

On the Evolution of Tibetan Final *-s

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Written Tibetan has three nasal finals (*-m, *-n, *-ŋ), three stop finals (*-b, *-d, *-g), and three continuant finals (*-r, *-l, *-s). There are also seven consonant cluster finals: *-nd, *-rd, *-ld, *-bs, *-gs, *-ms, and *-ŋs. The evolution of final *-s has had an influence on the tones and the rhyme structure of modern Tibetan dialects. This paper will concern itself solely with the developments regarding final *-s.

Final *-s, whether or not it was part of a consonant cluster, has been lost from all modern Tibetan dialects, though it is preserved in Tibetan loanwords in some related languages, such as Jiarong, spoken in the Aba Tibetan Autonomous Prefecture in Sichuan. Below is a comparison of Written Tibetan and Jiarong:

Proto-Form	Written Tibetan	Jiarong ²	Gloss
*-is	(rtsis)	tə rtsis	'number'
*-es	(rnam s ces)	rnem səs	'soul'
*-as	(ras)	ras	'cloth'
*-os	(tchos)	tʃ'os	'scripture'
*-us	(jar zus)	jar zus	'report'
*-bs	(gon sabs)	rkon səps	'quilt cover'
*-gs	(phogs)	p'oks	'salary'
*-ms	(hgrig lams)	ndzək ləms	'law'
*-ŋs	(sbjans)	ka zbjans	'to practice'

Traces of the *-s ending can also be found in Chinese historical materials, a case in point being a stele inscribed in both Chinese and Tibetan, erected in Lhasa in 823 to commemorate a Chinese-Tibetan alliance. Here, the name of a Tibetan official blon rgal bzang ldus kjon is written with the Chinese characters 论颊藏弩悉恭 (in Mandarin lun jia zang nu xi gong).³ Other transliterations include the name for Central Tibet, dbus-gtsan, written as 乌斯藏 or 乌思藏 (both read wu-si-zang in Mandarin), and the name for the Añ region, mñan ris, written 纳里速 or 俄力思 (na-li-su or e-li-si, respectively, in Mandarin). The name for Qinghai province and the old

Xikang region, together called **mdo-khams** in Tibetan, are transcribed 朵甘思. (Mandarin duo-gan-si).⁴ In short, the characters 悉, 思, 斯, and 速, (Mandarin xi, si, si, and su) are variously used to represent the *-s final in the Tibetan syllables **fidus**, **dbus**, **ris**, and **khams**. All these transliterations of Tibetan personal and place names appeared in Chinese records made prior to the Ming dynasty (1368-1644 A.D.). During the Qing dynasty (1644-1912 A.D.), however, some of the transliterations changed. For example, 乌斯藏 (Mandarin wu-si-zang for Tibetan **dbus-gtsan**) was replaced by 卫藏 (Mandarin wei-zang) in the 'Weizang Annals'. From these changes in phonetic transliterations in Chinese historical materials, we are not only afforded a view of the situation concerning preservation vs. loss of final *-s, but are also able to infer that these changes must have been taking place more than three hundred years ago, at the latest.

1.

Throughout the evolution of the *-s ending in Tibetan, two types of developments can be distinguished: a **loss type** and a **sound change type**.⁵ For the syllables with a single consonant *-s ending, the **loss type** is where final *-s drops completely, making a closed syllable into an open one, usually inducing a change in the preceding vowel. The **sound change type** is where the *-s ending becomes a glottal stop, causing a non-stopped syllable to become a stopped syllable, also inducing a change in the vowel of most finals. In those syllables where the *-s ending was the second element in a consonant cluster, the **loss type** is where the *-s ending drops and the consonant-cluster ending becomes a single consonant. The **sound change type** for cluster endings is where the *-s ending becomes a glottal stop, creating a new type of cluster ending. The above developments also affect tones, in those dialects with tones.⁶

In the following text and tables, V represents a vowel; V_a represents a vowel which is the reflex of two originally separate vowels; V_n represents a new vowel (one not seen in Written Tibetan); C represents a consonant final; V: represents a long vowel with a long tone. [Editor's note: transliterations of Written Tibetan forms are given in parentheses. Names of modern dialect locations, given as the Pinyin equivalents of the Chinese character transcriptions, are abbreviated in the tables as follows: Alike (AK), Amuquhu (AQ), Banma (BM), Cuona (CN), Cuoqin (CQ), Daofu (DF), Dege (DG), Dingqing (DQ), Dingri (DR), Gaize (GZ), Ganzi (GN), Ge'er (GE), Guide (GD), Jiangzi (JG), Jianzha (JZ), Kajia (KJ), Lhasa⁷ (LS), Luqu (LQ), Maqu (MQ), Matisi (MT), Naqu (NQ), Pulan (PL), Qushui (QS), Rikaze (RK), Ritu (RT), Xiahe (XH), Xiangcheng (XC), Zhada (ZD)]

I. The influence of the single consonant *-s ending on the rhyme and tone

A. Loss Type. Six sub-types can be distinguished:

1. *Vs→V_n (*is→i; *es→e; *os→o; *us→u)

In this sub-type, the loss of *-s is not accompanied by any change in the vowel of the final. Examples from Xiahe and Kajia in the Southern Gansu Tibetan Autonomous Prefecture, Daofu in Sichuan, and Alike in Qinghai:

XH:	(rtsis)	[htsi]	'to calculate'	DF:	(tɕhos)	[tɕ'o]	'sutra'
KJ:	(rdzes)	[dze]	'trace'	AK:	(dus)	[tu]	'time'

2. *Vs→V_a (*as, *os→e; *es, *us→i; *os→u)

In this sub-type, with the loss of the *-s ending, back and low vowels became fronted or raised, but the resulting vowels are ones that already exist in Written Tibetan, not new ones. Examples from Amuquhu and Maqu in southern Gansu, and Alike and Guide in Qinghai:

AK:	(nas)	[ni]	'barley'	GD:	(sres)	[ʃi]	'mix up'
AQ:	(tshos)	[ts'e]	'paint'	MQ:	(gos)	[ku]	'satin'

3. *Vs→V_n (*os, *us→y/ø)

This type of change only occurred in certain dialect areas. The loss of the *-s ending caused back rounded vowels to become front rounded vowels. Thus, new vowels were created that had not existed in Written Tibetan. Examples from Matisi in Gansu and Jianzha in Qinghai:

MT:	(gos)	[ky]	'clothing'	JZ:	(gos)	[kø]	'satin'
	(lus)	[ly]	'to leave behind'		(tɕhos)	[tɕ'ø]	'sutra'

4. *Vs→V: (*is→i:; *es→e:; *us→u:)

In this type of change, with the loss of the *-s ending, a high vowel became long, with a long tone. Examples from Dingri and Ge'er in Tibet, and from Xiangcheng and Dege in Sichuan:

DR:	(phjis)	[p'i:ʋ]	'to wipe'	XC:	(brdzis)	[dzi:ʌ]	'to step on'
	(rdzes)	[tʃe:ʌ]	'trace'		(ʃes)	[ʃe:ʌ]	'to know'
GE:	(phjis)	[p'i:ʌ]	'to wipe'	DG:	(bsus)	[su:ʌ]	'to greet'
	(bsnes)	[ne:ʌ]	'to rely on'		(drus)	[tʃu:ʌ]	'to dig'

The Zhada dialect of the Ali Special Region in Tibet is an especially striking case. With the loss of the *-s ending all five vowels remained the same in terms of place of articulation, but changed in manner, becoming long vowels, with long tones e.g. *is→i:; *es→e:; *as→a:; *os→o:; *us→u:. Such situations are rare among Tibetan dialects as a whole. Examples from Zhada:

ZD:	(rtsis)	[tsi:ʌ]	'to calculate'	(tshos)	[ts'o:ʌ]	'paint'
	(bsnes)	[ne:ʌ]	'to rely on'	(bʃus)	[ʃu:ʌ]	'to peel'
	(hbras)	[ndʒa:ʌ]	'rice'			

5. *Vs→Vɑ: (*es→i:; *as→i:/e:; *os→u:)

In changes of this type, the loss of final *-s caused preceding vowels to change both in place of articulation and in length. They merged with other existing vowels in terms of place of articulation, but as concerns manner, they became long vowels with long tones. Examples from Ganzi and Xiangcheng in Sichuan, and Dingqing and Naqu in Tibet:

GN:	(ʃes)	[ʃi:ʌ]	'to know'	DQ:	(rgas)	[gi:ʌ]	'old'
XC:	(rdzas)	[dze:ʌ]	'gunpowder'	NQ:	(btʃos)	[tʃu:ʌ]	'to cure, treat'

6. *Vs→Vɯ: (*as→ɛ:; *os→ø:; *us→y:)

In this type of change, with the loss of the *-s ending, back and low vowels not only changed in place of articulation (creating new front-rounded vowels that had not existed in Written Tibetan), they also became long vowels with long tones. Examples from Pulan in Tibet, and Dege in Sichuan:

PL:	(rgas)	[kɛ:ʌ]	'become old'	DG:	(skas)	[kɛ:ʌ]	'ladder'
	(tʃhos)	[tʃ'ø:ʌ]	'sutra'		(brkos)	[kø:ʌ]	'to dig, carve'
	(rgjus)	[cy:ʌ]	'to link together'				

A few areas also have *as→ɪ; *os→y:/u; *os, *us→ə. Examples:

NQ: (rgas)	[kɪ:ɿ]	'to split'	XC: (tshos)	[ts'ə:ɿ]	'paint'
DQ: (spos)	[py:ɿ]	'incense'	(dus)	[tə:ɿ]	'time'
GZ: (tɕhos)	[tɕ'u:ɿ]	'sutra'			

Of the three major Tibetan dialects, the Amdo dialect shows neither phonemic vowel length nor tone; the Wei dialect and the Kang dialect show both phonemic vowel length and phonemic tone. Thus, change types (1-3) (see above) occurred only within the Amdo dialect, where the vowels of the finals changed in place of articulation only, not in length or tone. Change types (4-6) operated only in the Wei and Kang dialects, where vowels changed not just in place of articulation, but in length and tone as well.

B. Sound change type

This type of change occurred only in the Wei dialects of the city of Lhasa, the Shannan and Rikaze Special Regions. Two sub-types can be distinguished:

7. *Vs→V? (*is→i?; *es→e?)

Within this sub-type, *-s became a glottal stop, but there was no change in the vowel of the final. The result is a stopped syllable with a short tone. In all of the finals affected by this change, the nuclear vowels are front. Examples from Lhasa city, and from Cuona of the Shannan Special Region:

LS: (phjis)	[tɕi'ɿ]	'to wipe'	CN: (ɦdris)	[ntɕi'ɿ]	'acquainted'
(sres)	[tɕe'ɿ]	'to mix'	(ɦdres)	[ntɕe'ɿ]	'to mix'

8. *Vs→Vn? (*as→ɛ?; *os→ø?; *us→y?)

Here the *-s ending became a glottal stop, causing the vowels *a, *o and *u to become front-rounded ɛ, ø, and y, respectively, thereby creating new glottal stop finals with new vowels and short tones. All of the finals affected by this type of change have back or low nuclear vowels. Examples from Qushui in Lhasa city, and Jiangzi of the Rikaze Special Region:

QS: (hbras)	[ntɕɛʔɿ]	'rice'	JG: (sras)	[sɛʔɿ]	'young lord'
(tshos)	[ts'øʔɿ]	'paint'	(tshos)	[ts'øʔɿ]	'paint'
(dbus)	[yʔɿ]	'Wei'	(dbus)	[yʔɿ]	'Wei'

II. Final *-s in consonant-cluster endings and its influence on the rhyme and tone of the syllable.

As mentioned above, in final position the stop consonants *-b and *-g and the nasals *-m and *-ŋ can combine with *-s to form consonant-cluster endings (CC). These four endings (-b, -g, -m, -ŋ) have basically been preserved in all three Tibetan dialect groups, both as single-consonant finals and as first elements in CC finals, but they have undergone some phonetic changes: *-b became -p or -ʔ; *-g became -k or -ʔ; and *-m and *-ŋ were both lost, causing the preceding vowel to become nasalized.

As the second element of a CC ending, *-s has been lost in almost all of the Tibetan areas. Only in some parts of the Wei dialect area has *-s become a glottal stop, giving rise to a new consonant cluster final.

A. Loss type. Two sub-types can be distinguished:

9. *VCs→VC (*Vbs→Vp; *Vgs→Vk; *Vms→Vm; *Vŋs→Vŋ)

This type occurred only in the Amdo dialect area. The loss of final *-s reduced the CC ending to a single consonant; tone change was not involved. Examples from Xiahe of southern Gansu:

XH: (ɕubs)	xəp	'sheath'	(snabs)	hnəp	'mucus'
(tshigs)	ts'ək	'joint'	(rtags)	htək	'mark, sign'
(sems)	s'em	'soul, mind'	(khrims)	tɕ'em	'law'
(khons)	k'on	'scope'	(gangs)	k'an	'snow'

10. *VCs→VC/V:C (*Vbs→Vp/Vʔ; *Vgs→Vʔ; *Vms→V:m/V:n/V:ŋ; *Vŋs→V:ŋ)

This type of change occurred mainly in the Kang dialect area, and in the Rikaze and Ali Special Regions of the Wei dialect area. The loss of final *-s reduced the CC ending to a single consonant. The vowels preceding the stop endings -p and -ʔ became short vowels with short tones, while the vowels preceding the nasal endings -m and -ŋ became long vowels with long tones. Examples from Gaize in Tibet, and Dege in Sichuan:

GZ:	(zabs)	[ɕapɿ]	'root (hon.)'	DG:	(brdibs)	[diʔɿ]	'to collapse'
	(ltɕags)	[ltɕaʔɿ]	'iron'		(sgrags)	[dʒaʔɿ]	'to announce'
	(khams)	[k'a:mɿ]	'Kang'		(khams)	[k'a:ŋɿ]	'Kang'
	(dbjajs)	[ja:ŋɿ]	'vowel'		(btsoŋs)	[tso:ŋɿ]	'to sell'

In syllables ending in a single consonant, the vowels before -p and -ʔ are short, with short tones, and those before -m, -n and -ŋ are long, with long tones. From this we can see that the loss of the *-s ending influenced only the structure of the final rhyme; changes in the length and tone of the final are not tied to the fate of *-s. However, in some regions, the loss of *-s in a cluster ending can cause a short vowel with a short tone before -p or ʔ to become long with a long tone. This shows that even when final *-s in a CC ending is lost, it may still have an influence on the final. Compare the following examples from Ge'er in Tibet: (*Vb→Vp; *Vbs→V:p; *Vg→Vʔ; *Vgs→V:ʔ).

GE:	(khab)	[kapɿ]	'needle'	(khebs)	[k'a:pɿ]	'mask'
	(ftshig)	[ts'əʔɿ]	'to scorch'	(tshigs)	[ts'ə:ʔɿ]	'joint'

B. Sound Change type (one type only)

11. *VCs→VC/VCʔ (*Vb→Vp; *Vbs→Vp; *Vg→Vʔ; *Vgs→Vʔ;
*Vm→V:m; *Vms→Vmʔ; *Vŋ→V:ŋ; *Vŋs→V:ŋʔ/Vŋʔ)

This type of change occurred in Lhasa city and in the Shannan Special Region of the Weizang dialect area. The present type is exactly the opposite of the one discussed above. Here, final *-s in a CC ending became a glottal stop. If the first element of the CC was *-b or *-g, then *-s was absorbed into these endings, and the final retained the short vowel and short tone. If the first element of the CC was *-m or *-ŋ, then the glottal stop ending was preserved, giving rise to a new type of CC ending, and the vowel preceding -ʔ became short with a short tone. Examples from Lhasa in Tibet:

LS:	(khab)	[k'apɿ]	'needle'	(bsubs)	[supɿ]	'to wipe'
	(khrag)	[tɕ'aʔɿ]	'blood'	(snags)	[ŋaʔɿ]	'incantation'
	(snum)	[nu:mɿ]	'oil'	(bskams)	[kamʔɿ]	'to sun-dry'
	(rdzoŋ)	[tsɔ:ɿ]	'county'	(khonŋs)	[k'ɔŋʔɿ]	'scope'

2.

Now, with an understanding of how changes in the *-s ending influenced the finals and tones of Tibetan, we can discuss the characteristics of these changes within each dialect area. The following patterns are to be noted:

Syllable final:	*Vs	*VCs
Amdo dialect	→V/→Va/→Vn	→VC
Kang and Weizang dialect region (some areas)	→V:/→Va:/→V:n	→VC/V:C
Weizang dialect region (some areas)	→V [?] /→Vn [?]	→VC/VC [?]

A. In the Amdo dialect, the effect of the loss of the *-s ending differs slightly from place to place. One clear tendency is for *i and *e not to change at all, or only slightly, after the loss of *-s, but for *a, *o, and *u to become raised and fronted. Compare the following data:

WrTib	XH	LQ	MT	BM	AK	GD
*is →	i	i	i	i	i	i
*es →	e	e	i	i/e	i	i/e
*as →	e	e	i	i/e	i	e
*os →	e	e	y	u	u	i
*us →	i/e	i	y	u/i	u	i

B. In the Weizang and Kang dialects, the loss of simple *-s proceeded quite differently depending on the dialect area - sometimes *-s was lost without a trace, and sometimes it changed into another sound. In any case, the effect on the preceding vowel was the same as in the Amdo dialect, with raising and fronting the usual result. Compare the following data:

Weizang Dialect				Kang Dialect				
WrTib	LS	GE		DG	DQ	GZ	NQ	XC
*is →	i?	i:		i:	i:	i:	i:	i:
*es →	e?	e:		e:	i:/e:	i:/e:	i:	e:
*as →	ɛ?	ɛ:		ɛ:	i:	e:	ɪ:	e:
*os →	ø?	ø:		ø:	y:	u:	u:	ə:
*us →	y?	y:		u:	y:	y:	y:	ə:

Concerning this type of change, as mentioned earlier, the Zhada dialect of the Ali Special Region of Tibet is quite different from the others. The loss of the *-s ending affected only the **manner** of the vowels, making them long with long tones, while place of articulation did not change. Following is a comparison of some changes which occurred in Lhasa, Pulan and Zhada, all of Tibet:

WrTib	LS	PL	ZD	WrTib	LS	PL	ZD
*is →	i?	i:	i:	*os →	ø?	ø:	o:
*es →	e?	e:	e:	*us →	y?	y:	u:
*as →	ɛ?	ɛ:	a:				

C. The effect of clusters with *-s on a preceding vowel was basically the same as that of the single-consonant *-s ending. Final *-s was lost in most areas, causing a consonant-cluster ending to become a single consonant final. In some areas, *-s in a final cluster became a glottal stop and was preserved following the nasals *-m and *-ŋ. Because this change is intimately related to tone, the glottal stop after a nasal final is usually considered to be a secondary phenomenon, and so is omitted from the transcription, even though it is a phonetic reality. Following is a comparison of data from Xiahe of the Amdo dialect area, Gaize of the Kang dialect area, and Lhasa of the Weizang dialect area:

WrTib	XH	GZ	LS	WrTib	XH	GZ	LS
*Vbs →	Vp	Vp	Vp/Vʔ	*Vms →	Vm	V:m	Vmʔ
*Vgs →	Vk	Vʔ	Vʔ	*Vŋs →	Vŋ	V:ŋ	Vŋʔ

WrTib	XH	GZ	LS	Gloss
(ɕubs)	[xɐp]	[ɕɐpʋ]	[ɕuʔʋ]	'sheath'
(ltɕags)	[tɕak]	[tɕaʔʋ]	[tɕaʔʋ]	'iron'
(sems)	[s'em]	[se:mʋ]	[semʔʋ]	'soul, mind'
(khons)	[k'on]	[k'u:ŋʋ]	[k'onʔʋ]	'scope'

D. Final *-s in a cluster ending was lost from the speech of the vast majority of Tibetan areas, leaving no effect on the tone or vowel of the final. But in a few areas, the loss or change of *-s into a glottal stop had a definite effect on the tone and vowel of the syllable: in the **loss** type, the vowel and tone of the final both became long; in the **sound change** type, the vowel and tone of the final became short. Of these two types, the latter is relatively common in the Lhasa area, but the former is rather rare, appearing only in part of the lexicon in Ge'er, Pulan, and Cuoqin, all of the Ali Special Region of Tibet. For example, in areas like Ge'er, with the loss of *-s, the vowels and tones of the syllable became long, thus merging with the vowels and tones of nasal-final syllables; the loss of the *-s ending only caused the short vowels and tones before stop consonants to become long. On the other hand, in areas like Lhasa, the *-s ending became a glottal stop, and the vowel before it became short, with a short tone. This produced the opposite effect of the change in Ge'er, leading to merger with the short vowels and tones before stop endings. In other places the *-s in cluster endings did not have any effect on the finals and tones. Following is a comparison of Ge'er, Lhasa and Ritu, all of Tibet:

WrTib	GE	LS	RT	WrTib	GE	LS	RT
*Vbs	→ V:p	Vp/V?	Vp	*Vms	→ V:m	Vm?	V:m
*Vgs	→ V:?	V?	V?	*Vns	→ V:ŋ	Vŋ/Ṽ?	V:ŋ

WrTib	GE	LS	RT	Gloss
(khebs)	[k'a:pɿ]	[k'epɿ]	[k'epɿ]	'to cover'
(tshigs)	[ts'ə?ɿ]	[ts'i?ɿ]	[ts'ə?ɿ]	'joint'
(bsgrims)	[tsi:mɿ]	[tʂim?ɿ]	[tʂi:mɿ]	'to twist tight'
(brdunʂ)	[tu:ŋɿ]	[tuŋ?ɿ]	[tu:ŋɿ]	'to hit, knock'

With the vowel- and tone-lengthening effect of final *-s, phonemic vowel and tone-length distinctions have arisen in Ge'er and Cuoqin:

GE:	(gzig)	[sə?ɿ]	'leopard'	CQ:	(tshig)	[ts'ə?ɿ]	'word'
	(gzigs)	[sə:ʔɿ]	'to see (hon.)'		(tshigs)	[ts'ə:ʔɿ]	'joint'

3.

When the *-s ending was lost in single-consonant finals, a closed syllable became an open one; and when *-s was not lost, but became a glottal stop, a new type of closed syllable was created. When *-s was lost from a cluster ending, the cluster became a single consonant; when *-s was not lost, but became a glottal stop, a new type of cluster ending was created. In most areas of all three major dialects of Tibetan, however, the *-s ending was lost. This is the main trend in the evolution of the *-s ending; the change to a glottal stop was much more restricted, only occurring in parts of Lhasa city, the Shannan Special Region, and the Rikaze Special Region, all in the Weizang dialect area.

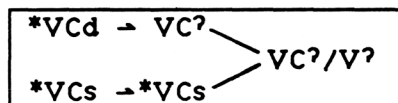
With the *loss* type, the disappearance of the *-s ending caused back and low vowels to change in manner and in place of articulation. In the Amdo dialect, it caused vowel raising or fronting. In the Weizang and Kang dialects, it not only caused vowel raising or fronting, but also resulted in vowel lengthening. Only in a few areas, such as Zhada in the Ali Special Region, did *-s loss cause a change in the length of the vowel but not in its place of articulation. This is rare among dialects undergoing the *loss* type of change. The *sound change* type, that is, where the *-s ending became a glottal stop, is an exceptional phenomenon within Tibetan as a whole. How, then, does a continuant-final syllable become a stop-final syllable? This is a question that merits some discussion.

The shift *-s → -ʔ occurred only in a few areas within the Weizang dialect region. The various single-consonant finals in the Weizang dialect evolved along these lines: there was a partial loss of the nasals *-m, *-n and *-ŋ, which induced nasalization of the preceding vowel; *-l was completely lost, and caused the vowel preceding it to become long; trilled *-r was partially lost. Stop endings largely became glottal stops: *-b sometimes devoiced and sometimes reduced to a glottal stop; *-d and *-g became glottal stops. Thus, the shift *-s → -ʔ would seem to be closely related to the evolution of the stop finals. Note these examples of the changes in stop endings in Lhasa, Rikaze, and Ge'er:

WrTib	LH	RK	GE	Gloss
(deb)	t'epɿ	t'epɿ	tepɿ	'notebook'
(nub)	nuʔɿ	nupɿ	nupɿ	'west'
(thud)	t'yʔɿ	t'yʔɿ	t'yʔɿ	'coagulated milk'
(dug)	t'uʔɿ	t'uʔɿ	tuʔɿ	'poison'

We can see from these examples that most of the old simple stop endings became glottal stops.

In Written Tibetan, the only consonants that can be second elements in cluster endings are the apical stop *d and the apical fricative *s. Final *-d has been lost in most Tibetan-speaking areas; only in a few places did it develop into a glottal stop. Final *-s has also been lost from most Tibetan-speaking areas, likewise, it changed to glottal stop in but a few places. It is clear that *-s → -ʔ is a special kind of change which is very closely related to the fate of *-d in cluster endings. The merger of *-s and *-d as -ʔ took place in two stages. In the first stage, cluster-final *-s came to be treated analogously with cluster-final *-d, with both *-s and *-d tending towards an increased abruptness; cf. the following diagram, accompanied by examples from Lhasa:



LS:	(thond)	t'ʂʔɿ	'to set out'	(thims)	t'imʔɿ	'to seep'
	(lond)	lʂʔɿ	'full, enough'	(mdaŋs)	tāʔɿ	'luster'

In the second stage, this type of analogy slowly spread to single consonant final *-s, which then became a glottal stop (as had *-d), resulting in the merger of two formerly distinct endings. Also, because these two endings are

*-b ending:			*-g ending:		
WrTib	LS	Gloss	WrTib	LS	Gloss
(jib)	[jipɿ]	'to hide'	(dmig)	[miʔɿ]	'eye'
(deb)	[t'epɿ]	'notebook'	(fdzeg)	[tsaʔɿ]	'to climb'
(tshab)	[ts'apɿ]	'to represent'	(tɕhag)	[tɕ'aʔɿ]	'horse feed'
(rgjob)	[copɿ]	'to manipulate'	(glog)	[loʔɿ]	'electricity'
(phub)	[p'uʔɿ]	'shield'	(lug)	[luʔɿ]	'sheep'

The shift *-s → -ʔ has occurred in certain other languages as well. Some scholars have claimed that *-s changed first in place of articulation to become -h, then in manner of articulation to become -ʔ. In view of the actual facts, it would

seem that *-s first merged with *-d, which then changed in place of articulation to become -ʔ.

The changes involving fricative final *-s shed light on the commonalities and differences among the various syllable-final developments in Tibetan. The commonalities determine the main aspects of such developments, while the differences reflect the regional characteristics of Tibetan. Given these commonalities and differences, we are not only able to establish the causes and rules of diachronic phonetic development, but we are also afforded important evidence for delineating dialects and sub-dialects.

Notes

1. [Editor's note: The present article originally appeared in *Minzu Yuwen* 1985 (4), pp. 15-23. It was translated by Randy J. La Polla, and edited by James A. Matisoff and Stephen P. Baron]

2. The morphemes *tə* [cf. *tə rtsis*] and *ka* [cf. *ka zbjangs*] are prefixal formatives in Jiarong.

3. See Wang Yao (1982), *Tufan Jinshilu* [Tufan Bronze and Stone Inscriptions], Cultural Antiquities Publishing House; p. 17.

4. See Ya Hanzhang, *Guanyu "Tufan," "Ganduo," "Wusizang" de Yuyan Kaozheng* [Etymological investigation of the names Tufan, Duogansi, Wusizang, and Xizang], in *Minzu Yanjiu* (4), 1980.

5. This article deals with data collected at 56 locations. Except for some material whose collection the author has taken part in, most of this data comes from a survey carried out in 1956 by the Minority Languages Research Team of the Chinese Academy of Sciences.

6. The Weizang and Kang dialects mostly have four or six tones, though in exceptional cases, there may be two or five tones. There is a close distributional relationship between the tones and the length of the nuclear vowel: long vowels have long tones, short vowel have short tones. For example, of the four tones of the Lhasa dialect (7⁵⁵, 1¹⁴, 4⁵³, 1¹²), the first two only occur in syllables with long vowels (and are called "long tones"), while the second two (called "short tones") only appear in syllables with short vowels.

7. [Editor's note: our spelling of the place name *Lhasa* follows traditional Western usage; the Pinyin equivalent would be *Lasa*].