

Nasalization in Lhasa Tibetan*

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1.0 INTRODUCTION

1.1 Theoretical Import

One of the basic tenets of the Neogrammarians was the Regularity Principle:

All sound changes, as mechanical processes, take place according to laws that admit no exceptions (*ausnahmslose Lautgesetze*) within the same dialect, and the same sound will in the same environment always develop in the same way....

[Robins 1979:182f ¹]

If sound change is regular, then there might be a distinction between the innovation, the implementation of the innovation, and the spread of the sound change in the socio-linguistic dialect in a spatio-temporal sense. Conceivably, the implementation, as well as the spread, could be abrupt or gradual. Yet if gradual, the implementation could be strictly phonetic with class features becoming more inclusive or the spread could be lexically mediated to apply to specific subsets of the lexicon, such as more common words first or culturally- or semantically-determined words, at specific times.

If a sound change diffuses through the lexicon (as advocated by Wang & Lien 1993, Chen & Wang 1975²), there is a point in time before the sound change begins and no pertinent lexical items are affected; there are points of time when the sound change is in progress and some pertinent lexical items are affected; and a point of time at which the sound change is essentially complete; thus, there are discrete points of time at which the change can be seen as non-regular in a Neogrammarian sense, because not all pertinent lexical items are affected. Wang & Lien 1993:348 further argue for "an extended version of L[exical] D[iffusion] in which the conflict between sound change and borrowing can be resolved and there is an interaction between coexisting systems induced by language contact", which they term "bi-directional diffusion." In their scenario, lexical items and processes from different dialects or languages diffuse into each other. This latter notion might be relevant to diffusion of lexical items which are unique to different styles or registers of a language.³

1.2 Sound Change in Lhasa Tibetan

In modern Lhasa Tibetan, the final codas of the classical language are, in general, being lost; specifically, *-t*, *-s*, *-n*, *-l* have been lost and the labial and velar nasals are being lost in some lexical items. However, the loss of the dentals has resulted in the fronting of back vowels and the loss of the nasals has given rise to nasalized vowels. According to Goldstein & Nornang 1978, the following forms occur:

Phoneme	Transcription	SR	Gloss
t	skad-btaŋ	[qɛɛ-tāã < *skat-btaŋ]	invite
	mgo-tshod	[qo-tshöö < *mgo-tshot]	understand
s	dbus	[üü]	Dbus
	he-las	[a-lɛɛ]	first
n	yon-tan	[yö-têê]	knowledge
	dgun-ka	[qũ-qâ]	winter
l	'bol-'bol	[pöö-pöö]	soft
	dpal-khog	[pɛɛ-qoo]	forehead

(The transcription represents Written Tibetan; SR is the surface representation, i.e., the surface phonetic form.⁴ It is assumed that syllable-final devoicing occurred before syllable-final loss, i.e., /d/ > /t/.)

In addition to the nasalization produced by *-n* in coda position, nasalization also occurs with the labial nasal *-m* and the velar nasal *-ŋ*, as in the following:

Phoneme	Transcription	SR	Gloss
m	sbom-po	[pö-po]	thick
	skam-pa	[qâ-pa]	tongs
ŋ	gshe-gshe btaŋ	[ʃɛ-ʃɛɛ tãã]	scold

However, there are exceptions word-finally and word-internally such as:

bsam [sam] 'think'	'breŋ [tɛŋ] 'rope bridge'
sbom-pra [pom-tʰa] 'thickness'	rkaŋ-pa [qaŋ-pa] 'foot.'

1.3 The Problem

Is this an example of a sound change in progress diffusing through the lexicon by means of expanding structural descriptions and conditioning environments, so that eventually all VN (vowel + nasal) sequences will become nasalized vowels unless otherwise modified by another sound change? Or is it an example of lexical diffusion, or even bi-directional diffusion, of a sound change "caught in midstream" [Wang & Lien 1993:345]? Is this vowel nasalization even a sound change, initiated by the loss of the dental nasal, spreading to other nasals, or simply a post-lexical phonetic rule?

Vowel nasalization occurs very frequently on the surface, but it is evident that it is the reflex of underlying final nasal consonants because these final nasals are frequently pronounced as segments in more deliberate styles of speech. Further, when they are realized as vowel nasalization there is often a near segmental transition between the nasalized vowel and the following segment, as illustrated in example set (67) [the second example below is from that set]. Further, the distribution of the final nasal consonants is restricted in such a way that there is only a small area of possible overlap. [Hari 1979:47]

Hari 1979:26 gives several examples of this:

/ˈtaŋ-pa/	[taŋba/taŋβa/tā:βa]	send
/kʰola son tɛʔ/	[kʰola so:nteʔ]	Give him seeds.

Furthermore, she specifies that: "Final /m/ is pronounced as a segment. Of the remaining two nasals /ŋ/ occurs only after /a, o, i/ and /n/ only after /ɛ, ɔ, u, i/ [p.49]." However, her chart therein indicates the nasalized [ũ:] and [õ:] are re-interpreted as /oŋ/, nasalized [õ:] and [ẽ:] as /en/, and nasalized [ĩ] as ambiguous between /iŋ/ and /in/. This seems to indicate that a phonetic rule of nasalization has resulted in relexicalization of forms with nasalized vowels. The rule reinterpreting these forms has confused the back vowels [ũ:] and [õ:] as /oŋ/; the front vowels [ẽ:] and [ĩ:] as /en/; and the nasalized high front vowel [ĩ] as /iŋ/ in some words and /in/ in others. The result is a merger of the vowels /u/ and /o/ before the velar nasal, and /o/ and /e/ before the dental nasal.

Because there is a distinction between nasalization in honorific and non-honorific speech, these two styles will be contrasted here.

2.0 PHONEMES, HISTORICAL PROCESSES AND MORPHOLOGICAL ALTERNATIONS

2.1 Phonemes

In her analysis, Hari 1979:28 establishes the following phonemes:

i	ũ	u
e	õ	o
a		
ĩ	ĩ	ũ
ê	ũ	ũ
e	õ	õ
ε	õ	õ
	â	â
	a	ã

Although Goldstein and Nornang 1978:xv, xvii do not establish phonemes, they do list the following vowel sounds:

The symbols [ê] and [ô] represent diphthongs somewhat similar to those in the English words *say* and *sew*, respectively. The symbol [â] represents schwa (p. xvii).⁵

2.2 Processes

There are several processes relevant here: final obstruent devoicing, final dental loss, nasalization, and coda formation.

2.2.1 Final Devoicing

Final devoicing of all obstruents (b, d, g) seems to be historically first and is complete word-finally and word-internally:⁶

FINAL DEVOICING			
Phoneme	Transcription	SR	Gloss
b	gab	[qâp]	to hide
	skyabs-bcol	[kâp-chöô]	refugee
d	gyud	[küü < *kut]	tantra
	brgyud-nas	[küü-ni < *kut-ni]	through
g	bkug	[quu < *guk]	to bend
	gug-gug	[koq-koo]	crooked

2.2.2 Final Dental Loss

Final dental loss involved the phonemes /t, s, n, l/. This is generally complete word-finally and word-internally. For /t/, the above chart exemplifies that loss. The chart below illustrates the loss of /s, n, l/:

FINAL /s/, /n/ AND /l/ LOSS			
Phoneme	Transcription	SR	Gloss
s	dbus	[üü]	Dbus
	he-las	[a-lɛɛ]	first
n	yon-tan	[y ö ö-tɛɛ]	knowledge
	dgun-kha	[qū-qâ]	winter
l	'bol-'bol	[p ö ö-pöö]	soft
	dpal-khog	[pɛɛ-qoo]	forehead
	bkal	[qɛɛ]	hang up
	skal-bzang	[qɛɛ-sāā]	a name

Final dental loss has resulted in only front vowels, rounded and unrounded, in environments which historically had dental codas.

2.2.3 Final Nasal Loss and Nasalization

If a nasal consonant coda is lost, the invariant result is nasalization of the preceding vowel. This occurs with the dental nasal, concomitant with the fronting of the back vowels, and the velar and labial nasals.⁷

Nasal loss and vowel nasalization are most complete with the dental nasal /n/; no syllable final /n/ seems to be listed in the "Tibetan-English Glossary" of Goldstein & Nornang 1978:235-320 nor the "Appendix" of Chang & Shefts 1964:255-286.

Loss of the velar nasal word-finally is common as the following forms indicate:

DISTRIBUTION OF WORD-FINAL VELAR NASAL LOSS AND NASALIZATION

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
brgyaŋ	[kāã]	to stuff
chaŋ	[chāã]	beer
goŋ	[qhōō]	price
sbyaŋ	[cāã]	to practice

Examples of words in which the final velar nasal is not lost are also numerous:

DISTRIBUTION OF NON-LOSS OF WORD-FINAL VELAR NASAL AND NON-NASALIZATION

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
'gyaŋs	[kaŋ]	postpone
gyoŋ	[khoŋ]	loss
khyung	[khuŋ]	eagle
sñiŋ	[ñiŋ]	heart
rkyan	[kaŋ]	wild donkey

Word-internally, the loss of the velar nasal /ŋ/ and vowel nasalization seems to be dependent on the initial of the following morpheme. These processes are more common before a morpheme beginning with a velar initial:

DISTRIBUTION OF WORD-INTERNAL VELAR NASAL LOSS AND NASALIZATION

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
aŋ-khu	[ā-qu]	pigeon
chaŋ-khaŋ	[cā-qāã]	bar
dgoŋ-mtha'	[qōō-taa]	evening
gcoŋ-po	[cō-qo]	delicate

haŋ-gi	[ã̃-qi]	a number
kheŋs-po	[qhã-qo]	full
gruŋ-po	[thũ-qu]	clever
lcaŋ-sdoŋ	[cãã-tõõ]	P.N. of tree
rkaŋ-rjes	[qãã-cee]	footprint
rkaŋ-bkug rgyab	[qãã-quu kâp]	to trip
spyar-po	[cã-qo]	clever
spyar-khu	[cã-qu]	wolf

There are also occurrences of the non-loss of the velar nasal:

DISTRIBUTION OF NON-LOSS OF WORD-INTERNAL VELAR NASAL AND NON-NASALIZATION

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
aŋ-graŋs	[aŋ-ṭãã]	a number
dgoŋ-mo	[goŋ-õõ]	night
khaŋ-pa rgyab	[qhaŋ-pa kâp]	build a house
lcaŋ-ma	[caŋ-ma]	willow
mjiŋ-pa	[ciŋ-pâ]	neck
naŋ-pa	[naŋ-pa]	Buddhist
ŋaŋ-pa	[aŋ-pa]	duck
rkaŋ-pa	[qaŋ-pa]	foot
rkaŋ-lag	[qaŋ-laa]	limbs
rkaŋ-dmag	[qaŋ-maa]	infantry
rkaŋ-mthil	[qaŋ-tii]	sole/foot

The base morphemes dgoŋ, lcaŋ, khaŋ, and rkaŋ occur with non-nasalized and nasalized allomorphs: [qoŋ-/qõõ-], [caŋ-/cãã-], [qhaŋ-/qhãã-], and [qaŋ-/qãã-], respectively.

Hari 1979:207 classifies the suffixes *-ma* (secondary noun forming) and *-pa* (nominalizing or adjectivizing) as "assimilating suffixes" on the basis of tonal behavior. Their tone is derived from that of the base, which suggests that the boundary between stems and these formatives is of a different kind than that between stems and the formative *-po* in the forms above. Nasalization does not occur in the base with the former but does occur with the latter. This is also illustrated by the above forms.

There are also cases in which the labial nasal is lost and nasalization occurs, both word-finally and word-internally. Word-finally cases of labial loss are seemingly not numerous, but do exist, as seen below:

DISTRIBUTION OF WORD-FINAL LABIAL NASAL LOSS AND NASALIZATION

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
'dzems-byas	[tsẽẽ-cheɛ]	feel shy
chu-rgun-brum	[chu-gũ-tũũ]	grape

The non-loss of word-final labial nasal seems much more common:

DISTRIBUTION OF NON-LOSS OF WORD-FINAL LABIAL NASAL AND NON-NASALIZATION

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
krims btaŋ	[thim tãã]	prosecute
bsam	[sam]	think
bsnam	[nam]	to take
kham	[qham]	Kham
mtshams-'dam	[tsham tam]	meditate

For the labial nasal, the process seems to be most prominent internally before a morpheme beginning in a labial. Note the following examples:

DISTRIBUTION OF WORD-INTERNAL LABIAL NASAL LOSS AND NASALIZATION

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
cham-po byas	[chã-po cheɛ]	to act kind to
dam-po	[tã-po]	tight
'gram-pa	[tã-pa]	cheek
gtam-dpe	[tã-pe]	proverb
kham-bu	[qh â-pu]	peach
khram-po	[thã-po]	shallow
khyed-rnam-gñis	[khe-nãã-ñii]	you two
ldum-ra	[tũũ-ra]	garden
mgrom-po	[tõ-po]	guest
rim-pas	[rĩ-pêê]	gradually
sbom-po	[põ-po]	thick
skam-pa	[qã-pa]	tongs
sdom-pa	[tõ-pa]	vow
snam-bu	[nã-pu]	wool cloth
zhim-po	[shĩ-po]	tasty

The difference in nasalization between the "assimilating suffix" *-pa* (nominalizing or adjectivizing) and the formative *-po* apparent with the velar nasal above [see Hari 1979:207] does not occur in the labial-finalled forms just cited; i.e., nasalization occurs with both suffixes.

There are also numerous cases of non-loss of the word-internal labial nasal:

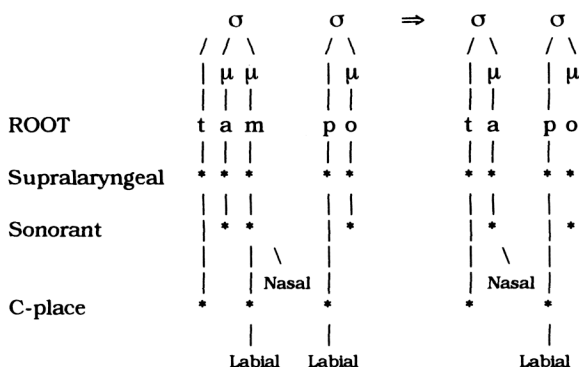
DISTRIBUTION OF NON-LOSS OF WORD-INTERNAL LABIAL NASAL AND
NON-NASALIZATION

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
'dam-sgrug rgyab	[tam-tuu kâp]	to tie
lam-sej	[lam-sâã]	immediately
sbom-phra	[pom-ta]	thickness
shim-phrug	[shim-tuu]	kitten

The following morphemes occur word-internally with non-nasalized and nasalized allomorphs: *dam* [tam-/tã-], *sbom* [pom-/põ-].

2.2.4 Coda Formation (Debuccalization and Metathesis)

The labial nasal seems to be most often deleted before a following labial. This is a process of delinking and debuccalization: the nasal feature is delinked from the /m/ and the nasal feature is attached to the preceding vowel. Subsequently, the root node is delinked (debuccalized) from the mora node and the mora position and the C-place is lost (see Avery & Rice 1989 for further discussion of the notation). This is illustrated below for the word *dam-po* [tã-po] "tight":



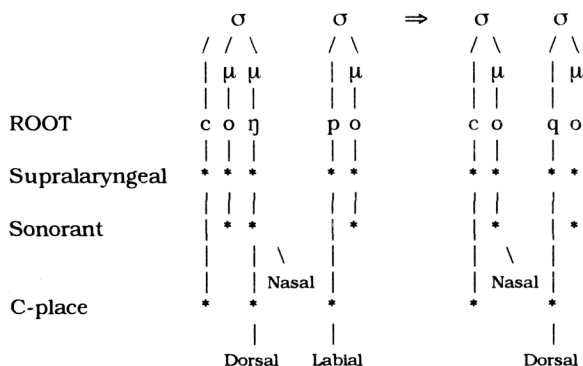
This is a process of dissimilation: the labial nasal is most often lost before a syllable with a labial onset.

With word-internal velar nasals before labial onsets the situation is more complicated: the preceding vowel is nasalized and the C-place of the velar nasal becomes the onset of the following syllable. This is apparent in the forms above (repeated below) with the velar nasal coda and the suffix *-po*:

DEBUCCALIZATION OF CODA VELAR NASAL AND RELINKING AS ONSET

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
gcoŋ-po	[cõ-qo]	delicate
gruŋ-po	[thũ-qu]	clever
khaŋs-po	[qhã-qo]	full
spyaŋ-po	[cã-qo]	clever

The left portion represents the situation in which the nasal feature and the root node with the C-places are delinked and the right represents the associated result. This is illustrated below with the word *gcoŋ-po* [cõ-qo] "delicate":



This is a process of metathesis in which the velar and labial are interchanged with subsequent loss of the labial.

2.3 Morphological Nasalization

There are also other environments in which nasalized vowels occur, such as before morphemes with the *a-chung* (indicated with '), *m*, *l*, and *z* pre-radicals (consonants preceding the root initial).⁸ This process of nasalization is indicated in the table below:

MORPHOLOGICAL INTERACTIONS RESULTING IN NASALIZATION

Phoneme	Transcription	SR	Gloss
'	'di-'dras shig la	[tī tee cii lâ]	while
	dma'-'beb byas	[mā-pe cheε]	to degrade
	'dra-mi-'dra	[ta-mē-ʈa]	different kinds
	dreg-'khru rgyab	[ṭh ā̃-ʈu kâp]	do laundry
	mīg-'phrul bstan	[mī-tūū tē]	make magic
	og-'jug	[wāā-cuu]	blouse
	tshogs-'du	[tshōō-tu]	meeting
m	bod-mdā'	[phōō-tā]	Tibetan rifle
	phyag-mdzod	[chāā-tsōō]	steward
	sku-mdun	[qū-tūū]	Dalai Lama
	me-mdā' rgyab	[mē-ta kâp]	to shoot
	rja-mkhan	[tsā-qēē]	potter
l	'bras-ljoŋs	[tēē-cōō]	Sikkim
	da-lta	[thā-ta]	now
	dpal-'byor	[pēē-coo]	economics
z	bod-zla	[ph ōō-ta]	Tibetan month

(The last form is from Hari 1979:108)

Hari 1979:108ff discusses the above "nasal insertion" as resulting from the unaspirated stop of the second component, a final glottal stop, *p* or *k* of the first component and low register in the second component:

(a) An initial underlying unaspirated stop of the second component of a compound regularly shows prenasalization with a homorganic nasal if the first component ends in a vowel or a glottal stop and the second component has pitch contour 2. Nasal insertion deletes a preceding glottal stop.

(b) Final /k/ and /p/ of first components turn into a homorganic nasal ([ŋ] and [m] respectively) before a morpheme with pitch contour 2 and an underlying unaspirated initial stop (i.e., pitch contour triggers prenasalization, but the underlying stop of the first component dominates the place of articulation).

However, she does admit some exceptions such as the following (pp. 111-113), transcribed in the system of Goldstein & Nornang 1978:

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
bod-zla	[ph [̃] ö [̃] -ta]	Tibetan month
chu-mtshams	[ch [̃] ü-tsham]	water boundary
phyag-mdzub	[ch [̃] ä [̃] -tsuu]	finger
rta-'bol	[t [̃] ä-pö [̃]]	saddle cushion
sha-'khyag	[sh [̃] ä-khaa]	frozen meat

These exceptions to her generalization result from the attempt to derive the nasalization from the register (specifically pitch contour 2). However, the situation is just the reverse: the pitch contour results from the voicing of the pre-radical consonant.⁹ Here the voiced pre-radicals *'*, *m*, *l*, *z* are delinked from an onset position in the second syllable and relinked to a coda position present in the first syllable, with resulting nasalization of the vowel in the initial syllable.¹⁰ The real exceptions involve the words *chu-mtshams* [ch[̃]ü-tsham] 'water boundary' and *rta-'bol* [t[̃]ä-pö[̃]] 'saddle cushion' in that there is no glottal stop in coda position nor any long vowel to indicate a second mora; however, coda formation is apparently part of preferred syllable structure because this process sporadically occurs with other pre-radicals in Lhasa Tibetan:

CODA FORMATION WITH PRE-RADICALS /b/ AND /r/

<i>Phoneme</i>	<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
b	dgu-brgya	[qup-kâ]	900
	khe-bzaŋ	[qhep-sä [̃] ä]	profit
	sñad-brjod bshad	[ñap-cö [̃] ö she [̃] ε]	to abuse
r	mi-rgod	[mer-qö [̃] ö]	gorilla

It might be argued that the trigger for the process of nasalization can occur in any onset position in a following syllable, and thereby cause nasalization to spread across morpheme boundaries from right to left, and that the nature of the pre-radicals has nothing to do with the above process. However, this does not seem to be true. The following forms (cited above) without nasalization and others argue against this:

NON-NASALIZING ENVIRONMENTS			
<i>Phoneme</i>	<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
m	lcaŋ-ma	[caŋ-ma]	willow
	rkaŋ-dmag	[qaŋ-maa]	infantry
	pha-ma	[pha-ma]	parents
n	go-nor thebs	[qho-noo thee]	misunderstand
	les-sne	[lɛɛ-ne]	monastic official
	glo-nad	[lo-nɛɛ]	tuberculosis

2.4 Nasalization and Style

2.4.1 Sporadic Nasalization

The above processes do not account for all nasalization in Lhasa Tibetan. There are also cases of sporadic nasalization such as the following:

SPORADIC NASALIZATION		
<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
kho-tsho	[qhõ-tso]	they
ŋo-shes	[ŋo-shê]	to know a person
shes	[shê]	to know

In the above forms there is no nasal final nor pre-radical in the following morpheme to cause the nasalization. However, the above non-honorific forms have honorific counterparts with predictable nasalization:

<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
kho-rnam-tsho	[qho-nãã-tso]	they
ŋo-mkhyen	[ŋo-khê]	to know a person
mkhyen	[khê]	to know

Here the honorific forms have apparently caused the sporadic nasalization in the non-honorific ones.

2.4.2 Nasalization in the Honorific Style

In honorific forms, nasalization seems to be at least as common as in non-honorific forms, if not more so. It occurs both phonemically and morphologically.

2.4.2.1 Phonemic Nasalization in the Honorific Style

Phonemic nasalization occurs both word-finally and word-internally (some examples repeated from above):

WORD-FINAL NASALIZATION IN THE HONORIFIC LEXICON

<i>Phoneme</i>	<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
m	shum	[shũũ]	to cry
	yab-yum	[yâp-yũũ]	parents
ŋ	bka' gnaŋ	[qa nãã]	to order
	dgoŋs	[qõõ]	to think
	sku-braŋ	[qu-pãã]	chest
	zhal-stoŋ skyon	[shɛɛ-tõõ kõ]	yawn

WORD-INTERNAL NASALIZATION IN THE HONORIFIC LEXICON

<i>Phoneme</i>	<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
m	gzim-sgo	[sẽ-qo]	door
	gzim-spos	[sẽ-põõ]	incense
	kho-rnam-tsho	[qho-nãã-tsho]	they
	khyed-rnam-gñis	[khe-nãã-ñii]	you two
ŋ	dguŋ-lo	[qõõ-lo]	year

The process of nasalization and loss of the word-final nasal seems to be more advanced with the velar nasals than with the labial nasals. However, the loss of the word-internal nasal and nasalization seems more advanced with the labial nasal than the velar nasal.

2.4.2.2 Morphological Nasalization in the Honorific Style

The process of nasalization in the honorific style also occurs with the morphological process of coda formation, as illustrated by the following examples:

MORPHOLOGICAL INTERACTIONS RESULTING IN NASALIZATION IN THE HONORIFIC LEXICON

<i>Phoneme</i>	<i>Transcription</i>	<i>SR</i>	<i>Gloss</i>
'	bka' 'dre shus	[qã-ti shũũ]	to ask
	bshes-'bras	[shẽẽ-tɛɛ]	rice
	dge-'dun-pa	[qĩ-tũũ-pa]	monk
	sku-'jug	[qũ-cuu]	blouse
	thags-'dzems	[thõõ-tsẽẽ]	feel shy
m	phyag-mda skyon	[chãã-ta kõ]	to shoot
	phyag-mda	[chãã-ta]	arrow
	phyag-mdrud skyon	[chãã-tuu kõ]	to knot

	phyag-mdzub	[ch ^h ã ^h -tsuu]	finger
	sku-mgron	[qũ-tõõ]	guest
	sku-mkhris	[qũ-tii]	jaundice
1	phyag-lde	[ch ^h ã ^h -tii]	key

3.0 CONCLUSION

The historical processes of syllable-final obstruent devoicing and syllable-final dental loss seem complete and without exception. The nasalization resulting from the loss of the dental nasal is probably unrelated to the morphological processes that are creating nasalized vowels from word-internal labial and velar nasals, these processes being syllable-restructuring processes.

The back vowels preceding the dentals in the first coda position occurred as sub-phonemic front rounded vowels; however, once the final dentals were lost, a classic case of phonemic split occurred: allophonic front rounded vowels became phonemic. This sound change also produced nasalized front vowel phonemes resulting from the loss of the final dental nasal.

The morphological processes creating nasalization involve the syllable-restructuring processes of onset simplification (only one consonant in onset position), coda formation, and delinking of supralaryngeal C-place features in the case of the pre-radicals ', *m*, *l*, and *z*, and reinterpreting the voicing as nasalization.

In terms of theoretical bias, the data and processes of nasalization seem to argue against the Neogrammarian process of sudden implementation of an innovation. There seems to be a gradual lexical replacement of underlying forms with nasalized vowels instead of VN sequences; and, according to Hari 1979:47, there is a process of re-interpretation of the nasalized vowels in "deliberate styles of speech" with concomitant merger and loss of distinction.

The linking of the processes of nasalization with the honorific style in the Lhasa dialect is no more than suggestive. A more thorough analysis of the socio-linguistic situation might be able to statistically link the various processes with the honorific and non-honorific nouns, verbs, and adjectives characteristic of speech patterns in Lhasa Tibetan.¹¹

* I wish to thank Losang Gyaltsen for his assistance in reading a portion of a Classical Tibetan text that has been digitized for spectral analysis. His assistance was invaluable.

Rona-Tas 1985:155 groups the Lhasa dialect with other *Mittlere Untergruppe* of the *Zentral-tibetische Dialekte* of the *Nicht-archaische Dialekt*. Hari 1979:216 uses Shafer's (1966) classification of the Lhasa dialect in the Central Bodish Unit of the Bodish Branch of the Bodish Section of the Bodic Division of the Sino-Tibetan family. Rona-Tas 1966:196 characterizes the Central Tibetan dialects as those losing the finals *-s*, *-d*, *-l*, *-n* and *-g* with subsequent fronting of the back vowels before the dentals, lengthening before final *-s* and *-l* and nasalization before *-n*:

v+s → v̄v̄
 v+d → v̄
 v+l → v̄v̄
 v+n → v̄v̄
 v+g → v̄

This vowel lengthening may be represented in the following way:

$\begin{array}{c} \sigma \\ / \quad \backslash \\ \mu \quad \mu \\ | \quad | \\ V \quad C \end{array} \Rightarrow \begin{array}{c} \sigma \\ / \quad \backslash \\ \mu \quad \mu \\ \backslash \quad / \\ V \end{array}$

The symbols σ and μ represent a syllable and a mora, respectively. Both syllables above are composed of two morae; however, the result is composed of a long vowel of two morae. This production of long morae resulting from segment loss, i.e., compensatory lengthening, as a historical process is discussed in Hock 1986.

The assumption is made here that the modern dialects, specifically the Lhasa dialect, are descendants of Old Tibetan recorded in manuscripts and other forms (see Li & Coblin 1987). According to Beyer 1992:66 the phonemic inventory of Old Tibetan was:

OLD TIBETAN CONSONANT PHONEMES

	bilabial	dental	retroflex	palatal	velar	glottal
stops	p p ^h b	t t ^h d			k k ^h g	ʔ
affricates		ts ts ^h dz		tʃ tʃ ^h dʒ		
fricatives		s z	r	ʃ ʒ		h
nasals	m	n		ɲ	ŋ	
laterals		l				
semivowels	w			y		

OLD TIBETAN VOWEL PHONEMES

$\begin{array}{cc} i & u \\ e & o \\ & a \end{array}$

For the early history of Tibetan and the Tibetan people see also Stein 1972, Pulleyblank 1983, Beckwith 1987, and Hoffman 1990. For insights into more recent aspects, see Harrer 1953, Nebesky-Wojkowitz 1975, David-Neel 1986, Huc & Gabet 1987, and Waddell 1988.

¹ See also King 1969:119ff, Bloomfield 1973:354, Anderson 1973:17ff, Hock 1991:442ff. Another tenet would be the Gradualist Hypothesis for which see King 1969:105ff and Hock 1991:633, 640.

² For issues relevant to the Chaozhou tone change discussed in Wang & Lien 1993, see Ballard 1989. For criticisms of lexical diffusion, see Pulleyblank 1982.

³ Beyer 1992:152ff makes a distinction between honorific speech, social vector verbs, and lexical items that are unmarked, elegant and honorific in Classical Tibetan. Their use is determined by the register of the discourse. He gives the following examples of elegant (refined or elevated) speech in the classical language, the first of each pair being elegant: *lags/yin* 'be', *gda/ndug* 'stay', *bgyl/bya* 'do', and *bdag/ɲa* 'T'. One of the examples he gives of social vector verbs is that for the verb 'give': *pul* 'give from below upward' → offer, *gnang* 'give from above

downwards → bestow', and *taj* 'give' (unmarked). Honorific nouns, verbs, and adjectives may be divided into *primary* and *secondary* classes (see Beyer 1992:154f, 156f). Primary honorifics would be those with completely different phonological forms, as illustrated by the following pairs (the honorific forms come first): *dbu/mgo* 'head', *zhabs/rkaj* 'foot', *yab/pha* 'father', *yum/ma* 'mother', *khyim/khaj* 'house', and *chib-pa/rta* 'horse.' Secondary honorifics would be those in which an honorific morpheme is prefixed to an unmarked morpheme resulting in an honorific derived form: *sku-* 'body' in *sku-rus* 'bone', *sku-sha* 'flesh', and *sku-bsod* 'virtue'; *dbu-* 'head' in *dbu-rñas* 'pillow'; *phyag-* 'hand' in *phyag-nar* 'wrist', *phyag-mtheb* 'thumb'; and *zhabs-* 'foot' in *zhabs-gdan* 'carpet', and *zhabs-bro* 'dance.'

Unfortunately, these distinctions are not reflected in the lexicographic works which recognize only honorific vs. non-honorific forms. This minimal distinction will be used herein.

⁴ All data will be from Goldstein & Nornang 1978 unless otherwise specified.

⁵ Goldstein and Nornang 1978:xvi-xvii list the consonant sounds of Lhasa Tibetan as:

	<i>bilabial</i>	<i>alveolar</i>	<i>retroflex</i>	<i>alveopalatal</i>	<i>palatal</i>	<i>velar</i>	<i>glottal</i>
<i>stops</i>	p p ^h m ^b	t t ^h n ^d	t̪ t̪ ^h n̪ ^d			k k ^h ŋ ^k	q q ^h ŋ ^g
<i>affricates</i>		ts ts ^h		c c ^h			
<i>fricatives</i>		s	r r ^h	sh			h
<i>nasals</i>	m m ^h	n n ^h			ɲ ɲ ^h	ŋ	
<i>laterals</i>		l l ^h					
<i>semivowels</i>	w				y		

The symbols m^b, etc. represent prenasalized stops and m^h, etc. represent aspirated consonants. The symbols ɭ, etc. represent retroflex consonants.

⁶ There are indications that final devoicing was a process in Old Tibetan. This evidence is that of the Tibetan scribal practices in the transcription of Middle Chinese *ju-sheng* [ru-sheng] word final -p, -t, -k [Chen 1976]. For Old Tibetan, i.e., Pre-classical Tibetan, See Beyer 1992:28, 62 [It seems clear that final stops were never contrastively voiced in Tibetan, but simply lenis and unreleased, as everywhere else in the Sino-Tibetan area. Cf. Mary R. Haas' choice of "-b -d -g" to transcribe the final stops of Thai. (Ed.)]

⁷ According to Lieberman & Blumstein 1988:123f, nasalization is more likely to be coupled with the lower vowels than the higher in that elevation of the levator palatini is more salient for higher non-nasalized vowels than lower vowels when non-contrastive phonemically. Therefore, nasality is more likely to be sub-phonemically linked with the lower vowels.

⁸ Matisoff 1975 (referred to in Sprigg 1988 and Michailovsky 1975) coined the term "rhinoglottophilia" to describe the connection between laryngeals ([h] and [ʔ]) and nasalization in a variety of languages. Sprigg 1987, in a discussion of "rhinoglottophilia" in Tibetan, suggests that the a-chung prefix (discussed below) "symbolized ... a nasal homorganic to the following consonant [58]." See also Miller 1970:75 for a similar view.

⁹ In tonogenesis, it is generally established that voiced initials produce lower tone than voiceless. Therefore, a pre-voiced initial or a pre-nasalized initial could be expected to produce a lower tone. See Matisoff 1973, Ohala 1978, Gandour 1978, Hombert 1978, Hyman 1978, and Yip 1993.

Historically, Tibetan seems to have had a three-way manner contrast for stops and affricates (e.g. *p::ph::b*), which might be understood phonetically, following Lieberman & Blumstein 1988:195ff, as coincidental, delayed and preceding voicing, respectively. The preceding voicing of the voiced stops and affricates might then be made more salient by

lowering the levator palatini which would cause the pre-voiced < voiced stops and affricates to be phonetically realized as prenasalized stops and affricates. However, there is great disagreement over what the *a-chung* pre-radical represents (see fn. 8 above).

¹⁰ Not all results of coda formation result in nasalization, for example:

Phoneme	Transcription	SR	Gloss
	chab-mdo	[cham-to]	Chamdo
	zla-mjug	[tam-cuu]	finally

My understanding of the relevant morphophonemics here relies to a large extent on Sprigg 1987.

¹¹ Impressionistically, in reading a Classical Tibetan text, both nasalization and tones in the speech of Losang Gyaltzen seem more salient than in the casual conversation he and others were participating in. See also Sprigg 1987:53 for a discussion of the pronunciation of *a-chung* in the reading style.

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