the strange tonal behaviour of -ce after lax stems. If it has a tense vowel we would expect the pitch to rise for it. This incoherence should raise our suspicion, and we should be able to explain it. Later we will see that the tonal behaviour of some tense suffixes is conditioned by the nature of the stem to which they are suffixed. The conditioning however is not only linked with the voice quality but also

with the pitch characteristics of the stem. As we have not yet illustrated the tone contrasts, the full explanation of the tonal behaviour of these suffixes will be given later.

2. PITCH CONTRAST

Introduction

In the previous section we have been talking about the voice quality contrast and about pitch insofar as voice quality conditions high and low pitch. For a long time we did not know that there was contrastive pitch as well, probably because it does not carry nearly as heavy a semantic load as the voice quality contrast. That is, minimal pairs for voice quality are extremely numerous but for tone they are quite rare. We only discovered them when we were actually hunting for tone. For this we made up lists of nouns and verb stems sorted for voice quality and CV-patterns. One day we happened to listen to a list of lax verbs in the following frame:

List 9

' <u>kyaa</u> hng- <u>ce</u>	" <u>cuh-wa</u> ih-mu.	<i>You will cook.</i>
" <u>koh-wa</u>		<i>understand</i>
" <u>toh-wa</u>		<i>meet</i>
' <u>neh-</u> 'wa		<i>massage</i>
" <u>nah-wa</u>		<i>raise</i>
' <u>paah-</u> 'wa		<i>bring</i>
' <u>kyuh-</u> 'wa		<i>buy</i>
" <u>ngyoh-wa</u>		<i>look</i>
" <u>praah-wa</u>		<i>grind flour</i>
" <u>lehm-pa</u>		<i>lick</i>
' <u>mahm-</u> 'pa		<i>think</i>
' <u>nahm-</u> 'pa		<i>cover</i>
' <u>cohm-</u> 'pa		<i>cross</i>
' <u>caahng-</u> 'pa		<i>send</i>

This proved to be a good frame in which we were able to hear that some verbs had a strangely different stress and tone pattern.¹ First we talked of contrastive stress, saying that some stems had primary stress and others secondary stress. After the stems with primary stress, the suffix would sound unstressed and after stems with secondary stress it

would naturally sound a bit stressed.

First we were not so sure that there were only two different patterns and as a means of checking we lined up together those which we thought were the same.

List 10

Here we have the verbs of list 9 again, sorted for stress patterns. This lining up helped us to check whether we heard correctly.

' <u>kyaa</u> hng- <u>ce</u> '' <u>cuh-wa</u> ih-mu?	' <u>kyaa</u> hng- <u>ce</u> '' <u>caahng</u> - <u>'pa</u> ih-mu?
'' <u>koh-wa</u>	' <u>cohm</u> - <u>'pa</u>
'' <u>toh-wa</u>	' <u>nahm</u> - <u>'pa</u>
'' <u>nah-wa</u>	' <u>mahm</u> - <u>'pa</u>
'' <u>ngyoh-wa</u>	' <u>kyuh</u> - <u>'wa</u>
'' <u>praah-wa</u>	' <u>paah</u> - <u>'wa</u>
'' <u>lehm-pa</u>	' <u>neh</u> - <u>'wa</u>

List 11

A good frame can be extremely helpful in tone analysis. Following we have the verbs of list 9 in a different frame. With this frame we found it much more difficult to hear the stress contrast.

He is cooking. etc.

thē- <u>ce</u> <u>cuh-si</u> 'mu-mu.	thē- <u>ce</u> <u>ngyoh-si</u> 'mu-mu.
<u>koh-si</u>	<u>praah-si</u>
<u>toh-si</u>	<u>lehm-si</u>
<u>neh-si</u>	<u>mahn-si</u>
<u>nah-si</u>	<u>nahn-si</u>
<u>paah-si</u>	<u>cohm-si</u>
<u>kyuh-si</u>	<u>caahng-si</u>

With this kind of contrast existing in the lax group we expected to find a similar phenomenon in the tense group. We continued working with verb stems.

List 12: tense verbs

nāama 'nāa- <u>'wa</u> ih-mu.	Tomorrow (he) will carry.
'Tāa- <u>'wa</u>	weep
''To-wa	burn

naama 'tō-'wa ih-mu.	<i>Tomorrow (he) will thresh.</i>
'kō-'wa	<i>move</i>
'thē-'wa	<i>hear</i>
'khe-wa	<i>patch</i>
'phye-wa	<i>sort out</i>
'ngye-'wa	<i>chew</i>
'mra-wa	<i>light</i>
'sā-'wa	<i>complete</i>
'kha-wa	<i>come</i>
'ca-wa	<i>eat</i>
'kom-'pa	<i>wear</i>
'tham-'pa	<i>put away</i>

The same list sorted for the two patterns:

naama 'naa-'wa ih-mu.	naama ''ca-wa ih-mu.
'Taa-'wa	'kha-wa
'tō-'wa	'mra-wa
'kō-'wa	'to-wa
'thē-'wa	'khe-wa
'ngye-'wa	'phye-wa
'sā-'wa	

The next step was to sort all the monosyllabic verb stems for primary and secondary stress. We pre-sorted them carefully for voice quality, CV-patterns and vowel quality in order to help our hearing and we ran them through the frames we had found most helpful. To start out we had the frame 'kyaahng-ce.....ih-mu. (see lists 9 and 10). The initial part of this frame proved to be cumbersome because intransitive verbs would require 'kyaahng. The informant could not always tell immediately what was required and so this would be the cause for many interruptions and discussions which were not desired at this stage of the analysis. We still found the tense stress patterns particularly difficult to distinguish and uninterrupted recording proved to be the best help. We were able to evade the issue by putting a time word in the place of the pronoun. The resulting utterances were not always very meaningful but this did not disturb our informant once she had discovered what we were after.

List 13

This list gives us the verb stems with CV and CCV-patterns and oh as vowel.

naama "koh-wa ih-mu.	<i>Tomorrow (you) will understand.</i>
"to <u>h</u> -wa	<i>meet</i>
"ngoh-wa	<i>fry</i>
"to <u>h</u> -wa	<i>sow</i>
"so <u>h</u> -wa	<i>build</i>
'to <u>h</u> -wa	<i>exchange</i>
"yo <u>h</u> -wa	<i>sieve beer</i>
'lo <u>h</u> -wa	<i>shake the salt tea</i>
'kyo <u>h</u> -wa	<i>plough</i>
"ngyo <u>h</u> -wa	<i>look</i>
'mlo <u>h</u> -wa	<i>pierce</i>
"plo <u>h</u> -wa	<i>boil</i>
"kyo <u>h</u> -wa	<i>be beautiful</i>
'plo <u>h</u> -wa	<i>be rich</i>

List 14

Verb stems with tense vowels have to be classified in the same way.

naama 'Te-wa ih-mu.	<i>Tomorrow (you) will climb.</i>
'te-wa	<i>fall</i>
'pe-wa	<i>become shy</i>
'che-wa	<i>be exhausted</i>
're-wa	<i>get up</i>
'rhe-wa	<i>grate</i>
'ye-wa	<i>return</i>
'sye-wa	<i>dance</i>
"kye-wa	<i>itch</i>
'sye-wa	<i>go (honorific)</i>
"ple-wa	<i>flatten</i>

In the course of the sorting process we finally also discovered some minimal pairs. Some of these pairs had been previously encountered but

our former informants had always assured us that they were homophonous. Without a frame it is indeed almost impossible to pick up the contrast, especially in the tense group.

List 15: some minimal pairs for stress contrast

In the lax group:

naama "cu <u>h</u> -wa ih-mu.	<i>Tomorrow (you) will cook.</i>
'cu <u>h</u> - <u>'wa</u>	<i>divide</i>
"ky <u>oh</u> -wa	<i>be beautiful</i>
'ky <u>oh</u> - <u>'wa</u>	<i>plough</i>
"plo <u>h</u> -wa	<i>boil</i>
'plo <u>h</u> - <u>'wa</u>	<i>be rich</i>
"ri <u>h</u> -wa	<i>beg</i>
'ri <u>h</u> - <u>'wa</u>	<i>scratch</i>

In the tense group:

naama 'so- <u>'wa</u> ih-mu.	<i>turn it round.</i>
"so- <u>wa</u>	<i>be hot (spicy)</i>
'khe- <u>'wa</u>	<i>sling it around</i>
"khe- <u>wa</u>	<i>patch</i>
'phye- <u>'wa</u>	<i>go out</i>
"phye- <u>wa</u>	<i>sort out</i>
'kye- <u>'wa</u>	<i>arrange</i>
"kye- <u>wa</u>	<i>itch</i>

Stress versus Tone

The next step was to find out how this stress contrast was manifested in different frames and with different suffixes. From each of the four patterns we selected a group of representative verb stems and listened to them with all the occurring suffixes. This involved a lot of careful listening in the process of which we came to the conclusion that it was more appropriate to talk of contrastive pitch than to talk of contrastive stress. It was only in our initial frame where a stress difference could be heard clearly. In the majority of the frames it was just impossible to decide on stress differences. The difference in pitch however was constant and coherent. If two categories of stress were set up they would always be defined most successfully in terms of

pitch contours. This was enough evidence for contrastive pitch in Thakali. This interpretation was also more compatible with the conviction gained much earlier that the basic word stress was always on the first syllable of the word.²

List 16

This list gives a small selection of the possible verb suffixes with four different verb stems. The four verbs represent the four pitch patterns. It documents the claim that in Thakali a classification based on pitch is more stable and satisfactory than one based on stress.

FRAME: GRANDMOTHER SAID:

- | | | |
|-----|--|--|
| I | <p>mōm-cē / thē Tu-mu / pih-si pih-ci 'mu ro.</p> <p>thē Tu-si mu-mu</p> <p>thē Tu-laase</p> <p>ngā Tu-cyo</p> <p>ngā Tu-wa-ka</p> <p>Tu-ko-le</p> <p>Tu-yaang-ce ta-ci</p> | <p><i>He stays.</i></p> <p><i>He is staying.</i></p> <p><i>He may stay.</i></p> <p><i>Let me stay.</i></p> <p><i>I want to stay.</i></p> <p><i>Please stay.</i></p> <p><i>It's all right to stay..</i></p> |
| II | <p>mōm-ce / the-ce me-mu / pih-si pih-ci 'mu ro.</p> <p>the-ce me-si mu-mu</p> <p>the-ce me-laase</p> <p>ngā-ce me-cyo</p> <p>ngā-ce me-wa-ka</p> <p>me-ko-le</p> <p>me-yaang ta-ci</p> | <p><i>He asks.</i></p> <p><i>etc.</i></p> |
| III | <p>mōm-ce / the-ce paah-mu / pih-si pih-ci 'mu ro.</p> <p>the-ce paah-si mu-mu</p> <p>the-ce paah-laase</p> <p>ngā-ce paah-cyo</p> <p>ngā-ce paah-wa-ka</p> <p>paah-ko-le</p> <p>paah-yaang-ce ta-ci</p> | <p><i>He brings it.</i></p> <p><i>etc.</i></p> |

IV mōm-ce / thē-ce cuh-mu / pih-si pih-ci 'mu ro. *He cooks.*
 thē-ce cuh-si mu-mu *etc.*
 thē-ce cuh-laase
 ngā-ce cuh-cyo
 ngā-ce cuh-wa-ka
 cuh-ko-lē
 cuh-yaang-ce tā-cl

(Note that the last suffix of a phonological phrase shows varying pitch contours. This variation is conditioned by higher level intonation factors. Compare page 47, 2. *PITCH VARIATIONS UNDER INTONATION.*)

The Four Box Contrast System

The preceding examples induce us to set up a four box contrast system. We have already seen that tense voice quality conditions high pitch and laxness low pitch. Within each group we have a further contrast between level and contour pitches. The two intersecting systems of tense versus lax voice quality and level versus gliding pitch result in a four way contrast.

	GLIDING	LEVEL
TENSE (relatively high)	 extra high falling I ('v)	 high, basically level II (v)
LAX (relatively low)	 low rising falling III ('vh)	 low, basically level IV (vh)

In orthographic transcription gliding contours will be marked with an apostrophe before the first syllable of the morpheme and laxness by an h after the first vowel of a morpheme.

Contrastive pitch is linked with contrastive voice quality and is likewise a feature of the morpheme. The contours are elastic and stretch or shrink according to the number of syllables of the morpheme.

List 17

Observe the four contrastive pitch patterns on monosyllabic and bisyllabic nouns.

III $\text{cú ngā-e meh-ih-mu.}$ *This is my ox.*

tuh	manure
toh	tunnel
kyuh	sheep
kyahm	path
nahngkyaa	bed
tuhngkal	worry
cahme	daughter

IV $\text{cú ngā-e koh ih-mu.}$ *This is my back.*

Tih	skin
leh	fate
kaahng	hill
pyaahng	voice
mehnto	flower
rihkpa	wisdom
luhmpu	country

I $\text{ngā-ce karu mraang-ci.}$ *I saw wheat.*

tayaa	potatoes
polo	nettles
syutaa	mill

II $\text{ngā-ce naakaa mraang-ci.}$ *I saw a hen.*

kolaa	child
pucu	thorn
pulu	cap

There is no contrast between patterns I and II in tense monosyllabic nouns.

$\text{ngā-ce yaa mraang-ci.}$	<i>I saw a hand.</i>
lha	god
po	popped grains

nga-ce	pay	mraang-cl.	<i>I saw (a) wool.</i>
	kon		<i>clothing</i>
	phum		<i>egg</i>
	cyen		<i>tiger</i>
	sung		<i>mouth</i>

List 18

No minimal sets representing all the four different patterns have yet been discovered. The following sets each contain a minimal set of three. A nearly minimal item is inserted to represent the missing fourth pitch pattern.

naama	'khe-wa	ih-mu.	<i>Tomorrow (he) will patch.</i>
	te-wa		<i>take out</i>
	'teh-wa		<i>boil, cook</i>
	teh-wa		<i>drive away</i>
naama	'su-wa	ih-mu.	<i>be dense</i>
	cu-wa		<i>bark</i>
	'cuh-wa		<i>divide</i>
	cuh-wa		<i>cook</i>
naama	'so-wa	ih-mu.	<i>Tomorrow (it) will be spicy hot.</i>
	so-wa		<i>turn around</i>
	'toh-wa		<i>exchange</i>
	soh-wa		<i>build</i>
naama	'To-wa	ih-mu.	<i>burn</i>
	to-wa		<i>need</i>
	'toh-wa		<i>exchange</i>
	toh-wa		<i>meet</i>

Tonal Behaviour of Suffixes

As to their tonal behaviour there are two classes of suffixes: *neutral* and *distinctive*. The majority of suffixes are neutral, only a small minority is distinctive. The pitch pattern of neutral suffixes is determined by the stem to which they are suffixed. The contour of the stem spreads over the neutral suffixes.

List 19

Observe the four pitch patterns with various numbers of neutral suffixes.

FRAME:	GRANDMOTHER SAID:	
I	nom-ce / the-ce 'khe / <u>pih-si</u> <u>pih-ci</u> 'mu ro.	<i>He patches it.</i> (definite)
	the-ce 'khe-wa	<i>He patches it.</i> (indefinite)
	the-ce 'khe-wa-ri 'yah-wa	<i>He goes to patch it.</i>
II	the-ce khe	<i>sling over</i>
	the-ce khe-wa	
	the-ce khe-wa-ri 'yah-wa	
III	the-ce 'rih	<i>scratch</i>
	the-ce 'rih-wa	
	the-ce 'rih-wa-ri 'yah-wa	
IV	the-ce rih	<i>beg</i>
	the-ce rih-wa	
	the-ce rih-wa-ri 'yah-wa	

Distinctive suffixes do not fall under the influence of the pitch contour of the stem but they manifest their own distinctive pitch pattern.

List 20

In this list we have a set of nouns first with the neutral suffix -ri and then the distinctive suffixes -'cyowa and -caah. Observe the pitch contours.

I	cu 'aale-ri 'paah-ko.	<i>Bring this to the brother.</i>
II	poso-ri	<i>young ox</i>
	kolaa-ri	<i>child</i>
	naakaa-ri	<i>hen</i>
III	'meh-ri	<i>ox</i>
	'tuhli-ri	<i>tailor</i>

I	'tingi aa-'Tu-wa tih. aa-'mra-wa	So he doesn't stay today. light
II	aa-naa-wa aa-phaa-wa	carry pay
III	aa-'paah-wa aa-'tuhm-pa	bring become thick
IV	aa-taah-wa aa-toh-wa	hit meet
I	'tingi tha-'Tu-ko-li. tha-'mra-ko-li	Let him not stay today.
II	tha-naa-ko-li tha-phaa-ko-li	
III	tha-'paah-ko-li tha-'tuhm-ko-li	
IV	tha-taah-ko-li tha-toh-ko-li	

In the section on voice quality we did not distinguish between level and gliding pitches but only between the high pitch of tense and the low pitch of lax vowels. At this point we realise that they also must be classified as to their pitch.

Classifying Vocabulary

List 22

This list contains the lax items of lists 1, 2, and 3. The plural suffix -caah was found to be most helpful as frame for sorting lax nouns.

III	cūri 'meh-caah 'mu-mu.	Here are oxen.
	'tihm-caah	houses
	'praah-caah	flours
	'keh-caah	works
	'kyuh-caah	sheep

III	cūri 'yaah-caah 'mu-mu. 'pehn-caah	Here are yaks. young fellows
IV	cūri kaah-caah 'mu-mu. Tih-caah cah-caah roh-caah mih-caah kehn-caah kaahng-caah pah-r-caah prih-caah ngyeh-caah	blisters skins sons friends people bread hills gardens roots milk
III	cū 'Tih-ih-mu. 'ngih- 'plih- 'ngaah- 'Tuh- 'preh-	This is one. two four five six eight

List 23

The tense monosyllabic nouns proved to be quite a problem when we tried to sort them for pitch. They did not split up into two groups as we expected they would. We sorted them carefully for vowel quality and tried them in several frames, but could hear only one pattern. This drill contains tense items of lists one and two in two different frames.

I-agent.	X-pl	saw	this	X-of	made	is	
nga-ce	mī-caah	mraang-ci.	cū	mī-ce	'la-si	'mu-mu.	eye
	pri-caah			pri-ce			yak cow
	le-caah			le-ce			tongue
	me-caah			me-ce			fire
	ke-caah			ke-ce			field
	cye-caah			cye-ce			meadow

nga-ce kaa-caah mraang-ci.	cū kaa-ce 'la-si 'mu-mu.	blood
plaa-caah	plaa-ce	vegetables
yaa-caah	yaa-ce	hand
pū-caah	pu-ce	pot
rū-caah	ru-ce	horn
kyū-caah	kyu-ce	water
sīn-caah	sin-ce	wood
pen-caah	pen-ce	toad
tōm-caah	tom-ce	bear
cām-caah	cam-ce	bridge
pāy-caah	pay-ce	wool

List 24

This list contains tense bisyllabic items sorted for pitch.

I	cū 'karu-ce 'la-si 'mu-mu.	This is made of wheat.
	'tayaa-ce	potatoes
	'tale-ce	mud
	'polo-ce	nettles
	'caca-ce	salt
	cū 'cyuku-ce 'la-si 'mu-mu.	This is made of oil.
	'cikaa-ce	barley
	'nimung-ce	mouse
	'liti-ce	ladder
	'nemyaa-ce	bird
II	kolaa-ce	child
	pucu-ce	thorn
	pulu-ce	cap
	naTi-ce	bones
	thanca-ce	lock
	sorma-ce	fog
	naakaa-ce	hen

Compound Nouns

For compound nouns with monosyllabic components we get the following four possibilities of combinations of voice quality:

	FIRST COMPONENT	SECOND COMPONENT
1.	tense	tense
2.	lax	tense
3.	lax	lax
4.	tense	lax

With the first three cases we get no compound pitch patterns. The resulting compounds have the same patterns as other bisyllabic nouns. In the fourth case each component retains its inherent pitch pattern and we get compound pitch patterns. The following list illustrates the four cases.

List 25

1. If both components are tense the compound will have pitch pattern I or II.

COMPONENTS:

nam	<i>rain</i>	thin	<i>floor</i>	cham	<i>hair</i>
kyu	<i>water</i>	sin	<i>wood</i>	ki-	<i>easy</i>
yaa	<i>hand</i>	rhe	<i>lace</i>	'pa-	<i>thin</i>
chap-	<i>sharp</i>	Ta	<i>head</i>	'To-	<i>burn</i>
me	<i>fire</i>	taang	<i>pot</i>		

cu nam-kyu ih-mu.

This is rain water.

yaa-thin

palm of the hand

yaa-rhe

finger

yaa-sin

finger nail

chap-kyu

sweat

Ta-cham

head hair

ki-yaa

right hand

'pa-yaa

left hand

'me-To

embers

'me-taang

torch

2. If the first component is lax and the second tense, the compound will have pitch pattern III or IV. In most cases the tense component will behave like a neutral suffix, but not always as the last example shows.

'tihm	house	'puh	?	nam	?
'teh	load	kohr	plough	pyaang	paathi
'meh	ox	cham	hair	ki	excrement
taah-	hit	kum	yoke	pin-	give
cyah	tea	sin	wood		

cu	'tihm-nam ih-mu.	<i>These are household goods.</i>
	'teh-pyaang	<i>basket</i>
	'meh-ki	<i>cow-dung</i>
	taah-sin	<i>stick</i>
	cyoh-pin	<i>teapot</i>
	'puh-cham	<i>body hair</i>
	'kohr-kum	<i>plough yoke</i>

3. If both components are lax we get pattern III or IV. There are very few examples in this group. Further data might show compound pitch patterns.

'tihm	house	'Tehn	eldest	'nahn-	cover
yuhl	village	mih	people	kyaah	place
cu	'tihm-Ten ih-mu.		<i>This is the main room.</i>		
	'nahng-kyaa		<i>bed</i>		
	yuhl-mi		<i>villager</i>		

4. With a tense and a lax component we get compound pitch patterns, the lax component retaining its inherent pitch pattern.

kam	cloth	naahng	inside	lha	god
pyung	man	cah	son	paah	leaf
cu	kam-naahng ih-mu.		<i>This is an attic.</i>		
	pyung-cah		<i>fellow</i>		
	lha-paah		<i>leaf</i>		

II. VARIATIONS

1. THE RELATIVE NATURE OF PITCH

It is understood that all statements about high and low pitch are relative to the point of the phonological utterance at which the pitch in question occurs. A high pitch has to be higher than a low pitch only at the same point of the utterance but not necessarily at another point. This is due to the up- and downdrifts which characterise the various utterance types. Up to now we have concentrated on listening to the contrasts as they are manifested within the peak of the utterance. We must be aware of the fact that at that point the interval between high and low takes on its maximum dimensions while in the onset and coda we have reduced intervals between contrasting pitch heights.

List 26

In the following utterances pay special attention to the intervals between contrasting pitches at various points in the utterance.

tita the-ce 'polo-caah 'ca-ci 'ma ro. *Yesterday he ate nettles, they said.*

tita the-ce Tahw-caah 'ca-ci 'ma ro. *Yesterday he ate spinach, they said.*

cyuhri the-ce naakaa-caah 'ca-ci 'ma ro. *At last he ate the chickens, they said.*

cyuhri the-ce naakaa-caah cuh-ci 'ma ro. *At last he cooked the chickens, they said.*

cyuhri 'kyaahng-ce naakaa-caah 'paah-ci 'ma ro. *At last you brought the chickens, they said.*

2. PITCH VARIATIONS UNDER INTONATION

According to the linguistic literature in some tone languages there seems to be a minimum of higher level intonation. The lexical pitch patterns govern the sentence intonation almost entirely. This is not the case in Thakali. Lexical pitch contrasts and higher level intonation factors can cause quite drastic changes in the pitch patterns. We have noted above the general cresting pitch which manifests intonational drift over the utterance. Different utterance types can modify the course of the drift. In general, however, it is the final syllable of the phonological phrase or utterance which manifests the heaviest intonational pressure. Modifications of this syllable include intonational stress, up-step in pitch, rising or falling pitch contours,

crescendos and decrescendos. The pitch of neutral suffixes in this position is heavily modified by these higher level intonation factors. Distinctive suffixes and stems are also influenced and although the contours are modified, the underlying contrasts are not neutralised. The following lists give some illustrations of various overriding intonational patterns.

List 27

In list 26 the past tense suffix *-ci* is under the influence of the stems. Observe its behaviour in that position and compare it with the following utterances, where it is under the influence of sentence final intonation.

the-ce 'To-ci-wa 'ca-ci.

He ate burnt (food).

the ye-si 'kha-si cuh-ci.

When he had returned he cooked.

-wa, the present indefinite suffix is neutral. In the first utterance it is under the influence of the stem, in the second under the influence of question intonation.

'tingi nga-ce cuh-wa ih-mu.

I will cook today.

'tingi 'kyaahng-ce cuh-wa ?

Are you cooking today?

These pitch variations are irrelevant on the level of lexical pitch but not on the level of intonational patterns.

Stem Morphemes before Junctures

The morphemes occurring most frequently before major junctures are suffixes. Stems, however, may also occur in this position. The following list shows how the lexical pitch contrasts are preserved in spite of added higher level intonation features. (In the data below the pitch contours of the following verb stems should be observed and compared with each other: I 'khe- 'to patch' III 'rih- 'to scratch' II khe- 'to sling over' IV rih- 'to beg'.)

List 28

1. Verb stems:

I 'tingi aa-'khe-wa?

Will you not patch it today?

aa-'khe, 'tingi aa-'khe.

No. I won't patch it today.

II 'tingi aa-khe-wa?

sling over

aa-khe, 'tingi aa-khe.

III 'tingi aa-'rih-wa ?

scratch

aa-'rih, 'tingi aa-'rih.

IV 'tingi āā-rih-wa? beg
 āā-rih, 'tingi āā-rih.

2. Bisyllabic nouns:

I	sū 'kha-la?	ngā-e 'nimung.	Who came? My mouse.
II		ngā-e picyaang.	My sister.
III		ngā-e 'cahpe.	My daughter.
IV		ngā-e taahwa.	My master.

3. Monosyllabic nouns:

tense:	sū 'kha-la?	ngā-e khe.	My grandfather.
III		ngā-e 'meh	My ox.
IV		ngā-e peh.	My wife.

Much more would have to be said about pitch variations under intonation. This section does not give a complete treatment of the subject. It only exhibits some features and indicates along what lines the investigation should probably proceed.

3. SHORT TEXTS

In the following short story observe how the different pitch patterns are manifested in a coherent text.

Abbreviations:

aux = auxiliary

s = suffix

pst = past suffix

syomo syomo mih 'Tib-soto-we yuhl-ri, tohngē-ci 'mu.
 formerly formerly man one other-of village-in arrive-pst aux

'tihm-ri ye-we kaahng-ri.cam 'Tib thaa-la myaang-pa 'mu ih-mu.
 house-in return-s time-in bridge one cut-s must-s aux aux-s

cam-ye kuhng-ri. tohngē-we kaahng-ri, cam Thop kyu-si
 bridge-of middle-in reach-s time-in bridge suddenly break-si

pohp te-ci 'mu. kyu-ri kyal-si 'yah-maa 'yah-maa coh
 (at once) fall-pst aux water-in swim-s go-while go-while lake

'tho-wa 'Tih-ri tohng-e-ci 'mu. ca-e resaang yuhl 'tho-wa 'Tih
 big-s one-in reach-pst aux that-of near village big-s one
 'mu ih-mu. kyu naahng-ce phe-we kaahng-ri tarnga 'Tih
 is aux-s water inside-from (come out)-s time-in fish one
 chy-si 'paah-ci 'mu. tarnga-e pho Taah-wa-ce 'mahre 'cura 'Tih
 catch-s bring-pst aux fish-of stomach cut-s-s gold bangle one
 phe-ci 'mu. ca tarnga-'cyowa ca resaang-pe yuhl-ri
 (come out)-s aux that fish-specification that nearness-of village-in
 cung-si, 'mahre 'cura 'pohr-si 'tihm-ri ye-si 'yah-ci 'mu.
 sell-s gold-of bangle (take with)-s house-in return-s aux
 cu pe sye-wa narentra gawcan ih-mu.
 this story tell-s is-s

FREE TRANSLATION:

1. Once upon a time a man went to another village. 2. On his way back he had to cross a bridge. 3. When he was in the middle of the bridge, it suddenly broke and he fell down. 4. He kept swimming in the water for a long time until he reached a big lake. 5. Nearby there was a big village. 6. As he came out of the water he caught a fish and took it with him. 7. When he cut the fish up a golden bangle came out. 8. He sold the fish in the village nearby, took the golden bangle and returned home.

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NOTES

1. It was Dr K.L. Pike, Professor of Linguistics at Ann Arbor University of Michigan, who drew my attention to this subtle difference in stress patterns for the first time.
2. Word stress in Thakali is manifested by some extra length and intenser lung pulses on the stressed syllable, but it is not correlated with high pitch. An ear however, which is used to correlate high pitch with stress, may hear unstressed high syllables as stressed.

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