A Preliminary Report on Spiti Phonemes

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1. Introduction

This paper is a preliminary report to consider what sorts of phonemes can be established in Spiti (/ˋpi.ti-kat/). Spiti is a Tibetan dialect which is spoken in the Spiti Valley, Himachal Pradesh, Northern India. It can be considered as one of the Tibetan dialects from the linguistic point of view, but the speakers of Spiti have a different kind of ethnological identity from that of the central Tibetans. The data used for the present analysis were collected in preliminary research that was carried out in Manali, Himachal Pradesh, India, from September 5 to 10, 1999. It contains about 500 words and 50 sentences. The period of the research was extremely short, and the quantity of data is also very small. Moreover, the author is not a specialist in Tibetan.[1] Thus the phonemic system proposed here is no more than a tentative one, and has a high possibility of being revised in the future. Nevertheless, I dare to present my tentative analysis, since I conceive that it could make some contribution to Tibetan dialectology. The phonemic system of Spiti which can be induced from my data is considerably different from that described by Sharma (1979), especially as regards tone. The tonal system which he presents differs from that of the central dialects including Lhasa Tibetan, but Spiti as treated in this paper resembles Lhasa Tibetan in tone to a considerable degree, and as the Linguistic Survey of India says, "tones and accents [of Spiti] are the same as in the Central Dialect" (Grierson 1909:84). In his papers attempting to classify Tibetan dialects, Nishi (1986, 87) puts Spiti into the group of Western Innovative Dialects, employing Sharma's data. Therefore, the difference between Sharma's data and mine may affect the position of Spiti among the Tibetan dialects. The difference could be attributed to dialectal difference, idiolectal difference, generational difference, and so on.

I am much indebted to my Spiti teacher, Mrs. Pasang Dolma, who was born in 1976 at Sumling village which is situated by the Spiti river about 80km east of Manali. She lived there until 1998, and presently lives in Manali. I used Kitamura and Nagano (1990) as a questionnaire.

I am also grateful to Prof. Yasuhiko Nagano, Prof. Yoshiharu Takahashi, Mr. Senri Morita, Mr. Angdu Ladakhi, and Mr. Tsering Lotos who kindly helped me study Spiti.

2.   Phonemes

At the present stage, I propose the following phonemes for Spiti. Since these are based on the small quantity of data which I have so far collected, they will have to be immediately revised if there is need.

Tones
    `   (high tone)
    _   (low tone)
Vowels

i ĩ			u		
e			o õ		
	a ã				

Consonants

p	ts	t	tr	c	k
ph	tsh	th	trh	ch	kh
b		d	dr	j	g
Nb	Nz	Nd	Ndr	Nj	Ng
m		n		ny	ng
	s		sr	sh	h
	z			zh	
w		r		y	
		l			

3.   Syllable Structure

The syllable structure of Spiti can be represented as $(C1)(C2)V(C3)$, where C is a consonant and V a vowel. The elements in parentheses are optional, but a vowel is obligatory in a syllable. C2 can occur only if there is a C1 before it.

Syllable boundaries are represented with periods as follows:

/`kar.ma/   star
/_men.dok/   flower

4.   Tones

There are two tones: /`/(high tone) and /_/(low tone). They are word tones, which cover one or two syllables as their domain. This is called "tone domain" in this paper. Tone domain can never cover more than two syllables. Tones are represented by putting /`/ or /_/ before the first syllable of the tone domain.

When the tone domain covers one syllable, each tone takes pitches as follows:

/ˋ/ (high tone): [44]~[43]
/̲/ (low tone): [23]

Below are examples:

/ ˋ/(high tone):

/ˋtru/	child
/ˋta/	horse
/ˋce/	tongue
/ˋlo/	south
/ˋtha/	shore, bank
/ˋchu/	water
/ˋkha/	mouth
/ˋmik/	eye
/ˋna/	nose
/ˋngo/	I
/ˋso/	tooth
/ˋsra/	hair
/ˋsha/	meat
/ˋi/	this

/̲/(low tone):

/̲tri/	knife
/̲bar/	between
/̲dong/	face
/̲dru/	boat
/̲go/	door
/̲Nbu/	insect
/̲Nda/	arrow
/̲Ngo/	head
/̲me/	fire
/̲nang/	inside
/̲nya/	fish
/̲zhi/	four
/̲lo/	year
/̲ot/	light (n)

The pair /ˋlo/ 'south' and /̲lo/ 'year' is the single minimal pair differentiated by tone that has been so far found in my data.

When the tone domain covers two syllables, each tone is pronounced as follows:

/ˋ/(high tone):   [44.44]~[44.43]~[33.44] ~[33.43]
/̲/(low tone):   [22.44]~[22.43]

Below are examples:

/`/(high tone):

/`sra.wa/	forehead
/`kang.ba/	foot
/`shok.pa/	fur
/`ngar.mo/	sweet
/`a.pa/	father
/`pa.o/	skin
/`khor.lo/	wheel
/`thuk.ce/	to meet
/`top.ca/	food
/`non.po/	sharp
/`la.mo/	easy
/`phe.che/	half
/`chin.ba/	liver
/`mu.wa/	fog

/_/(low tone):

/_par.she/	to burn
/_te.ce/	to chase, to follow
/_kon.je/	to clothe
/_phu.tsha/	son
/_pho.mo/	daughter
/_the.ring/	today
/_bo.ce/	to call
/_de.ce/	to sit, to live
/_gõ.a/	egg
/_nat.pa/	to be ill
/_ngo.ce/	to cry
/_yak.po/	good
/_lak.pa/	hand
/_on.do/	deaf

It is possible that the voiced stops, affricates, and fricatives, namely /b, d, dr, j, g, Nb, Nz, Nd, Ndr, Nj, Ng, z, zh/, may not co-occur with the high tone as a C1 in the first syllable of the tone domain.

There are atonic syllables in Spiti, and these are represented by putting a hyphen before them. In this case, periods are not put at the syllable boundaries. They can never occur in utterance initial position. They are always pronounced lower than the terminal point of the preceding syllables, as is shown below:

/_ri-a/ [23.2]	mountain
/_tri-kha/ [23.2]	cutting edge
/_nang-la/ [23.2]	to inside
/`chak-song/ [44.2]	(It) broke.
/`pi.ti-kat/ [44.44.3]	Spiti language
/_di.um-bu/ [22.44.3]	fly (n)
/`nyut-gya/ [44.3]	you (pl)

In passing, I should mention that Mrs. Pasang Dolma was very tolerant of my errors in pronouncing the tones. This tolerance would be surprising enough for non-native students who are used to southeast Asian tone languages such as Burmese, Thai, or Vietnamese. This fact would imply that it is hard for non-native students to be aware of their errors in hearing Spiti tones. Therefore, we should be extremely cautious in our judgements of tone in the first stage of studying Spiti.[2]

5.   Vowels

In Spiti as reported by Sharma (1979), there are seven oral vowels, whereas in the Spiti of my data only five oral vowels have been found. Three nasal vowels have also been found in my data as shown below:

```
i ĩ            u
e              o õ
        a ã
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It seems that there is no distinctive vowel length, although phonetically, vowels of open syllables other than atonic ones tend to be pronounced longer and vowels of closed syllables and atonic syllables tend to be pronounced shorter. There may likely be nasal vowels /ũ/ and /ẽ/ besides the above.

Vowels are preceded by the consonants [ʔ] or [ɦ] when they occur in the first syllable of a tone domain. When the tone is the high tone, the preceding consonant is [ʔ], and when the tone is the low tone, the preceding consonant is [ɦ], as shown below:

/`i/ [ʔi]	this
/`a.ma/ [ʔama]	mother
/_ot/ [ɦot]	light (n)
/_o.ma/ [ɦoma]	milk

Following are the phonetic values of the vowels and examples:

/i/: high front unrounded vowel [i].

/`i/	this
/_mi/	person

/ˋkhi/	dog
/_tri/	knife
/ˋci/	what

/u/: high back rounded vowel [u].

/ˋcu/	ten
/ˋchu/	water
/ˋtru/	child
/ˋsu/	who
/_gu/	nine

/e/: an intermediate sound between [e] and [ɛ]:[ẹ]. In the Spiti of Sharma's report, the vowel of /ˋser/ 'gold' (below) is /e/,and the vowel of the first syllable of /_zer.she/ 'to speak' is /ɛ/ (transcribed as /E/ by Sharma), but there seems to be no difference between them in Mrs. Pasang Dolma's pronunciation.

/_me/	fire
/ˋce/	tongue
/_le.ha/	job
/ˋser/	gold
/_zer.she/	to speak, to say

/o/: an intermediate sound between [o] and [ɔ]:[ǫ]. In the Spiti of Sharma's report, the vowel of /_go/ 'door' and /ˋngo/ 'I' below is /o/, and the vowel of /_Ngo/ 'head' is /ɔ/, but there seems to be no difference between them in Mrs. Pasang Dolma's pronunciation.

/_go/	door
/ˋngo/	I
/_Ngo/	head
/ˋlo/	south
/_lo/	year

/a/: low central unrounded vowel [A].

/ˋna/	nose
/ˋkha/	mouth
/ˋsha/	meat
/_nya/	fish
/ˋnga/	five

/ĩ/: nasalized high front unrounded vowel [ĩ].

/ˋtha.rĩ/	far

/õ/: nasalized back rounded vowel: [ǫ̃].

/_gõ.a/	egg

/ã/: nasalized low central unrounded vowel [Ã].

/ˋsã.wo/	river
/ˋtã/	on
/_kã.a/	ice
/_shak.tã/	everyday

6. Consonants

Thirty-seven consonants, shown below, can be established within the data of my survey. Note that of these consonants /ts, tr, ph, tsh, trh, th, ch, kh, dr, Nb, Nz, Ndr, Nd, Nj, Ng, ny, ng, sr, sh, zh/ are single phonemes, although they are transcribed with two or three symbols.

p	ts	t	tr	c	k	
ph	tsh	th	trh	ch	kh	
b		d	dr	j	g	
Nb	Nz	Nd	Ndr	Nj	Ng	
m		n		ny	ng	
	s		sr	sh		h
	z			zh		
w		r		y		
		l				

We should note that there are prenasalized voiced consonants, namely /Nb, Nz, Nd, Ndr, Nj, Ng/. The Spiti reported by Sharma (1979) does not have such consonants.

All the consonant phonemes can occur as a C1, whereas only /w, y/ can occur as a C2, and three stops /p, t, k/, three nasals /m, n, ng/ and two liquids /l, r/ can occur as a C3.

Following are the phonetic values of the consonants and their examples:

/p/: voiceless unaspirated bilabial stop [p]. /p/ can occur as a C1 or a C3. Below are examples with /p/ as a C1 in word-initial position:

/ˋpa.o/	skin
/ˋpe.ce/	to open
/ˋpi/	waist
/ˋpi.ce/	to take off (clothes), to untie, to wipe
/ˋpi.ti-kat/	Spiti language
/ˋpil.mo/	knee
/ˋpung.ba/	shoulder
/_pap.ce/	to go down
/_par.she/	to burn
/_pe.ce/	to do
/_por.she/	to put

Below are examples with /p/ as a C1 in word-medial position:

/ˋa.pa/	father
/ˋchen.po/	big
/ˋkam.po/	dry
/ˋkhak.po/	difficult
/ˋkham.pa/	house
/ˋkut.pa/	thread
/ˋlong.po/	weak
/ˋlun.pa/	to be wet
/ˋmak.pa/	husband
/ˋngon.po/	blue
/ˋnon.po/	sharp
/ˋnying.pa/	old
/ˋnyom.po/	smooth
/ˋshok.pa/	feather, fur
/ˋsik.pa/	wall
/ˋsra.po/	thin
/ˋthak.pa/	rope
/ˋthuk.po/	thick
/ˋtong.pa/	empty
/ˋtshat.pa/	sweat
/_bak.pe/	flour
/_bik.pa/	stick
/_dang.po/	correct
/_tok.po/	narrow
/_drit.pa/	sneeze
/_drot.pa/	belly
/_get.po/	old
/_gyak.pa/	fat
/_jim.pa/	nape of the neck
/_lak.pa/	hand
/_nak.po/	black
/_nat.pa/	to be ill
/_o.pi/	that
/_ring.po/	long
/_tut.pa/	smoke
/_yak.po/	good
/_zam.pa/	bridge
/_zhon.po/	young

Below are examples with /p/ as a C3. As a C3, /p/ is usually unreleased:

/ˋkap.ce/	to cover
/ˋkhap/	needle
/ˋlap.ce/	to teach
/ˋthil.tsup/	dust

/`thop.ce/	to find
/`top.ca/	food
/_dap.ce/	to tread
/_gyep/	back
/_gip.ce/	to shut
/_jip.ce/	to suck
/_lop.ti/	leaf
/_nup/	west
/_trip.kya/	shadow
/_yip.ce/	to hide

/ts/: voiceless unaspirated alveolar affricate [ts]. /ts/ can occur only as a C1. Below are examples with /ts/ in word-initial position:

/`tsir.she/	to seize, to squeeze
/`tsal.she/	to seek
/`tsuk.ce/	to stab
/`tsuk/	how
/`tsam/	how many, how much

Below are examples with /ts/ in word-medial position:

/`thil.tsup/	dust
/_Ngo.tse/	tip

/t/: voiceless unaspirated alveolar stop [t]. /t/ can occur as a C1 or C3. Below are examples with /t/ as a C1 in word-initial position:

/`ta/	horse
/`ta.ce/	to look
/`tan.ja/	always
/`tã/	on
/`ter.she/	to give
/`ting/	late
/`ting.je/	to float
/`to.le/	all
/`to.re/	hungry
/`ton.je/	to show
/`tong.pa/	empty
/`top.ca/	food
/`tu.kun/	short
/`tum.je/	to wind (as paper)
/`tur.she/	to sink
/_tak.sang/	now
/_te.ce/	to chase, to flow
/_tok.po/	narrow
/_tut.pa/	smoke

Below are examples with /t/ as a C1 in word-medial position:

/ˋchu.to/	lip
/ˋkha.tok/	roof
/ˋkol.to/	dumb
/ˋphi.ta/	outside
/ˋphi.tok/	evening
/ˋpi.ti-kat/	Spiti language
/ˋsam.tal/	beard
/ˋshing.tok/	fruit
/ˋsrang.te/	hard
/ˋun.tu/	breath
/_ba.tak/	root
/_dik.tuk/	pan
/_kok.tal/	ash
/_lop.ti/	leaf
/_shak.tã/	everyday
/_wo.tu/	angry

Below are examples with /t/ as a C3. As a C3, it is usually unreleased:

/ˋkut.pa/	thread
/ˋnyut/	you (sg)
/_drit.pa/	sneeze
/_drot.pa/	belly
/_get.po/	old
/_gyet/	eight
/_nat.pa/	to be ill
/_ot/	light (n)

/tr/: voiceless unaspirated retroflex stop [ʈ]. /tr/ can occur only as a C1. Below are examples:

/ˋtru/	child
/ˋtru.ce/	to wash
/ˋtril.tril/	round (as ball)
/_tri/	knife
/_tri.ce/	to write
/_trip.kya/	shadow
/_truk/	six

/c/: voiceless unaspirated alveolo-palatal affricate [tɕ]. /c/ can occur only as a C1. Below are examples with /c/ in word-initial position:

/ˋcak.ce/	to break
/ˋcang.ma/	tree (willow?)
/ˋce/	tongue
/ˋce.ce/	to cut (as cloth, rope, hair)
/ˋci/	what

/ˋcik/	one
/ˋcin.de/	heavy
/ˋcir.nyang/	naked
/ˋco.ce/	to make
/ˋcong.do/	arse
/ˋcu/	ten
/ˋcu.kun/	little
/_ca _ci.u/	little bird
/_cang/	north
/_ce.tshang/	nest

Below are examples with /c/ in word-medial position:

/_ra.co/	horn
/ˋa.ce/	elder sister
/ˋa.co/	elder brother
/ˋam.cok/	ear
/ˋkon.cok/	god
/ˋtop.ca/	food

Since /c/ occurs in one of the allomorphs of the verb suffix {ce}, my data contains many examples that have /c/. The suffix {ce} is used in the citation forms of verbs, as is the case of the suffix /-pa/ of Central Tibetan. It has three allomorphs /ce/, /je/, /she/.[3] See also examples of /j/ and /sh/.

/ˋkap.ce/	to cover
/ˋko.ce/	to dig
/ˋkuk.ce/	to bend
/ˋpe.ce/	to open
/ˋse.ce/	to kill
/ˋsre.ce/	to mix
/ˋta.ce/	to look
/ˋtha.ce/	to like
/_da.ce/	to chew
/_dak.ce/	to lick
/_dap.ce/	to tread
/_guk.ce/	to wait
/_shu.ce/	to hit, to shoot
/_de.ce/	to live, to sit
/_te.ce/	to chase, to flow

The allomorph /ce/ sometimes alternates with /je/:

/_de.ce/. ~ /_de.je/	to live, to sit

/k/: voiceless unaspirated velar stop [k]. /k/ can occur as a C1 or a C3. Below are examples with /k/ as a C1 in word-initial position:

/ˋka.ro/	white
/ˋkam.je/	to wither
/ˋkam.po/	dry
/ˋkang.ba/	foot
/ˋkang.dong/	leg
/ˋkap.ce/	to cover
/ˋkar.ma/	star
/ˋkat/	language
/ˋkir.kir/	round (as circle)
/ˋko.ce/	to dig, to peel
/ˋkol.to/	dumb
/ˋkon.cok/	god
/ˋku.ce/	to steal
/ˋku.zhong/	sound, noise
/ˋkuk.ce/	to bend
/ˋkum.di/	thirsty
/ˋkut.pa/	thread
/ˋkye.ce/	to be born
/ˋkyuk.ce/	to vomit
/_ka-ru/	where
/_kang/	which
/_kok.tal/	ash
/_kon.je/	to clothe
/_kã.a/	ice
/_kang/	full
/_kwe.lak/	clothes

Below are examples with /k/ as a C1 in word-medial position:

/ˋcu.kun/	little
/ˋkir.kir/	round (as a circle)
/ˋma.ka/	wound
/ˋtu.kun/	short
/_dong.kya/	straight
/_i.ke/	letter
/_lam.ka/	road
/_trip.kya/	shadow

Below are examples with /k/ as a C3. As a C3, it is usually unreleased, and sometimes pronounced as a glottal stop [ʔ] in a rapid pronunciation:

/ˋam.cok/	ear
/ˋcak.ce/	to break
/ˋchi.mak/	tears
/ˋcik/	one
/ˋkha.tok/	roof
/ˋkhak.po/	difficult

/ˋkon.cok/	god
/ˋkuk.ce/	to bend
/ˋkye-ruk/	[The grass] sprang up.
/ˋkyuk.ce/	to vomit
/ˋlok.mar/	lightning
/ˋmak.pa/	husband
/ˋmik/	eye
/ˋmik.ma/	eyebrow
/ˋmik.sang/	hole
/ˋnak/	pus
/ˋphi.tok/	evening
/ˋphur.shok/	wing
/ˋshik/	louse
/ˋshing.tok/	fruit
/ˋshok.pa/	feather, fur
/ˋshuk.chen/	strong
/ˋsi.ruk/	number
/ˋsik.pa/	wall
/ˋthak.pa/	rope
/ˋthuk.ce/	to meet, to touch
/ˋthuk.po/	thick
/ˋtrhak/	blood
/ˋtshak.ma/	net
/ˋtshul.bak/	wave
/ˋtsuk.ce/	to stab
/ˋtsuk/	how
/_Ndruk/	thunder
/_ba.tak/	root
/_bak.pe/	flour
/_bik.pa/	stick
/_dak.ce/	to lick
/_dik/	pot
/_tok.po/	narrow
/_dra.lak/	stem, branch
/_drak.ce/	to sew
/_guk.ce/	to stop, to wait
/_gyak.pa/	fat
/_gyuk.ce/	to blow
/_kok.tal/	ash
/_kwe.lak/	clothes
/_lak.pa/	hand
/_luk/	sheep
/_men.dok/	flower
/_nak.po/	black
/_shak.ce/	to split

/_shak.tã/	everyday
/_tak.sang/	now
/_truk/	six
/_yak.po/	good

/ph/: voiceless aspirated bilabial stop [pʰ]. /ph/ can occur only as a C1. Below are examples. My data contains no example with word-medial /ph/:

/`phul.she/	to push
/`phur.shok/	wing
/`phur.she/	to fly
/`phi.ta/	outside
/`phi.tok/	evening
/`phe.che/	half
/`phi-ru/	there
/_phu.tsha/	son
/_pho.mo/	daughter

/tsh/: voiceless aspirated alveolar affricate [tsʰ]. /tsh/ can occur only as a C1. Below are examples with /tsh/ in word-initial posiiton:

/`tsha/	salt
/`tshak.ma/	net
/`tshan.mo/	dark, night
/`tshan.te/	hot
/`tshar.she/	to grow up
/`tshat.pa/	sweat
/`tsho/	lake
/`tshul.bak/	wave
/`tshul.to/	beak
/`tshwe.na/	color

Below are examples with word-medial /tsh/:

/_ce.tshang/	nest
/_gyam.tsho/	sea
/_phu.tsha/	son

/th/: voiceless aspirated alveolar stop [tʰ]. /th/ can occur only as a C1. Below are examples. My data contains no example with word-medial /th/:

/`tha/	shore, bank
/`tha.ce/	to like
/`tha.rī/	far
/`thak.pa/	rope
/`than.ja/	earth
/`then.je/	to pull
/`thil.tsup/	dust

/ˋthon.bo/	high, deep
/ˋthop.ce/	to find
/ˋthuk.ce/	to meet, to touch
/ˋthuk.po/	thick
/ˋthung.je/	to drink
/_the.ring/	today
/_thim.je/	to spit
/_thwe.re/	morning

/trh/: voiceless aspirated retroflex stop [ʈʰ]. My data contains only the examples shown below:

/ˋtrha.mo/	thin, slim
/ˋtrhak/	blood

/ch/: voiceless aspirated alveolo-palatal affricate [tɕʰ]. /ch/ can occur only as a C1. Below are examples with /ch/ in word-initial position:

/ˋcha/	tea
/ˋchar.wa/	rain
/ˋchen.po/	big
/ˋchi.mak/	tears, saliva
/ˋchin.ba/	liver
/ˋcho/	direction
/ˋchong.je/	to jump
/ˋchu/	water
/ˋchu.to/	lip
/ˋchak-song/	(It) broke.

Below are examples with /ch/ in word-medial position:

/ˋphe.che/	half
/ˋshuk.chen/	strong
/_gya.chen/	wide

/kh/: voiceless aspirated velar stop [kʰ]. /kh/ can occur only as a C1. Below are examples with /kh/ in word-initial position:

/ˋkha/	mouth, snow
/ˋkha.tok/	roof
/ˋkhak.po/	difficult
/ˋkham.pa/	house
/ˋkhan.de/	bitter
/ˋkhap/	needle
/ˋkhi/	dog
/ˋkhi.u/	moustache
/ˋkhol.she/	to bubble
/ˋkhong/	he, she

/`khor.lo/	wheel
/`khor.she/	to turn around
/`khur.she/	to carry on back
/`khwang-gya/	they
/`khya.wa/	ice
/_khu.le/	slow

My data contains only one example with /kh/ in word-medial position:

/_tri-kha/	cutting edge

/b/: voiced bilabial stop [b]. /b/ can occur only as a C1. Below are examples with /b/ in word-initial position:

/_ba.tak/	root
/_ba.wa/	dirty
/_bak.pe/	flour
/_bar/	between
/_bar.mo/	scratching
/_be.ma/	sand
/_bik.pa/	stick
/_bo.ce/	to call
/_bol.mo/	soft
/_bwe.she/	to swell

Below are examples with /b/ in word-medial position:

/`chin.ba/	liver
/`kang.ba/	foot
/`nyam.bo/	together
/`pung.ba/	shoulder
/`sem.ba/	heart
/`son.bo/	be alive
/`thon.bo/	high, deep
/`tshul.bak/	wave
/_dram.ba/	cheek, jaw
/_mang.bo/	many
/_shim.bo/	tasty
/_zu.bu/	body
/_de.mang-bu/	ant
/_di.um-bu/	fly (n)

/d/: voiced alveolar stop [d]. /d/ can occur only as a C1. Below are examples with /d/ in word-initial position.

/_da.ce/	to chew
/_dak.ce/	to lick
/_dam.je/	to tie
/_dang/	yesterday

/_dang.po/	correct
/_dap.ce/	to tread
/_dar.she/	to rub
/_de.ce/	to live, to sit
/_de.mang-bu/	ant
/_de.mo/	beautiful
/_di-a/	navel
/_di.um-bu/	fly (n)
/_dik/	pot
/_dil.she/	to fall
/_dong/	face
/_dong.kya/	straight
/_du-a/	stone
/_du.ce/	to collect
/_duk/	<a kind of auxiliary>[4]
/_dul.dul/	blunt
/_dul.she/	to walk
/_dun/	front, seven

Below are examples with /d/ in word-medial position:

/_dul.dul/	blunt
/ˉi.da/	some
/_lang.dong/	arm
/_men.dok/	flower
/_on.do/	deaf
/ˋcin.de/	heavy
/ˋkang.dong/	leg
/ˋkhan.de/	bitter
/ˋkum.di/	thirsty

/dr/: voiced retroflex stop [ɖ]. /dr/ can occur only as a C1. Below are examples with /dr/ in word-initial position.

/_dra.lak/	stem, branch
/_drak.ce/	to sew
/_dram.ba/	cheek, jaw
/_drang.go/	breast
/_drang.mo/	cold
/_dre.mo-zhong/	elbow
/_dri.a/	throat
/_dri.ce/	to ask
/_dri.ma/	dirt, smell
/_drit.pa/	sneeze
/_dro.ce/	to go
/_dron.mo/	warm
/_drot.pa/	belly

| /‿dru/ | boat |
| /‿drul/ | snake |

My data contains only one word with /dr/ in word-medial position:

| /‿ril.dri/ | sword |

/j̵/: voiced alveolo-palatal affricate [d̠ʑ]. Below are examples with /j̵/ in word-initial position:

/‿ji.she/	to fear
/‿jim.pa/	nape of the neck
/‿jing.gu/	green
/‿jip.ce/	to suck

Below are examples with /j̵/ in word-medial position:

/ˋthan.ja/	earth
/ˋsem.jen/	animal
/ˋtan.ja/	always

Since /j̵/ is the initial consonant of /je/ which is one of the allomorphs of the verb suffix {ce}, my data contains many examples that have /j̵/. Examples are:

/ˋchong.je/	to jump
/ˋkam.je/	wither
/ˋthen.je/	to pull
/ˋthung.je/	to drink
/ˋting.je/	to float
/ˋton.je/	to show
/ˋtum.je/	to wind (as paper)
/‿kon.je/	to clothe
/‿nen.je/	to take
/‿nyen.je/	to listen
/‿yong.je/	to come
/‿zum.je/	to hold

/g/: voiced velar stop [g]. /g/ can occur only as a C1. Below are examples with /g/ in word-initial position:

/‿gyep/	back
/‿get.po/	old
/‿gi.ri/	glad
/‿gip.ce/	to shut
/‿go/	door
/‿go.ce/	to laugh
/‿gõ.a/	egg
/‿gu/	nine
/‿guk.ce/	to stop, to wait

/_gul.she/	to wave, to shake
/_gya/	hundred
/_gya.chen/	wide
/_gyak.pa/	fat
/_gyam.tsho/	sea
/_gyet/	eight
/_gyo.wa/	fast
/_gyuk.ce/	to blow

Below are examples with /g/ in word-medial opsition:

/_drang.go/	breast
/_jing.gu/	green
/`nyut-gya/	you (pl)
/`khwang-gya/	they

/Nb/: prenasalized voiced bilabial stop [mb]. My data contains only one example:

/_Nbu/	insect

/Nz/: prenasalized voiced alveolar affricate [ndz]. My data contains only one example:

/_Nzu.u/	finger

/Nd/: prenasalized voiced alveolar stop [nd]. My data contains three examples:

/_Ndi.zhu/~/_Nda.zhu/	bow
/_Nda/	arrow
/_Ndar/	moon

/Ndr/: prenasalized voiced retroflex stop [ɳɖ]. My data contains only one example:

/_Ndruk/	thunder

/Nj/: prenasalized voiced alveolo-palatal affricate [ndʑ]. My data contains only one example:

/_Nja/	rainbow

/Ng/: prenasalized voiced velar stop [ŋg]. My data contains only two examples:

/_Ngo/	head
/_Ngo.tse/	tip

/m/: bilabial nasal [m]. /m/ can occur as a C1 or C3. Below are examples with /m/ as a C1 in word-initial position:

/`ma.ka/	wound
/`ma.mo/	low
/`ma.ro/	red
/`mak.pa/	husband

/ˋmi.lam/	to dream
/ˋmik/	eye
/ˋmik.ma/	eyebrow
/ˋmik.sang/	hole
/ˋmu.wa/	fog
/_ma.le/	chin
/_mang.bo/	many
/_mar/	oil
/_me/	fire
/_men.dok/	flower
/_mi/	person
/_min/	name

Below are examples with /m/ as a C1 in word-medial position:

/ˋa.ma/	mother
/ˋcang.ma/	tree (willow?)
/ˋchi.mak/	tears, saliva
/ˋkar.ma/	star
/ˋla.mo/	easy
/ˋlok.mar/	lightning
/ˋma.mo/	low
/ˋmik.ma/	eyebrow
/ˋne.ma/	tail
/ˋnga.mo/	early
/ˋngar.mo/	sweet
/ˋpil.mo/	knee
/ˋsang.ma/	clean
/ˋsen.mo/	claw, nail
/ˋso.ma/	new
/ˋsro.ma/	flea
/ˋtrha.mo/	thin
/ˋtshak.ma/	net
/ˋtshan.mo/	dark, night
/ˋyun.ma/	left
/_bar.mo/	scratching
/_be.ma/	sand
/_bol.mo/	soft
/_de.mang-bu/	ant
/_de.mo/	beautiful
/_drang.mo/	cold
/_dre.mo-zhong/	elbow
/_dri.ma/	dirt, smell
/_dron.mo/	warm
/_nang.mo/	tomorrow
/_no.mo/	younger sister

/ˍnye.mo/	near
/ˍnyi.ma/	sun
/ˍnyin.mo/	day
/ˍo.ma/	milk
/ˍpho.mo/	daughter
/ˍra.ma/	goat
/ˍyang.mo/	light

Below are examples with /m/ as a C3:

/`am.cok/	ear
/`kam.je/	to wither
/`kam.po/	dry
/`kham.pa/	house
/`kum.di/	thirsty
/`mi.lam/	to dream
/`nam/	sky, when
/`nyam.bo/	together
/`nyom.po/	smooth
/`sam.tal/	beard
/`sem.ba/	heart
/`sem.jen/	animal
/`sum/	three
/`tsam/	how many, how much
/`tum.je/	to wind (as paper)
/ˍdam.je/	to tie
/ˍdram.ba/	cheek, jaw
/ˍgyam.tsho/	sea
/ˍjim.pa/	nape of the neck
/ˍlam.ka/	road
/ˍshim.bo/	tasty
/ˍzam.pa/	bridge
/ˍzum.je/	to hold

/n/: alveolar nasal [n]. /n/ can occur as a C1 or a C3. Below are examples with /n/ as a C1 in word-initial position:

/`na/	nose
/`nak/	pus
/`nam/	sky, when
/`ne.ma/	tail
/`nol.she/	to fight
/`non.po/	sharp
/ˍnum.je/	to smell
/ˍnak.po/	black
/ˍnang/	inside
/ˍnang.mo/	tomorrow

/_nang.rol/	guts
/_nat.pa/	to be ill
/_nen.je/	to take
/_no/	younger brother
/_no.mo/	younger sister
/_nup/	west

Below are examples with /n/ as a C1 in word-medial position:

/`a.ne/	woman, wife
/`tshwe.na/	color

Below are examples with /n/ as a C3:

/`chen.po/	big
/`chin.ba/	liver
/`cin.de/	heavy
/`cu.kun/	little
/`khan.de/	bitter
/`kon.cok/	god
/`lun.pa/	to be wet
/`ngon.po/	blue
/`non.po/	sharp
/`sa.ngon/	seed
/`sem.jen/	animal
/`sen.mo/	claw, nail
/`shuk.chen/	strong
/`son.bo/	be alive
/`srin/	cloud
/`tan.ja/	always
/`than.ja/	earth
/`then.je/	to pull
/`thon.bo/	high, deep
/`ton.je/	to show
/`tshan.mo/	dark, night
/`tshan.te/	hot
/`tu.kun/	short
/`un.tu/	breath
/`yun.ma/	left
/_dron.mo/	warm
/_dun/	front, seven
/_gya.chen/	wide
/_kon.je/	to clothe
/_lan/	time
/_men.dok/	flower
/_min/	name
/_nen.je/	to take

/_nyen.je/	to listen
/_nyin.mo/	day
/_on.do/	deaf
/_zhon.po/	young
/_zi.wun/	itchy

/ny/: palatal nasal [ɲ]. /ny/ can occur only as a C1. Below are examples with /ny/ in word-initial position:

/`nyam.bo/	together
/`nyi/	two
/`nyil.she/	to run
/`nying.pa/	old
/`nyom.po/	smooth
/`nyut/	you (sg)
/_nya/	fish
/_nyal.she/	to sleep, to lie down
/_nye.mo/	near
/_nyen.je/	to listen
/_nyi.ma/	sun
/_nyi.shu/	twenty
/_nyin.mo/	day
/_nyung.si-a/	few

I have only one example that has /ny/ in word-medial position:

/`cir.nyang/	naked

/ng/: velar nasal [ŋ]. /ng/ can occur as a C1 or a C3. Below are examples with /ng/ as a C1 in word-initial position:

/`nga/	five
/`nga.mo/	early
/`ngar.mo/	sweet
/`ngo/	I
/`ngo.zha/	we
/`ngon.po/	blue
/_ngal `so.ce/	to rest
/_ngo.ce/	to cry

Below is the only example with /ng/ as a C1 in word-medial position:

/`sa.ngon/	seed

Below are examples with /ng/ as a C3:

/`cang.ma/	tree (willow?)
/`chong.je/	to jump
/`cir.nyang/	naked

/ˋkang.ba/	foot
/ˋkang.dong/	leg
/ˋkhong/	he, she
/ˋku.zhong/	sound, noise
/ˋlong.po/	weak
/ˋmik.sang/	hole
/ˋnying.pa/	old
/ˋpung.ba/	shoulder
/ˋsang.ma/	clean
/ˋshing.tok/	fruit
/ˋsrang.te/	hard
/ˋthung.je/	to drink
/ˋting/	late
/ˋtong.pa/	empty
/_cang/	north
/_ce.tshang/	nest
/_dang/	yesterday
/_dang.po/	correct
/_dong/	face
/_drang.go/	breast
/_drang.mo/	cold
/_dre.mo-zhong/	elbow
/_jing.gu/	green
/_kang/	which
/_lang.dong/	arm
/_lang.she/	to stand
/_long/	to stand (imp.)
/_mang.bo/	many
/_nang/	inside
/_nang.mo/	tomorrow
/_nang.rol/	guts
/_nyung.si-a/	few
/_ring.po/	long
/_tak.sang/	now
/_the.ring/	today
/_yang/	often
/_yang.mo/	light
/_yong.je/	to come

/s/: voiceless alveolar fricative [s]. /s/ can occur only as a C1. Below are examples with /s/ in word-initial position:

/ˋsa/	grass
/ˋsa.ngon/	seed
/ˋsam.lo ˋtang.je/	to think
/ˋsam.tal/	beard

/ˋsang.ma/	clean
/ˋsã.wo/	river
/ˋse.ce/	to kill
/ˋse.ro/	yellow
/ˋsem.ba/	heart
/ˋsem.jen/	animal
/ˋsen.mo/	claw, nail
/ˋser/	gold
/ˋsi.ruk/	number
/ˋsik.pa/	wall
/ˋso/	tooth
/ˋso.ma/	new
/ˋson.bo/	be alive
/ˋsu/	who
/ˋsum/	three
/_sem.joˋse.ce/	to dance
/_suk.zer/	painful
/-song/	<a kind of auxiliary>[5]

Below are examples with /s/ in word-medial position:

/ˋmik.sang/	hole
/_tak.sang/	now
/_nyung.si-a/	few

/sr/: voiceless retroflex fricative [ʂ]. /sr/ can occur only as a C1. My data contains words with /sr/ shown below:

/ˋsra/	hair
/ˋsra.po/	thin
/ˋsra.wa/	forehead
/ˋsrang.te/	hard
/ˋsre.ce/	to mix
/ˋsrin/	cloud
/ˋsro.ma/	flea

/sh/: voiceless alveolo-palatal fricative [ɕ] but sometimes palatal fricative [ç]. /sh/ can occur only as a C1. Below are examples with /sh/ in word-initial position:

/ˋsha/	meat
/ˋshar/	east
/ˋshe.she/	to know
/ˋshik/	louse
/ˋshing.tok/	fruit
/ˋshok.pa/	feather, fur
/ˋshor.she/	to run away
/ˋshuk.chen/	strong
/_sha-song/	(It) has split.

/_sha.ra/	blind
/_shak.ce/	to split
/_shak.tã/	everyday
/_shim.bo/	tasty
/_shu.ce/	to hit to shoot, to melt

Below are examples with /sh/ in word-medial position:

/`phur.shok/	wing
/_nyi.shu/	twenty

Since /sh/ is the initial consonant of /she/ which is one of the allomorphs of the verb suffix {ce}, my data contains many examples that have /sh/. Examples follow:

/`khol.she/	to bubble
/`khor.she/	to turn around
/`nol.she/	to fight
/`nyil.she/	to run
/`phul.she/	to push
/`phur.she/	to fly
/`she.she/	to know
/`shor.she/	to run away
/`ter.she/	to give
/`tsal.she/	to seek
/`tshar.she/	to grow up
/`tsir.she/	to seize
/`tsir.she/	to squeeze
/`tur.she/	to sink
/_bwe.she/	to swell
/_dar.she/	to rub
/_dil.she/	to fall
/_dul.she/	to walk
/_gul.she/	to wave, to shake
/_ji.she/	to fear
/_lang.she/	to stand
/_nyal.she/	to sleep, to lie down
/_par.she/	to burn
/_por.she/	to put
/_zer.she/	to speak, to say

/h/: voiceless glottal fricative [h]. /h/ can occur only as a C1. My data contains only two words that have /h/:

/`hi.ce/	to die
/_le.ha/	job

/z/: voiced alveolar fricative [z]. Sometimes /z/ is pronounced as [dz]. Thus, this

phoneme could be considered as the voiced counterpart of /ts/. It can occur only as a C1. Below are examples with /z/ in word-initial position:

/ˍzu.bu/	body
/ˍza.ce/	to eat (~ /ˍsa.ce /)
/ˍzi.wun/	itchy
/ˍzam.pa/	bridge
/ˍzer.she/	to speak, to say
/ˍzum.je/	to hold
/ˍzo.lok`tang.je/	to repair

Below are examples with /z/ in word-medial position:

/ˍsuk.zer/	painful
/ˍo.zer/	bright

/zh/: voiced alveolo-palatal fricative [ʑ]. /zh/ can occur only as a C1. Below are examples with /zh/ in word-initial position:

/ˍzhon.po/	young
/ˍzhi/	four

Below are examples with /zh/ in word-medial posiiton:

/ˍdre.mo-zhong/	elbow
/ˍNdi.zhu /~/ˍNda.zhu/	bow
/`ku.zhong/	sound, noise
/`ngo.zha/	we

/w/: rounded bilabial-velar approximant [w]. /w/ can occur as a C1 or a C2. My data has only one example with /w/ used as a C1 in word-initial position:

/ˍwo.tu/	angry

Below are examples with /w/ as a /C1/ in word-medial position:

/`char.wa/	rain
/`khya.wa/	ice
/`lu.wu/	wind
/`mu.wa/	fog
/`sã.wo/	river
/`sra.wa/	forehead
/`ye.wa/	right (side)
/ˍba.wa/	dirty
/ˍgyo.wa/	fast
/ˍrul.wa/	rotten
/ˍrwi.wa/	bone
/ˍzi.wun/	itchy

Below are examples with /w/ as a C2:

/ˋkhwang-gya/	they
/ˋtshwe.na/	color
/_bwe.she/	to swell
/_kwe.lak/	clothes
/_rwi.wa/	bone
/_thwe.re/	morning

/r/: alveolar trill [r]. It is sometimes pronounced as an alveolar frictionless continuant [ɹ]. /r/ can occur as a C1 or a C3. Below are examples with /r/ as a C1 in word-initial position:

/_ra.co/	horn
/_ra.ma/	goat
/_ri-a/	mountain
/_ril.dri/	sword
/_ring.po/	long
/_rul.wa/	rotten
/_rwi.wa/	bone

Below are examples with /r/ as a C1 in word-medial position:

/ˋka.ro/	white
/ˋkhi.ra/	to hunt
/ˋma.ro/	red
/ˋse.ro/	yellow
/ˋsi.ruk/	number
/ˋtha.r̃i/	far
/ˋto.re/	hungry
/_gi.ri/	glad
/_nang.rol/	guts
/_sha.ra/	blind
/_the.ring/	today
/_thwe.re/	morning

Below are examples with /r/ as a C3:

/ˋchar.wa/	rain
/ˋcir.nyang/	naked
/ˋkar.ma/	star
/ˋkhor.lo/	wheel
/ˋkhor.she/	to turn around
/ˋkir.kir/	round (as a circle)
/ˋlok.mar/	lightning
/ˋngar.mo/	sweet
/ˋphur.she/	to fly
/ˋphur.shok/	wing

/`ser/	gold
/`shar/	east
/`shor.she/	to run away
/`ter.she/	to give
/`tshar.she/	to grow up
/`tsir.she/	to seize , to squeeze
/`tur.she/	to sink
/_Ndar/	moon
/_bar/	between
/_dar.she/	to rub
/_mar/	oil
/_o.zer/	bright
/_par.she/	to burn
/_por.she/	to put
/_suk.zer/	painful
/_zer.she/	to speak, to say

/y/: palatal approximant [j]. /y/ can occur as a C1 or a C2. Below are examples with /y/ as a C1 in word-initial position:

/`ye.wa/	right (side)
/`yel/	yawn (n)
/`yun.ma/	left
/_yak.po/	good
/_yang/	often
/_yang.mo/	be light
/_yin/	<a kind of auxiliary>[6]
/_yip.ce/	to hide
/_yo.ce/	to cook
/_yong.je/	to come
/_yot/	<a kind of auxiliary>[7]
/_yul/	village

My data has no example with /y/ as a C1 in word-medial position. Below are examples with /y/ as a C2:

/`kye.ce/	to be born
/`kyel `tang.je/	to swim
/`kyuk.ce/	to vomit
/`khya.wa/	ice
/_gya/	hundred
/_gya.chen/	wide
/_gyak.pa/	fat
/_gyam.tsho/	sea
/_gyep/	back
/_gyet/	eight
/_gyo.wa/	fast

/_gyuk.ce/	to blow
/_trip.kya/	shadow
/_dong.kya/	straight
/`khwang-gya/	they
/`nyut-gya/	you (pl)

My data has no examples with /y/ as a C2 preceded by other than the velar stops.

/l/: alveolar lateral approximant [l]. /l/ can occur as a C1 or a C3. Below are examples with /l/ as a C1 in word-initial position:

/`la.mo/	easy
/`lap.ce/	to teach
/`lo/	south
/`lok.mar/	lightning
/`long.po/	weak
/`lu`tang.je/	to sing
/`lu.wu/	wind
/`lun.pa/	to be wet
/_lak.pa/	hand
/_lam.ka/	road
/_lan/	time
/_lang.dong/	arm
/_lang.she/	to stand
/_long/	to stand (imp.)
/_le.ha/	job
/_lo/	year
/_lop.ti/	leaf
/_luk/	sheep

Below are examples with /l/ as a C1 in word-medial position:

/`khor.lo/	wheel
/`mi.lam/	to dream
/`o.le/	neck
/`to.le/	all
/_dra.lak/	stem, branch
/_khu.le/	slow
/_kwe.lak/	clothes
/_ma.le/	chin

Below are examples with /l/ as a C3:

/`khol.she/	to bubble
/`kol.to/	dumb
/`nol.she/	to fight
/`nyil.she/	to run
/`phul.she/	to push

/ˋpil.mo/	knee
/ˋsam.tal/	beard
/ˋthil.tsup/	dust
/ˋtril.tril/	round (as a ball)
/ˋtsal.she/	to seek
/ˋtshul.bak/	wave
/ˋtshul.to/	beak
/ˋyel/	yawn (n)
/_bol.mo/	soft
/_dil.she/	to fall
/_drul/	snake
/_dul.dul/	blunt
/_dul.she/	to walk
/_gul.she/	to wave, to shake
/_kok.tal/	ash
/_nang.rol/	guts
/_nyal.she/	to sleep, to lie down
/_ril.dri/	sword
/_rul.wa/	rotten
/_yul/	village

7.   A Future View

I emphasize once more that since the analysis of this paper is based on highly limited data, it may have to be revised in the future. The following are points to be kept in mind in any future survey:

(a) Are there any phonemes that I have overlooked? For example: Is there really no distinctive vowel length? Is the number of vowels really five? Are there no falling tones? etc.

(b) In word-medial position, do the voiceless unaspirated stops, namely /p, t, tr, c, k/, and voiced stops, namely /b, d, dr, j, g/, show distinctive contrasts?

(c) Are there no cases where the voiced stops, affricates, and fricatives co-occur with the high tone?

(d) Why does the system shown in this paper differ so greatly from that of Sharma (1979)?

In this analysis, I took little account of the sound phenomena at the phrase or sentence level. When we widen our observation to those levels, it is highly possible that sound phenomena that have not been noticed at the word level will emerge, because in every language sound phenomena are strongly related to syntactic ones. Thus, in order to understand the sound phenomena of Spiti deeply, we will need to collect data at the various levels of the language in as much detail as possible.

Notes

1)   I would welcome any criticism or advice from specialists in Tibetan language or dialects.

2)   This situation could be compared to the fact that speakers of the Tokyo dialect of Japanese are very tolerant of foreigners' pronunciation of the Tokyo pitch accent, although it is phonemic.

3)   The verb suffix {ce} has three allomorphs /ce/, /je/ and /she/. /je/ is used when the verb ends with a nasal consonant, /she/ is used when the verb ends with /l/ or /r/, and /ce/ is used in the other cases. But there are exceptions: /`she.she/ 'to know', /_bwe.she/ 'to swell', /_lang.she/ 'to stand'.

4)   The sentences below are examples where /_duk/ and the related forms are used.

/`i	`ki.tap	yak.po	_duk/	
this	book	good	DUK	'This book is good.'
/`i	`ki.tap	yak.po	_duk.pa/	
this	book	good	DUKPA	'Is this book good?'
/`i	`ki.tap	_yak.po	_min.duk/	
this	book	good	MINDUK	'This book is not good.'

5)   The following sentence is an example where /-song/ is used.

/`i	i.ke	`pi.ti.-na	_yong-song/	
this	letter	Spiti-from	come-SONG	'This letter came from Spiti.'

6)   The following sentences are examples where /_yin/ is used.

/`i	`ci	_yin/		
this	what	YIN		'What is this?'
/`ngo	`ta-la	_yong.a	_yin/	'I came with a horse.'
1sg	horse-LOC	come	YIN	

7)   The following sentences are examples where /_yot/ is used.

/`ngo-la	`ki.tap	yot/			'I have a book.'
1sg-lOC	book	YOT			
/`ngo	_lak.pa	_nyam.bo	_za	_yot/	
1sg	hand	with	eat	YOT	'I eat with my hand.'

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