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VOWEL HARMONY IN SHIGATSE TIBETAN

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Abstract: Vowel harmony is a phenomenon in which potentially all vowels in adjacent moras or syllables within a domain, such as a phonological or morphological word, systematically agree with each other with regard to one or more articulatory features. Common features include [±high/ ±low], [±back], [±ATR] (Advanced Tongue Root) and [±round]. The present paper provides new insights into the system of vowel harmony of the western Central Tibetan dialect of Shigatse, which is dependent on the tonal system because of its relation to whether a syllable carries a tone or not. The findings presented in this article corroborate the accounts of other Tibetan dialects which are also reported to possess height harmonies. A special position in the system is occupied by the neutral diphthong *ie* because it causes raising under certain conditions but is not itself affected by vowel harmony.

Keywords: Vowel harmony, height harmony, tone dependency, neutral vowel, tone sandhi, stress accent

1. INTRODUCTION[1]

Vowel harmony, as regarded by Krämer (2003), is a phenomenon in which potentially all vowels in adjacent moras or syllables within a domain, such as a phonological or morphological word (or a smaller morphological domain), systematically agree with each other with regard to one or more articulatory features. Common features include [±high/ ±low], [±back], [±ATR] (Advanced Tongue Root) and [±round]. The attested harmony patterns are single-feature harmonies, multiple-feature harmonies and restricted harmonies where the vowel harmony applies only if the target and/ or the trigger of the harmony meet certain criteria, which can usually be defined in terms of features that themselves are potential harmonic features. Consonants may contribute in various ways to vowel harmony. Harmony systems can also be categorised according to the morphophonological characteristics of the triggering and the target vowels into root-controlled harmonies, the rare affix-controlled harmonies, dominant-recessive harmonies and stress-dependent harmonies. In dominant-recessive systems, in contrast to those that are morphologically controlled, the categorial

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status of the morpheme bearing the triggering vowel plays no role (Krämer 2003: 3, 5-6, 6-16, 21-24, 35-43).

In this paper, I would like to give an overview of vowel harmony in the western Central Tibetan dialect of Shigatse, largely based on my dissertation (Haller 2000: 26-30). Shigatse (written Tibetan: *Gzhis ka rtse*) is the second largest town in Central Tibet and lies southwest of Lhasa. My informant is my wife Chungda, a native speaker of Shigatse Tibetan, with whom I have been speaking this dialect for many years. She has lived in Switzerland for over twenty years and, apart from Tibetan, speaks German and Chinese.[2]

The system of vowel harmony of another Central Tibetan dialect, Lhasa Tibetan, has been described by various authors (Sprigg 1961; Chang and Shefts Chang 1964: 46, 1968; Dawson 1980: 59-87; Yu 1983: 25; Goldstein 1991: 29; Denwood 1999: 78-84, 304-306, who follows a system similar to the one of his teacher Sprigg; DeLancey 2003: 271). Section 4 provides a brief comparison of the system of vowel harmony of Shigatse Tibetan and that of Lhasa Tibetan as expounded by these authors. Vowel harmony has also been detected in Balti (Sprigg 1972, 1980) and in the Eastern Amdo Tibetan dialect of Ndzorge (chin. Ruo'ergai/ northern Sichuan; Sun 1986: 73-84). Miller (1966) explores vowel harmony in the early written records of Tibetan (for a reply, see Ulving 1972).

The system of vowel harmony of Shigatse Tibetan has been outlined by Skal bzang 'Gyur med (1964), and the aim of the present article is to contribute new insights to provide a more complete picture. Shigatse Tibetan belongs to the systems of height harmony that, according to Krämer (2003: 7), are found predominantly among African languages, and is tone dependent. This characterisation is in accordance with some accounts of Lhasa Tibetan (Chang and Shefts Chang 1964: 46, 1968: 104; Dawson 1980: 59-87; Yu 1983: 25; Goldstein 1991: 29; DeLancey 2003: 271) and of Ndzorge Tibetan (Sun 1986: 75, 79), which are also reported to possess height harmonies. The neutral diphthong *ie* occupies a special position in the system because it causes raising under certain conditions but is not itself affected by vowel harmony. Krämer (2003: 4) states that, for various reasons, certain vowels may be excluded from harmony. These vowels behave as neutral in that they either do not undergo harmony, or do not trigger harmony in the neighbouring vowels, or they reject both the role of trigger and that of a target of harmony.

2. VOCALIC PHONEMES AND TONEMES OF SHIGATSE TIBETAN

2.1. *Vocalic phonemes*

In this article, I use the International Phonetic Alphabet (IPA) for phonetic transcription. Shigatse Tibetan possesses the following seven monophthongs:

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[2] My wife's father was a native of Shigatse Town, 6th district and spent his life there. Her mother grew up in Pena (written Tibetan: *Pa snam*, Chinese: Bailang), a county to the southeast of Shigatse Town, and moved to Shigatse Town as a young woman.

Manner of articulation	Front	Back
Close	*i y*	*u* [ʊ]
Close-mid	*e*	
Open-mid	*œ*	*o* [ɔ]
Open	*a*	

Table 1. Monophthongs of Shigatse Tibetan

Readers familiar with Lhasa Tibetan will notice that the open-mid front vowel *ɛ* is lacking from the above system (cf., e.g. Yu 1983: 19). Shigatse Tibetan instead possesses the diphthong *ie*, which will be discussed below. The phonemic status of the seven monophthongs is demonstrated by a few minimal pairs:

i - e
t̠s̱i 'female yak' : *t̠s̱e̱* 'demon'[3]

y - œ
t̠sʰy̱ 'to dig' : *t̠sʰœ̱* 'to flee'

u - o
t̠s̱u̱ 'barley' : *t̠s̱o̱* 'to go'

i - a
t̠s̱i 'female yak' : *t̠s̱a̱* 'sound'

In addition, three diphthongs can be found in this variety of Tibetan: *ie, ea* and *oa*. For example:

li̱ḛ̀ 'fate'   *t̠ḛ̀a* 'to put into'   *t̠ò̱a* 'to lick'

Vowel quantity and nasality are phonemic in Shigatse Tibetan. For example:

ra̱ 'goat' :   *ra̱:* 'to get torn' :   *rã̱* 'you'

2.2. Tonemes

The system of vowel harmony of Shigatse Tibetan is dependent on the tonal system because it is of relevance whether a syllable carries a tone or not. Two registers (high and low) and two contours (level and falling) produce four tonemes, the phonemic status of which will be shown below:

high-level tone	*high-falling tone*	*low-level tone*	*low-falling tone*
tā 'horse' :	*tà* 'tiger' :	*ta̱* 'arrow' :	*tà̱* 'I (humble)'
lā 'mind, soul' :	*là* 'to lose' :	*la̱* 'mountain pass' :	*là̱?* 'Pardon?'
sā 'earth' :	*sà* 'to accumulate' :	*sa̱* 'weekday' :	*sà̱* 'to say'[4]
tsā 'vein, artery' :	*tsà* 'to filter' :	*tsa̱* 'earthen vessel' :	*tsà̱* 'to fall'
tsʰī 'ten thousand' :	*tsʰì* 'vicinity' :	*tsʰi̱* 'knife' :	*tsʰì̱* 'to write'
jā 'rust' :	*jà* 'yak' :	*ja̱* 'partner' :	*jà̱* 'upwards'
kā 'order (h)' :	*kà* 'to block' :	*ka̱* 'saddle' :	*kà̱* 'to be blocked'

Table 2. Tonemes of Shigatse Tibetan

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[3] The tonemes of Shigatse Tibetan are indicated by the following tone marks: *ā* (high level tone), *à* (high falling tone), *a̱* (low level tone), *à̱* (low falling tone).

[4] *sà̱* 'to say' is used finitely without auxiliaries affixed to it. It is perhaps originally not a simple verb stem, but a contraction of a verbal noun, etc.

Vowels with a falling contour not followed by a final consonant are always long, and therefore, the length of the vowel can be inferred on the basis of the tone and does not need to be indicated by a length mark.

A non-initial syllable may carry a level or falling tone or none at all. For example:

lāpṭṣā	'school' :		*lāpṭṣà*	'student'
tʰāmā	'finally' :		*tʰāmà*	'cigarette'
tsʰākū	'salty' :		*tsʰākù*	'salt bag'
kārā	'apple' :		*kāra*	'whiter' (comparative)
tā-lā	look.IPFV-DEST :		*tā-la*	horse-DAT
ka̱rā	'blacksmith' :		*ka̱ra*	like.PFV:NR

It is important to recognise that a non-initial syllable may carry a tone, because this point is essential for understanding the tone sandhi, stress accent and vowel harmony which will be demonstrated in the following. This brief discussion of tone sandhi and stress accent is limited to disyllabic words.

2.2.1. Tone sandhi[5]

If the second syllable carries a tone, the contour of the first syllable must be level. For example:

(1) *jiè* 'right' + *tɕʰòa* 'side' > *jiētɕòa* 'right side' [6]

However, compare example (2), where the second syllable does not carry a tone, and consequently, the contour of the first syllable remains falling:

(2) *pʰœ̀* 'Tibet', *pʰœ̀-la* Tibet-DAT

If the second syllable carries a tone, its register must be high. For example:

(3) *tʰa̱* 'now' + *lo̱* 'year' > *tʰa̱lō* 'this year'

These tone-sandhi processes are ignored on the level of phonemic representation with fully productive formations of, for example, verbs and adjectives because the lexicon would be overburdened with sandhi forms. For example, the correspondence of written Tibetan *btsos* 'to cook' would have to be lexicalised both as *tsœ̀* and *tsœ̄* to which the former is changed before, for example, subordinators that carry a tone: *tsœ̀-nā* [tsœ̄-nā] cook.IPFV-COND.

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[5] Cf. Section "3.2. Is there 'tone sandhi' in Tibetan?" in Sun (1997: 509-513).

[6] The loss of aspiration in a non-initial syllable is regular with nouns.

2.2.2. Stress accent[7]

In Shigatse Tibetan, the stress accent is characterised by a greater sound intensity (volume). Only a syllable that carries a tone may also carry the stress accent, and it is realised on the first syllable with high register. For example:

kārā [ˈkārā] 'apple' :   *ka̱rā* [ka̱ˈrā] 'blacksmith'

Although Shigatse Tibetan possesses stress accent, its system of vowel harmony is not stress dependent, but tone dependent.

3. VOWEL HARMONY IN SHIGATSE TIBETAN

In this section, I will restrict myself to the discussion of disyllabic and trisyllabic words.

3.1. Disyllabic words

The monophthongs of Shigatse Tibetan can be divided into two classes: high vowels (*i, y* and *u*) and non-high vowels (*e, œ, o* and *a*). The diphthong *ie* functionally belongs to the class of high vowels. If all vowels of a word belong to the same class, no change occurs. For example:

i - u
ṭsʰi̱tɕũ̄ 'small knife'

y - u
ny̱ɕù 'force'

e - œ
pʰe̱ːtɕœ̀ 'use'

œ - o
tœ̃̄sō 'autumn work'

a - o
sāmlō 'thought'

If the vowels do not belong to the same class, they are raised or lowered, as shown below:

high vowels	*i*	*y*	*u*	[ə]
	↕	↕	↕	↕
non-high vowels	*e*	*œ*	*o*	*a*

Table 3. Harmonic alternant pairs of Shigatse Tibetan

The abridged IPA vowel chart below shows the vowel height of the vowels relevant to the present discussion:

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[7] Cf. Bielmeier (1988) and Caplow (2009).
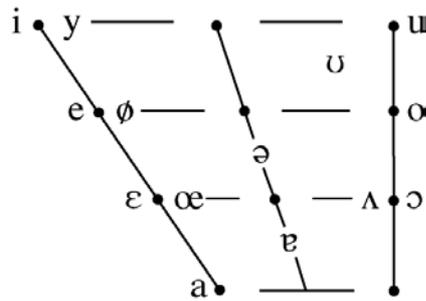
With disyllabic words that carry a tone on both syllables, the assimilation is regressive in the sense that the second syllable influences the first syllable. For example:

(4) *mì* 'eye' + *çḕkō* 'glass' > *mīkçḕ* [mēkçḕ] 'glasses'

In example (4), the vowel of *mì* 'eye' and the vowel of the first syllable of *çḕkō* 'glass' belong to different classes. Because the direction of assimilation is regressive in this case, *i* is lowered to *e*. In the process of compounding, the falling contour of *mì* 'eye' (< written Tibetan *mig* 'eye') is replaced by the final consonant *k*, and the second syllable of *çḕkō* 'glass' is deleted. The phonetic transcription given in square brackets is relatively broad and is mainly intended to reflect a change of vowel quality resulting from vowel harmony and the result of tone sandhi, but no other phonetic details. If no relevant change occurs, no phonetic transcription is provided.

The processes of vowel harmony are ignored on the level of phonemic representation for the following three reasons. First, this system is more transparent, as it allows an easier identification of a given free morpheme in a compound. For example, *mì* can be more easily identified in *mīkçḕ* than in *mēkçḕ*. Second, lexemes that take part in fully productive formations, such as verb and adjective stems, would have to be lexicalised in two forms each which would overburden the lexicon. For example, the correspondence of written Tibetan *sprod* 'to give' would have to be lexicalised both as *ʈ͡ʂœ̀* and *ʈ͡ʂỳ* to which the former is raised before high vowels. Third, a given free morpheme and compounds with this morpheme as the first element can be listed under the same vowel and, thus, in neighbouring positions in the lexicon. For example, *mì* and *mīkçḕ* appear in neighbouring positions in the lexicon, whereas *mì* and *mēkçḕ* do not. This system has the disadvantage, however, that the rules of vowel harmony must be applied every time before reading a given word.

(5) *pʰœ̀* 'Tibet' + *rì̠* 'race' > *pʰœ̀rì̠* [pʰy̠rì] 'Tibetan (person)'

The vowel of *pʰœ̀* 'Tibet' and the vowel of *rì̠* 'race' in example (5) belong to different classes. *œ* is raised to *y* because the direction of assimilation is regressive.

(6) *ŋū̀* 'silver, money' + *sǫ* 'work' > *ŋū̀sō* [ŋɔ̄ːsɔ̄] 'wrought silver'

In the same way, *u* is lowered to *o* in example (6).

(7) *tɕʰà* 'hand (h)' + *ŋūː* 'silver, money' > *tɕʰāːŋūː* [tɕʰə̄ːŋū̄ː] 'money (h)'

In example (7), the vowel *a* is raised to schwa under the influence of the high vowel *u*. If the second syllable carries a tone, the contour of the first syllable must be level. Although the contour becomes level, the vowel does not lose its length. Because the length of the vowel can no longer be inferred on the basis of the tone in such a case, it needs to be indicated by a length mark.

In more than an estimated 95% of the material, the schwa is the result of a raising process, as in example (7) and, therefore, is not taken to be a phoneme or is taken to be of marginal phonemic status. The status of the schwa in Shigatse Tibetan is different from, for instance, the status of the schwa in the Amdo Tibetan dialect of Themchen, where it is a fully distinct phoneme. However, there are arguments for and against adopting the schwa as a phoneme of Shigatse Tibetan. There are, for example, very rare cases of lexemes that have the schwa without having undergone this process and for which, therefore, the phonetic form must be provided in the lexicon alongside the phonemic form. For example:

tɕàŋ	'to learn' :	*tɕàŋ* [tɕə̀ŋ]	'green' (adjective stem)
ɕòa	cleave.IMP :	*ɕòa* [ɕɔ̀ə]	come.IMP
ʈʂʰàŋ [ʈʂʰə̀ŋ]	'to get cold'[8]		
ŋāmā	'tail' :	*ŋāmā* [ŋə̄mə̄]	'in the past'

In addition, there is another source for the schwa: the vowel *a* is normally raised to schwa if it is followed by the final consonant *p*.[9] If morphemes with such a rhyme become a non-initial element in a compound, *p* is regularly replaced by a falling contour due to syllable constraints, but *a* remains raised to schwa. Because the raising of *a* to schwa can no longer be predicted by the final consonant *p*, the phonetic form must also be provided in the lexicon alongside the phonemic form. A schwa obtained in this way itself causes non-high vowels to become raised. For example:

kʰāp [kʰə̄p] 'needle'   *ca̰kà* [cə̰kə̀] 'fine needle'

The rule that raises *a* before *p* to schwa is, however, secondary to the rules of vowel harmony, as examples (8) and (9) illustrate:

(8) *lāp* [lə̄p] 'to teach' + *tɕʰa̰wā* 'deed' > *lāptɕā* 'advice'

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[8] According to Chang and Shefts Chang (1968: 105-106), in Lhasa Tibetan, the adjective stems 'green' and 'cold' have the non-high vowel *a*, but they state that what they term "unmotivated raising in both syllables" takes place in derivation: *tɕa̰ŋ, tɕ̰kū* 'green'; *ʈʰa̰ŋ, ʈʰ̰kū* 'cold' (I converted Chang and Shefts Chang's phonetic symbols into mine for ease of comparison.)

[9] Dawson (1980: 11), in her description of Lhasa Tibetan, interprets this process as pre-bilabial laxing.

In the process of compounding, the second syllable of *tɕʰawā* 'deed' is deleted, and the raising of *a* to schwa is reversed by regressive assimilation. In example (9), *tāp tẽtē* 'convenient' and its contraction are presented:

(9) *tāp tẽtē* [tɔ̄p tẽtē] 'convenient', *tāptē* 'convenient'

During contraction, the third syllable of *tāp tẽtē* 'convenient' is deleted. The nasalisation of the vowel of the second syllable is a prenasalisation belonging to the third syllable that is realised as a nasalisation of the vowel of the second syllable: therefore, it too is deleted. This example indicates that it is not the absolute vowel height that is of importance, but its affiliation to a vowel class. The schwa, a product of raising, is classified as a high vowel and the raising of *a* to schwa is reversed by the non-high vowel *e* through regressive assimilation, although in terms of absolute vowel height, the schwa is lower than *e*. The schwa, unlike the other vowels, receives its status as a member of the high vowels as a result of raising and not by virtue of its absolute vowel height.

Words with *a* as the vowel of the second syllable are an exception to the general rule of regressive assimilation because they often undergo progressive assimilation in the sense that the first syllable influences the second syllable. Hence, for these also, the phonetic form must be provided in the lexicon alongside the phonemic form. It seems that a number of lexemes with short *a* as the vowel of the second syllable and a high-level tone are affected. For example:

(10) *tʰù* 'mind (h)' + *tsʰāː* 'tax' > *tʰūːtsāː* [tʰɔ̄ːʈṣāː] 'sorrow (h)' (regressive)

but:

(11) *lừ* 'sheep' + *ɕā* 'meat' > *lụkɕā* [lụkɕɔ̄] 'mutton' (progressive)

In the process of compounding, the falling contour of *lừ* 'sheep' (< written Tibetan *lug* 'sheep') is replaced by the final consonant *k*.

Likewise, the direction of assimilation is regularly progressive with adjectives. For example:

(12) *tɕæ̀m* 'smooth' (adjective stem) + -*pō* (positive suffix) > *tɕæ̀mpō* 'smooth'

(13) *kʰụː* 'slow' (adjective stem) + -*pō* (positive suffix) > *kʰụːpō* [kʰụːpū] 'slow'

(14) *ŋār* 'sweet' (adjective stem) + -*mō* (positive suffix) > *ŋāːmō* 'sweet'

(15) *cūr* 'sour' (adjective stem) + -*mō* (positive suffix) > *cūːmō* [cūːmū] 'sour'

(16) *kạ* 'good' (adjective stem) + -*ɕæ̀* (superlative suffix) > *kạɕæ̀* 'best'

(17) *rìŋ* 'long' (adjective stem) + -*ɕæ̀* (superlative suffix) > *rìŋɕæ̀* [rìŋɕỳ] 'longest'

It is also possible to set up two suffixes each, i.e. -*pō*/ -*pū*, -*mō*/ -*mū* and -*ɕæ̀*/ -*ɕỳ*, thereby avoiding the problem of vowel harmony. I do, however, prefer the

first, historical account because written Tibetan only possesses the suffixes *po, mo* and *shos,* of which *-pō, -mō* and *-ɕœ̀* are clear regular reflexes. In derivation, the loss of the final consonant *r* accompanied by compensatory lengthening of the preceding vowel, as in the examples (14) and (15), is regular.

As already stated above, the neutral diphthong *ie* functionally belongs to the class of high vowels, possibly because the first vowel it consists of is a high vowel. This diphthong appears relatively frequently and occupies a special position in the system of vowel harmony because it causes raising under certain conditions but is not itself affected by vowel harmony. Perhaps its immunity to vowel harmony can be explained by its consisting, in contrast to the other diphthongs *ea* and *oa,* of both high and non-high vowels that are harmonic alternants, i.e. vowels that are transformed into each other by the process of vowel harmony. This diphthong's raising ability proves that it has a high-vowel component, although the *i* in *ie* is normally pronounced lightly. The existence of the diphthong *ie* has not been confirmed by all researchers working on Shigatse Tibetan, but it has been confirmed by Jin (1958: 34), Phillips (1988: 4) and Kim (1989: 3). Other scholars have set up the monophthong *ɛ* instead, including Skal bzang 'Gyur med (1964: 31; repeated in Skal bzang 'Gyur med and Skal bzang Dbyangs can 2002: 25) and Jin, who apparently changed his opinion later (Jin 1983: 116). As the diphthong *ie* occurs in environments that are at least unattested in the purely native vocabulary of Mandarin, it does not seem to be an influence from Chinese (e.g. *riè* 'cloth'). For example:

(18) *pʰœ̀* 'Tibet' + *kiè* 'language' > *pʰœkiè* [pʰy̱kiè] 'Tibetan (language)'

If the diphthong *ie* belongs to the first syllable, no change occurs because the direction of assimilation is regressive, and *ie* is not affected by vowel harmony. For example:

(19) *liè̱* 'fate' + *wāŋ* 'power' > *lie̱wã̄* 'power of fate'

The substitution of a final velar nasal by a nasalisation in the second syllable is regular.

The diphthongs *ea* and *oa* are raised to [eə] and [ɔə] under the influence of high vowels. For example:

(20) *tèa* 'to serve (food)', *tèa-cī* [tēə-cī] serve.IPFV-VOL.DIREV

(21) *lòa* 'to return', *lòa-cī* [lɔə-cī] return.IPFV-VOL.DIREV

The system described above has been partly detected by Skal bzang 'Gyur med (1964: 40-41; repeated in Skal bzang 'Gyur med and Skal bzang Dbyangs can 2002: 32-33) who writes:

元音 *i、e、y、ø、u、o* 在双音节词联合发音里发生后退同化音变现象。
"The vowels *i, e, y, ø, u* and *o* undergo regressive assimilation when they are pronounced together in disyllabic words." (My translation from the Chinese.)

He then provides several examples of disyllabic words that carry a tone on both syllables, illustrating the processes $i \leftrightarrow e$, $y \leftrightarrow \emptyset$ and $u \leftrightarrow o$.

On p. 37 of Skal bzang 'Gyur med (1964; repeated in Skal bzang 'Gyur med and Skal bzang Dbyangs can 2002: 30), he states regarding the vowel *a*:

当它与〔-p〕尾结合或者双音节词前后音节若是高元音 *i*、*u*、*y* 时则变为次低央元音〔ɐ〕。 "In combination with the final [-p], or if the first or second syllable of a disyllabic word contains the high vowels *i, u* or *y,* it becomes the upper-low central vowel [ɐ]." (My translation from the Chinese.)

This description is followed by examples with the vowel *a* and the final *-p* and by disyllabic words that carry a tone on both syllables and have *a* as the vowel of the first syllable and *i, u* or *y* as vowels of the second syllable. However, the reversal of the raising of *a* to schwa, the diphthong *ie* and its position in the system, the connection of vowel harmony with the tonal system and trisyllabic words are not mentioned.

If a disyllabic word carries a tone on the first syllable only, the direction of assimilation is progressive in the sense that the first syllable influences the second syllable.[10] Elements that carry no tone are normally bound morphemes and it is usually difficult to ascertain the quality of their vowels as required for the present investigation. For example:

(22) *cī* 'dog', *cī-la* [cī-lə] dog-DAT

(23) *tæ̃pa* verbal noun on *pa* of *tæ̃* 'to take out', *tæ̃pie* take.out.PFV:NR:GEN

If the genitive is formed of a word that ends in a syllable that has *a* as a final vowel and carries no tone, as in example (23), *a* becomes umlauted to *ie*. Because the direction of assimilation is progressive in this case, the diphthong *ie* cannot assimilate the vowel *æ* of the first syllable. At the same time, *ie* remains unchanged because it is not affected by vowel harmony.

Now let us compare a similar example (24) that carries a tone on both syllables. In this example, the genitive is formed in the same way as in example (23), but the diphthong *ie* is able to raise the vowel *æ* of the first syllable to *y*.

(24) *pʰæpā* 'Tibetan (person)', *pʰæpiē* [pʰypiē] Tibetan:GEN

I am not aware of cases where the direction of assimilation may be both progressive and regressive, as described in Chang and Shefts Chang for Lhasa Tibetan (Chang and Shefts Chang 1968: 61, 104-105; I converted Chang and Shefts Chang's tone marks into mine for ease of comparison.):

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[10] Chang and Shefts state for Lhasa Tibetan that before suffixes with high vowels and zero stress, neither these vowels nor those of the base are changed (Chang and Shefts 1964: 46). Dawson notes that in Lhasa Tibetan unstressed suffixes do not trigger raising (Dawson 1980: 85, fn. 1).

(25) *mi̱* 'person' + *tsʰē̱* 'life' > *mi̱tsī̱* and *me̱tsē̱* 'human life'

3.2. Trisyllabic words

With trisyllabic words, vowel harmony operates on the first two syllables in the same way as with disyllabic words, and the third syllable is assimilated progressively by the second syllable in the sense that the second influences the third. For example:

(26) *kʰā̱* 'mouth' + *kiè* 'language' > *kʰā̱kiè* [kʰə̄kiè] 'colloquial language'; *kʰā̱kiè-la* [kʰə̄kiè-lə] colloquial.language-DAT

(27) *tɕʰiè̱* 'to do' (perfective stem), *tɕʰiè̱wata* [tɕʰiè̱wətə] do.PFV:CAUS

3.3. Neutral bound morphemes

Certain bound morphemes, some of which are frequently employed, are not affected by vowel harmony. To distinguish these morphemes from those that undergo vowel harmony, they are connected with a double hyphen (equal sign) instead of a single hyphen. For example:

(28) *rã̱* 'you', *rã̱=kʰi* you-ERG

(29) *tʰō̱ŋ* 'to see', *tʰō̱ŋ=tɕu* see.PFV-NVOL.DIREV

4. A BRIEF COMPARISON OF THE SYSTEMS OF VOWEL HARMONY OF SHIGATSE AND LHASA TIBETAN

The earliest attested form of the Tibetan vowel system is that reflected in the Tibetan writing system which possesses the five vowels *i, e, u, o* and *a*. The table below gives written Tibetan examples and their Shigatse and Lhasa correspondences.[11] For example:

Written Tibetan	Shigatse Tibetan	Lhasa Tibetan
'bri	*tsi̱* 'female yak'	*pi̱* 'female yak' (Yu 1983)
'dre	*tse̱* 'demon'	*tse̱* 'ghost' (Yu 1983)
'bru	*tsu̱* 'barley'	*tsu̱* 'highland barley' (Yu 1983)
'gro	*tso̱* 'to go'	*tso̱* 'to go' (Yu 1983)
sgra	*tsa̱* 'sound'	*tsa̱* 'sound' (Yu 1983)

Table 4. The vowels i, e, u, o and a

At a later historical stage, the vowels *u, o* and *a* became palatalised before the dento-alveolar consonants *-d, -n* and *-s* in Shigatse and Lhasa Tibetan and before *-l* only in Lhasa Tibetan, thereby increasing the vowel inventory by *y, œ/ ø* and *ɛ*. In this way, the total number of vowels was increased to eight (*i, e, y, œ/ ø, u, o, a*

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[11] In the following, I converted Yu's and Goldstein and Nornang's phonetic symbols into mine for ease of comparison and translated Yu's Chinese renderings of the Tibetan words.

and *ɛ).* Other concomitant processes are ignored here, as they are irrelevant for the present discussion.

Written Tibetan	Shigatse Tibetan	Lhasa Tibetan
lud	*lỳ̱* 'manure'	*lỳ* 'manure' (Yu 1983)
tshod	*tsʰæ̀* 'measure'	*tsʰø̀* 'measure' (Yu 1983)
brgyad	*ciè̱* 'eight'	*cè̱* 'eight' (Yu 1983)
bdun	*tỹ̱* 'seven'	*tỹ ~ tyn* 'seven' (Yu 1983)
skyon	*cæ̃̄* 'fault'	*cæ̃̄ ~ cø̄n* 'shortcoming' (Yu 1983)
sman	*miɛ̃̄* 'medicine'	*mɛ̃̄ ~ mɛ̄n* 'medicine' (Yu 1983)
jus	*tɕʰỳ* 'strategy'	*tɕʰỳ* 'tactics' (Yu 1983)
chos	*tɕʰæ̀* 'religion'	*tɕʰø̀* 'religion' (Yu 1983)
nas	*niè̱* 'barley'	*nè̱* 'highland barley' (Yu 1983)
dngul	*ŋū:* 'silver, money'	*ŋȳ* 'silver, money' (Yu 1983)
zhol	*ço:* 'part of a town below a monastery'	*çø* 'area in front of the Potala' (Yu 1983)
khral	*tʂʰā:* 'tax'	*tʂʰɛ̄* 'tax' (Yu 1983)
su'i	*sȳ* who:GEN	*sȳ* who:GEN (Goldstein and Nornang 1978 [1970]: 47)
kho'i	*kʰǣ* he:GEN	*kʰø̄* he:GEN (Goldstein and Nornang 1978 [1970]: 46)
nga'i	*ŋiè̱* I:GEN	*ŋɛ̀* I:GEN (Goldstein and Nornang 1978 [1970]: 46)

Table 5. The vowels y, œ/ ø and ɛ

Another source of the vowels *y, œ/ ø* and *ɛ* is the genitive of words that end in the vowels *u, o* and *a,* which is formed by adding the morpheme *-i* (written Tibetan *-'i).* The above table provides written Tibetan examples and their Shigatse and Lhasa correspondences.

When, at a presumably still later historical stage, these Tibetan varieties developed height harmonies, the vowels formed harmonic alternant pairs, apparently with the features [±back] and [±round] as decisive factors: *i* and *e* are [-back, -round], *y* and *œ/ ø* are [-back, +round], and *u* [ʊ] and *o* [ɔ] are [+back]. The remaining two vowels, *a* and *ɛ,* are both non-high vowels and, therefore, could not form a harmonic alternant pair.

To correct this imbalance, the systems of both varieties evolved a high vowel that could serve as a harmonic alternant for *a,* the schwa. As in Shigatse Tibetan, the schwa does not appear to be a phoneme of Lhasa Tibetan or only possesses marginal phonemic status.

With respect to the vowel *ɛ,* however, quite different developments took place in these two systems. Shigatse Tibetan, on the one hand, removed this vowel from the basic system by turning it into the neutral diphthong *ie* consisting of *i*

and its harmonic alternant *e,* the unrounded vowel closest to *ɛ.* The table below illustrates the system of vowel harmony of Shigatse Tibetan:

high vowels	*i*	*y*	*u*	[ə]	+ neutral diphthong *ie*
	↕	↕	↕	↕	
non-high vowels	*e*	*œ*	*o*	*a*	

Table 6. System of vowel harmony of Shigatse Tibetan

Lhasa Tibetan, on the other hand, integrated *ɛ* by assigning to it the harmonic alternant *i* which is also the harmonic alternant of *e,* the unrounded vowel closest to *ɛ.* It is unclear whether the schwa is a fully distinct phoneme in Lhasa Tibetan or not. The following table gives a sketchy overview of the system of vowel harmony of Lhasa Tibetan based on descriptions in the literature (cf., e.g. Yu 1983: 25, Goldstein 1991: 29):

high vowels		*i*		*y*	*u*	*ə*
	↗		↖	↑	↑	↑
non-high vowels	*e*		*ɛ*	*ø*	*o*	*a*

Table 7. System of vowel harmony of Lhasa Tibetan

5. SUMMARY

The present article describes and provides new insights into the system of vowel harmony of the western Central Tibetan dialect of Shigatse, a height harmony, and briefly compares it with the system of vowel harmony of Lhasa Tibetan. The system of vowel harmony of Shigatse Tibetan is tone dependent, as the direction of assimilation is determined by which syllables carry a tone. Although this system is originally built on vowel height, one lowering process indicates that it is not absolute vowel height that is of importance, but affiliation to a vowel class. A special position in the system is occupied by the frequently occurring neutral diphthong *ie* which causes raising under certain conditions but is not itself affected by vowel harmony. This diphthong's immunity to vowel harmony may be explained by its consisting of exponents of both the high and non-high vowel classes which are harmonic alternants.

ABBREVIATIONS

CAUS	subordinator expressing a causal relation	h	honorific
COND	subordinator expressing a conditional relation	IMP	imperative
DAT	dative	IPFV	imperfective
DEST	subordinator expressing a destinative relation	NR	nominaliser
DIREV	direct evidential	NVOL	non-volitional
ERG	ergative	PFV	perfective
GEN	genitive	VOL	volitional

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