

## THE OLD TIBETAN TERMINATIVE FORM *-su*\*

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### 0. INTRODUCTION

One of the recurring problems facing the student of Old Tibetan is common “misspelling” involving not only word production rules but also case forms. Such misspellings result from the scribal practice of *apparently* failing to separate syllables that would be separated by the *tsheg* (‘) in Classical Tibetan, e.g., the terminative form **-Cu rjesu** instead of **rjes-su** ‘afterward’.<sup>1</sup> In this paper, these misspellings are examined in terms of Old Tibetan syllable structure and the syllable process of gemination. In Optimality Theory, there is an interaction between the ranking of the constraints: FAITHFULNESS, NoCODA, and \*COMPLEX.

#### 1.1. *The Old Tibetan Language*

The Old Tibetan (OT) language is the language of the inscriptions in Li & Coblin 1987; the texts in Bacot, Thomas & Toussaint 1940-46; Emmerick 1967; Thomas 1951; and, according to Verhagen 1993:207ff., the older parts of *Sum-cu-pa* of A-nu (traditionally identified as Thon-mi-Sambhota), which should be considered “pre-Classical.” According to Beyer 1992:29, this is the period from the beginning of Written Tibetan (WT) in the seventh century until

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\* This article owes its inception to the discussion in Miller 1993:43ff. of this “case-form” in the *Sum cum pa* traditionally attributed to Thon-mi Sambhota; however, it is not meant to be taken as a critique of Miller 1993.

According to Beyer 1992: 66, the phonemes of Old Tibetan are, here in IPA: *p, ph, b; t, th, d; k, kh, g; ʔ; ts, tsh, dz; tʃ, tʃh, dʒ; s, z; ʃ, ʒ; h; m, n, ɲ, ŋ; l, r [ɾ]; y, w; and i, e, a, u, o; plus i* (the inverse *gi-gu* from Li and Coblin 1987. The relevant features include [+coronal] *t, th, d, n, l, s; [-continuant] t, tH, d; [+continuant] n, l, s; [-back] i, e; [+back] u, o, a, i; and [-round] a, i*

<sup>1</sup> In OT texts, not only do the terminative forms often occur unseparated from the stem, but also the genitive form for nouns: **brugi lo** ‘the Dragon Year’ (Fr.:67 (19:2,3,7)), instead of the CT **‘brug-gi lo**, and the gerundive for verbs: **bsduste** ‘having assembled’ (Chronicle:ii:140-2(5)), instead of the CT **bsdus-ste**, among others.

the standardization of the language completed by King Khri Gtsug-lde-btsan (805-836 A.D.).<sup>2</sup>

### 1.2. OT Syllable Rime Structure

Unlike Modern Lhasa Tibetan (L) and Classical Tibetan (CT)<sup>3</sup>, OT apparently had syllable rime structure without morae:



Figure 1a

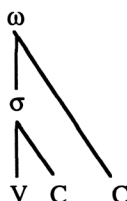


Figure 1b

In Figure 1a, the monomorphemic word ( $\omega$ ) is composed of a syllable ( $\sigma$ ) which in turn is composed of a vowel (V) and an optional consonant (C), which together form the rime, as in the following from Thomas 1955:112ff: **kha** 'mouth' and **khang** 'house'. In Figure 1b, a bimorphemic word contains an inflection or derivation indicated by an additional consonant attached at word level, as in the inflected forms **bskuld** 'instructed' from the root **skul** and

<sup>2</sup> For the history of this period see Beckwith 1987, Demiéville 1957, Snellgrove & Richardson 1968, Snellgrove 1987, and Stein 1972.

<sup>3</sup> In MT and CT (especially pre-modern Lhasa Tibetan) there is a moraic level in syllables:



Figure 2a



Figure 2b



Figure 3c

In Fig. 2a there is a monomoraic vowel, i.e., a short vowel; in 2b a bimoraic vowel, i.e., a long vowel; and in 2c a bimoraic syllable with a short vowel and a coda. Examples of these are the following from Goldstein 1977:382a **qə-ʔI** 'kindness,' **qəə-leq** 'neat,' **ʔuqsI** 'inciting' (all in his transcription except for the omission of tonal marks,  $\emptyset$  for his  $\delta$  and the tilde  $\sim$  for nasalization). See Hogan 1996 for further discussion.

**bcags** 'broken' from the root **gcog**; and the derived verb forms **khebs** 'cover' (root **'gebs**, perfect **bkab**), all probably related to the noun **khab** 'mansion'.

## 2. THE OT TERMINATIVE -CU

### 2.1. Grammatical Functions of -Cu

The relevant grammatical suffix -Cu is traditionally referred to as the terminative (TERM) in Jäschke 1954:22ff., Hannah 1973:77ff., etc. The TERM form is attached to the end of roots, words (free forms) and phrases. The grammatical functions of this enclitic are "prepositional" (accusative, dative, and locative), adverbial, and infinitival.

#### 2.1.1 OT -Cu "Prepositional" Function

In Bacot 1981:20, the suffix is identified as occurring in the traditional (Latinate) cases of "Accusatif (*las-su bya-ba Action transitive*)," "Déterminatif (*de-n, id, Identité* (Objet intégré au verbe)), "Datif (*dgos-ched* Objet *bénéficiaire* de l'action)," and "Locatifs (*rlen-gnas Localisation* sans mouvement) [and] (*che-skabs Circonstance de temps*)<sup>4</sup>. In Wilson 1992:215ff., -Cu is referred to as a case particle occurring in the objective, beneficial-purposive, and locative cases. In the "prepositional" function of the TERM, it often functions much as prepositions do in English to indicate a temporal or allative: **'du** (= **dus**) 'time' > **dusu** 'at the (right) time', **khams** 'country' > **khamsu** 'into the country', and **dngangs** 'fear' > **dngangs** 'in fear', as in examples 1-3 below, respectively:<sup>5</sup>

- |     |                                   |           |           |                 |                       |
|-----|-----------------------------------|-----------|-----------|-----------------|-----------------------|
| (1) | bgyis                             | 'dusu     | ma-phul   | na              |                       |
|     | done                              | time-TERM | presented | NA <sup>6</sup> | (M.I.:xiv:24 [304:3]) |
|     | 'If delivery is not made in time' |           |           |                 | (Thomas 1951:305)     |

<sup>4</sup> See also Bacot 1928:192ff.

<sup>5</sup> Following each line of transcription in our examples is an abbreviation such as "M.I.x:3" which refers to the document as listed in Thomas 1951 and a number in parens such as "(449:A1-2--B1)" which refers to the page number in Thomas 1951 and the line number in the document.

<sup>6</sup> Abbreviations:

BA	infinitive particle	L	Modern Lhasa Tibetan	PA	infinitive/nomin-
CT	Classical Tibetan	LA	dative particle		alizing particle
GEN	genitive particle	MC	Middle Chinese	PERF	perfective
GER	gerundive particle	NA	locative particle	TERM	terminative
IMP	imperative particle	NEG	negative	TOP	topic particle
INF	infinitive particle	OT	Old Tibetan	WT	Written Tibetan
INST	instrumental particle	P	past		

- (2) ring-lugs      kyi      'phin-byang      kham-su  
       courier      GEN      missive-tablet      country-TERM
- mchis      (mchiste)  
 come-PERF      (come-PERF-GER)      (Vol.55:20 [56:5])

'a courier's missive having come into the country' (Thomas 1951:57)

- (3) mnga'-bdag      chen-po'i      snyan-myi      slebs-po      la  
       master      great-GEN      friend      comer      LA
- bla-'og-nas      dbu-yugs      smad      la  
       high-and-low      turban      bend-down      LA
- dngang-su      bgyid-de  
       fear-TERM      make-GER      (M.I.x:3 [449:A1-2--B1])

'comers and friends (servants?) of a great person, high and low,  
 bowing their head-wraps in trepidation' (Thomas 1951:449-50)

### 2.1.2. OT -Cu Adverbial Function

Jäschke 1954:66 states that any adjective may be made into an adverb by putting it into the TERM case; however, Wilson 1992:137 specifies that nouns and adjectives may be "modified for use as adverbs," with examples (1992:138) which are "inflected nouns or adjectives," as **rdzogs-pa** 'completion' > **rdzogs-par** 'completely', which function as adverbs. Thus, the following adverbs are derived: **yongs** 'complete' > **yong-su** 'completely'; **rings** 'speedy' > **ring-su** 'speedily'; and **legs** 'satisfactory' > **leg-su** 'satisfactorily', as in examples 4-6:

- (4) sems-nams      thams-cad      sgrib-pa      nam-gnyis  
       beings      all      darkness      double
- byang      nas      bsod-nams      dang      ye-shes-gyi  
       cleansed      after      punya (merit)      and      jñāna (wisdom)-GEN
- tshogs      **yong-su**      rdzog-ste  
       assembled      complete-TERM      complete-GEN

(Ch.9:1.37:90 (94:B1.1))

'all beings, cleansed from the double darkness, and fulfilling their  
store of merit and wisdom' (Thomas 1951:101)

- (5) Sl[u]ngs      la      btang-ba      **ring-su**      skyol-chig  
Slungs      LA      hand-BA      quick-TERM      convey-IMP

(M.Taagh:b:ii:0042 [446:A2-B])

'hand to a Slungs soldiers and quickly convey'

(Thomas 1951:446)

- (6) ma-gcal-pa'i      sngun      **leg-su**  
NEG-pay-PERF-PA-GEN      at first      satisfactory-TERM

shing      sug-mjald-te

Shing      come.to.hand-PERF-GER (M.Taagh:a:iii:0062 [209:4-5])

'at first the [Sh]ing-shan barley not previously paid came satisfactorily  
to hand . . . ' (Thomas 1951:209)

### 2.1.3. OT -Cu Infinitival Function

A separate function of **-Cu** is with verbs to form infinitival clauses (phrases) which are complements of main verbs. Jäschke 1954:60 defines the supine as the TERM case of the infinitive or the verb root, as in **mthong-bar** and **thong-du** both meaning 'to see'. Wilson 1992:614 defines the former as a verbal infinitive and the latter as the simple infinitive. The following simple infinitives from verb roots occur in examples 7-9: **skyabs** 'save' > **skyab-su** 'to save'; **gums** 'perform' > **gum-su** 'to perform'; and **bya** 'work' > **bya-su** 'to work'.

- (7) chos      dang      sangs-rgyas      dang      dge-'dun      la  
Dharma      and      Buddha      and      Samgha      LA

**skyab-su**      mci-ste

save-TERM      come-GER

(Ch.9:1.37:88 [93:B1.2])

'to the Dharma, the Buddha and the Samgha, seeking refuge'

(Thomas 1951:99)

- (8) yi-ge-pa      dngos      kyis      ni      shog-shog      gi  
 scribe      at-once      INST      TOP      paper      GEN
- gnyer      ‘gum-su      stsal  
 (supply)      to perform-TERM      send      (Ch.73:xv:5 [81:12])

‘the scribes must complete at once the supplies of paper entrusted to them’  
 (Thomas 1951:82)

- (9) rgya-lcag      bco-lnga      rdabs-par      bgyis  
 Chinese whip      fifteen      strike-PERF-PA-TERM      say-PERF
- (Ch.lxxii/xiii:18(404:1))

‘fifteen lashes with a Chinese whip were ordered’

(Thomas 1951:405)

## 2.2. *Forms of the Terminative -Cu*

For OT, the rules for Terminative *-Cu* as stated in *Sum cum pa* (śloka 8), according to Miller 1993:45, are “affix the second *āli* [*u*] to any word in whose final-position there occurs the 10th [*s*] from among the ten *rjes* ‘jug: *g, ŋ, d, n, b, m, ‘, r, l, s*] phonemes; but add the 2nd, *u*, to any word on whose final-position there occurs the 8th [*r*]; add the second *āli* to any word in whose final-position there occurs the 3rd [*d*]. . . .”<sup>7</sup> However, the actual occurrence of the forms of the terminative in OT texts is quite varied, as Table 1 shows.

As the examples from a representative sample of OT texts above indicate, the descriptions of *Sum cum pa* (śloka 8) concerning the forms of the TERM, as understood by Bacot 1928:77 and Miller 1963:493 and 1993:45, do not

<sup>7</sup> The French translation of śloka 8:1-7 in Bacot 1928:77 and the English translation in Miller 1963:493 (=Miller 1976:9) read:

Parmi les dix lettres suffixes,  
 La dixième après tout mot où elle s'accorde,  
 Affectée de la deuxième voyelle;  
 La huitième après tout mot où elle s'accorde,  
 wordAffectée le la deuxième voyelle *u*;  
 La troisième après tout mot où elle s'accorde,  
 Affectée de la deuxième voyelle. . . .

Among the ten affixed letters,  
 when the tenth [*s*] is placed at the end of any word  
 to this the second vowel [*u*] is added;  
 when the eighth [*r*] is placed at the end of any  
 to this the second vowel *u* is added;  
 when at the end of any word the third [*d*] and  
 to [these] the second vowel [*u*] is added. . . .

<u>Base Final</u>	<u>Example</u>	<u>Prediction</u>	<u>Occurrence</u>	<u>Gloss</u>	<u>Source</u>
-g	rtag	X	rtag tu	perpetually	Fr.66 (17:2)
-ŋ	lug	X	lug du	to a sheep	M.I.xxvii:1 (30:B2)
-d	drung	X	drung tu	near to	Ch.9:1:37 (92:88:1:3)
	jeng		Lyong-jeng du	at Lyong-jeng	Vol.69, fol.84 (8:11)
	chad	-u	chadu	be punished	M.Taagh.c.iii:0025(204:D)
	nod		nod tu	receive	Vol.56, fol.73-4 (75:B18)
	chud		chud du	enter	Vol.69, fol.84 (8:6)
-n	snon	X	snon tu	in addition	Fr.66 (17:6)
	pun		pan-pun du	in dissension	Fr. 80(47:7)
-b	zhib	X	zhib tu	in detail	M.I.viii:91(31:1)
	khah		khah du	in the mansion	Vol.69, fol.84 (9:39)
-m	tsam	X	tsam tu	as much as	Fr.66(17:3)
-'	skam		Re-skam du	in Re-skam	Chronicle II.33-5(3:1)
	dga'	X	dga'r	at pleasure	M.I.i:27 (151:4)
-f	ser	-u	seru	rotten	M. Taagh: b.i:00104 (257:8)
	bzher		Britan-bzher tu	to Britan-bzher	Fr.66(17:7)
	dur		Rgya-dur du	at Rgya-dur	Chronicle II. 68-9(4:3)
	ser		ser ru	rotten	M.Taagh.a.iv:00128(159:3)
-l	col	X	cal-col tu	in babble	Ch.87:xiii back (21:9)
	yul		'A-zha yul du	into the 'A-zha country	Chronicle I.62(4:2)
-s	gangs	-u	Khu-nye-Mon-gangsu	at Khu-nye-Mon-gangs	Chronicle 1.238(7:1)
	kham		kham tu	to the country	Ch.9:1:37(94:89:B1.4)
	phyogs		phyogs su	in the direction	Lhasa Potala B(32:26)
-V	chu-ngu	X	Nob-chu-ngur	to Little Nob	M.I.iii:005(135:34)
	da		da du	still	M.I.:xxviii:002(149:12)

Note: Abbreviations such as M.I.:xxviii:002 refer to the document as listed in Thomas 1951; numbers in parentheses, such as (149:12), refer to the page number in Thomas 1951 and the line number in the document.

Table 1. Occurrence of OT terminative

describe the language of these texts.<sup>8</sup> It under-specifies by not describing TERM forms for certain bases, such as those for bases in *-g* codas (e.g., **rtag-tu** 'perpetually'), nor does it describe TERM forms such as **du** in **lug-du** 'to a sheep', **tu** in **nod-tu** 'to receive', **-r** in **dga'r** 'in pleasure', or **-su** in **phyogs-su** 'in the direction'. Furthermore, it makes the wrong descriptions: **chud-du** 'to enter' should be **chu-du** or **chudu**; **Rgya-dur-du** 'to Rgya-dur' should be **Rgya-du-ru** or **Rgya-duru**; and **phyogs-su** 'in the direction' should be **phyog-su** or **phyogsu**.

For Classical Tibetan (CT), the rules for the assimilation of the TERM *-Cu* are shown in Table 2, based on Beyer 1992:248.

All of the examples in Table 2 are taken from the examples in Table 1 of OT forms of the TERM.<sup>9</sup> The graphemes <g>, <d>, and <b> are generally considered to be phonetically [k], [t], and [p], respectively, in coda position. Thus, the [-voice], voicelessness, of the stop *t* in the TERM form **-tu** in the words **rtag-tu** 'perpetually' and **zhib-tu** 'in detail' agrees in [voice] with the codas [k] and [p], respectively. However, the [+voice] of the *d* in the TERM form **du** would not agree in [voice] with a [-voice] of a *-t* coda in the word **chud-du** 'to enter'; the graphemic evidence in the CT TERM forms argues that the word was phonetically **chu[dd]u**, with a double or geminate *d*, not \***chu[t-d]u**.<sup>10</sup> The TERM form **-su** in the word **phyogs-su** 'in the direction' probably also represents a double or geminate *s*, thus, phonetically **phyog[ss]u**.

### 2.3 THE TERMINATIVE FORM *-U* WITH *-S* FINAL BASES

The TERM form with *-u* attached to a base with an *-s* coda is very common in OT texts. The examples in Table 3 are from Thomas 1951:

<sup>8</sup> Some of the texts in Thomas 1951 generalize one the **tu/du** forms at the expense of the other and others use a variety of forms. The texts that generalize **tu** include Fr. 66 (Vol.54:fol.18, p.17) and Ch.87:xii (Vol.53, fol. 5, p.21). The texts that generalize **du** include M.I.:xxvii:1 (p.30), M.I.:i:23 (p.121ff.), and M.Taagh:c:iii:0034 (p.202).

<sup>9</sup> In Thomas 1951 the following texts follow the CT rules for the TERM forms: Fr.80(730, vol.lxxiii, fol.37, p.47), Ch.73:iv:14 (125, vol. 68, fol. 29, p.49), M.I.:xxviii:0036 (fol. 75, p.51), Ch.:75:xii:5 (vol.53, fol.20, p. 109ff.), M.I.:i:3 (p. 121), M.I.:xxvii:2 (p.131ff.), M.I.:iv:93b (p.139), M.I.:xliv:7 (p.143ff.), and M. Taagh:0050 (p. 179).

<sup>10</sup> According to the examples in Beyer 1992:234, the CT GEN form (Beyer's adnominal particle) shows a geminate *g* in **bdag-gi**, phonetically **bda[gg]i**, 'one's'. However, a [-voice] stop *k* occurs in the allomorph **kyi** which is suffixed to words with the codas <-d> **bod-kyi** 'Tibet's', <-b> **rab-kyi** 'superior', and <-s> **gos-kyi** 'garment's', all of the codas [-t], [-p], and [-s] agreeing in [-voice] with the onset of the allomorph **kyi**. All examples are Beyer's.



<u>Environment</u>	<u>TERMForm</u>	<u>Example</u>	<u>Occurrence</u>	<u>Gloss</u>	<u>Source</u>
<b>-g/-b</b>	-tu	rtag	rtag tu	<i>perpetually</i>	Fr.66 (17:2)
		zhib	zhib tu	<i>in detail</i>	M.I.vii:91(31:1)
<b>-s</b>	-su	phyogs	phyogs su	<i>in the direction</i>	Lhasa Potala B(32:26)
<b>-V</b>	-r/-ru	chu-ngu	Nob-chu-nur	<i>to Little Nob</i>	135:34 M.I.ii:005(135:34)
	-du	jeng	Lyong-jeng du	<i>at Lyong-jeng</i>	Thomas 1951: 8:11
<b>elsewhere</b>		chud	chud du	<i>enter</i>	Thomas 1951:8:6
		snon	snon tu	<i>in addition</i>	Fr.66 (17:6)
		skam	Re-skam du	<i>in Re-skam</i>	Chronicle II.33-5(3:1)
		ser	ser ru	<i>rotten</i>	M.Taagh.a.iv:00128(159:3)
		yul	'A-zha yul du	<i>into the 'A-zha country</i>	Chronicle 1.62(4:2)

Table 2. Classical Tibetan TERM allomorphs

BASE	-U FORM	GLOSS	SOURCE
skabs	skabsu	<i>at the time</i>	Vol.56:72(23:10)
skugs	skugsu	<i>in (Bya-rig-)skugs</i>	M.Taagh:0442 (236:A1)
skyabs	skyabsu	<i>save</i>	Ch.9:1.37:88(92:B1.1, 93:B1.2)
khams	khamsu	<i>into the country</i>	Vol.55:20(56:5)
gams	gamsu	<i>to (Bde-)gams</i>	Vol.55:20(56:5)
'gums	'gumsu	<i>perform</i>	Ch.73:xv:5(81:8,12)
'gros	'grosu	<i>walk (v.)</i>	Vol.55:20(56:3)
dngangs	dngangsü	<i>in fear</i>	M.I.x:3(449:A2)
bcas	bcasu	<i>with</i>	BM:S.0228(162:8)
gñis	gñisu	<i>secondly</i>	Ch.9:1.37:88(93:B1.4)
			BM:S.0228(162:7)
dus	dusu	<i>at the time</i>	M.I.:xiv:24(304:3)
			M.I.:viii:91(31:2)
			M.Taagh:c:ii:0040 (200:B1)
			M.Taagh:a:v:0015 (223:15)
'dus	'dusu	<i>at the time</i>	M.I.:xiv:24(304:2,3)
nongs	nongsu	<i>be ill</i>	M.Taagh:0517 (227:7)
pyogs	pyogsu	<i>in the direction</i>	Ch.79:xiv(361:9)
phyogs	phyogsu	<i>in the direction</i>	M.I.:xxx:8(147:A8)
			Ch.79:xiv(361:7)
			Ch.79:xiv:5(365:24)
boms	bomsu	<i>in (Khri-)boms</i>	Ch.xvii:2(53:4,6)
byas	byasu	<i>work (v.)</i>	Ch.lxxii/xii:18(404:1)
'bangs	'bangsu	<i>as a subject</i>	Ch.xvii:2(53:2)
			M.I.:xix:001(120:A2)
tsangs	tsangsü	<i>in purification</i>	Ch.9:1:91(95:B1.1)
mtsams	mtsamsu	<i>on a line</i>	Ch.79:xiv:5(365:22, 27)
tshogs	tshogsu	<i>together/combined</i>	M.I.:xiv:109b(137:8)
gtshigs	gtshigsu	<i>build</i>	Vol.56:72(23:11)
yongs	yongsu	<i>completely</i>	Ch.9:1.37:90(94:B1.1)
ris	risu	<i>to the region</i>	M.I.:iii:7(399:A3)
rings	ringsu	<i>in [Gling-]rings;</i>	M.Taagh:0151(255)
		<i>speedily</i>	M.Taagh:b:ii:0042 (446:A2)
las	lasu	<i>work (v.)</i>	M.I.:xiv:0011(342:B2)
legs	legsü	<i>satisfactorily/</i>	M.Taagh:a:iii:0062 (209:4)
		<i>kindly</i>	M.Taagh:a:v:0015 (223:21)

Table 3. Examples of OT -u

Obviously, the forms in Table 3 occur in a variety of texts and are not restricted to a limited number of texts which could theoretically be ascribed to a single scribe with idiosyncratic writing habits.<sup>11</sup> This spelling of the TERM in

<sup>11</sup> Lass 1997:62 outlines "a taxonomy of potential 'deviances' from putative [scribal] convention":

stems ending in *-s* is due to a process in OT: probably, the process of gemination in which the single grapheme <*-s*> is phonetically a double or geminate, as in *skabsu* 'at the time', phonetically *skab[ss]u*.

One of the possible reasons for the misspelling above is that the *-s* coda was duplicated<sup>12</sup> so that a coda and onset resulted as in the word *lasu* 'to work' as in Figures 2a and 2b below, with subsequent loss of the coda, i.e., the coda *-s* was delinked (lost) word internally:

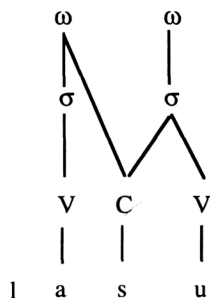


Figure 2a

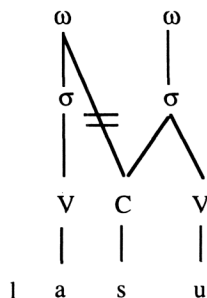


Figure 2b

However, that this is not so in all cases is apparent from the following Middle Chinese (MC) representations of OT names from Li & Coblin 1987: 367ff. See Table 4.

In the first two examples the coda *-s* is retained: in the first, 'du- of 'dus is represented by 弩 MC *nuo* and the coda *-s* by 悉 MC *sjet*; and in the second, *rtsi-* of *rtsis* is represented by 資 MC *tsi* and the coda *-s* by the same character as in the first example. In the last three examples, the *-s* is lost: in the first, *gtogs*, the *-s* is a post-final; in the second, *myes-rma*, both the coda *-s*

"1. *Garbage*. Spellings that are (arguably) so bad they can't possibly be anything but *lapsus calami*, e.g., ones that violate what we assume would have to be graphotactic (and by extension phonotactic) rules.

2. *Purely graphic variation*. This is extremely common, and usually easy to detect. In Old English texts, for instance, we know that the variation between < > and <ð> cannot have any sort of phonological reference. . . .

3. *Phonologically significant spellings*. These have to be evaluated against some kind of 'external' norms: do they represent (as far as we know) historically possible or likely developments, either from an etymological or a process-naturalness point of view?"

Of these possibilities, the latter is the option considered most probable in OT scribal practice in the texts considered here.

<sup>12</sup> Uray 1952:187ff. explains forms such as the diminutive *sdug-gu* 'somewhat agreeable' <*sdug* 'agreeable' as due to gemination of the coda of the first syllable.

and the pre-radical **r-** in the following syllable are lost; and in the last, **legs**, the post-final **-s** is lost before the affricate **ts-** in **tsan**.

CHINESE	LI & COBLIN TRANSCRIPTION	TIBETAN	GLOSS
頗藏弩悉恭 K630h/727g'/94z/ 1257e/1182l	kiep dzâng nuo sjet kjawong	Rgyal-bzang 'dus-kong	<i>personal name</i>
資悉波折普 K555h/1257e/25l/ 287a/72a	tsi sjet puâ tsjät puo	rtsis-pa chen-po	<i>Great Controller</i>
伽羅篤波 K 15*/6a/1019g/25l	gja lâ tuok puâ	bka' la gtogs pa	<i>a title</i>
矩立藏名摩 K95j/694a/727'g/ 826a/17e	kju ljəp dzâng mjwong muâ	klu bzang myes rma	<i>personal name</i>
結研歷贊 K393p/239g/858e/ 153a	kiet ngien liek tsân	Rgyal-gen legs- tsan	<i>personal name</i>

*Note:* The K numbers refer to the characters in Karlgren 1957.

*Table 4. Chinese transcription of OT*

### 3.0. MODERN LHASA TIBETAN

Goldstein 1977:27 compares the TERM allomorphs of WT with those of Modern Lhasa Tibetan (L) as WT **du** /L **thu** ~ **tu**, WT **tu** /L **tu**, WT **su**/L **su** and WT **ru** ~ **-r** /L **ru** ~ **-r**, with the same distribution as in CT, as in the following examples: WT **rgyun-du** /L **kÿ-tu** 'continuously', WT **rap-tu**/L **rəp-tu** 'very', WT **zhi-**'jags-su-gtong/L **shin-caa-su-tōō** 'to quell', and WT **ma-ston-par** /L **ma-tōō-par** 'regardless of'.

In L, there are two processes, vowel fronting (anticipatory assimilation) and tonogenesis, that are relevant to the discussion. Vowel fronting and compensatory lengthening occur with the loss of the dental [+coronal] codas <d>, <s>, and <l>. Loss of final <d> and <s> results in a falling tone, either high falling or low falling.

#### 3.1. Modern Lhasa Tibetan Vowel Fronting (Anticipatory Assimilation)

Zhang 1985 lists examples of quadrisyllabic words in L supporting the

argument. The examples in Table 5 indicate a coda because of the vowel change ( $a > \varepsilon$ ,  $o > \emptyset$ ,  $u > y$ ) due to a following dental [+coronal] consonant (WT **d, n, l, s**):

REDUPLICATED FORM	LHASA TIBETAN	GLOSS
g.yas-lan-g.yon. 'jal	jẽ ɛ jø tɕɛ	<i>robbing Peter to pay Paul</i>
gus-gus- 'dud- 'dud	k'y k'y ty? ty?	<i>respectfully</i>
ga-nas-ga-nas	k'a nɛ? k'a nɛ?	<i>how would I presume?</i>

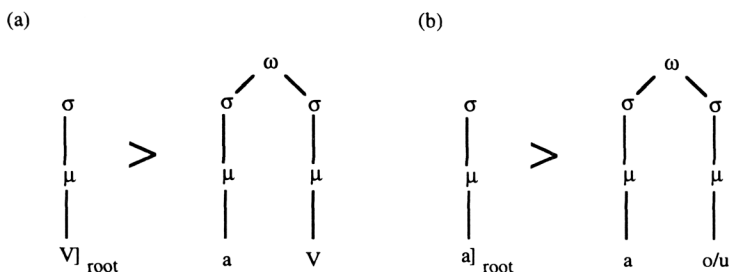
Table 5. Vowel assimilation

Zhang 1985:27-32 (Table 2) lists the following ABCB adverb forms which involve the process of gemination of the coda, i.e., the coda is not delinked and relinked to form the onset of the subsequent syllable.<sup>13</sup> This is indicated by the

<sup>13</sup> Although delinking and relinking are indicated in some cases, such as the following from her Table 1 (p. 26):

ROOT	ABCB FORM	LHASA TIBETAN	GLOSS
'dras	'dra-se- 'dra-se	tʂa se tʂɛ se	<i>confusedly</i>
smyos	smya-se-smyo-se	ɲa se ɲo se	<i>crazily</i>

Alternating reduplication is common in Tibetan. On the basis of Beyer 1992:134-5 the following relationships can be established:



For roots with a vowel other than *a*, the first syllable of the reduplicated form has *a* and the second syllable has the original vowel. For roots with the *a* vowel, the first syllable has the original vowel and the second syllable has either *o* or *u*. The following examples are also from Beyer 1992:134-5:

ROOT	GLOSS	REDUPLICATION	GLOSS
rning-pa	<i>old</i>	rnang-rning	<i>rags</i>
glen-pa	<i>stupid</i>	glan-glen	<i>very stupid</i>
khums-pa	<i>crooked</i>	kham-khum	<i>with uneven ridges</i>
'khol-pa	<i>insensible</i>	'khal-'khol	<i>stunned</i>
ldam-po	<i>lazy</i>	ldam-ldum	<i>pitiful</i>
ngan-pa	<i>bad</i>	ngan-ngon	<i>miserable</i>

fronting of the vowel before the dentals [+coronal] *n*, *l*, and *d*, respectively); see Table 6.

In each of these examples, the L umlaut vowel (*ɛ* or *ø*) indicates that the syllable has a dental [+coronal] coda. The lack of long vowels is due to the fact that the coda is delinked from the syllable position, i.e., debuccalization does not occur, and, consequently, no compensatory lengthening of the vowel in the nucleus occurs. Thus, they are possibly phonemically and phonetically WT **cal-le-col-le/L tɕal-le tɕəl-le/[tɕɛ-le tɕø-le]**, etc.<sup>14</sup> There are only light syllables (V syllables) and heavy syllables (VV and VC syllables) in L, no super-heavy syllables (VVC or VCC syllables).

ROOT	ABCB FORM	LHASA TIBETAN	GLOSS
'khon	'khan-ne-'khon-ne	k <sup>h</sup> ɛ̃ ne k <sup>h</sup> ɛ̃ ne	<i>indignantly</i>
'on-pa	'an-ne-'on-ne	ʔɛ̃ ne ʔɛ̃ ne	<i>pretending deafness</i>
col	cal-le-col-le	tɕɛ le tɕø le	<i>gibberingly</i>
'bol-bo	'bal-le-'bol-le	pɛ le pø le	<i>softly</i>
lhod-po	lhad-te-lhod-te	ʔɛ te ʔø te	<i>loosely</i>

Table 6. *Dental geminates*

Although the dental stop <-d> is only marginally represented in coda position in Zhang's Table 2, with only one example listed, and there are no examples listed for final <-s> at all, the fact that there are double consonant segments is apparent for [+cor] consonants in general.

Goldstein 1977 does, however, have some relevant examples with the TERM **-su**; see Table 7. Each of the L TERM forms in Table 7 indicates a

<sup>14</sup> The double or geminate *l* also possibly occurs in forms such as the following (from Goldstein 1977:387), which historically had an -s: WT **gos/L qəp<sup>31</sup>** 'clothes', WT **gos-log /L qə<sup>11</sup>-lɔɔ** 'clothes'. It is possibly delinked, not debuccalized, in a subsequent process. The liquids *l* and *r* seem to avoid gemination in the sense that the initial segment of the geminate, the coda, is delinked. See also Hogan 1996:137 for a discussion of the liquids in gemination.

Another exception might be the nasal final in WT **'khan-ne-'khon-ne/L k<sup>h</sup>ɛ̃ ne k<sup>h</sup>ɔ̃ ne**, due to the fact that dental nasal loss often does not result in compensatory lengthening, as in WT **dgon-ste/L qə-te** 'monastery' and WT **dgon-pa/L qəm-pa** 'monastery', both from Goldstein 1977:389, with IPA *ø* and the tilde ~ substituted for his *ü* and *-n*, respectively. The nasal coda, historically the dental as evidenced by the umlaut vowel *ø* in both forms, is interpreted as a pre-nasal homorganic to the onset of the following syllable, as is clearly apparent in the second form WT **dgon-pa/L qəm-pa**.

BASE	GLOSS	TERMINATIVE	GLOSS
WT <b>dkyus</b> /	<i>length</i>	WT <b>dkyus-su</b> /	<i>lengthwise</i>
L <b>kyy</b>		L <b>kyy-su</b>	
WT <b>dn̄gos</b> /	<i>real</i>	WT <b>dn̄gos-su</b> /	<i>really</i>
L <b>ŋøø</b>		L <b>ŋøø-su</b>	

Table 7. *Geminate s in the terminative*

double consonant or geminate *s* historically, the first of which subsequently produced an umlaut vowel (*y* or *ø*) due to the dental [+coronal] coda, which was lost. This is a classic case of secondary split in historical linguistics, i.e., allophones (here *y*, *ø*, and *ε*) become phonemes due to the loss of a conditioning environment (here [+cor] consonants), as discussed in Fox 1995:40, 76ff. The loss of the coda *-s* (debuccalization) from the mora level results in compensatory lengthening of the vowel.

### 3.2 L Tonal Evidence

In L, the tonal rules as established by Goldstein 1977:16 for dental codas <*d*> and <*s*> in monosyllabic words are: [ $\alpha$  tone level] ==> [ $\alpha$  tone falling], i.e., a high tone becomes high falling and a low [-high] tone becomes low falling: WT **na/L na**<sup>33</sup> 'to get sick' and WT **nad/L n̄ε**<sup>31</sup> 'illness;' and WT **su/L su**<sup>55</sup> 'who', and WT **sus/L syy**<sup>53</sup> 'by whom'. However, according to Goldstein 1977:19ff., in bisyllabic words the tones on the first syllables with codas <*d*> and <*s*> change to either high or low level tone, i.e., tone is determined by the onset: WT **byas/L ch̄ε**<sup>31</sup> 'did' and WT **rjes/L c̄ε**<sup>31</sup> 'after' > WT **byas-rjes/L ch̄ε**<sup>33</sup> **c̄ε**<sup>31</sup> 'result'.

The examples from Goldstein 1975 shown in Table 8 appear to follow his rule. In each of these forms, e.g., WT **dkyus/L kyy**<sup>53</sup> 'length' > WT **dkyus-su/L kyy**<sup>55</sup> **su** 'lengthwise', the TERM form has high level tone indicating a tonal change and long front round vowels indicating the presence of a historical <*-s*> coda which has subsequently been lost.

STEM	GLOSS	-SU FORM	GLOSS
WT <b>dkyus</b> /	<i>length</i>	WT <b>dkyus-su</b> /	<i>lengthwise</i>
L <b>kyy</b> <sup>53</sup>		L <b>kyy</b> <sup>55</sup> <b>su</b>	
WT <b>mkhos (ka)</b> /	<i>standard of</i>	WT <b>mkhos-su phab</b> /	<i>have peace of</i>
L <b>q<sup>h</sup>øø</b> <sup>55</sup> ( <b>qa</b> )	<i>living</i>	L <b>q<sup>h</sup>øø</b> <sup>55</sup> <b>su ph̄ep</b> <sup>55</sup>	<i>mind</i>

Table 8. *Tonal change in -su TERM*

[Sources: *dkyus/kyy*<sup>53</sup> = 51a; *mkhos (ka)/q<sup>h</sup>øø*<sup>55</sup> (*qa*) = 159b/160a]

The examples in Table 9 from Goldstein 1975, however, do not appear to follow his rule. In the second through the fifth examples (WT **gras-su/L t<sup>h</sup>εε<sup>31</sup> su** 'among', WT **sgos-su/L qøø<sup>31</sup> su** 'particularly', WT **ngos-su /L ηøø<sup>31</sup> su** 'openly', WT **dngos-su/L ηøø<sup>53</sup> su** 'really') and the seventh and eighth examples (WT **dus-su/L t<sup>h</sup>yy<sup>31</sup> su** 'on time,' WT **gnas-su gyar/L nεε<sup>53</sup> su kar** 'to come to a state of') not only is the tonal change in the stem indicative of a historical <-s> in the coda, but the fronting of a back vowel also implies this. However, despite the failure of each of the forms to undergo the tonal change rule, each must be a lexical word because there is no <-s> coda in the stem or the derived form to predict the WT **su/L su** form of the TERM, because the falling tone on a long front round vowel may be due to the loss of either <d> or <s>, i.e. L **t<sup>h</sup>yy<sup>31</sup>** in WT **dus-su/L t<sup>h</sup>yy su** 'on time' could be from the incorrect base WT **\*dud /L t<sup>h</sup>yy<sup>31</sup> su** or the correct base WT **dus/L t<sup>h</sup>yy<sup>31</sup> su**, with the former selecting the TERM allomorph WT **du/L thu** to produce the incorrect WT **\*dus-du/L \*t<sup>h</sup>yy<sup>31</sup> tu** 'on time'.

STEM	GLOSS	-SU FORM	GLOSS	SOURCE
WT <b>skyes /</b> L <b>kee<sup>53</sup></b>	<i>present</i>	WT <b>skyes-su skur /</b> L <b>kee<sup>53</sup> su qu<sup>55</sup></b>	<i>send as a present</i>	97a/98a
WT <b>gras /</b> L <b>t<sup>h</sup>εε<sup>31</sup></b>	<i>kind</i>	WT <b>gras-su /</b> L <b>t<sup>h</sup>εε<sup>31</sup> su</b>	<i>among</i>	205b
WT <b>sgos /</b> L <b>qøø<sup>31</sup></b>	<i>special</i>	WT <b>sgos-su /</b> L <b>qøø<sup>31</sup> su</b>	<i>particularly</i>	292a
WT <b>ngos /</b> L <b>ηøø<sup>31</sup></b>	<i>face</i>	WT <b>ngos-su /</b> L <b>ηøø<sup>31</sup> su</b>	<i>openly</i>	321b/322a
WT <b>dngos /</b> L <b>ηøø<sup>53</sup></b>	<i>real</i>	WT <b>dngos-su /</b> L <b>ηøø<sup>53</sup> su</b>	<i>really</i>	325a/330a
WT <b>rjes /</b> L <b>cee<sup>31</sup></b>	<i>after</i>	WT <b>rjes-su /</b> L <b>cee<sup>31</sup> su</b>	<i>later</i>	430b/433a
WT <b>dus /</b> L <b>t<sup>h</sup>yy<sup>31</sup></b>	<i>time</i>	<b>dus-su /</b> L <b>t<sup>h</sup>yy<sup>31</sup> su</b>	<i>on time</i>	556a
WT <b>gnas /</b> L <b>nεε<sup>53</sup></b>	<i>place</i>	WT <b>gnas-su gyar /</b> L <b>nεε<sup>53</sup> su kar</b>	<i>come to a state of</i>	651a/654a

Table 9. -su TERM without tonal change



In each of the words in Table 9, the falling tone of the stem remains unchanged, i.e., it does not become a level tone as in the words in Table 8, despite the assimilation of the TERM to the historical coda <-s>.

#### 4.0. CONCLUSION

The OT TERM should be considered to be **du** with assimilation of the onset *d* to [-voice] after a [-voice] coda, producing **tu** after the [-voice] codas <-g> [k], <-d> [t], and <-s> [s], with an additional assimilation of *t* [-cont] to the feature [+cont] following the [+cont] fricative -s.

In OT the scribal practice of writing the TERM allomorph *su* is ambiguous. The forms **su**, **‘u**, and **tu** all occur as in the examples from Table 3 shown again in Table 10:

BASE	TERM FORM	GLOSS	SOURCE
khams	khams tu	<i>to the country</i>	Ch.9:I:37(94:89:B1.4)
dbus	Dbong-yul dbusu	<i>in the middle of Dbong country</i>	Vol. 69, fol.84 (9:29)
phyogs	phyogs su	<i>in the direction</i>	Lhasa Potala B(32:26)

Table 10. Ambiguous TERM forms

The ambiguity between the TERM forms **su** and **‘u** is due to scribal indecision concerning the double or geminate *s*, which was resolved in CT in favor of the **su**. The OT scribal practice was similar to that of Hittite scribes, discussed in Garrett 1996:88 and 124, in that “clitics” are not separated from stems. Garrett 1996:125, referring to Zwicky & Pullum 1983:504, considers the Hittite morphemes to be phrasal affixes and not clitics. On the basis of this similarity, the OT TERM, producing apocope **ru** > **-r** after stems ending in vowels and gemination in stems ending in **-d** and **-s**, should also be considered a phrasal affix.

As a phrasal affix, the OT TERM requires a word boundary (##) as a minimum and the assimilation rules producing the allomorphs would be post-lexical rules. However, in L, the adverbs (derivations) in Table 7 such as WT **dkyus-su/L kyy<sup>55</sup> su** ‘lengthwise’ are lexicalized according to the tone change rule above which is one definition of a word (Goldstein 1977:20) and those adverbs (also derivations) in Table 8 above such as WT **dus-su/L t<sup>hy</sup>yy<sup>31</sup> su** ‘on time’ < WT **dus/L t<sup>hy</sup>yy<sup>31</sup>** do not undergo the rule, but have to be lexicalized due to the lack of predictability of the TERM allomorph.

Goldstein 1977:19 gives another definition of the word: the loss of aspiration in the onset of the second syllable of a disyllabic form, e.g., WT **kha-che/L q<sup>h</sup>a<sup>55</sup> tce** ‘Muslim; Kashmiri’ from WT **kha/L q<sup>h</sup>a** + WT **che/L tce<sup>h</sup>e**. Using this as a definition of a word, the adverb WT **rgyun-du/L kŷ-tu** ‘continuously,’ with the TERM allomorph WT **du/L t<sup>h</sup>u** which loses aspiration, is a word.

The lexicalized TERM suffix is somewhat comparable to the *-able/-ible* suffix of English discussed by Katamba 1993:136ff., who determines that the semantically opaque suffix in *perceptible* (‘significant’) is stratum 1 (i.e., it is a phonologically non-neutral affix in a word containing a + boundary) and the semantically transparent suffix in *perceivable* (‘capable of being perceived’) is stratum 2 (i.e., it is a phonologically neutral affix in a word containing a # boundary). In L, the adverb WT **dkyus-su/L kyy<sup>55</sup> su** ‘lengthwise’ may be considered to contain a stratum 1 WT **-su/L -su** suffix because it undergoes the tone change rule, and the adverb WT **dus-su/L t<sup>h</sup>yy<sup>31</sup> su** ‘on time’ a stratum 2 WT **-su/L -su** suffix.

The problem remains as to whether forms such as OT **phyogsu ~ phyogs-su [phyog[ss]u]** ‘toward’ represent what Kenstowicz 1994:413 calls a tautomorphemic or heteromorphemic geminate, which he represents as a multiply linked segment and singly linked segments with a morpheme boundary (+) separating the double segments, respectively. Clearly, OT **phyogsu ~ phyogs-su [phyog[ss]u]** ‘toward’ is a heteromorphemic geminate. If the Obligatory Contour Principle (OCP) applies at the morpheme level in Tibetan, both OT and L, there will be a distinction between these two types of geminates; however, there seems to be no evidence that the OCP does apply. In fact, there appears to be no graphic evidence for monomorphemic geminates in OT or L. Furthermore, the OT scribal practice of writing double *-s* + *s*- suggests that it was considered a single multiply linked segment.

Kenstowicz 1994:413ff. further demonstrates that, contrary to the Uniformity Condition on rule application, one segment of a multiply linked segment is not inalterable, i.e., all surface forms of a multiply linked segment do not have to undergo the same processes as in his example (p.414): the first *p* of the geminate in the Finnish word /kappi/ ‘hero’ undergoes a debuccalization process [kahpi]. This is somewhat like the L adverb WT **dus-su/L t<sup>h</sup>yy<sup>31</sup> su** ‘on time’ < WT **dus/L t<sup>h</sup>yy<sup>31</sup>**, in which the first *-s* also undergoes a debuccalization process.

The constraints of Optimality Theory relevant to the above are: FAITHFULNESS, NoCODA, and \*COMPLEX. The constraint FAITHFULNESS is elaborated by Hammond 1997:36, 40 as “pronounce everything as is”; NoCODA is elaborated as “syllables end with a vowel”; \*COMPLEX as “syllables have at most one

consonant at an edge". As the evidence from Chinese transcriptions of OT names and titles indicates FAITHFULNESS >> NoCODA, i.e., FAITHFULNESS outranks NoCODA, as in the representation of 'dus by 弩悉 (K94z 1257e) **nuo sjet** in 頗藏弩悉恭 (K 630h 727g' 94z 1257e 11821) **kiep dzâng nuo sjet kjwong** for **Rgyal-bzang 'dus-kong** 'personal name'. \*COMPLEX >> FAITHFULNESS in the representation of **Rgyal-bzang** in the same name by 頗藏 (K 630h 727g' ) **kiep dzâng** because the *b-* of the onset in the second syllable is linked to the coda of the first syllable. This is also the case in the representation of **gtogs** by 篤 (K 1019g) **tuok** without an *-s* in 伽羅篤波 (K 15\* 6a 1019g 251) **gja lâ tuok puâ** for **bka' la gtogs pa** 'a title'.

As OT evolved into CT and pre-L, the ranking of the constraints changed. The ranking FAITHFULNESS >> NoCODA became NoCODA >> FAITHFULNESS as in WT **dkyus-su/L kyy<sup>55</sup> su** 'lengthwise', from Goldstein 1975:51a, especially with dental [+coronal] codas. \*COMPLEX >> FAITHFULNESS became more apparent as in WT **gras-su/L ʈ<sup>h</sup>εε<sup>31</sup> su** 'among', from Goldstein 1975:205b, in which a velar [+dorsal] + a retroflex *-r-* [+coronal] in the *gr-* onset complex became a retroflex coronal ʈ<sup>h</sup>.

## REFERENCES

- ARCHANGELI, Diana & D. Terence LANGENDOEN (eds.). 1997. *Optimality Theory: an Overview*. Malden, MA: Blackwell.
- AZIZ, Barbara N. & Matthew KAPSTEIN. 1985. *Soundings in Tibetan Civilization*. New Dehli: Manohar.
- BACOT, Jacques. 1928. *Les ślokas grammaticaux de Thonmi Sambhoṭa avec leurs commentaires*. (Bibliothèque d'Études, 37). Paris: Paul Geuthner.
- \_\_\_\_\_. 1981. *Grammaire du Tibétain littéraire*. Paris: Librairie d'Amérique et d'Orient.
- \_\_\_\_\_, F. W. THOMAS, & C. TOUSSAINT. 1940-46. *Documents de Touen-houang relatifs à l'histoire du Tibet*. (Annales du Musée Guimet, Bibliothèque d'Études, 51). Paris: Paul Geuthner.
- BECKWITH, Christopher. 1987. *The Tibetan Empire in Central Asia: a History of the Struggle for Great Power among Tibetans, Turks, Arabs, and Chinese during the Early Middle Ages*. Princeton: Princeton University Press.
- BEYER, Stephan V. 1991. *The Classical Tibetan Language*. Albany: State University of New York Press.
- DEMIÉVILLE, Paul. 1957. *Le concile de Lhasa*. (Bibliothèque de l'Institut des Hautes Études Chinoises, 7). Paris: Presses Universitaires de France.
- EMMERICK, R. E. 1967. *Tibetan Texts Concerning Khotan*. (London Oriental Series, 19). London: Oxford University Press.
- FOX, Anthony. 1995. *Linguistic Reconstruction: an Introduction to Theory and Method*. Oxford: Oxford University Press.
- GARRETT, Andrew. 1996. "Wackernagel's Law and unaccusativity in Hittite." In Halpern & Zwicky, eds., 85-133.
- GOLDSTEIN, Melvyn (ed.). 1975. *Tibetan-English Dictionary of Modern Tibetan*. Kathmandu: Ratna Pustak Bhandar.

- \_\_\_\_\_. 1977. *Modern Literary Tibetan*. (Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics, 5.) 2nd Edition. New Delhi.
- HALPERN, Aaron & Arnold ZWICKY (eds.). 1996. *Approaching Second: Second Position Clitics and Related Phenomena*. (Center for the Study of Language and Information: CLSI Lecture Notes, 61.) Stanford: Center for the Study of Language and Information.
- HAMMOND, Michael. 1997. "Optimality theory and prosody." In Archangeli & Langendoen, eds., 33-58.
- HANNAH, Herbert. 1973. *Grammar of the Tibetan Language: Literary and Colloquial*. Delhi: Cosmo Publications.
- HOGAN, Lee C. 1994. "Nasalization in Lhasa Tibetan." *LTBA* 17.2:83-102.
- \_\_\_\_\_. 1996. "The moraic structure of Classical Tibetan." *LTBA* 19.1:115-149.
- JAESCHKE, H. A. 1954. *Tibetan Grammar: Supplement of Readings with Vocabulary by John L. Mish*. New York: Frederick Ungar.
- KATAMBA, Francis. 1993. *Morphology*. New York: St. Martin's Press.
- KENSTOWICZ, Michael. 1994. *Phonology in Generative Grammar*. Cambridge, MA: Blackwell.
- LASS, Roger. 1977. *Historical Linguistics and Language Change*. Cambridge: Cambridge University Press.
- LI Fang-kuei & Weldon S. COBLIN. 1987. *A Study of the Old Tibetan Inscriptions*. (Academia Sinica, Institute of History and Philology Special Publication, 91.) Taipei: Academia Sinica.
- MILLER, Roy Andrew. 1963. "Thon-mi and his grammatical treatises." *JOAS*:83:485-502. (= Miller 1976:1-18).
- \_\_\_\_\_. 1976. *Studies in the Grammatical Tradition in Tibet*. (Amsterdam Studies in the Theory and History of Linguistic Science, Series 3: Studies in the History of Linguistics, 6.) Amsterdam: John Benjamins.

- \_\_\_\_\_. 1993. *Prolegomena to the First Two Tibetan Grammatical Treatises*. (Wiener Studien zur Tibetologie und Buddhismuskunde, 30.) Wien: Arbeitskreis für Tibetische und Buddhistische Studien, Universität Wien.
- SNELLGROVE, David. 1987. *Indo-Tibetan Buddhism: Indian Buddhists & their Tibetan Successors*. Boston: Shambhala.
- \_\_\_\_\_, David & Hugh RICHARDSON. 1968. *A Cultural History of Tibet*. New York: Praeger.
- STEIN, Rolf. 1972. *Tibetan Civilization*. Translation of *La civilisation tibétaine* (Paris: Dunod, 1967). Stanford: Stanford University Press.
- TAN, Kerang. 1987. "On the evolution of Tibetan final -s," *LTBA* 10.1:152-165. Translated from *Mínzú Yǔwén*:4:15-23 by Randy J. La Polla; edited by James A. Matisoff & Stephen P. Baron.
- THOMAS, F. W. 1951-63. *Tibetan Literary Texts and Documents Concerning Chinese Turkestan*. (Parts II-IV) (Oriental Translation Fund, New Series: Vols. 37, 40, 41.) London: The Royal Asiatic Society.
- URAY, Géza. 1952. "A Tibetan diminutive suffix." *Acta Orientalia Academiae Scientiarum Hungaricae* 2:2-3:183-219.
- VERHAGEN, Pieter. 1993. *A History of Sanskrit Grammatical Literature in Tibet*. (Handbuch der Orientalistik, Zweite Abteilung, Indien, 8.). Vol. 1. Leiden: Brill.
- WILSON, Joe. 1992. *Translating Buddhism from Tibetan*. Ithaca: Snow Lion Publications.
- ZHANG, Liansheng. 1985. "The phonetic structure of ABCB type words in Modern Lhasa Tibetan." In Aziz & Kapstein, eds., 20-34.