Vowel Length in Middle Chinese Based on Buddhist Sanskrit Transliterations

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The goal of this paper is to disprove Pulleyblank (1984), Kalgren (1922) and Chao (1940)'s assumption that there were long vowels in Middle Chinese. The main arguments are: first, in Chen's (2000) study of Chinese loanwords from Sanskrit, and in Lo's (1963) list of the forty-nine Sanskrit sounds transliterated from sixteen Buddhist works, it was found that there was no distinction between short vs. long vowels. Moreover, in data collected from Soothill and Hodous' *A Dictionary of Chinese Buddhist Terms* (1968), it was found that all the characters frequently used to transcribe long vowels were also used to transcribe short vowels. Had there been a short-vs.-long-vowel distinction in Middle Chinese, different characters should have been used. Finally, I have found that even within the same words there were short and long vowels which were transliterated with the same Chinese characters.

Key words: Buddhist terms, Middle Chinese, Sanskrit, vowel length

1. Introduction

Pulleyblank (1984, 1991) claims that vowel length was a main feature of Middle Chinese. However, in my study of Chinese loanwords from Sanskrit (Chen 2000) I have not found any short-vs.-long-vowel distinctions in transliterated Buddhist Sanskrit terms. If Pulleyblank's reconstruction was correct, then those who translated and transliterated Buddhist scriptures should have made a distinction between short and long vowels when transliterating Sanskrit terms.

Pulleyblank used vowel length to distinguish Grade I rhymes (一等韻) from Grade II rhymes (二等韻), and some other scholars believed the rhymes to be grouped in different divisions according to their vowel quality. Kalgren (1922) and Chao (1940) used vowel length to divide the so-called *Qieyun* doublets (重韻) within the same rhyme group. On the other hand, according to Martin (1953), Li (1956), Lu (1971), Tung (1978), Wang (1980) and Chou (1962, 1984), there was no short-vs.-long-vowel distinction in Middle Chinese, and the difference between Grade I rhymes and Grade II rhymes, and that between *Qieyun* doublets, lay in their vowel quality, instead of the vowel length.

Various counter-arguments concerning Middle Chinese vowel length have appeared in the literature. Lo (1963) listed forty-nine Sanskrit sounds that were transliterated in sixteen different Buddhist works. Nine out of these sixteen works used the same Chinese characters to transcribe short and long vowels, with some annotations. Had there been long vowels in Middle Chinese, the translators would certainly have used characters containing such to transcribe Sanskrit long vowels. Secondly, in data collected from Soothill and Hodous' (1968) *A Dictionary of Chinese Buddhist Terms*, it was found that all the characters frequently used to transcribe long vowels were also used to transcribe short vowels. Had there been a short-vs.-long-vowel distinction in Middle Chinese, different characters should have been used to reflect it. As a result, I conclude that it is not convincing to postulate that vowel length was used to distinguish Grade I rhymes from Grade II rhymes. In addition, the use of vowel length to indicate *Qieyun* doublets by Kalgren and Chao is questionable. Thus, the reconstructions by Martin and others of different rhyme groups and doublets within the same rhyme groups based on vowel quality, and not vowel length, is obviously more tenable.

2. Literature review on vowel length

In his *Middle Chinese*, Pulleyblank (1984:80) states that "Further study has led me to the conclusion that in all the outer rhyme groups Grade II had long aa in contrast to short a in Grade I." There were three main sources that led to this conclusion: First, the long /aː/ in Late Middle Chinese (LMC) had its reflex in Cantonese, and the pattern of correspondence between Cantonese and LMC, as interpreted from the rhyme tables, is very convincing. Second, the reconstruction of the long /aː/ provides persuasive evidence for his reconstruction of the vocalic /u/ in Grade I *hekou* 合口, in contrast to the glide /w/ in Grade II, since the former arose via a Glide Strengthening rule which changed /w/ into /u/ before the short non-high vowels /a/ and /ə/. In addition, according to Pulleyblank (1984), in Shao Yong's (邵雍, 1011-1107) tables in *Huangji Jingshi* 皇極經世, although the same four grades were used, as the standard rhyme tables, some rhymes were put into different grades, and thus, in a way, his arrangement of grades reflected "more directly the current pronunciation of the eleventh century." For example, in traditional rhyme tables, 丹 LMC /tan/ and 大 LMC /tɦaj/ belong to Grade I, but in *Huangji Jingshi* they are placed in Grade II. The two words in question have the long /aː/ reflex found in Cantonese. This leads Pulleyblank to conclude that "Shao Yong's tables thus show that the lengthening of a to aa after alveolar initials was not confined to the Cantonese and southern dialect but occurred in the north also." (Pulleyblank 1984: 84).

Other scholars, however, regard the difference among the four rhyme divisions as

lying in the vowel quality instead of the vowel length. Wang (1980:57) claims that the rhyme tables have divided the finals into four divisions according to the place of articulation of the vowels. In certain *kaikou* 開口 rhyme groups, which have all the four divisions, as in *Xie* 蟹 *she*, *Shan* 山 *she*, *Xiao* 效 *she* and *Xian* 咸 *she*, the vowels move farther to the front of the mouth, from Grade I to Grade IV, as shown in (1). Tung (1978:99) also believes that the distinction between the four divisions of rhymes lies in their vowel quality if the rhyme groups have all the four rhyme divisions. If certain rhyme groups only have Grade I and Grade III rhymes, then the difference between them lies in the fact that Grade III has the glide /j/ while Grade I does not.

(1)

	Grade I	Grade II	Grade III	Grade IV
Wang (1980)	ɑ	a	ɛ	e
Tung (1978)	ɑ	a	jæ	iɛ

Though no scholars except Pulleyblank have distinguished Grade I rhymes from Grade II rhymes by their vowel length, however, Kalgren (1922, 1954) and Chao (1940) agree that there was a short-vs.-long-vowel distinction in Middle Chinese which separated the so-called *Qieyun* doublets. For example, in *Shan* 山 *she*, within the Grade II rhymes, there was the rhyme *Shan* 刪 with a long /aːn/, and the rhyme *Shan* 山 with a short /an/. There are other scholars in whose reconstructions of Middle Chinese no long vowels exist at all. For example, Martin (1953), Li (1956), Lu (1971), Tung (1978), Wang (1980) and Chou (1962, 1984) all use vowel quality rather than vowel length to tell Grade I rhymes apart from Grade II rhymes, and to differentiate doublets within the same rhymes. The differences of various scholars' reconstruction are summarized in (2).

(2) a. Pulleyblank: Vowel length divides Grade I rhymes and Grade II rhymes.
   b. Kalgren & Chao: Vowel length is a feature of *Qieyun* doublets (重韻).
   c. Martin, Li, Lu, Tung, Wang and Chou: There was no short-vs.-long-vowel distinction in Middle Chinese. The difference between Grade I rhymes and Grade II rhymes, and that between *Qieyun* doublets lay in vowel quality rather than vowel length.

The reconstruction of the vowels in the outer rhyme groups according to various scholars is illustrated in table (3) below. Since different scholars have used various systems of phonetic symbols, I have attempted to render their transcriptions into IPA (*International Phonetic Alphabet*) to make comparison among them more readily transparent.

(3)

韻 攝 Rhyme Group	等別	Pulleyblank 浦立本	Kalgren 高本漢	Li 李榮	Tung 董同龢	Wang 王力	Lu 陸志韋	Chou 周法高	Martin 馬丁
Guo-Jia 果假攝	一等	a	ɑ	ɑ	ɑ	ɑ	ɒ	ɑ	ɑ
	二等	aː	aː	a	a	a	a	a	ɛ
Xie 蟹攝	一等	aj	ɑi, ɑːi	ɑi, ɒi	ai, Ai	ai, ɒi	ɑi, ɒi	ɔi, ɑi	ɔi, ɑi
	二等	aːj	ai, aːi, ai'	ai, ɛ, ɛi	ai, ɐi, æi	ai, ɐi, æi	æi, ɐi	ai, ɐi, ɛi	ai, ɛi, ɛi'
Xiao 效攝	一等	aw	ɑu	ɑu	ɑu	ɑu	ɒu	ɑu	ɑu
	二等	aːw	aːu	au	au	au	ɐu	au	ɛu
Dang 宕攝	一等	aŋ	ɑːŋ	ɑŋ	ɑŋ	ɑŋ	ɒŋ	ɑŋ	ɑŋ
	二等	aːŋ							
Geng 梗攝	一等								
	二等	aːjŋ	ɐŋ, ɛŋ	ɐŋ, ɛŋ	ɐŋ, æŋ	ɐŋ, æŋ	aŋ, ɐŋ	aŋ	aŋ, eŋ
Jiang 江攝	一等						ɔŋ		
	二等	aːwŋ	ɔŋ	ɔŋ	ɔŋ	ɔŋ	ɔŋ		ɛŋ
Shan 山攝	一等	an	ɑːn	ɑn	an	An	ɒn (an)	ɑn	ɑn
	二等	aːn	aːn, an	an, ɛn	an, æn	an, æn	an, ɐn	an, ɐn	an, ɛn
Xian 咸攝	一等	am	ɑm, ɑːm	ɐm, ɑm	Am, ɑm	ɒm, ɑm	ɒm, ɑm	ɑm, əm	ɔm, ɑm
	二等	aːm	am, aːm	ɐm, am	ɐm, ɑm	ɐm, am	ɐm, am	am, ɐm	am, ɛm

Please note that:

(a) The *she*s with final *-m*, *-n*, and *-ŋ* also include final plosives *-p*, *-t*, and *-k*.

(b) Since Chao's reconstruction of the outer rhyme groups is exactly the same as Kalgren's, it is not listed in the above table.

(c) In Pulleyblank's reconstruction for *Dang* 宕 s*he* there were Grade I rhymes and Grade II rhymes. However, in others' reconstructions there were only Grade I rhymes for *Dang* 宕 *she*.

In order to enhance the reader's understanding of the vowels' locations in the IPA chart, all vowels are arranged according to their backness, height and roundedness. The following IPA chart is taken from Lin & Chu (1989).

(4)

		Front		Central		Back	
		unrounded	rounded	unrounded	rounded	unrounded	rounded
High	highest	i	y	ɨ	ʉ	ɯ	u
	high	ɪ	ʏ				ʊ
Mid	half high	e	ø			ɤ	o
	mid	E		ə			
	half low	ɛ	œ	ɜ	ɞ	ʌ	ɔ
Low	low	æ		ɐ			ɒ
	lowest	a		A		ɑ	

3. Counter-arguments against vowel length in Middle Chinese

In this section I shall put forward some counter-arguments against vowel length in Middle Chinese. First of all, vowel length is a very important feature in Sanskrit. If, like Sanskrit, Middle Chinese had a short-vs.-long-vowel distinction, then, when transliterating Buddhist Sanskrit scriptures, monks and linguists probably would have used different Chinese characters to separate the short from long vowels, since the work of the "translation arenas", the ancient Chinese organizations that translated Buddhist classics, was very precise (Yi 1986). The major translators not only had a deep understanding of Buddhist scriptures, but also an excellent command of both Sanskrit and Chinese. Moreover, within the translation arenas there were translators with clearly defined duties and offices. For example, during the Tang and Song Dynasties, duties were delegated to a Chief Translator, a Meaning Identifier, an Identifier of the Sanskrit Text, a "Zhan (Dhyana)" Meaning Identifier, a Language Translator, a Trascriber, a Recorder, a Composer, a Checker, a Proof-reader, a Language Refiner, a Sanskrit Singer and finally, an Inspector General. Thus, if there had been long vowels in Middle Chinese, then those who had mastered both Sanskrit and Chinese and were responsible for transliterating Buddhist Sanskrit terms should never have made the mistake of using the same Chinese characters to transliterate both short and long vowels.

In addition, in Lo's (1963) "A study of Sanskrit palatals and their transliteration in Tibetan and Chinese", he listed these forty-nine Sanskrit sounds which were transliterated in sixteen Buddhist works. These forty-nine sounds are shown in (5) to aid the reader to attain a clearer picture of the Sanskrit sound system.

(5) Vowels: a   अ   ā   आ
                     i   इ   ī   ई
                     u   उ   ū   ऊ
                     ṛ   ऋ   ṝ   ॠ
                     ḷ   ऌ   ḹ   ॡ
     Diphthongs: e   ए   āi ऐ
                     o   ओ   āu औ

     Anusvara & visarga: ṁ ˙, ḥ ：

Stops:

	Voiceless		Voiced		Nasal
	plain	aspirated	plain	aspirated	
Velar	k क	kh ख	g ग	gh घ	ñ ङ
Palatal	c च	ch छ	j ज	jh झ	ñ ञ
Retroflex	ṭ ट	ṭh ठ	ḍ ड	ḍh ढ	ṇ ण
Dental	t त	th थ	d द	dh ध	n न
Labial	p प	ph फ	b ब	bh भ	m म

	Velar	Palatal	Retroflex	Dental	Labial
Semivowels:		y य	r र	l ल	v व

Fricatives:

voiceless:		ś श	ṣ ष	s स
voiced:	h ह			

In Sanskrit there are five pairs of short-vs.-long-vowel contrasts; Kalgren (1954), however, used four pairs of vowel contrasts, namely, /i/ vs. /iː/, /e/ vs. /eː/, /a/ vs. /aː/, and /ɑ/ vs. /ɑː/. I shall list only three pairs of Sanskrit short-vs.-long-vowel contrasts, since the other two pairs seldom occur. They are shown in (6):

(6) 四十九根本字諸經譯文異同表

Devanāgari		अ	आ	इ	ई	उ	ऊ
Romanization		a	aː	i	iː	u	uː
法顯譯大般泥洹經文字品	(417 A.D.)	短阿	長阿	短伊	長伊	短憂	長憂
☙曇無懺譯大般涅槃經如來性品	(414-421 A.D.)	噁短	阿	億短	伊長	郁	優
慧嚴修大般涅槃經文字品	(424-432 A.D.)	短阿	長阿	短伊	長伊	短憂	長憂
僧伽婆羅譯文殊師利問經字母品	(518 A.D.)	阿	長阿	伊	長伊	憂	長憂
闍那崛多譯佛本行集經卷十一	(587-591 A.D.)	阿		伊		優	
☙玄應音義大般涅槃經文字品	(649 A.D.)	哀烏可反	阿	壹	伊	塢烏古反	烏
地婆訶羅譯方廣大莊嚴經示書品	(683 A.D.)	阿	長阿	伊	伊	烏上聲	烏
☙義淨南海寄歸內法傳英譯本敘論	(690-692 A.D.)	惡	痾	益	伊	屋	烏
☙善無畏譯大毗盧遮那成佛神變加持經百字成就持誦品	(724 A.D.)	阿		縊	伊	塢	烏
不空譯瑜伽金剛頂經釋字母品	(771 A.D.)	阿上	阿引去	伊上	伊引去	搗	汗引
不空譯文殊問經字母品	(771 A.D.)	阿上	阿引上	伊上	伊引上	塢上	汗引去
智廣悉曇字記	(780-804 A.D.)	短阿上聲短呼音近惡引	長阿依聲長呼	短伊上聲聲近於翼反	長伊依字長呼	短甌上聲聲近屋	長甌長呼
☙慧琳一切經音義大般涅槃經辨文字功德及出生次第篇	(788-810 A.D.)	哀阿可反	啊阿箇反阿字去聲兼引	瞖	縊伊異反伊字去聲兼引	塢烏古反或作鄔亦通	污塢固反引聲牙關不開
空海悉曇字母釋義		阿上聲呼	阿去聲長引呼	伊上聲	伊去聲長引呼	塢	汗長聲

☯惟淨景祐天竺字源	遏	阿引	壹	翳引	嗢	汙引
同文韻統天竺字母譜	阿喉 厄鴉切	阿阿喉	伊喉 乙衣切	伊伊喉	烏喉 屋巫切	烏烏喉

Nine out of these sixteen works used the same Chinese characters to transcribe Sanskrit short and long vowels, but with the addition of some annotations. Some used 'short' or 'long' in front of the relevant Chinese character; some used 'prolonged' to indicate long vowels, while others used the *Shang* 上 tone to annotate the short vowels, and the *Qu* 去 tone for the long vowels. For example, in 大般泥洹經文字品, Fa-Hsien 法顯 used 短阿 'short A' to transcribe /a/, and 長阿 'long A' for /aː/. Had there been long vowels in Middle Chinese, then, while transcribing Sanskrit long vowels, they should have used characters which had such, instead of using the same characters for short vowels with the addition of some annotations. In one work, namely, 闍那崛多譯佛本行集經卷十一, long vowels were not transcribed at all. In six other works, marked with the Yin-Yang sign ☯ in (6), they did not use the same characters to transcribe the short and long vowels. Nevertheless, I think those who used different characters were doing so just for the sake of being different. For example, in 大般涅槃經如來性品, 曇無懺 used 億 to transcribe short /i/, and 伊, long /iː/. He did, however, write 'short' before 億, and 'long' before 伊. In addition, in 景祐天竺字源, although 惟淨 used different Chinese characters for long vowels, he added some annotations to the long vowels, and said they were 'prolonged (引)'. For example, /aː/ as 阿引 'prolonged A', /iː/ as 翳引 'prolonged I', and /uː/ as 汙引 'prolonged U'. If there had been long vowels in Middle Chinese, then when different Chinese characters were used to transcribe short and long vowels, there would have been no need to add any annotations to the characters, to say whether they were 'long' or 'prolonged'. Therefore, it is evident that there were no long vowels in Middle Chinese.

Another important piece of evidence supporting the claim that there were no long vowels in Middle Chinese comes from my study of various Buddhist Sanskrit terms. I collected all the long-vowel syllables from about 3,000 Sanskrit words, taken from Soothill and Hodous's *A Dictionary of Chinese Buddhist Terms* (1968). Since many of the Sanskrit terms have more than one Chinese transliteration, (some even have more than five), the number of Chinese terms might be between 6,000 and 8,000. Although some of the Chinese Buddhist terms are calques (semantic translations), about two-thirds are direct borrowings (phonetic translations). There are five pairs of short vs. long monothongs in Sanskrit, but only three pairs were found in the data, namely, /a/ vs. /aː/, /i/ vs. /iː/, and /u/ vs. /uː/. These three pairs were combined with different consonants, arranged according to their place and manner of articulation as: semivowels, stops (including velars, palatals, retroflexes, dentals and labials), and finally fricatives, as shown in the Sanskrit sound system in (5). The number of occurrences of the

long-vowel syllables was counted. It was found that the Chinese characters most frequently used in transliterating long Sanskrit vowels were also very frequently used to transliterate the corresponding short vowels. For example, 迦 was used 71 out of 88 times to transliterate the Sanskrit /kaː/, and it was used almost all the time to transliterate its short counterpart /ka/. Likewise, 波 was employed 84 out of 112 times to transliterate Sanskrit /paː/, and was also used to transliterate its counterpart /pa/, more than 200 times.

The occurrence of long vowels is demonstrated in the Appendix. There are nine tables in total. They are:

(7)　　Table (a): Vowels　　　　Table (f): Bilabials
　　　　Table (b): Velars　　　　Table (g): Semivowels
　　　　Table (c): Palatals　　　　Table (h): Fricatives
　　　　Table (d): Refroflexes　　　Table (i): Others (complex onsets)
　　　　Table (e): Dentals

In tables (b-h) all the consonants are combined with long /aː/, /iː/, and /uː/. Thirty-one out of a total of thirty-three consonants, as shown in the consonantal system in (5) are found in the tables. There are no velar nasals /ṅ/ ङ or palatal nasals /ñ/ ञ in the data. The long syllables are transliterated into various Chinese characters, which are shown in column two. Column three lists the number of occurrences of each character. Columns four and five show reconstructions of Late Middle Chinese and Early Middle Chinese taken from Pulleyblank (1991). For example, the syllable का /kaː/ was transliterated by ten Chinese characters, with 迦 being the character most commonly used. The number of occurrences decreases along the list. A skull-and-crossbones (☠) is used to indicate Chinese characters not used to transliterate corresponding short vowels; characters not so marked were all used for short vowels. For example, in transliterating /kaː/, 歌, 家, and 罽 are all marked with a skull-and-crossbones, indicating that they were never used to transliterate short /ka/. Furthermore, the syllable की /kiː/ is marked with a smiley face (☺), indicating that there is no corresponding short vowel /ki/ found in the data. In the tables, frequently used characters were always used to transliterate their corresponding short vowels. In addition, those which were never used to transliterate short vowels had very low frequency. Thus, we can conclude that there were no long vowels in Middle Chinese. If there had been, then why would long vowels have been transliterated with the same characters as their corresponding short vowels? Moreover, in Pulleyblank's (1991) lexicon, most of the characters used were short in his LMC and EMC reconstructions; they were not long. In the same work he also made the following notes:

(8)　　a. 迦: transcription character for Sanskrit ka, kā.

　　　　b. 伽: transcription character for Sanskrit ga, gā, gha, ghā.

　　　　c. 闍: in Buddhist transcriptions for ja, jā.

　　　　d. 佉: for Sanskrit kha, khā.

Thus, even Pullleyblank noticed that the same Chinese characters were used to transliterate both short and long vowels.

　　Finally, I have found that within the same words there were short and long vowels that were transliterated with the same Chinese characters as shown in (9).

(9)　　a. **Kā**ka**ka**ruta　　　　　迦迦婁囉

　　　　b. **kā**ra**ka**　　　　　　　迦邏迦

　　　　c. **kā**lapinā**ka**　　　　　迦羅臂挈迦

　　　　d. **na**ra-**nā**ri　　　　　　那羅那里

　　　　e. Upāsa**ka**-upāsi**kā**　　　婆差伏婆差

　　　　f. **Mā**ma**ki**　　　　　　　麼麼雞

　　　　g. **Mā**tr̥grā**ma**　　　　　摩咀理伽羅麼

　　　　h. kusu**mamā**lā　　　　　俱蘇摩摩羅

Had there been long vowels in Middle Chinese, then it would have been impossible for translators to transcribe both short and long vowels using the same Chinese characters in the same words.

4. Conclusion

　　In sum, Pulleyblank's (1984, 1991) claim that vowel length distinguishes Grade I rhymes from Grade II rhymes has been disproved in this paper, as have some other scholars' assumptions that Middle Chinese had long vowels. The main arguments are: first, in Chen's (2000) study of Chinese loanwords from Sanskrit, and in Lo's (1963) list of the forty-nine Sanskrit sounds transliterated from sixteen Buddhist works, it was found that there was no distinction between short vs. long vowels. Moreover, the data presented in the Appendix shows that Chinese characters frequently used for transcribing Sanskrit long vowels were also used to transcribe short vowels, while characters used to transcribe long vowels but not short vowels had very low frequency, and thus do not play an important role here. As a result, Pulleyblank (1984, 1991), Karlgren (1922) and Chao's (1940) claim that there were long vowels in Middle Chinese is very problematic. On the other hand, the use of vowel quality rather than vowel length to distinguish different rhyme divisions or doublets within the same rhyme groups by Martin (1953), Li (1956), Lu (1971), Tung (1978), Wang (1980), and Chou (1962, 1984) is highly plausible.

Appendix

(a)

Vowels	Char.	No.	LMC	EMC
आ ā	阿	46	ʔa	ʔa
	頞	3	ʔat	ʔat
आम् ām	菴	5	ʔam	ʔəm/ʔam
इ ī	伊	8	ʔji	ʔji

गान् gān	健	1	kɦian	gian
गी gī	祇	1	kɦji	gjiə/gji
गू gū ☺	俱	1	kyə̀	kuə̀
घा ghā	伽	6	kɦia	gia
	佉	2	khia	khɨa

(b)

Velars	Char.	No.	LMC	EMC
का kā	迦	71	kia	kɨa
	伽	5	kɦia	gɨa
	柯	4	ka	ka
	佉	2	khia	khɨa
	劫	1	kiap	kɨap
	差	1	tʂhaː	tʂhai/tʂhɛː
	加	1	kjaː	kaɨ/kɛː
	歌	1	ka	ka
	家	1	kja	kaɨ/kɛː
	羂	1	kiaj	kiaj
कान् kān ☺	建	1	kian	kɨan
	健	1	kɦian	gɨan
की kī ☺	雞	2	kjiaj	kɛj
	詰	1	khjit	khjit
कू kū	矩	4	kyə̀	kuə̀
	俱	2	kyə̀	kuə̀
	鳩	2	kiw	kuw
	拘	1	kyə̀	kuə̀
	崛	1	kɦyt	gut
	居	1	kiə̀/kyə̀	kɨə̀
खा khā	佉	7	khia	khɨa
	賀	2	xɦa	ɣa
	珂	2	kha	kha
	迦	1	kia	kɨa
खी khī ☺	倪	1		
गा gā	伽	12	kɦia	gɨa
	含	2	xɦam	ɣam/ɣəm
	偈	1	kɦiaj	giaj
	迦	1	kia	kɨa
	耆	1	kɦji	gji
	哦	1		

(c)

Palatals	Char.	No.	LMC	EMC
चा cā	遮	11	tʂia	tɕia
	闍	2	ʂɦia	dʑia
	折	1	tʂiat	tɕiat
	左	1	tsa	tsa
	拓	1	thak	thak
	舍	1	ʂia	ɕia
ची cī	至	6	tʂi	tɕi
	支	4	tʂi	tɕià/tɕi
	脂	1	tʂi	tɕi
	真	1	tʂin	tɕin
	指	1	tʂi	tɕi
	震	1	tʂin	tɕin
	振	1	tʂin	tɕin
	旃	1	tʂian	tɕian
	施	1	ʂi	ɕiə/ɕi
चू cū	周	2	tʂiw	tɕuw
	注	1	tʂyà	tɕuà
	諄	1	tʂyn	tɕwin
छा chā	車	1	tʂhia	tɕhia
	茲	1	tsz	tsɨ/tsi
	支	1	tʂi	tɕià/tɕi
जा jā	闍	14	ʂɦia	dʑia
	惹	3	ria	ɲia
	社	3	ʂɦia	dʑia
	質	2	tʂit	tɕit
	仡	1	ŋit	ŋit
	若	1	ria	ɲia
	竭	1	kɦiat	giat, giat
जाम् jām ☺	瞻	1	ʂɦiam	dʑiam
जी jī	耆	4	kɦji	gji

	時	4	ʂɦi	dʐɨ/dʐɨ
	☠什	1	ʂɦip	dʐip
꣠ jū	殊	3	ʂɦyà	dʐuà
꣠ jhā ☺	茶	1	tʰuà	dɔ
	闍	1	ʂɦia	dʐia
	邪	1	ʂɦia	zia

(d)

Retroflexes	Char.	No.	LMC	EMC
ट ṭā	吒	1	traː	traː/trɛː
ठि ṭī	胝	4	tri	tri
	吒	1	traː	traː/trɛː
	☠知	1	tri	trià/tri
	☠致	1	tri	tri
	☠梨	1	li	li
ठ ṭhā	☠娌	1		
ठि ṭhī	☠吒	1	traː	traː/trɛː
ड ḍā	茶	2	trɦaː	draɨ/drɛː
	茶	2	tʰuà	dɔ
	拏	1	nraː	nraɨ/nɛː
	羅	1	la	la
	陀	1	tɦa	da
	☠陀阿	1	tɦa ʔa	da ʔa
डि ḍī	底	1	tiaj	tɛj
डु ḍū ☺	努	1	nuà	nɔ
	頭	1	tɦɔw	dɔw
	稠	1	trɦiw	druw
ढ ḍhā ☺	多	1	ta	ta
	茶	1	tʰuà	dɔ
ण ṇā	那	5	na	na
	拏	3	nraː	nraɨ/nɛː
	☠尼	1	nri	nri
णि ṇī	尼	9	nri	nri
	膩	1	nri	nri

(e)

Dentals	Char.	No.	LMC	EMC
त tā	多	25	ta	ta
	陀	8	tɦa	da
	達	1	tɦat	dat
	答	1	tap	təp/tap
	☠耽	1	tam	təm/tam

	☠躭	1	tam	təm/tam
	☠咀	1		
	☠哆	1		
	☠他	1	tʰa	tʰa
	☠荅	1		
	☠怛	1	tat	tat
	☠擔	1	tam	tam
ती tī	底	16	tiaj	tɛj
	提	6	tɦiaj	dɛj
	帝	3	tiaj	tɛj
	☠陀	1	tɦa	da
	☠低	1	tiaj	tɛj
	☠致	1	tri	tri
तु tū	☠兜	1	tɔw	tɔw
	☠偷	1	tʰɔw	tʰɔw
	☠塔	1	tʰap	tʰap
	☠都	1	tuà	tɔ
	☠妬	1	tuà	tɔ
था thā	他	5	tʰa	tʰa
	陀	4	tɦa	da
	☠儻	1	tʰaŋ	tʰaŋ
	☠吒	1	traː	traː/trɛː
थु thū	偷	1	tʰɔw	tʰɔw
	☠土	1	tʰuà	tʰɔ
दा dā	陀	20	tɦa	da
	檀	4	tɦan	dan
	☠陁	3		
	☠馱	3	tɦa	da
	達	2	tɦat	dat
	☠伽	2	kɦia	gia
	☠枕	1	tʂim	tɕim
दि dī	提	6	tɦiaj	dɛj
	地	2	tɦi	di
	☠帝	1	tiaj	tɛj
	☠陀	1	tɦa	da
दु dū	頭	2	tɦɔw	dɔw
	杜	1	tɦuà	dɔ
धा dhā	馱	7	tɦa	da
	陀	4	tɦa	da
	☠多	1	ta	ta
धान् dhān	談	1	tɦam	dəm/dam
	檀	1	tɦan	dan

	Char	No	LMC	EMC
ध dhī	地	1	tɦi	di
धू dhū	頭	2	tɦəw	dəw
	杜	2	tɦuə̀	dɔ
	度	1	tɦuə̀	dɔ
	☠突	1	tɦut	dwət
न nā	那	41	na	na
	捼	1		
	多	1	ta	ta
	☠娜	1	na	na
	☠拏	1	nraː	nraɨ/nɛː
नाम् nām	喃	1	nraːm	nrəːm/nrɛːm
नी nī	尼	27	nri	nri
	那	1	na	na
	☠寧	2	niajŋ	nɛjŋ
	☠儞	2	ni	ni
	☠你	1	ni	ni
	☠泥	1	niaj	nɛj

(f)

Bilabials	Char.	No.	LMC	EMC
प pā	波	84	pua	pa
	婆	12	pɦua	ba
	☠播	5	pua	pa
	砵	4	puat	pat
	巴	2	paː	paɨ/pɛː
	☠博	2	pak	pak
	☠蒲	1	pɦuə̀	bɔ
	☠頗	1	pʰua	pʰa
	☠般	1	pua	pa
	☠伐	1	fɦjyat/fɦaːt	buat
	☠幡	1	pʰua	ba
	☠半	1	puan	pan
	☠貝	1	puaj	paj
	☠和	1	xɦua	ɣwa
	☠波阿	1	pua ʔa	pa ʔa
पाञ् pāñ	半	1	puan	pan
	伴	1	pɦuan	ban
	☠般	1	pua	pa
पाण् pāṇ ☺	半	1	puan	pan
	般	1	pua	pa
पी pī	毘	2	pɦji	bji
	☠卑	2	pji	pjiə̀/pji

	Char	No	LMC	EMC
	比	1	pji	pji
	☠悲	1	pi	pi
	☠稗	1	pɦaːj	baɨj/bɛːj
	☠鞞	1	pjiajŋ	pɛjŋ
पू pū	布	12	puə̀	pɔ
	富	6	fjyw/fuw	puw
	弗	3	fjyt/fut	put
	佛	3	fɦjyt/fɦut	but
	逋	2	puə̀	pɔ
	補	1	puə̀	pɔ
	☠不	1	put	pət, put
	☠本	1	pun	pən
	☠分	1	fjyn/fun	pun
	☠邠	1	pin	pin
फ phā	頗	3	pʰua	pʰa
	☠叵	1	pʰa	pʰa
ब bā	婆	6	pɦua	ba
बी bī	彌	1	mji	mjiə̀/mji
	☠微	1	vjyj/vji	muj
बू bū	部	2	pɦuə̀	bɔ
	步	1	pɦuə̀	bɔ
	浮	1	fɦjyw/fɦuw	buw
	鋪	1	puə̀	pɔ
भ bhā	婆	12	pɦua	ba
	頗	5	pʰua	pʰa
	跋	4	pɦuat	bat
	☠波	1	pua	pa
	☠皮	1	pɦi	biə̀/bi
	☠鼬	1	ri	ɲiə̀/ɲi
भी bhī	毘	2	pɦji	bji
	☠毗	1	pɦji	bji
	☠孃	1		
भू bhū ☺	部	5	pɦuə̀	bɔ
	浮	2	fɦjyw/fɦuw	buw
	鋪	1	pʰuə̀	pʰɔ
	菩	1	pɦuə̀	bɔ
	赴	1	fjyə̀/fuə̀	pʰuə̀
	步	1	pɦuə̀	bɔ
	蒲	1	pɦuə̀	bɔ
	普	1	pʰuə̀	pʰɔ
भाण् bhāṇ ☺	槃	1	pɦuan	ban
म mā	摩	66	mua	ma

	Char.	No.	LMC	EMC
	麼	9	mua	ma
	末	7	muat	mat
	磨	6	mua	ma
	魔	4	mua	ma
	☻沒	1	mut	mət
	☻莫	1	mak	mak
	☻昧	1	muaj	məj
मान् mān ☺	鬘	1	maːn	main/mɛːn
मां māṁ ☺	曼	1	vjyan/vaːn	muan
मि mī	彌	5	mji	mjiə̀/mji
	弭	2	mji	mjiə̀/mji
मु mū	慕	1	muə̀	mɔ
	☻摸	1	muə̀	mɔ

(g)

Semivowels	Char.	No.	LMC	EMC
या yā	耶	14	jia	jia
	夜	3	jia	jia
	野	2	jia	jia
	也	2	jia	jia
	衍	2	jian	jian
	闍	1	ʂɦia	dzʑia
	曳	1	jiaj	jiaj
	☻衣	1	ʔi	ʔij
	☻邪	1	jia	jia
	☻牙	1	ŋjaː	ŋaɨ/ŋɛː
	☻預	1	jià/jyà	jià
यू yū	由	3	jiw	juw
	☻裕	1	jyà	juà
रा rā	羅	73	la	la
	☻囉	5		
	☻藍	3	lam	lam
	☻辣	2	lat	lat
	☻剌	2	lat	lat
	☻那	1	na	na
	☻濫	1	lam	lam
	☻落	1	lak	lak
	☻賴	1	laj	laj
	☻利	1	li	li
	☻履	1	li	li
	☻蘭	1	lan	lan
	☻嚕	1		

	Char.	No.	LMC	EMC
री rī	利	17	li	li
	☻哩	7		
	羅	2	la	la
	梨	2	li	li
	☻唎	2	li	li
	☻栗	1	sywk	suawk
	☻盧	1	luə̀	lɔ
	☻勒	1	ləə̀k	lək
	☻里	1	li	lɨ/li
	☻黎	1	liaj	lɛj
रू rū	樓	3	ləw	ləw
	☻路	2	luə̀	lɔ
	☻嚕	2		
	留	1	liw	luw
	盧	1	luə̀	lɔ
	流	1	liw	luw
	☻溜	1	liw	luw
	☻琉	1	liw	luw
	☻俱	1	kyə̀	kuə̀
	☻縷	1	lyə̀	luə̀
रान् rān ☺	爛	1	lan	lan
ला lā	羅	27	la	la
	☻勒	2	ləə̀k	lək
	蘭	1	lan	lan
	☻隸	1	liaj	lɛj
	☻囉	1		
ली lī	離	3	li	liə̀/li
	☻羅	2	la	la
	利	2	li	li
	梨	1	li	li
	☻鰲	1	li	lɨ/li
लू lū ☺	樓	2	ləw	ləw
	流	1	liw	luw
	露	1	luə̀	lɔ
लान् lān ☺	浪	1	laŋ	laŋ
वा vā	婆	31	pɦua	ba
	縛	8	fɦjyak/fɦak	buak
	縛	4	fɦjyak/fɦak	buak
	和	3	xɦua	ɣwa
	波	2	pua	pa
	伐	2	fɦjyat/fɦaːt	buat
	符	2	fɦjyə̀/fɦuə̀	buə̀

	Char.	No.	LMC	EMC
	槃	2	pɦuan	ban
	𤉪浮	1	fɦjyw/fɦuw	buw
	𤉪囉	1		
	𤉪防	1	fɦjyaŋ/fɦaŋ	buaŋ
	𤉪羅	1	la	la
	𤉪洹	1	xɦuan	ɣwan
	𤉪曰	1	yat	wuat
	𤉪畔	1	pɦuan	ban
	𤉪跋	1	pɦuat	bat
	𤉪螺	1	lua	lwa
	𤉪嚩	1		
वाम् vām ☺	梵	1	fɦjyam/fɦaːm	buam
	傍	1	pɦaŋ	baŋ
वान् vān	梵	1	fɦjyam/fɦaːm	buam
वी vī	毘	7	pɦji	bji
	𤉪鼻	3	pɦji	bji
	吠	2	fɦjyaj/fɦji	buaj
	𤉪鞞	2	pjiajŋ	pɛjŋ
	毗	1	pɦji	bji
	𤉪微	1	vjyj/vji	muj
	𤉪黎	1	liaj	lɛj
	𤉪梨	1	li	li
	𤉪縛	1	fɦjyak/fɦak	buak
	𤉪尾	1	vjyj/vji	muj
	𤉪羅	1	la	la
	𤉪韋	1	yj	wuj

(h)

Fricatives	Char.	No.	LMC	EMC
षा ṣā	沙	18	ṣaː	ṣai/ṣɛː
	師	2	ʂr̩	ʂi
	娑	1	sa	sa
	薩	1	sat	sat
	史	1	ʂr̩	ʂɨ/ʂi
षान् ṣān	山	1	ʂaːn	ʂəin/ʂɛːn
	沙	1	ʂaː	ʂai/ʂɛː
षी ṣī	師	1	ʂr̩	ʂi
	𤉪史	1	ʂr̩	ʂɨ/ʂi
शा śā	舍	26	ʂia	ɕia
	奢	18	ʂia	ɕia
	賒	3	ʂia	ɕia
	設	2	ʂiat	ɕiat
	娑	2	sa	sa
	捨	2	ʂia	ɕia
	釋	2	ʂiajk	ɕiajk
	𤉪沙	2	ʂaː	ʂai/ʂɛː
	𤉪裔	1	ʂiaŋ	ɕiaŋ
	𤉪賞	1	ʂiaŋ	ɕiaŋ
	𤉪灑	1	ʂaː	ʂai/ʂɛː
	𤉪試	1	ʂi	ɕɨ/ɕi
	𤉪塞	1	ʂɔðk	ʂək
	𤉪薩	1	sat	sat
	𤉪鑠	1	ʂiak	ɕiak
शं śām̐ ☺	賞	2	ʂiaŋ	ɕiaŋ
	閃	1	ʂiam	ɕiam
	舍	1	ʂia	ɕia
	睒	1	ʂiam	ɕiam
शान् śān ☺	扇	2	ʂian	ɕian
	訕	1	ʂaːn	ʂain/ʂɛːn
	賒	1	ʂia	ɕia
	奢	1	ʂia	ɕia
शी śī	尸	6	ʂi	ɕi
	施	2	ʂi	ɕiə/ɕi
	私	1	sz̩	si
	𤉪屍	1	ʂi	ɕi
शु śū	首	2	ʂiw	ɕuw
	戌	2	syt	swit
	𤉪輸	1	ʂyð	ɕuð
	𤉪修	1	siw	suw
	𤉪須	1	syð	suð
शुन् śūn ☺	舜	2	ʂyn	ɕwin
	首	1	ʂiw	ɕuw
सा sā	娑	11	sa	sa
	沙	4	ʂaː	ʂai/ʂɛː
	𤉪薩	2	sat	sat
	三	1	sam	sam
	𤉪婆	1	pɦua	ba
	𤉪差	1	tʂʰaː	tʂʰai/tʂʰɛː
	𤉪舍	1	ʂia	ɕia
	𤉪拓	1	tʰak	tʰak
सं sām̐	僧	3	sɔðŋ	səŋ
सान् sān ☺	扇	1	ʂia	ɕia
सी sī	私	2	sz̩	si

	Char.	No.	LMC	EMC
	斯	2	sz̩	siə/si
	尸	1	ṣi	çi
	師	1	ṣṛ	ṣi
	嘶	1	siaj	sɛj
	寫	1	sia	sia
	雌	1	tsʰz̩	tsʰiə/tsʰi
	悉	1	sit	sit
	四	1	sz̩	si
	蹉	1	tsʰa	tsʰa
सू sū	蘇	3	suə	sɔ
	修	2	siw	suw
	斯	1	sz̩	siə/si
	愉	1	jyà	juà
	須	1	syə	suə
	窣	1	sut	swət
हा hā	訶	12	xa	xa
	賀	5	xɦa	ɣa
	呵	5	xa	xa

	Char.	No.	LMC	EMC
	曷	1	xɦat	ɣat
	阿	1	ʔa	ʔa
	喝	1	xat	xat
	哈	1		
ही hī ☺	醯	1	xjiaj	xɛj
	喜	1	xi	xɨ/xi
	希	1	xi	xɨj
हू hū	呼	1	xuə	xɔ
हूं hūṁ ☺	吽	3		

(i)

Others	Char.	No.	LMC	EMC
क्ष kṣā	叉	7	tsʰaː	tsʰaɨ/tsʰɛː
	刹	1	tsʰaːt	tsʰaɨt/tsʰɛːt
	棄	1	kʰji	kʰji
	沙	1	ṣaː	ṣaɨ/ṣɛː
	讖	1	tsʰəm	tsʰim
क्षान् kṣān ☺	羼	1	tsʰaːn	tsʰaɨn/tsʰɛːn
क्षी kṣī ☺	差	2	tsʰaː	tsʰaɨ/tsʰɛː

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依據梵文佛教術語的音譯
論中古漢語母音的長短問題

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　　本文的主要目的在推翻Pulleyblank (1984)、Kalgren (1922)、及 Chao (1940) 認爲中古漢語有長母音之論點。主要的反證有下列三點：首先，在 Chen (2000) 對漢語中梵文外來語之研究，以及羅常培 (1963) 所列出四十九根本字諸經譯文異同表中，譯經者在音譯梵文字母及外來語時，並沒有使用不同之母音，來對譯梵文長母音和短母音。其二，筆者從 Soothill 和 Hodou's (1968) 所寫的《漢英佛學大辭典》(*A Dictionary of Chinese Buddhist Terms*) 收集了約三千個梵文佛教術語，來研究其對譯的漢語語料。因每一個梵文術語都曾被多次翻譯，故共有七、八千筆漢語對音資料，其中共有 1426 個漢字，用來對譯梵文長母音音節。研究結果顯示，所有常用來對譯梵文長母音的漢字，也都用來對譯梵文短母音。其三，從資料中也發現即使在同一梵文術語中，有相同性質的長母音和短母音，翻譯者也使用相同的漢字來對譯。基於以上三點，筆者認爲中古漢語應該是沒有長短母音之對立，不然佛經的翻譯者在對音時，應會使用長母音來對譯梵文長母音，短母音來對譯梵文短母音，不至於毫無分別地使用相同的漢字。

關鍵詞：佛教術語，中古漢語，梵文，母音長短