Morphophonological alternation of suffixes, clitics and stems in Amdo Tibetan

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アムド・チベット語における接辞, 接語および語幹の形態音韻的交替

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　　Some of the suffixes and clitics of Amdo Tibetan have a number of allomorphs which are conditioned phonologically (in most cases, their initial consonants alter). Stems which these suffixes or clitics follow also alternate from time to time. Alternations are to some extent regular, but appear complicated because there are various alternation patterns. This paper gives an overview of morphophonological alternation patterns, by separating the alternation rules of suffixes and clitics (section 3) and the alternation rules of stems (section 4). These morphophonological alternations are also seen in Written Tibetan (*sum cu pa*), but the rules are rather different between Amdo Tibetan and Written Tibetan. Furthermore, stem alternations are not seen in Written Tibetan. This paper aims at giving a systematic description of the alternation rules in Amdo Tibetan, but it could be a preface to working out the developmental process of Tibetan from a morphophonological perspective, by comparison with Written Tibetan and the other Tibetan languages.

　　アムド・チベット語における接辞と接語の多くは音韻的な環境によって条件づけられる異形態をもつ（多くの場合, その頭子音が交替する）。さらに, 接辞または接語が接続する語幹も交替することがある。このような交替現象は概ね規則的であるが, 交替パターンが複数あるため, 一見複雑である。本稿では, 接辞と接語の交替規則（第3節）と語幹の交替規則（第4節）をわけて記述することにより, 交替パターンの全体像を示す。このような接辞, 接語の交替現象はアムド・チベット語のみの特徴ではなく, チベット文語にもみられる（*sum*

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cu pa）。しかし，文語におけるこうした交替規則はアムド・チベット語のものとはかなり異なっている。さらに，語幹の交替はチベット文語にはみられないため，アムド・チベット語に特徴的なものである。本稿ではアムド・チベット語における現象の記述に主眼を置くが，今後，チベット文語や他地域のチベット語における形態音韻的な交替規則との比較を通じて，形態音韻的な面からチベット語内部での通時的な言語変化を考える端緒としたい。

Introduction

　　Amdo Tibetan is spoken in Qinghai Province, the southern part of Gansu Province, and the northern part of Sichuan Province. In this language, suffixes and clitics[1] have a number of allomorphs which are conditioned phonologically. In most cases, allomorphs vary in their initial consonants. (1) and (2) are examples of the auxiliary verb //=Gəjol//[2] (expressing 'progressive'). '//　//' and '/　/' are used to indicate underlying phonemic representation and surface phonemic representation respectively. Several phonological rules are effectively described by referring to the underlying and surface levels of the phonological system.

　　//=Gəjol// has two allomorphs in sentence-final position; /=kəjo/ (example (1)) and /=gəjo/ (example (2)). I set up //=Gəjol// as an underlying form because /=gəjo/ appears in more circumstances than /=kəjo/.

(1)　ŋa　　　ndək=kəjo.　　　　　　　　　　'I am staying'
　　 1SG　　stay:NPST=AUX

(2)　ŋi　　　　　hta=gəjo.　　　　　　　　　'I am watching'
　　 1SG:ERG　　watch:NPST=AUX

Furthermore, stems also alternate in some cases. As in the following examples (3)–(5), when the final consonant of the underlying stem is one of //p//, //l// or //r//, these consonants may be (sometimes partly) assimilated into the initial consonant of the suffix or clitic which follows.

In example (3), the underlying form of the verb 'fall' is //nbep//, but alters into /nbek/ before the auxiliary verb /=kəjo/. In other words, the syllable-final consonant //p// of //nbep// is assimilated into the following /k/ of /=kəjo/

(3) hnem   nbek=kəjo.   '[It] is raining'
     sky   fall:NPST=AUX

In example (4), the underlying form of the verb 'speak' is //çel//, but alters into /çek/ before the auxiliary verb /=kəjo/. In other words, syllable-final consonant //l// of //çel// is assimilated into the following /k/ of /=kəjo/.

(4) çek=kəjo.   '[Somebody] is speaking'
     speak=AUX

In example (5), the underlying form of the noun 'butter' is //mer//, but it changes to /meʈ/ before the co-ordination particle /=ʈa/. In other words, the syllable-final consonant //r// of //mer// is assimilated into the following /ʈ/ of /=ʈa/.

(5) meʈ=ʈa   kara   'Butter and sugar'
     butter=CO-ORD   sugar

These alternations are in most cases regular and predictable, but appear complicated because there are several alternation patterns. These alternations are not only characteristics of Amdo Tibetan but are also found in Written Tibetan (WT)[3]. Nevertheless, the alternation rules are different between Amdo Tibetan and WT. In particular, stems in WT do not alter. This paper shows the morphophonological rules affecting the alternations of suffixes, clitics and those stems, and gives an overview of the alternation patterns of Amdo Tibetan as spoken in Gonghe County on the basis of my field data.

1   Fieldwork and Previous studies

As mentioned in the introduction, Amdo Tibetan is spoken in Qinghai Province, the southern part of Gansu Province, and the northern part of Sichuan Province. Fieldwork was conducted during Aug.–Sep. 2006 and Sep.–Oct. 2007 in Chapcha Town, Gonghe County, Hainan Tibetan Autonomous Region, Qinghai Province. Chapcha is the main city of Gonghe County. The consultants were two men (Mr.

Figure 1: Qinghai Province and its vicinity (The black area is Gonghe County)
(TAR stands for 'Tibetan Autonomous Region')

bLo gros rGya mtsho 1936-2008, Mr. *A lag rGya ye* 1946-) who were born and grew up in *Yongrong* village near Chapcha. In most examples of this paper, they speak in the same way, but a few differences were found. These differences will be noted in the relevant examples.

This paper aims to describe morphophonological alternations in Amdo Tibetan. These alternations have not received particular attention in the past. They are only briefly mentioned in grammars (Ming Shengzhi 1990, Wang Qingshan1996, Gesang Jumian & Gesang Yangjing 2002, Zhou Maocuo 2003, Haller 2004[4]). This paper is the first attempt to give an overview of the morphophonological alternation systems in Amdo Tibetan by separating the alternation rules of suffixes, clitics (section 3) and stems (section 4).

2　Syllable structure and phonemes

As a preliminary to the following discussion, I describe the syllable structure and phonemes of the target language.

2.1　Syllable structure

The syllable structure of this language is shown in (6).

(6)　(C1)(C2)(C3)V(C4)

In underlying forms, seven consonants (/p/, /k/, /m/, /n/, /ŋ/, /l/, /r/) can appear as final (C4).

2.2　Phonemes

There are 38 consonants.

Table 1   Consonants

	bilabial/ labiodental	alveolar	retroflex	alveolo-palatal	palatal	velar	uvular	glottal
stop	p[p] pʰ[pʰ] b[ɦb]	t[t] tʰ[tʰ] d[ɦd]	ʈ[ʈ] ʈʰ[ʈʰ] ɖ[ɦɖ]			k[k] kʰ[kʰ] g[ɦg]		
affricate		ts[ts] tsʰ[tsʰ] dz[ɦdz]		tɕ[tɕ] tɕʰ[tɕʰ] dʑ[ɦdʑ]				
fricative	f[f]	ɬ[ɬ],s[s] sʰ[sʰ],z[ɦz]	ʂ[ʂ]	ɕ[ɕ] ʑ[ɦʑ]	ç[çχ]		x[χ]/[χʷ] ʁ[ɦʁ]/[ɦʁʷ]	h[h]
nasal	m[m]	n[n]		ɳ[ɳ]		ŋ[ŋ]		
liquid		l[l], r[˚ɹ]						
semi-vowel	w[w]					j[j]		

There are 7 vowels.

/i/ [i]   /y/ [y]   /u/ [ɯβ]~[ɯu]
            /e/ [ɛ]   /ə/ [ə]   /o/ [o]
                                        /a/ [ʌ]

3   Alternations of suffixes and clitics

Patterns of allomorphs (3.1) and conditions on alternations (3.2) will be shown in the following sections.

3.1   Patterns of allomorphs

Allomorphs of a suffix or a clitic are different in their initial consonants in most cases. In my data, there are four patterns of allomorphs as follows;

1. Voiced and unvoiced
2. Fricative and affricate
3. Retroflex and /r/
4. Stem-final consonant copy insertion

3.1.1   Voiced and unvoiced

[1-1] /tɕ/ and /dʑ/, [1-2] /k/ and /g/ patterns were seen.

Table 2 'voiced and unvoiced' pattern (abbreviated forms are shown in parentheses)

	voiced	unvoiced
[1-1] nominalizer //-Dʑo//	/-dʑo/	/-tɕo/
[1-1] AUX //=Dʑijən// (//=Dʑi//)	/=dʑijən/ (/=dʑi/)	/=tɕijən/ (/=tɕi/)
[1-1] AUX //=Dʑirel//⁵⁾	/=dʑire/	/=tɕire/
[1-2] AUX //=Gə//	/=gə/, /=gi/	/=kə/, /=ki/
[1-2] AUX //=Gəjol// (//=Go//)	/=gəjo/ (/=go/)	/=kəjo/ (/=ko/)
[1-2] AUX //=Gəjokkə// (//=Gogə//)	/=gəjokkə/ (/=gogə/)	/=kəjokkə/ (/=kokə/)

3.1.2 Fricative and affricate

[2-1] /sʰ/ and /tsʰ/, [2-2] /z/ and /ts/ patterns were seen.

Table 3 'fricative and affricate' pattern

	fricative	affricate
[2-1] nominalizer //-Sʰo//	/-sʰo/	/-tsʰo/
[2-1] AUX //=Sʰoŋ//	/=sʰoŋ/	/=tsʰoŋ/
[2-2] AUX //=Zək//⁶⁾	/=zək/	/=tsək/

3.1.3 Retroflex and /r/

/ʈ/, /nɖ/ and /r/ pattern was seen.

Table 4 'retroflex and /r/' pattern (abbreviated forms are shown in parentheses)

	/ʈ/	/nɖ/	/r/
co-ordination particle //=Ra// conjunction //=Ra// sentence-final particle //=Ra//	/=ʈa/	/=nɖa/	/=ra/
conjunction //=Roŋ//	/=ʈoŋ/	/=nɖoŋ/	/=roŋ/
conjunction //=Riʈʰatsʰo// (its abbreviated form is //=Ri//)	/=ʈiʈʰatsʰo/ (/=ʈi/)	/=nɖiʈʰatsʰo/ (/=nɖi/)	/=riʈʰatsʰo/ (/=ri/)

3.1.4 Stem-final consonant copy insertion

If the underlying form of a clitic is //=V//, a copy of a stem-final consonant is inserted in front of the clitic under certain circumstances. Sometimes /C/ of /=CV/ is not the same consonant as the final consonant of the stem, but partly assimilated into the consonant. Otherwise, /=V/ forms follow stems.

The dative case marker //=a// sometimes changes to /=o/ after a stem final /o/. I set up //=a// as the underlying form of the dative case marker because vowel /a/

appears in most phonological circumstances.

Table 5 'stem-final consonant copy insertion' pattern

	/=V/	/=CV/
conjunction //=i//	/=i/	/=ni/, /=ŋi/
conjunction //=a//	/=a/	/=na/, /=ŋa/
dative case marker //=a//	/=a/, /=o/	/=ka/, /=ma/, /=na/, /=ŋa/, /=wa/
AUX //=a//	/=a/	/=na/, /=ŋa/, /=wa/

3.2   Conditions on alternations

Alternations of suffixes and clitics are conditioned by the final phonemes of the stem. In what follows, the conditions under which each allomorph appears will be described. These conditions differ slightly even in the same pattern of allomorphs.

3.2.1   Voiced and unvoiced

The nominalizer //-Dʐo//, the auxiliary verbs //=Dʑijən// (//=Dʑi//), //=Dʑirel//, //=Gə//, //=Gəjol// (//=Go//), //=Gəjokkə// (//=Gogə//) belong to this type.

Nominalizer //-Dʐo//

//-Dʐo// appears as /-tɕo/ after //l// of an underlying stem. Furthermore, //l// is realized as /t/ by assimilating the initial consonant of /-tɕo/. '/t/ (←//l//)' in table 6 shows this realization of the stem-final consonant.

Table 6   Nominalizer //-Dʐo//

the final of the stem	allomorph	example
/t/ (←//l//)	/-tɕo/	(7)
/p/	/-tɕo/ or /-dʐo/	(8)
/k/, /m/, /n/, /ŋ/, /r/, vowel	/-dʐo/	(9)–(14)

(7) ɕet-tɕo   'speaking'
     speak-NMLZ
     (The underlying form of the verb 'speak' is //ɕel//, but it changes to /ɕet/ before
     the nominalizer /-tɕo/)

(8) hep-tɕo   / hep-dʐo   'going/coming (HON)'
     go/come:HON-NMLZ   go/come:HON-NMLZ
     (There is no difference between these two examples. The consultants allow
     both equally)

(9) ndək-dʐo   'staying'
     stay:NPST-NMLZ

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(10) ndem-dʑo   'choosing'
      choose-NMLZ

(11) jən-dʑo   'what it should be'
      COP-NMLZ

(12) tʰoŋ-dʑo   'drinking'
      drink-NMLZ

(13) hter-dʑo   'giving'
      give:NPST-NMLZ

(14) sa-dʑo   'eating'
      eat:NPST-NMLZ

AUX //=Dʑijən//, AUX //=Dʑirel//

The conditions under which the allomorphs of //=Dʑijən// (its abbreviated form is //=Dʑi//) appear are the same as for //=Dʑirel//. Only //=Dʑijən// (//=Dʑi//) is shown in the following examples. //=Dʑijən// (//=Dʑi//) expresses 'future'(conjunct[7] pattern), //=Dʑirel// expresses 'future, inference'(disjunct pattern).

Table 7   Auxiliary verb //=Dʑijən// (//=Dʑi//)

the final of the stem	allomorph	example
/t/ (←//p//) /p/ /t/ (←//l//)	/=tɕijən/ (/=tɕi/)	(15) (15) (16)
/k/, /m/, /n/, /ŋ/, /r/, vowel	/=dʑijən/ (/=dʑi/)	(17)–(22)

(15) nbet=tɕi   /   nbep=tɕi   '[I/we] will go down'
      fall:NPST=AUX   fall:NPST=AUX
      (There is no difference between these two examples. The consultants allow both equally. The underlying form of the verb 'fall' is //nbep//, but it sometimes changes to /nbet/ before the auxiliary verb /=tɕi/)

(16) nbət=tɕi   '[I/we] will go out'
      go out:NPST=AUX
      (The underlying form of the verb 'go out' is //nbəl//, but it changes to /nbət/ before the auxiliary verb /=tɕi/)

(17) ndək=dʑi   '[I/we] will stay'
      stay:NPST=AUX

(18) ndem=dʑi   '[I/we] will choose'
      choose=AUX

(19) len=dʑi   '[I/we] will take'
      take:NPST=AUX

(20) joŋ=dʑi   '[I/we] will come'
      come=AUX

(21) tɕʰer=dʑi   '[I/we] will carry [something]'
    carry=AUX
(22) ndʑo=dʑi   '[I/we] will go'
    go:NPST=AUX

AUX //=Gə//, AUX //=Gəjol//, AUX //=Gəjokkə// and conjunction //=Gə//

    The conditions under which the allomorphs of the auxiliary verb //=Gə// appear are the same as for the auxiliary verbs //=Gəjol//, //=Gəjokkə// and the conjunction //=Gə//. //=Gəjol//, //=Gəjokkə// have the abbreviated forms //=Go// and //=Gokə//, respectively. Only the auxiliary verb //=Gə// is shown in the following examples. The auxiliary verb //=Gə// expresses 'state, attribute', //=Gəjol// expresses 'progressive' (conjunct), //=Gəjokkə// expresses 'progressive' (disjunct) and conjunction //=Gə// expresses 'purposive'.

Table 8   Auxiliary verb //=Gə// (/=kə/ and /=ki/ are free variants. As with /=gə/ and /=gi/)

the final of the stem	allomorph	example
/k/ (←//p//) /k/ /k/ (←//l//)	/=kə/ or /=ki/	(23) (24) (25)
/m/, /n/, /ŋ/, /r/, vowel	/=gə/ or /=gi/	(26)–(30)

(23) nbek=kə   '[It] often rains'
    fall:NPST=AUX
    (The underlying form of the verb 'fall' is //nbep//, but it chages to /nbek/ before the auxiliary verb /=kə/)
(24) tɕʰok=kə   '[It] is allowed'
    allowed=AUX
(25) jok=kə   '[It] is existing'
    exist=AUX
    (The underlying form of the existential verb is //jol//, but it changes to /jok/ before the auxiliary verb /=kə/)
(26) htsem=gə   '[Somebody] often writes'
    write=AUX
(27) ɳen=gə   '[It] is lawfully allowed'
    lawfully allowed=AUX
(28) maŋ=gə   '[It] is many'
    many=AUX
(29) hter=gi   '[Somebody] often gives'
    give:NPST=AUX
(30) ʂa=gə   '[It] is good'
    good=AUX

3.2.2　Fricative and affricate

Nominalizer //-Sʰo//, AUX //=Sʰoŋ//

The conditions for the allomorphs of the nominalizer //-Sʰo// are the same as for the auxiliary verb //=Sʰoŋ//. Only the nominalizer //-Sʰo// is shown in the following examples. The nominalizer //-Sʰo// expresses 'a place to do something' and the auxiliary verb //=Sʰoŋ// expresses 'the occurrence of an event, an event which goes away'.

Table 9　Nominalizer //-Sʰo//

the final of the stem	allomorph	example
/t/ (←//l//) /s/ (←//l//)	/-tsʰo/ /-sʰo/	(31) (31)
/p/, /k/, /m/, /n/, /ŋ/, /r/, vowel	/-sʰo/	(32)–(38)

(31) jot-tsʰo　　　/　jos-sʰo　　　　　　'place to exist'
　　exist-NMLZ　　exist-NMLZ
　　(The underlying form of the existential verb is //jol//, but it changes to /jot/ before the nominalizer /-tsʰo/ and into /jos/ before the nominalizer /-sʰo/. One consultant allows both examples, but Mr. *bLo gros rGya mtsho* says 'jot-tsʰo' is more colloquial than 'jos-sʰo')

(32) hep-sʰo　　　　　　　　　'place to go to/place to come to (HON)'
　　go/come:HON-NMLZ

(33) ndək-sʰo　　　　　　　　'place to stay'
　　stay:NPST-NMLZ

(34) ndzom-sʰo　　　　　　　'place to gather to'
　　gather-NMLZ

(35) tʰon-sʰo　　　　　　　　'place to arrive at'
　　arrive-NMLZ

(36) doŋ-sʰo　　　　　　　　'place to beat'
　　beat-NMLZ

(37) hter-sʰo　　　　　　　　'place to give to'
　　give:NPST-NMLZ

(38) ndʑo-sʰo　　　　　　　　'place to go to'
　　go:NPST-NMLZ

AUX //=Zək//

//=Zək// expresses 'inference, hearsay'.

Table 10   Auxiliary verb //=Zək//

the final of the stem	allomorph	example
/t/ (←//l//)	/=tsək/	(39)
/p/, /k/, /m/, /n/, /ŋ/, /r/, vowel	/=zək/	(40)-(46)

(39) ɕet=tsək   '[Somebody] spoke'
    speak=AUX
    (The underlying form of the verb 'speak' is //ɕel//, but it changes to /ɕet/ before
    the auxiliary verb /=tsək/)
(40) hep=zək   '[Somebody] came/went (HON)'
    come/go:HON=AUX
(41) ʐək=zək   '[Somebody] made [someone] do'
    make [someone] do:PAST=AUX
(42) htsem=zək   '[Somebody] wrote'
    write=AUX
(43) tʰon=zək   '[Somebody] arrived'
    arrive=AUX
(44) tʰoŋ=zək   '[Somebody] drank'
    drink=AUX
(45) ngor=zək   '[Time] went by'
    go by=AUX
(46) li=zək   '[Somebody] did'
    do=AUX

3.2.3   Retroflex and /r/
<u>Co-ordination particle //=Ra//, conjunctions //=Roŋ//, //=Ra//</u>

The conditions for the allomorphs of the co-ordination particle //=Ra// are the same as for the conjunction //=Roŋ// ('adversative') and the conjunction //=Ra// ('concessive, adversative'). Only the co-ordination particle //=Ra// is shown in the following examples.

Table 11   Co-ordination particle //=Ra//

the final of the stem	allomorph	example
/ʈ/ (←//l//, //r//) /l/, /r/	/=ʈa/ /=ra/	(47), (48)
/n/	/=nɖa/ or /=ra/	(49)
/p/, /k/, /m/, /ŋ/, vowel	/=ra/	(50)–(54)

(47) napt͡ɕeʈ=ʈa   / napt͡ɕel=ra   'A loyal friend also'
    loyal friend=CO-ORD   loyal friend=CO-ORD

(The underlying form of the noun 'loyal friend' is //naptɕel//, but it changes to /naptɕeʈ/ before the co-ordination particle /=ʈa/. There is no difference between these two examples. The consultants allow both equally)

(48) meʈ=ʈa　　　　　tɕʰəra　/　mer=ra　　　　　tɕʰəra　　'Butter and cheese'
　　　butter=CO-ORD　cheese　better=CO-ORD　cheese
　　　(The underlying form of the 'butter' is //mer//, but it changes to /meʈ/ before the co-ordination particle /=ʈa/. There is no difference between these two examples. The consultants allow both equally)

(49) gigen=nɖa　　　　łoma　/　gigen=ra　　　　łoma　'A teacher and a student'
　　　teacher=CO-ORD　student　teacher=CO-ORD　student
　　　(There is no difference between these two examples. The consultants allow both equally)

(50) tonɖəp=ra　　　ŋa　　　　　　　　　　　'Tonɖəp and I'
　　　PSN=CO-ORD　1SG

(51) hjek=ra　　　　　　　　　　　　　　'A yak also'
　　　yak=CO-ORD

(52) sonam=ra　　　　　　　　　　　　　'Sonam also'
　　　PSN=CO-ORD

(53) htakʈʰa-zaŋ=ra　　　　　　　　　　'Mr. htakʈʰa also'
　　　PSN-HON=CO-ORD

(54) ɕatɕʰoŋ　gonpa=ra　　　　dihtsa gonpa　'ɕatɕʰoŋ temple and dihtsa temple'
　　　PLN　　temple=CO-ORD　PLN　　temple

Conjunction //=Ritʰatsʰo// (//=Ri//)
　　　//=Ritʰatsʰo// (its abbreviated form is //=Ri//) expresses 'while~, when~'.

Table 12　Conjunction //=Ritʰatsʰo// (//=Ri//)

the final of the stem	allomorph	example
/ʈ/ (←//l//) /ʈ/ (←//r//)	/=ʈitʰatsʰo/ (/=ʈi/)	(55) (56)
/n/, /ŋ/	/=nɖitʰatsʰo/ (/=nɖi/) or /=ritʰatsʰo/ (/=ri/)	(57), (58)
/p/, /k/, /m/, vowel	/=ritʰatsʰo/ (/=ri/)	(59)–(62)

(55) joʈ=ʈitʰatsʰo　　　　　　　　　　'When existing'
　　　exist=CONJ
　　　(The underlying form of the existential verb is //jol//, but it changes to /joʈ/ before the conjunction /=ʈitʰatsʰo/)

(56) kʰəʈ=ʈitʰatsʰo　　　　　　　　　　'When shouldering'
　　　shoulder=CONJ
　　　(The underlying form of the verb 'shoulder' is //kʰər//, but it changes to /kʰəʈ/ before the conjunction /=ʈitʰatsʰo/)

(57) ɬoma　　　jən=nɖitʰatsʰo / ɬoma　　　jən=ritʰatsʰo　'When being a student'

　　　student　COP=CONJ　　　student　COP=CONJ

　　　(There is no difference between these two examples. The consultants allow both equally)

(58) joŋ=nɖitʰatsʰo　　　　 /　joŋ=ritʰatsʰo　　　　　　'When coming'

　　　come=CONJ　　　　　come=CONJ

　　　(There is no difference between these two examples. The consultants allow both equally)

(59) hep=ritʰatsʰo　　　　　　　　　　　'When going/coming (HON)'

　　　go/come:HON=CONJ

(60) ndək=ritʰatsʰo　　　　　　　　　　　'When staying'

　　　stay:NPST=CONJ

(61) ndzom=ritʰatsʰo　　　　　　　　　　'When gathering'

　　　gather=CONJ

(62) ndʐo=ritʰatsʰo　　　　　　　　　　　'When going'

　　　go:NPST=CONJ

Conjunction //=Roŋkoŋŋa//

　　　//=Roŋkoŋŋa// expresses 'when just~'.

Table 13　Conjunction //=Roŋkoŋŋa//

the final of the stem	allomorph	example
/l/, /r/	/=ʈoŋkoŋŋa/	(63), (64)
/n/	/=nɖoŋkoŋŋa/	(65)
/p/, /k/, /m/, /ŋ/, vowel	/=roŋkoŋŋa/	(66)–(70)

(63) joʈ=ʈoŋkoŋŋa　　　　　　　　'When [something] just existed'

　　　exist=CONJ

　　　(The underlying form of the existential verb is //jol//, but it changes to /joʈ/ before the conjunction /=ʈoŋkoŋŋa/)

(64) tsʰaʈ=ʈoŋkoŋŋa　　　　　　　'When [something] just ended'

　　　end=CONJ

　　　(The underlying form of the verb 'end' is //tsʰar//, but it changes to /tsʰaʈ/ before the conjunction /=ʈoŋkoŋŋa/)

(65) tʰon=nɖoŋkoŋŋa　　　　　　'When [somebody] just arrived'

　　　arrive=CONJ

(66) wap=roŋkoŋŋa　　　　　　　'When [something] just fell'

　　　fall:PAST=CONJ

(67) htsok=roŋkoŋŋa　　　　　　 'When [somebody] just sat'

　　　sit=CONJ

(68) ndzom=roŋkoŋɲa   'When [something/somebody] just gathered'
     gather=CONJ
(69) sʰoŋ=roŋkoŋɲa   'When [somebody] just went'
     go:PAST=CONJ
(70) wi=roŋkoŋɲa   'When [somebody] just called'
     call:PAST=CONJ

Sentence-final particle //=Ra//

    The sentence-final particle //=Ra// follows after the imperative form.

Table 14　Sentence-final particle //=Ra//

the final of the stem	allomorph	example
/ʈ/ (←//l//) /ʈ/ (←//r//)	/=ʈa/	(71) (72)
/m/, /n/, /ŋ/	/=nɖa/ or /=ra/	(73)–(75)
/p/, /k/, vowel	/=ra/	(76)–(78)

(71) çoʈ=ʈa   'Speak!'
     speak:IMP=SFP
     (The underlying form of the verb 'speak' is //çol//, but it changes to /çoʈ/ before
     the sentence-final particle /=ʈa/)
(72) htɕoʈ=ʈa   'Beat!'
     beat:IMP=SFP
     (The underlying form of the imperative form of the verb 'beat' is //htɕor//, but
     it changes to /htɕoʈ/ before the sentence-final particle /=ʈa/)
(73) htsom=nɖa   /   htsom=ra   'Write!'
     write:IMP=SFP   write:IMP=SFP
     (There is no difference between these two examples. One consultant allows
     both. However, Mr. *A lag rGya ye* said 'htsom=ra' is more acceptable than
     'htsom=nɖa')
(74) ȵon=nɖa   /   ȵon=ra   'Listen!'
     listen=SFP   listen=SFP
     (There is no difference between these two examples. One consultant allows both.
     However, Mr. *A lag rGya ye* said 'ȵon=ra' is more acceptable than 'ȵon=nɖa')
(75) sʰoŋ=nɖa   /   sʰoŋ=ra   'Go!'
     go:IMP=SFP   go:IMP=SFP
     (There is no difference between these two examples. One consultant allows
     both. However, Mr. *A lag rGya ye* said 'sʰoŋ=ra' is more acceptable than
     'sʰoŋ=nɖa')
(76) dʑop=ra   'Shoot!'
     shoot:IMP=SFP

(77) çok=ra   'Come!'
    come:IMP=SFP
(78) hti=ra   'Watch'
    watch:IMP=SFP

3.2.4   Stem-final consonant copy insertion

In an underlying form //=V//, a copy of the final consonant of a stem is inserted in front of the clitic under certain circumstances to form a surface /=CV/ (the examples are (79)–(82)). Sometimes /C/ of /=CV/ is not the same as the final consonant of the stem, but is partly assimilated into it (as in (83)). Otherwise, the /=V/ form follows a stem (the examples are (84) and (85)).

(79) //çən//   +   //=i//   >   /çən=ni/   '[Somebody] gave, then'
    give:PAST   =CONJ
(80) //joŋ//   +   //=i//   >   /joŋ=ŋi/   '[Somebody] came, then'
    come   =CONJ
(81) //sonam// +   //=a//   >   /sonam=ma/   'to Sonam'
    PSN   =DAT
(82) //naŋ//   +   //=a//   >   /naŋ=ŋa/   'to inside'
    inside   =DAT
(83) //tʰəp//   +   //=a//   >   /tʰəp=wa/   '[I/we] was/were able to do'
    able   =AUX
(84) //kʰor//   +   //=i//   >   /kʰor=i/   '[Somebody/something] turned, then'
    turn   =CONJ
(85) //go//   +   //=a//   >   /go=a/   'to the outside'
    door   =DAT

The circumstances under which consonant copy insertion occurs vary from clitic to clitic. Four clitics (the conjugations //=i//, //=a//, the dative case marker //=a// and the auxiliary verb //=a//) will be exemplified in what follows.

Conjunctions //=i//, //=a//

The conditions for the allomorphs of the conjunction //=i// are the same as for conjunction //=a//. Only the conjunction //=i// is shown in the following examples. Both //=i// and //=a// express 'sequential actions, simultaneous actions'.

Table 15   Conjunction //=i//

the final of the stem	allomorph	example
/n/	/=ni/	(86)
/ŋ/	/=ŋi/	(87)
/w/ (←//p//), /k/, /m/, /l/, /r/, vowel	/=i/	(88)–(93)

(86) tʰon=ni   '[Somebody] arrived, then'
     arrive=CONJ

(87) sʰoŋ=ŋi   '[Somebody] went, then'
     go:PAST=CONJ

(88) nɖəw=i   '[Something] finished up, then'
     finish up=CONJ
     (The underlying form of the verb 'finish up' is //nɖəp//, but it changes to /nɖəw/ before the conjunction /=i/)

(89) dʐək=i   '[Somebody] ran, then'
     run=CONJ

(90) dem=i   '[Somebody] knotted, then'
     knot=CONJ

(91) tɕʰer=i   '[Somebody] carried [something], then'
     carry=CONJ

(92) tɕʰel=i   '[Somebody] brought along [a person], then'
     bring along [a person]=CONJ

(93) hti=i   '[Somebody] watched, then'
     watch:PAST=CONJ

Dative case marker //=a//

    The dative case marker is used for expressing 'recipient' or 'direction'. Only after the vowel /o/, //=a// sometimes changes to /=o/ (as in example (104)), but the conditions under which /=o/ appears are not fully understood. Otherwise, the vowel of //=a// is /a/.

Table 16   Dative case marker //=a//

the final of the stem	allomorph	example
/p/ /w/ (← //p//)	/=wa/ /=a/	(94)
/k/	/=ka/ or /=a/	(95)
/m/	/=ma/ or /=a/	(96)
/n/	/=na/	(97)
/ŋ/	/=ŋa/	(98)
/l/, /r/, vowels except /o/	/=a/	(99)–(102)
/o/	/=a/, /=o/	(103), (104)

(94) tonɖəp=wa   /   tonɖəw=a   'to Tonɖəp'
     PSN=DAT   PSN=DAT
     (Mr. *bLo gros rGya mtsho* allows both examples, but Mr. *A lag rGya ye* uses only 'tonɖəw=a'. In /tonɖəw=a/, //p// of the underlying form //tonɖəp// (a personal name) changes to /w/ before the dative case marker /=a/)

(95) htɕək=ka   /   htɕək=a   'to one (person, thing)'
    1=DAT   1=DAT
    (Mr. *bLo gros rGya mtsho* allows both examples, but Mr. *A lag rGya ye* uses
    only 'htɕək=a'. There is no difference between these two examples.)

(96) sem=ma   /   sem=a   'to a heart'
    heart=DAT   heart=DAT
    (Mr. *bLo gros rGya mtsho* allows both examples, but Mr. *A lag rGya ye* uses
    only 'sem=a'. There is no difference between these two examples.)

(97) sʰemtɕen=na   'to beings'
    beings=DAT

(98) taŋ=ŋa   'to the Communist Party'
    Communist Party:Ch.=DAT

(99) tʰemtɕel=a   'to all'
    all=DAT

(100) mar=a   'downstairs'
    down=DAT

(101) ŋa=a   'to me'
    1SG=DAT

(102) rənpotɕʰe=a   'to a rinpoche'
    rinpoche=DAT

(103) ɕimo=a   'to a girl'
    girl=DAT

(104) tɕʰo=o   'to you'
    2SG=DAT

AUX //=a//

    The auxiliary verb //=a// expresses 'events concerning the speaker'.

Table 17 Auxiliary verb //=a//

the final of the stem	allomorph	example
/p/ /w/ (←//p//)	/=wa/ /=a/	(105) (105)
/n/	/=na/	(106)
/ŋ/	/=ŋa/	(107)
/k/, /m/, /l/, /r/, vowel	/=a/	(108)–(111)

(105) tʰəp=wa   /   tʰəw=a   '[I/we] was/were able to do'
    able=AUX   able=AUX
    (The underlying form of the verb 'able' is //tʰəp//, but it changes to /tʰəw/
    before the auxiliary verb /=a/. There is no difference between these two

examples. The consultants allow both equally)

(106) tʰon=na　　　　　　　　　'[I/we] arrived'
　　　arrive=AUX

(107) sʰoŋ=ŋa　　　　　　　　　'[I/we] went'
　　　go:PAST=AUX

(108) ndək=a　　　　　　　　　'[I/we] will stay'
　　　stay:NPST=AUX

(109) htsem=a　　　　　　　　　'[I/we] wrote'
　　　write=AUX

(110) tɕʰer=a　　　　　　　　　'[I/we] carried [something]'
　　　carry=AUX

(111) hti=a　　　　　　　　　　'[I/we] watched'
　　　watch:PAST=AUX

4 Alternations of stems

When the final consonant of the underlying stem is one of //p//, //l// or //r//, these consonants may be (partly) assimilated into the initial consonant of the suffix or the clitic as in (112).

(112)　//p// →　　　/t/, /k/, /w/
　　　//l// →　　　/t/, /ʈ/, /k/, /s/
　　　//r// →　　　/ʈ/

The alternations of stems are less predictable than those of suffixes and clitics. Even in the same circumstances, a stem sometimes changes and sometimes does not. Examples of each alternation are listed as follows (4.1, 4.2, 4.3).

4.1 The final consonant //p// of stems

//p// changes to /t/ before /tɕ/ (as in example (113)), /k/ before /k/ (as in example (114)) and /w/ before /a/, /i/ (as in examples (115), (116)).

(113) nbet=tɕi　　　　　　　　'[I/we] will go down'
　　　fall:NPST=AUX
　　　(The verb 'fall' is /nbep/, but can change to /nbet/ before the auxiliary verb /=tɕi/) (=(15))

(114) nbek=kə　　　　　　　　'[It] often rains'
　　　fall:NPST=AUX
　　　(The verb 'fall' is /nbep/, but changes to /nbek/ before /=kə/) (=(23))

(115) tonɖəw=a　　　　　　　'to Tonɖəp'
　　　PSN=DAT

(The personal name 'Tondẓp' is /tondẓp/, but can change to /tondẓw/ before
the dative case marker /=a/) (=(94))

(116) ndẓw=i   '[Something] finished up, then'
       finish up=CONJ
       (The verb 'finish up' is /ndẓp/, but changes to /ndẓw/ before the conjunction
       /=i/) (=(88))

4.2 The final consonant //l// of stems

//l// changes to /t/ before /ts/ (117), /tɕ/ (118), /ʈ/ before /ʈ/ (119), /k/ before /k/
(120), and /s/ before /s/ (121).

(117) jot-tsʰo   'place to exist'
       exist-NMLZ
       (The underlying form of the existential verb is //jol//, but it changes to /jot/
       before the nominalizer /-sʰo/) (=(31))

(118) nbẓt=tɕi   '[I/we] will go out'
       go out:NPST=AUX
       (The underlying form of the verb 'go out' is //nbẓl//, but it changes to /nbẓt/
       before the auxiliary verb /=tɕi/) (=(16))

(119) ɕoʈ=ʈa   'Speak!'
       speak:IMP=SFP
       (The underlying form of the imperative form of the verb 'speak' is //ɕol//,
       but it changes to /ɕoʈ/ before the sentence-final particle /=ʈa/) (=(71))

(120) jok=kẓ   '[It] is existing'
       exist=AUX
       (The underlying form of the existential verb is //jol//, but it changes to /jok/
       before the auxiliary verb /=kẓ/) (=(25))

(121) jos-sʰo   'place to exist'
       exist-NMLZ
       (The underlying form of the existential verb is //jol//, but it changes to /jos/
       before the nominalizer /-sʰo/) (=(31))

4.3 The final consonant //r// of stems

/r/ changes to /ʈ/ before /ʈ/ (122).

(122) htɕoʈ=ʈa   'Beat!'
       beat:IMP=SFP
       (The underlying form of the verb 'beat' is //htɕor//, but it changes to /htɕoʈ/
       before the sentence-final particle /=ʈa/) (=(72))

5　Conclusion

This paper is a first attempt to provide a systematic description of the morpho-phonological alternation rules of suffixes, clitics and stems in Amdo Tibetan. The following two rules were demonstrated:

- **Alternation rules of suffixes and clitics (section 3)**
  - Patterns of allomorphs (3.1); 1. voiced and unvoiced, 2. fricative and affricate, 3. retroflex and /r/, 4. stem-final consonant copy insertion.
  - Conditions for alternations (3.2); the conditions under which each allomorph appears vary even with the same pattern of suffixes or clitics.

- **Alternation rules of the stems (section 4)**

  As mentioned at the outset of section 4, even under the same circum-stances a stem sometimes changes and sometimes does not. It is difficult at the present time to fully explain the conditions under which these alterna-tions occur. It is noteworthy that the alternations do not follow the sonority hierarchy.
  - //p// → 　/t/ (before /tɕ/), /k/ (before /k/), /w/ (before /a/, /i/)
  - //l// → 　/t/ (before /ts/, /tɕ/), /ʈ/ (before /ʈ/), /k/ (before /k/), /s/ (before /s/)
  - //r// → 　/ʈ/ (before /ʈ/)

By separating these two sets of rules (alternation rules of suffixes and clitics, alternation rules of stems), the morphophonological rules of Amdo Tibetan could be clarified more easily. Although this study presents data only from the Amdo Tibetan spoken in Gonghe County of Qinghai province, the rules identified here will be of help in describing other varieties of Amdo Tibetan. As remarked in the introduction, the alternation rules of suffixes and clitics vary between WT and Amdo Tibetan. Furthermore, stems in WT do not change: stem alternations are peculiar to Amdo Tibetan. This might relate to the low predictability of the stem alternations. In order to trace the developmental process of Tibetan from a morphophonological perspec-tive, a comparison with WT or the other Tibetan languages remains a topic for fur-ther study.

Abbreviation

-	Affix boundary
=	Clitic boundary
/ /	Underlying phonemic representation
// //	Surface phonemic representation

1	First person
2	Second person
3	Third person
AUX	Auxiliary verb
C	Consonant
Ch.	Chinese
CONJ	Conjunction
CO-ORD	Co-ordination particle
COP	Copula
DAT	Dative case marker
ERG	Ergative
HON	Honorifics
IMP	Imperative
NMLZ	Nominalizer
NPST	Non-past
PAST	Past
PL	Plural
PLN	Place name
PSN	Person name
SFP	Sentence-final particle
SG	Singular
V	Vowel

Acknowledgement

Notes

1)   Both suffixes and clitics need hosts to depend on. Zwicky & Pullum (1983) said 'Clitics can exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems'. Based on Zwicky & Pullum (1983) and Zwicky (1985), I set up two tests for distinguishing between suffixes and clitics: (a) a clitic can follow several parts of speech, (b) a suffix does not follow a clitic. By these tests, case markers, a co-ordination particle, auxiliary verbs, sentence final particles are clitics, while nominalizers are suffixes. The clitics found in Amdo Tibetan are all enclitics.
2)   The final consonant //l// of //=Gəjol// does not appear in sentence-final position.
3)   It is called *sum cu pa* in WT. DeLancey (2003: 258) said '[S]everal grammatical morphemes, pre-

sumably clitics, show alternations in the initial consonant depending on the final of the preceding word'. For instance, the genitive case marker *gi* follows velars *g, ng; kyi* following obstruents *d, b, s*; *gyi* follows sonorants *n, m, r, l; 'i* follows vowels (*'i* is written as part of the preceding syllable).

4) Haller (2004: 31-34) in particular considerably described the alternation rules of suffixes and clitics.

5) The final consonant //l// of //=Dʑirel// does not appear in sentence-final position.

6) Allomorphs of //=Zək// are /=zək/ and /=tsək/, thus it also belongs to [1] 'voiced and unvoiced' pattern.

7) Shirai (2007: 140) divided 'conjunct/disjunct' patterns into two types: (1) the ''person-restricted'' type like that of Newar and (2) the ''point-of-view'' type like that of modern Tibetan. In modern Tibetan, as Shirai (2007: 140) noted 'the conjunct form is chosen if the speaker is a conscious participant in the process of the event—regardless of the person of the subject'.

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