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A Study of Sanskrit Loanwords in Chinese*

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ABSTRACT

In this study the data were collected from Guoyu Ribao's *Loanwords Dictionary* (1985). There are 112 Sanskrit words, which have been rendered into 293 Chinese lexical items. We found that of the 293 items, only 20, that is, less than 7%, are not phonetic loans. In fact, out of the 20 loanwords, 18 are hybrids, namely, one part of the compound loanword is a phonetic loan, and the other part is a translated morpheme, or an added semantic marker. In Section 2, we introduce some scholars' classifications of loanwords, and then classify the 293 Sanskrit loanwords according to Haugen's (1950), Wu's (1994) and Chen's (2000) studies. The Sanskrit loanwords are classified into three groups: (1) phonetic loans, for example,「阿羅漢」; (2) hybrids: which include (a) half-transliteration and half-translation, for example,「菩提樹」, (b) translation plus a semantic marker, for example,「須彌山」and (c) double renditions, for example,「和合僧」; (3) renditions plus added information, for example,「阿彌陀佛」. In Section 3, several kinds of phonological nativization are presented to show how Chinese scholars transliterated the Sanskrit words. Phonological nativization refers to the use of the most similar native sounds to transliterate the borrowed sounds if the foreign sounds cannot be found in the borrowing languages. We discuss the phonological nativization of the vowels and the phonological nativization of the consonants; the latter is divided into seven aspects: voicing, aspiration, palatal stops, retroflexes, nasals, semivowels and fricatives. Section 4 displays two other processes of the Sinicization of Sanskrit terms: syllable structure Sinicization and syllable length Sinicization. Finally, Section 5 gives a brief summary of the paper.

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Key Words: Sanskrit, loanwords, transliteration, phonetic loans, hybrid (half-transliteration, half-translation), semantic marker, loan translations, phonological nativization, syllable structure Sinicization, syllable length Sinicization

1. Introduction

Buddhism was introduced into China during the Han Dynasty, around 58 A.D., and Buddhist scriptures have been translated since 148 A.D. The translation and transliteration of the Buddhist scriptures has had much influence on Chinese phonology (Chen, 1994). Moreover, along with the dissemination of Buddhism and the translation of the Buddhist texts, many lexical items have been borrowed from Sanskrit into Chinese. The so-called Chinese loanwords have two main origins: first, words that are employed to represent spiritual practices, or abstract ideas which are not native to China; for example, 佛 *Fo* 'Buddha', 基督 *Jidu* 'Christ', 可蘭經 *Kelanjing* 'Koran', 烏托邦 *Wutuobang* 'utopia'; secondly, words that denote material or concrete things which are not found in the Chinese culture; for example, 沙發 *Shafa* 'sofa', 咖啡 *Kafei* 'coffee', 巧克力 *Qiaokeli* 'chocolate'. Most loanwords from Sanskrit belong to the first class.

In this study the data were collected from Guoyu Ribao's *Loanwords Dictionary* (1985).[1] There are 112 Sanskrit words, which have been transliterated and translated into 293 Chinese lexical items. The 112 words are listed in the appendix with their Chinese renditions, Middle Chinese pronunciations, the meanings,[2]

1. It is the only loanword dictionary printed in Taiwan. However, due to the fact that few people know Sanskrit, or that those who compiled the dictionary did not pay much attention to the correct spelling of the Sanskrit terms, out of 112 Sanskrit words there are 28 misspellings. It is really a great number of mistakes. I sent a list of corrections to the publisher about five years ago, and asked them to make the corrections in their third printing. They have promised to correct them in their next edition. I have double-checked the incorrect spellings with three other dictionaries, Soothill & Hodous (1968), Liu & Kao, et al. (1984), and Edgerton (1970).
2. Throughout the paper, the Middle Chinese pronunciations are mostly taken from Guo (1986), which is in turn based on Wang's (1980) reconstruction of Middle Chinese. In Guo (1986) there are two sets of reconstructions: one is Old Chinese and the other, Middle Chinese. However, for ease of comparison the Middle Chinese reconstruction is used throughout in this study. If the reconstructed pronunciation could not be found for certain words, then their pronunciations were tracked down first in Guang Yun 廣韻, and then the pronunciations were reconstructed according to Guo's (1986) system. For example, the word 捺 is not found in Guo (1986); in Guang Yun it says 捺, 奴曷切. Thus, we reconstruct its pronunciation as /nu/ + /ɣɑt/ → /nɑt/.

and the pages on which they appear in the dictionary. Unlike most studies, which claim that Chinese prefer semantic borrowings, or loan translations, we found that of the 293 items, only 20, that is, less than 7%, are not phonetic borrowings. In fact, out of the 20 loanwords, 18 are hybrids, namely, one part of the compound loanword is a phonetic loan, and the other part is the translated portion or an added semantic marker. The whole strategy for the rendering of Sanskrit words will be shown in the following sections. In Section 2, we introduce some scholars' classifications of loanwords, and then classify the 293 Sanskrit loanwords according to Haugen's (1950) and Wu's (1994) studies. In Section 3, several kinds of phonological nativization are presented to show how Chinese scholars transliterated the Sanskrit words. Section 4 displays two other processes of the Sinicization of Sanskrit terms: syllable structure Sinicization (音節結構的漢化) and syllable length Sinicization (音節長度的漢化). Finally, Section 5 gives a brief summary of the paper.

2. Classifications of Sanskrit Loanwords

Scholars have employed various criteria to classify Sanskrit loanwords, with most of the criteria being based on phonetic, morphemic, or semantic considerations. For example, Haugen (1950) makes a division according to the extent of morphemic substitution: none, partial or complete, that is, phonetic loans, loanblends and loanshifts, respectively; Weinreich (1966) has similar groupings, with the loanshifts further subdivided into loan translations proper, loan renditions and loan creations; Novotná (1967b, 1968, 1969) groups loanwords into phonemic loans, graphic loans, hybrid words, loan-translations, semantic loans and induced new-creations; Hock (1991) groups cultural borrowings according to the adoption (of the foreign words with their morphology and phonology unmodified) or adaptation (integration of the borrowed words into the structure of the borrowing language); Wu (1994) has classified loanwords into five categories: transliteration, transliteration plus "a noun indicating classification" which we would call a "semantic marker,"[3] half-transliteration and half-translation, loan translation, and pure translation. In this section we will combine Wu's (1994) and Haugen's (1950) classifications of loanwords to classify Chinese loanwords from Sanskrit.

According to Haugen (1950), linguistic borrowing is a process involving reproduction, and either substitution, importation, or both. Borrowings are clas-

3. Please refer to Chen (2000) for more discussion on semantic markers.

sified according to no, partial or complete morphemic substitution. Words with no morphemic substitution are called LOANWORDS where both forms and meanings are borrowed, or assimilated with some adaptation to the phonological system of the borrowing language. This is the meaning of loanwords in a narrow sense; in fact, these kinds of words are called phonetic loans where the foreign words are transliterated into the borrowing language without any relationship between the sounds and the meanings; for instance, 沙發 *Shafa* 'sofa', 拷貝 *Kaobei* 'copy'. Throughout this paper *loanword* is used in a broad sense to mean words borrowed from another language or dialect. Furthermore, words with partial morphemic substitution are called LOANBLENDS, or *hybrids*, where only part of the phonetic shape of the word is imported, and a native portion is substituted for the rest; for example, 冰淇淋 *Bingqilin* 'ice-cream', 迷你裙 *Miniqun* 'mini-skirt' (the underlined parts indicate the phonetic shape of parts of the compounds, and the doubly-underlined ones, native portions used in translation). These are what Wu (1994) calls half-transliteration, half-translation words. According to Wu (1994), there are some loanwords that employ the phonetic loan strategy but with a semantic marker to indicate part of the meaning of the word. I consider these kinds of loanwords a subgroup of loanblends. For example, 保齡球 *Baolingqiu* 'bowling', 富士紙 *Fushizhi* 'foolscap' (the underlined parts are the transliteration of the English words, while the doubly-underlined parts indicate that 'bowling' is a kind of ball game, and 'foolscap' is a kind of paper). Finally, words with complete morphemic substitution are what Haugen (1950) calls LOANSHIFTS, which include what are usually called *loan translations*, where the morphemes in the complex or compound words in the donor language are translated item by item, for example 郵筒 *Youtong* 'post-box', 超人 *Chaoren* 'superman', and *pure translations* or *semantic loans*, which borrow only the new concepts of the borrowed words, and use native words from the borrowing languages to establish new compounds; some examples are 激光 *Jiguang* 'laser', 電話 *Dianhua* 'telephone' and 小提琴 *Xiaotiqin* 'violin'.[4] The classification of loanwords is summarized in (1):

4. According to Hock (1991), the terms 'loan shifts' and 'loan translations' are different. In his definition, loan shifts are semantic loans which borrow only the meaning without the process of translating the borrowed words morpheme by morpheme, while loan translations translate morphologically complex foreign words using native words to match the meaning and structure of the words in the donor language. Thus, the former does not introduce new forms into the borrowing languages while the latter does. See Hock (1991) Chapter 14. Hock's (1991) definition of 'loan shifts' is a narrower one.

(1)

Loanword Classification	Examples		
I. Transliterations:	'coffee'	咖啡	Kafei
II. Hybrids:			
a. Transliteration plus a semantic marker:	'bowling'	保齡球[5]	Baolingqiu
b. Half-transliteration and half-translation:	'ice-cream'	冰淇淋[6]	Bingqilin
III. Translations:			
a. Loan translations:	'football'	足球	Zuqiu
b. Pure translations (semantic loans):	'laser'	激光	Jiguang

As Haugen (1950) notes, nouns are the most easily borrowed words, then various other parts of speech, and then suffixes, while the least borrowable elements are inflections. Similarly, Jespersen (1964) also observes that there is a much greater tendency to borrow 'full' words (substantives, adjectives, notional verbs) than 'empty' words (pronouns, prepositions, auxiliary verbs, and conjunctions). Moreover, Novotná (1967a) also points out that the overwhelming majority of loanwords in Chinese are nouns. In fact, all of the 293 Sanskrit loanwords in this study belong to a single class, namely, nouns. Among the 293 Chinese renditions, 273 terms are phonetic loans, which will be dealt with in Section 3. The other 20 rendered terms are all loanblends,[7] which will be discussed in this section; there are no loanshifts found in the data.

Loanblends are sometimes called 'hybrids'. However, according to Novotná (1969), hybrid words can be understood both in a broad sense and in a narrow sense. Hybrid words in a broad sense refer to "all combinations of heterogeneous lexical constituents, i.e. native and borrowed root-morphemes and word-formatives in one word," whereas hybrid words in a narrow sense refer to "combinations of native and borrowed constituents which involve a discoverable foreign model" (p. 48). In this study loanblends are taken in the broader sense. As shown in (1), loanblends are further divided into: (a) transliteration plus a semantic marker, and (b) half-transliteration and half-translation. The twelve examples in (2) belong to the first subtype of loanblends, namely, transliteration

5. The underlined portion is the added semantic marker.
6. The underlined portion is the translated morpheme.
7. In the Appendix all loanblends are marked with the symbol ※.

plus a semantic marker.[8]

(2) Transliteration A a Semantic Marker:[9]

Sanskrit	Chinese	Middle Chinese	Semantic Marker
a. arghya	閼伽水	ɑt gĭɑ ɕwi	'water'
b. harītakī	訶子	xɑ tsĭə	'seed; something small and hard'
c. Śarīra	舍利子	ɕia li tsĭə	'seed; something small and hard'
d. Sumeru	須彌山	sĭu mĭe ʃæn	'mountain'
e. tagara	迦南香	ka nɒm xĭaŋ	'fragrance; incense'
(tagaraka)	奇南香	gĭa nɒm xĭaŋ	'fragrance; incense'
	奇楠香	gĭa nɒm xĭaŋ	'fragrance; incense'
	伽南香	gĭɑ nɒm xĭaŋ	'fragrance; incense'
	伽楠香	gĭɑ nɒm xĭaŋ	'fragrance; incense'
f. tuṣita	兜率天	təu ṣĭwĕt t'ien	'heaven'
g. udumbara	曇花	dɒm xwa	'flower'
	優曇華	ĭəu dɒm xwa	'flower'

In this type of rendition technique a Sanskrit term is transliterated and a native semantic marker added to give more information about the transliterated term. The semantic marker serves as the head of the hybrid compound. One very common word in Chinese, 蘋果 *píngkuǒ* 'apple', is actually an example of an explicative hybrid from Sanskrit. The first constituent of the term, 蘋 *píng*, is an abbreviated transliterated word[10] from the Sanskrit *bimbara*, while the second morpheme, 果 *kuǒ*, is a native explicative morpheme meaning 'fruit', to bring semantic clarity to the transliterated term. Novotná (1969) names this type of loanblend an explicative hybrid. Explicative hybrids are "semantically rather indistinct loans" which are provided with "lexical constituents of the borrowing language and thus explained as regards their meaning and ranged with native lexical classes" (p. 49). That is, the borrowed phonetic loan is deficient in semantic clarity, so a native constituent is added to the borrowed word. In (2a), if the semantic marker 水 /ɕwi/ 'water' was not added, then it would be difficult

8. Throughout this paper the glosses of the Sanskrit examples are not listed, since it takes a lot of space to explain the terms. For the meaning of each Sanskrit term, please refer to the Appendix.
9. The underlined Chinese words indicate that they are semantic markers whose meanings are given under the semantic marker column. The plain Chinese words are the transliterations of the Sanskrit words.
10. The character 蘋 *píng* should not be considered as a word, since it never occurs alone. For more discussion on the morphemic structure of the word 蘋果 *píngkuǒ*, please refer to Xie (1994).

for the common people to understand what exactly 閦伽 /ɑt gĭɑ/ means. If the semantic marker 山 /ʃæn/ 'mountain' was not added to 須彌 /sĭu mĭe/ in (2d), then few people would know that Sumeru is a name of a mountain. Likewise, if in (2g) the semantic marker 花 /xwa/ 'flower' is not added to the transliterated terms 曇 /dɒm/ and 優曇 /ĭəu dɒm/, then no one except those in the Buddhist circle would know that they refer to some kind of flowers. Thus, semantic markers play an important role to bring semantic clarity to the transliterated terms.

The second subtype of loanblend is half-transliteration and half-translation. Hockett (1958) defines this kind of loanblend as "a new idiom developed in the borrowing situation, in which both the loanword and the loanshift mechanisms are involved: the borrower imports part of the model and replaces part of it by something already in his own language." The foreign words must have two morphemes; one of them is transliterated and the other is translated. Novotná (1969) also states that half-transliteration and half-translation is a lexical innovation created by the "joint application of the mechanisms of phonemic borrowing and loan-translating, i.e. a part of the model is borrowed and another part is replaced by a native constituent". For example, Czech *sebekritika* 'self-criticism' is a loanblend which is composed of a translated morpheme *sebe* 'self' and a transliterated morpheme *kritika*. Among the 20 non-phonetic loans, there are five examples of this type. Moreover, these are all two morpheme compounds or phrases. The first morphemes are transliterated while the second morphemes are translated. Five examples are shown in (3). The underlined morphemes indicate the translation parts, and those without underlining are simply phonetic transliterations. The glosses give the meanings of the translated morphemes.

(3) Half-transliteration and Half-translation:

	Sanskrit	Chinese	Middle Chinese	Gloss
a.	bodhi<u>druma</u>	菩提<u>樹</u>	bu[11] diei <u>ʑĭu</u>	'tree'
b.	dhyāna <u>samādhi</u>	禪<u>定</u>	<u>ʑĭɛn dieŋ</u>	'intent contemplation'
c.	śītavana	尸陀<u>林</u>	<u>ɕi</u> dɑ <u>lĭĕm</u>	'forest'
d.	śītavana	屍陀<u>林</u>	<u>ɕi</u> dɑ <u>lĭĕm</u>	'forest'
e.	Yama-<u>rāja</u>	閻摩<u>王</u>	jĭɛm muɑ <u>jĭwaŋ</u>	'king'

11. In Guo (1986) the reconstructed pronunciation of 菩 is /bək/ (蒲北切). As one of the reviewers pointed out, however, there are two pronunciations for the word 菩 in Guang Yun 廣韻 (actually there are four different pronunciations). The one cited in Guo (1986), namely, /bək/, refers to a type of grass. When it refers to 'perfect wisdom' in the Buddhist sense, often occurring as 菩提, the reconstructed pronunciation should be /bu/ (薄胡切).

In (3) the first morphemes in all the examples are two syllables long and they are transliterated into Chinese with two syllables, except for example (3b). In (3b) the Sanskrit term *dhyāna* is usually abbreviated as 禪 /ʑiɛn/ instead of being fully transliterated as 禪那 /ʑiɛn nɑ/. Likewise, when it forms part of a compound, it shows up in the abbreviated form, as in *dhyāna samādhi* 禪定 /ʑiɛn dieŋ/.

There are still three examples which cannot be grouped into either the transliteration plus a semantic marker, or half-transliteration and half-translation groups. They are shown in (4):

(4)	Sanskrit	Chinese	Middle Chinese
a.	saṁgha	和合僧	ɣuɑ ɣɑp səŋ
b.	Amitābha	阿彌陀佛	ɑ mĭe dɑ bĭwət
c.	Maitreya	彌勒佛	mĭe lək bĭwət

In Liang's (1994) study on the structure of Buddhist terms from Sanskrit, she has classified hybrid words, which she has called "Sanskrit-Chinese combined words", into four kinds: transliteration plus a Chinese classification nominal morpheme, a Chinese word plus a transliteration, a newly-coined transliterated word plus a Chinese morpheme, and the combination of synonymous or near-synonymous Sanskrit and Chinese words. Some examples of the fourth type are words like 尼姑 /ni ku/ 'Buddhist nun' and 剎土 /tʃ'at t'u/ 'land, fields, country'. The first morpheme of 尼姑 /ni ku/ is an abbreviated form of the word 比丘尼 /pi k'ĭəu ni/ 'a nun, an almswoman', which was transliterated from the Sanskrit *bhikṣuṇī*. In Sanskrit the suffix *-ṇī* denotes female. The word *bhikṣu* means 'Buddhist monk', and *bhikṣuṇī* means 'Buddhist nun'. The second morpheme of 尼姑 /ni ku/, namely, 姑 /ku/, means 'father's sister, husband's sister, sister-in-law', and also it refers to females. The combination of the transliterated term and the native morpheme with the same meaning results in a hybrid word. Similarly, the first morpheme in 剎土 /tʃ'at t'u/ is an abbreviated transliteration of the Sanskrit *kṣetra* 'land, country', and the second morpheme in Chinese has the same meaning. Thus, the combination of the two morphemes functions like a coordinative compound in Chinese. Actually, the fourth type of hybrid word is a subtype of Novotná's (1969) explicative hybrids which she calls 'copulative compounds'. Hybrid words from English such as 卡片 *kǎpiàn* 'card' and 卡車 *kǎchē* 'car' belong to the same type. The first morphemes of the words show the transliteration parts and the second morphemes are simply native morphemes with the same meanings. The example in (4a), namely, *saṁgha* 和合僧 /ɣuɑ ɣɑp səŋ/, belongs to what Liang (1994) calls hybrids combining synony-

mous or near-synonymous Sanskrit and Chinese words. The first morpheme of the Chinese rendered term in (4a) 和合 /ɣuɑ ɣɑp/ 'gathering, assembly' is a translation of the Sanskrit term *saṁgha*, and the second morpheme 僧 /səŋ/ is an abbreviated transliteration of the same Sanskrit term. The resultant Chinese term is just like a double rendition of the Sanskrit term. There are many other examples of double rendition found in the Buddhist scriptures, as mentioned in Chen (2000). Examples like *śrāvaka* 聲聞弟子 /ɕiɛŋ mĭuən diei tsĭə/ 'a Buddhist disciple', *Avalokiteśvara* 觀世音自在 /kuɑn ɕiɛi ĭěm dzi dzɒi/ 'name of a Bodhisattva, lit. the onlooking sovereign', and *aparimita* 無量無數 /mĭu lĭaŋ mĭu ʃĭu/ 'unmeasured, unlimited' are all cases of double rendition. The difference is that the resultant forms in these three examples of double rendition are loanshifts, while the example in (4a) is a hybrid. Moreover, Liang (1994) mentions that all the examples of hybrids combining synonymous or near-synonymous Sanskrit and Chinese words are "Sanskrit in the front and Chinese in the back". What she means is that the first morphemes are always transliterated terms, while the second morphemes are always translated ones, as in 檀施 /dɑm ɕĭe/ 'almsgiving' 唄贊 /bai tsɑn / 'hymns in praise of Buddha' and 魔鬼 /muɑ kĭwəi/ 'the destroyer, evil one, devil' in addition to 尼姑 /ni ku/ 'Buddhist nun' and 剎土 /tʃʻat t'u/ 'land, fields, country'. However, example (4a) is a counter-example to her study. More interestingly, one of her examples is 僧侶 /səŋ lĭo/ 'an assembly of monks', which is very similar to our example 和合僧 /ɣuɑ ɣɑp səŋ/. First, they are both renditions of the Sanskrit *saṁgha*; secondly, they are both double renditions of the Sanskrit term; and lastly, they are both hybrid words. They differ only in one aspect: the former is a transliteration-translation hybrid, just like many of the other examples, while the latter is a translation-transliteration hybrid.

The examples in (4b-c) are not hybrids; nor are they phonetic loans. Chen (2000) names them 'inexact renditions', which include renditions with added information, renditions with deleted information and the use of different terms to translate other terms (loose translations or wrong translations). In these two examples, 佛 /bĭwət/ 'Buddha' is the added information part, which I consider a 'semantic marker'. As mentioned earlier, a semantic marker is a morpheme added to a transliterated morpheme; its function is to bring semantic clarity to the term. In (4b-c) we find that a semantic marker can itself be a phonetic loan. The semantic marker 佛 /bĭwət/ is a transliteration of the Sanskrit word *Buddha*. It is a very common Chinese word. Some might even think that it is a native word, like a phonoideogram (Xíngshēng Zì 形聲字 'lit. shape-sound words'), which is composed of a signific 人 *rén* 'person' and a phonetic 弗 *fú* 'not'. It can thus function as a semantic marker, and was added to the transliterated

terms 阿彌陀 /ɑ mĭe dɑ/ and 彌勒 /mĭe lək/, to indicate that Amitābha and Maitreya are Buddhas. If only the transliterated word were used, the common people might not know who Amitābha and Maitreya are. We know that the transliterated word 佛 /bĭwət/ 'Buddha' functions as a native word. It has very strong word-forming capacity and can thus play the role of a semantic marker to bring semantic clarity to the transliterated terms. Another similar and very common example is 釋迦牟尼佛 /ɕĭɛk kĭɑ mĭəu ni bĭwət/ 'the saint of the Śākya tribe, the Buddha', which is also an example of an inexact rendition with 釋迦牟尼 /ɕĭɛk kĭɑ mĭəu ni/, transliteration of Sanskrit *Śākyamuni*, plus a semantic marker 佛 /bĭwət/.

It is to be noted that there are no loanshifts among the 293 words in our data. However, this does not mean that there is no loan translation strategy employed in translating Sanskrit words; instead, it simply means that there are no loan translations in the dictionary which I chose to study the loanwords. As a matter of fact, there are many common Sanskrit loan translations mentioned in the dictionary, but they are not listed as separate items. Some examples are listed in (5). All the examples in (5) have two morphemes in both Sanskrit and Chinese. The first morphemes are underlined, and the second morphemes are doubly underlined.

(5)	Sanskrit	Chinese	Middle Chinese	Gloss
1.	dānapati	施主	ɕĭe tɕĭu	dāna — 'charity, alms' pati — 'lord, master'
2.	bodhidruma	覺樹	kɔk ʑĭu	bodhi — 'the enlightened mind' druma — 'tree'
3.	mahāprajñā	大智慧	dɑ tĭe ɣiwei	mahā — 'great' prajñā— 'wisdom'
4.	mahāsattva	大眾生	dɑ tɕĭuŋ ʃɐŋ	mahā — 'great' sattva — 'all the beings'
5.	śītavana	寒林	ɣɑn lĭĕm	śīta — 'cold' vana — 'forest'

Loanshifts are the most commonly used forms in Chinese. However, there are no loanshifts compiled, or rather I should say that loanshifts are not listed as loanword items in this dictionary. Only words involving transliterations are considered loanwords, according to the present dictionary. Although words with a loanshift strategy are not listed as loanword items, some are mentioned under the items for other strategies, namely, phonetic loans, or loanblends. Loanshifts are listed in the Appendix with the symbol ॐ.

3. Phonological Nativization

Sapir (1921) claims that "the borrowing of foreign words always entails their phonetic modification. There are sure to be foreign sounds or accentual peculiarities that do not fit the native phonetic habits." Hock (1991) also mentions that loanwords need to be nativized into the borrowing languages. This nativization involves phonology, lexicon and inflectional morphology. Phonological nativization refers to the choosing of the most similar native sounds to transliterate the borrowed sounds, if they can not be found in the borrowing language. For example, English uses the voiceless velar stop /k/ to indicate the voiceless velar fricative /x/ in German in the word *Bach*. Likewise, there are some sounds which are not found in Chinese phonology. In order to transliterate some Sanskrit terms, translators needed to choose more similar Chinese sounds to transliterate the Sanskrit sounds. In this section the phonological nativization of the 293 Sanskrit terms will be dealt with. There are systematic sound correspondences in this nativization process. We will first briefly discuss the nativization of vowels, and then the nativization of consonants, which includes voicing, aspiration, palatal stops, retroflexes, nasals, semivowels and fricatives.

3.1. Vowels

When transliterating Sanskrit terms, long and short vowels are considered to be the same. The same Chinese characters can represent syllables with long or short vowels. Some examples are shown in (6):

(6) a. upāsikā 鄔波斯迦 [u puɑ sĭe ka] b. ālaya 阿剌耶 [ɑ lɑt jĭa]
upāsaka 鄔波索迦 [u puɑ sɑk ka] ɑgada 阿伽陀 [ɑ gĭɑ da]

c. Amitābha 彌陀 [mĭe dɑ] d. Bhikṣuṇī 比丘尼 [pi k'ĭəu ni]
śītavana 屍陀林 [ɕi dɑ lĭĕm] maṇi 摩尼 [muɑ ni]

e. sumeru 修迷樓 [sĭəu miei ləu] f. sumati 須摩提 [sĭu muɑ diei]
sūtra 修單羅 [sĭəu tɑn lɑ] sūrya 須梨耶 [sĭu li jĭa]

The reason that vowel length is not distinguished in transliteration might be that there were no long vowels in Middle Chinese. Thus, in transliteration, short vowels were employed to render long vowels. Pulleyblank (1984, 1991), however, has claimed that vowel length was a main feature in Middle Chinese, and that vowel length distinguished the First Division Rhyme (一等韻) and the

Second Division Rhyme[12] (二等韻). On the other hand, some other scholars have grouped different rhyme divisions according to the vowel quality. If there was a short vs. long vowel distinction in Middle Chinese, the translators should have used different sounds to distinguish short vowels from long vowels. For more arguments against short vs. long vowel distinction in Middle Chinese, one can refer to Chen (1996). How then did translators account for the Sanskrit vowel length? Chen (2000) proposes that, in order to indicate short transliterated vowels in Sanskrit, translators would use closed syllables to preserve the length of the vowels. Vowels in open syllables are usually longer than those in closed syllables. Moreover, long Sanskrit vowels were usually transliterated into Chinese with open syllables.

The other possibility might be, as Boucher (1998) has pointed out, that in the translation the translator might confuse short and long vowels during the oral/aural transmission of the Buddhist texts, due to the "Prakritic or Central Asian pronunciation of the text". Thus, sometimes mistakes would be made in the translation process. For example, *bāla* (childish, foolish) has been translated as *bala* (strong). Boucher (1988) also noted that the Buddhist texts might be written in *kharoṣṭhī* script, which did not mark the vowel length. This shows that the translators, most being non-native speakers of Sanskrit, did not know Sanskrit well; otherwise, the script would not have influenced their translation. Another possibility might be that the Buddhist terms were not transliterated directly from Sanskrit, but from some other Central Asian languages in which there was no short vs. long vowel distinction.

3.2. Consonants

The Sanskrit consonants will first be introduced, then the Chinese ones. There are thirty-three consonants in Sanskrit: twenty-five stops, which are arranged neatly according to their place and manner of articulation, four semivowels, and four fricatives. They are listed as follows:

12. In Middle Chinese vowels were divided into four divisions. The higher the division, the more open the vowel is. However, Pulleyblank has argued that the difference between the First and the Second Division Rhymes was the vowel length, not the vowel quality.

(7) Stops:

	Voiceless				Voiced				Nasal	
	plain		aspirated		plain		aspirated			
Velar	k	क	kh	ख	g	ग	gh	घ	ṅ	ङ
Palatal[13]	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:[14]			y	य	r	र	l	ल	v	व
Fricatives:										
voiceless:			ś	श	ṣ	ष	s	स		
voiced:	h	ह								

13. One of the reviewers pointed out that according to Stenzler (1965), Gonda (1966), Renou (1984), and Tsuji (1991), Sanskrit palatals should be affricates instead of stops. We, however, propose that Sanskrit palatals are stops, not affricates. Our reasons are as follows: first, in Hans Hock's view (personal communication), according to Sanskrit phoneticians and grammarians, the palatals are stops. This is also supported by the fact that the palatal series comes between the velar and retroflex series, and neither of them can be considered affricates, nor can they be listed separately as an affricate series. Secondly, even now, in most Indo-Aryan languages, the palatals are stops. They do have some degree of sibilant off-glide (this is natural for palatals) as well as other laminal stops (Ladefoged & Maddieson 1996). Thirdly, auditorily, Sanskrit palatal stops differ remarkably from the assibilated affricates of English, which in fact come close to being bisegmental, such as the German /pf/, /ts/ and /kx/, which in turn are much more clearly affricated. Fourthly, it is the voiceless aspirated palatal stop /ch/ for which there is some evidence of affricate status, in so far as it is a realization of the expected -cś-, as in *tacchrutvā* (tat + śrutvā). There is a sandhi rule which says that before the palatal sibilant /ś/, /t/ is assimilated to /ś/, and becomes /c/, and then the following /ś/ is converted to /ch/. The outcome is always and clearly bisegmental, however, as shown by the spelling -cch- and by the fact that the first written stop element is mora bearing in verse. Finally, the Sanskrit voiceless aspiration is much stronger and much more turbulent than the English aspiration. The affrication here can be easily explained as involving an overlap of oral placement features over the duration of the aspirate release. The absence of such developments for non-aspirated palatal stops (or other stops) provides further reason for being cautious about labeling the Sanskrit and modern Indo-Aryan palatal stops as affricates. Due to the constraint of space, I cannot do full justice to such a thesis, and I will return to this issue in a forthcoming paper.

14. Whitney (1889) said that "the name given to this class of sounds by the Hindu grammarians in **antaḥsthā** *standing between* — either from their character as utterances intermediate between vowel and consonant, or (more probably) from the circumstance of their being placed between the mutes and spirants in the arrangement of the consonants." According to the Paninian school all the semi-vowels are produced with the organs slightly in contact or in imperfect contact.

In Chinese there are thirty-five consonants which are illustrated in (8):

(8) Initials In Late Middle Chinese:[15]

Gutturals:	影	ɸ	餘	j	曉	x	匣	ɣ		
Velar stops:	見	k	溪	k'	群	g	疑	ŋ		
Dental stops:	端	t	透	t'	定	d	泥	n	來	l
Retroflex stops:	知	ʈ	徹	ʈ'	澄	ɖ	日	ɽ		
Alveolar sibilants:	精	ts	清	ts'	從	dz	心	s	邪	z
Retroflex sibilants:	莊	tʂ	初	tʂ'	崇	ɖz	山	ʂ		
Alveolo-palatal sibilants:	章	tɕ	昌	tɕ'	船	dʑ	書	ɕ	禪	ʑ
Bilabial stops:	幫	p	滂	p'	並	b	明	m		

3.2.1. Voicing

While dealing with the data, one might find that sometimes voiced and voiceless stops are borrowed with the same Chinese characters as shown in examples (9a-c); sometimes even aspirated and unaspirated stops are transliterated using the same sound as seen in example (9d):

(9) a. stūpa 率都婆 [ʂĭwĕt tu buɑ]
udumbara 優曇婆羅 [ĭəu dɑm buɑ lɑ]

b. kalaviṇka 迦陵頻伽 [ka lĭəŋ bĭĕn gĭa]
agada 阿伽陀 [ɑ gĭa dɑ]

c. vārṣika 婆師迦 [buɑ ʂi ka]
yoga 瑜珈 [jĭu ka]

d. voiced unaspirated: agada 阿伽陀 [ɑ gĭa dɑ]
voiced aspirated: Buddha 佛陀 [bĭwət dɑ]
voiceless unaspirated: dhūta 頭陀 [dəu dɑ]
voiceless aspirated: gātha 偈陀 [gĭɛt dɑ]

The examples in (9) make one wonder whether there are certain rules in transliterating Sanskrit sounds regarding voicing and aspiration. In this section voicing will be discussed, while aspiration will be dealt with in the next

15. According to Wang (1980), 知, 徹, 澄 are alveolo-palatals, and 莊, 初, 崇, 山 are palato-alveolars. We, however, advocate Li's (1971) reconstruction, that 知 ʈ, 徹 ʈ', 澄 ɖ are retroflex stops, and 莊 tʂ, 初 tʂ', 崇 ɖz, 山 ʂ are retroflex sibilants.

section. In fact, after listing all the sound correspondences, we find that the percentage of voicing correspondence between Sanskrit and Middle Chinese is very high. Out of 157 unaspirated oral stops there are 136 (86.6%) that retain the same voicing features; that is, if the Sanskrit sounds are voiced, the transliterated Chinese sound will be voiced. Likewise, if the Sanskrit sounds are voiceless, the corresponding sound in Chinese will be voiceless. The number of each correspondence is shown in (10):

(10)

No.	Sanskrit Stops[16]	Middle Chinese Transliteration	Number of Examples
a.	/k/	/k/	16
b.	/k/	/g/	1
c.	/k/	/d/	1
d.	/k/	/tɕ/	1
e.	/g/	/g/	9
f.	/g/	/k/	6
g.	/g/	/ɣ/	1
h.	/t/	/t/	26
i.	/t/	/d/	4
j.	/t/	/l/	2
k.	/t/	/k/	1
l.	/d/	/d/	30
m.	/d/	/n/	1
n.	/p/	/p/	32
o.	/p/	/b/	5
p.	/b/	/b/	20
q.	/b/	/x/	1

16. Here we only discuss oral stops. Nasal stops will be discussed in Section 3.2.5. and palatal stops will be introduced in Section 3.2.3.

Of the 21 examples of voicing discrepancy, 19 of them are actually related to our discussion of voicing. Some of the examples even change the place of articulation in transliteration, as in (10c) and (10k), which is not our concern at this moment. These examples could be due to careless transliterations. Chen (2000) points out that intervocalic voiceless stops are usually transliterated into Chinese voiced stops. This is a kind of weakening in many Indo-European languages. As Varma (1961) points out, it is a prevalent tendency for Indo-Aryan dialects to "maintain plosion of consonants in the initial position, and to reduce their plosion in the medial and final positions". That is, the initial stops are usually pronounced stronger, while the medial and final stops are weaker. Some of the examples of Sanskrit intervocalic voiceless stops that have been transliterated into Chinese as voiced stops are given in (11):

(11) a. Amitābha 彌陀 [mǐe dɑ]
b. Amitābha 阿彌陀佛 [ɑ mǐe dɑ]
c. sumati 須摩提 [sǐu muɑ diei]
d. tuṣita 兜率陀 [təu ṣǐwĕt dɑ
e. upāsaka 伊蒲塞 [i bu sək]
f. upāsaka 優婆塞 [ǐəu buɑ sək]
g. upāsikā 優婆夷 [ǐəu buɑ ji]

This phenomenon is further corroborated by our data. All voiceless stops in the word-initial positions were transliterated as Middle Chinese voiceless stops, that is, without weakening, except for the two examples in (12). Note that these two examples were transliterated from a single Sanskrit term.

(12) a. pāthaka 婆陟 [buɑ ṭǐək]
b. pāthaka 婆師 [buɑ ṣi]

Another possibility which indicates that some voicing discrepancy has occurred is that the Sanskrit terms were not transliterated directly, but from other languages. Boucher (1998) has pointed out that the confusion between voiced and voiceless intervocalic stops was a general phenomenon in Prakrit. He has studied translation errors in Dharmarakṣa's translation of the Buddhist scripture *Saddharmapuṇḍarīkasūtra*, and found that in one case Dharmarakṣa confused *pratipa(tti)* (good conduct) and *pradipa* (lamp).

3.2.2. Aspiration

There are many examples in which the aspiration in Sanskrit has not been preserved in the Chinese renditions. Some examples are given in (13):

(13) a. arghya 阿伽 [ɑ gǐɑ]
b. saṁgha 僧伽 [səŋ gǐɑ]
c. bodhi 菩提 [bu diei]
d. Buddha 步陀 [bu dɑ]
e. Buddha 沒馱 [muət dɑ]
f. dhūta 頭陀 [dəu dɑ]
g. bhikṣu 苾芻 [bǐĕt tṣ'ǐu]
h. bhikṣuṇī 悁芻尼 [bǐĕt tṣ'ǐu ni]

All the examples in (13) lose their aspiration in the Chinese transliterations, namely, the velar voiced stop /gh/ becomes /g/, the dental voiced stop /dh/ becomes /d/, and the bilabial voiced stop /bh/ becomes /b/. It is controversial whether the Middle Chinese voiced series was aspirated or unaspirated. Karlgren (1962) and others have reconstructed all voiced stops as being aspirated, by comparing various Chinese dialects. Li (1956), on the other hand, used the transliteration of the 49 Sanskrit sounds into Chinese to support his arguments that Middle Chinese voiced stops should be unaspirated. He pointed out that when transliterating unaspirated Sanskrit stops, the Indian or Chinese monks usually used the corresponding unaspirated Chinese series; however, when aspirated Sanskrit stops were being transliterated, varying methods were devised. For instance, the monks used *erheyin* (two-combined-sound, 二合音) to transliterate the aspirated series. ग /ga/ is transliterated as 迦 and घ /gha/ as 迦何 (何 is a word with 匣 /ɣ/ initial). Some have transliterated the aspirated and unaspirated series using the same initials, noted that the aspirated stops were 'strong sounds' (重音), which might mean having aspiration. Still others added a character component (形旁) to the transliteration of the unaspirated series to denote that they were aspirated. The so-called character components were usually used to denote the semantic categories of the words. For example, 氵 was used to denote that a word had something to do with water, or being liquid. The character component used frequently to indicate that the words were being aspirated was 口 (meaning 'mouth'). Perhaps it was arbitrarily chosen, simply to show that the sounds were different from the unaspirated series, since no corresponding aspirated stops could be found in Middle Chinese. Some examples are given in (14) for illustration purposes:

(14)	ba	巴，婆	bha	吧，嚩
	da	達	dha	噠
	ga	伽	gha	哦
	ḍa	荼	ḍha	嗏

As a result, one can conclude that voiced unaspirated stops were more likely to exist in Middle Chinese, while voiced aspirated stops might be lacking. The latter were transliterated into Chinese without independent characters, but with some other modifications, such as using two-combined-sounds, making an extra annotation, or adding a character component.

In our data there are 56 examples where words with aspiration was transliterated. The number of each type of aspiration transformation is shown in (15):

(15)

No.	Sanskrit Aspiration	Middle Chinese Transliteration	Number of Examples
a.	/kh/	/g/	1
b.	/gh/	/k/	1
c.	/gh/	/g/	9
d.	/th/	/ṭ/	1
e.	/th/	/n/	1
f.	/th/	/ṣ/	1
g.	/dh/	/th/	1
h.	/dh/	/t/	1
i.	/dh/	/d/	33
j.	/bh/	/b/	4
k.	/bh/	/p/	3

Out of the 56 examples, only one retained its aspiration; all other 55 examples lost it. We might want to ask why aspiration was not preserved in Middle Chinese transliterations. Could it be that there were no aspirated stops in Middle Chinese, so the translators had to render aspirated stops as unaspirated ones? In fact, there is a consensus in Middle Chinese reconstruction, that there were voiceless aspirated stops; however, it is controversial whether the voiced stops

were aspirated or unaspirated. Karlgren (1962) and others have reconstructed voiced stops as being aspirated by comparing various Chinese dialects. Li (1956), on the other hand, has employed the transliteration of the 49 Sanskrit sounds into Chinese to support his arguments that Middle Chinese voiced stops should be unaspirated. Of 54 examples that lost aspiration in the transliteration process, 46 (85%) of them were voiced aspirated stops, which were transliterated as voiced unaspirated stops. If there were no voiced aspirated stops in Middle Chinese, then it is very likely that the translators would render them as voiced unaspirated stops.

Another possible explanation would be that the Buddhist texts from which the transliterated terms were rendered were not written in Sanskrit, but in some other language, which did not have any aspiration contrast. For example, in Tocharian A and Tocharian B there were no aspirated stops (Adam 1988). The contrast between plain and aspirated stops was eliminated (Winter 1984). Burrow (1937) said that "there is a tendency to drop the aspiration in the aspirated consonants *kh*, *gh*, etc. That was because the native language of Shan-Shan had no aspirates and consequently in pronouncing the Prakrit they neglected them." Boucher (1998) also finds some translation mistakes in the *Saddharmapuṇḍarīka-sūtra* where aspirated stops were confused with unaspirated stops, or vice versa. For example, *ghaṇṭā* 'bell' was translated as *gandha* 'incense', *dāruṇa* 'dreadful' was translated as *dharaṇa* 'preserve, uphold,' and *bhūta* 'genuine, reality' was translated as *buddha* 'Buddha', etc. He assumed that such mistakes were caused by "a Prakritic or Central Asian pronunciation of the text".

3.2.3. Palatal Stops

Since there are no palatal stops in Middle Chinese, the Sanskrit palatal stops were nativized as Chinese alveolo-palatal affricates and fricatives. We found 13 examples in the data of Sanskrit palatal stops which were transliterated into 13 Chinese alveolo-palatal sibilants, including 7 affricates, as in (16a-g), and 6 fricatives as in (16h-m):

(16) a.	caṇḍāla	旃荼羅	[tɕiɛn ɖa lɑ]
b.	cāturdiśa	招提	[tɕiɛu diei]
c.	Cīna	眞旦	[tɕiĕn tɑn]
d.	Cīna	震旦	[tɕiĕn tɑn]
e.	Cīna	振旦	[tɕiĕn tɑn]
f.	avīci	阿鼻旨	[ɑ bi tɕi]
g.	Cīna	神丹	[ʑiĕn tɑn]
h.	añjana	安膳那	[ɑn ʑiɛn nɑ]
i.	añjana	安闍那	[ɑn ʑia nɑ]
j.	ācārya	阿闍梨	[ɑ ʑia li]
k.	Mañjuśrī	曼殊室利	[mĭwɐn ʑĭu ɕĭĕt li]
l.	Mañjuśrī	文殊師利	[mĭuən ʑĭu ʃi li]
m.	Mañjuśrī	文殊	[mĭuən ʑĭu]

3.2.4. Retroflexes

Some scholars doubt whether a retroflex series was necessary in the consonant system in Middle Chinese. Their arguments are: first, in the *Fanqie* spelling system, words beginning with dental 端 t, 透 t', 定 d, 泥 n, or retroflex stops 知 ṭ, 徹 ṭ', 澄 ḍ, 娘 ṇ had the same upper characters (or the same initials). This implies that the retroflexes were not independent initials. Second, in Early Mandarin the retroflex series merged into the palatal series 照 tɕ, 穿 tɕ', 床 dʑ. That is, the retroflexes first split from the dentals, and then merged with the palatals. However, Luo (1931) has proved that in the Middle Chinese consonant system, the retroflex series must have been independent phonemes. He first studied about thirty Buddhist works in which 42, or in some cases 49 Sanskrit sounds were transliterated. He focused on the transliteration of the Sanskrit retroflex stops ट ṭ, ठ ṭh, ड ḍ, ढ ḍh, and ण ṇ. Luo found that, of the 30 Buddhist works, 27 employed the Chinese retroflex series 知 ṭ, 徹 ṭ', 澄 ḍ, 娘 ṇ to transliterate the Sanskrit retroflexes. Moreover, he chose from some Buddhist scriptures 155 Sanskrit Buddhist terms which have retroflexes. He found that there were 126 terms which were transliterated with the retroflex series in Chinese. It seems convincing then, that there should have been retroflexes in Middle Chinese.

In our data there are only three Sanskrit terms with retroflex stops (not counting the retroflex nasal /ṇ/, to be discussed in Section 3.2.5.), two of them with a voiced unaspirated retroflex /ḍ/ and one with a voiceless unaspirated retroflex /ṭ/. The former has been transliterated into 10 Chinese terms: in four

cases /ḍ/ was transliterated as a voiced unaspirated retroflex /ḍ/, as shown in (17a-d); in four other cases it was transliterated as a voiced unaspirated dental /d/, as shown in (17e-h); in two other cases, it was transliterated as a dental nasal /n/, as shown in (17i-j). On the other hand the Sanskrit term with the voiceless unaspirated retroflex stop /ṭ/ was transliterated into two Chinese terms, and in both cases /ṭ/ was transliterated as a liquid /l/ as shown in (17k-l):

(17) a.	caṇḍāla	旃荼羅	[tɕiɛn ḍa la]
b.	maṇḍala	滿荼羅	[muɑn ḍa la]
c.	maṇḍala	曼荼羅	[muan ḍa la]
d.	maṇḍala	曼荼	[muan ḍa]
e.	caṇḍāla	旃陀羅	[tɕiɛn dɑ la]
f.	maṇḍala	曼達拿	[mǐwɐn dɑt na]
g.	maṇḍala	曼陀羅	[mǐwɐn dɑ la]
h.	maṇḍala	漫怛羅	[muɑn tɑt la]
i.	maṇḍala	曼拏	[mǐwɐn na]
j.	maṇḍala	曼拏羅	[mǐwɐn na la]
k.	koṭi	拘利	[kǐu li]
l.	koṭi	俱利	[kǐu li]

The reason that a retroflex stop would be transliterated as a dental stop might be that in some of the translators' dialects there were no retroflexes, thus they would use similar sounds to replace the retroflexes. In (17i-j) a retroflex stop was transliterated into Chinese as a nasal stop. This might be the effect of assimilation. In both examples the consonant preceding the retroflex stop is a retroflex nasal, with the nasality spreading to the stop. Through oral transmission, the translators could have heard a nasal sound, and thus transliterated the retroflex as a dental nasal. As for why a retroflex stop was transliterated into a liquid /l/, as in (17k-l), Luo (1931) has explained the discrepancy. The liquid was used to translate the Sanskrit retroflexes as a result of the fact that the translators came from different regions. They might have replaced the retroflexes with the liquid if they did not have retroflexes in their own dialects. Zhou (1981), on the other hand, has argued that during the Wei (220-265 A.D.) and Jin Dynasties (265-420 A.D.), the retroflex series did not diverge from the dental series. Thus in order to translate Sanskrit retroflex stops they substituted for these stops the Chinese liquid /l/, since it somehow functioned as a retroflex. Ji (1982) has further investigated the inconsistencies of Sanskrit retroflexes translated into the Chinese liquid /l/. He found that in Pāli the retroflexes /ḍ/, and /ḍh/ became /ḷ/, and /ḷh/ when they occurred between two vowels. For exam-

ple, Pāli *aveḷa*, *peḷa* originated from the Sanskrit *apiḍa*, *peḍa*, respectively. As well in the Ṛgveda, the /ḍ/ > /ḷ/ phenomenon also occurred. Ji's explication is highly plausible. The /ḍ/, /ḍh/ → /ḷ/ sound change is also found in MacDonell's (1968) *Vedic Grammar*: "In the later Saṃhitās *l* is also found for *ḍ* between vowels when the final of a word (like *ḷ* in RV.): thus *turāṣāl áyuktāsaḥ* (VS.) for *turāṣāṭ* 'overpowering quickly'; *phál íti* (AV.) for *pháṭ* (AV.). . . ." (p. 45). Since the retroflex dental stop /ṭ/ in (17k-l) was between two vowels, as in Pāli and Ṛgveda, it was replaced by a liquid /l/. This suggests that some of the Buddhist texts were not translated directly from Sanskrit, but from other Indian dialects, such as Prakrit or Pāli, and that the Buddhist scriptures might have been written in other dialects, which would have changed the Sanskrit retroflexes into the liquid /l/ when the former were in intervocalic positions. Thus, it is understandable that the Sanskrit retroflexes were transliterated with the Chinese 來 /l/.

3.2.5. Nasals

There are six nasals in Sanskrit: a velar nasal /ṅ/, a palatal nasal /ñ/, a retroflex nasal /ṇ/, a dental nasal /n/, a labial nasal /m/ and an *anusvāra* /ṁ/. We found that there is no velar nasal /ṅ/ in the data while the palatal nasal /ñ/ occurs seven times: five in the coda position (18a-e) and two in the onset position (18f-g):

(18) a.	a<u>ñ</u>jana	安闍那	[ɑn ʑĭa nɑ]
b.	a<u>ñ</u>jana	安膳那	[ɑn ʑĭɛn nɑ]
c.	Ma<u>ñ</u>juśrī	曼殊室利	[mĭwɐn ʑĭu ɕĭĕt li]
d.	Ma<u>ñ</u>juśrī	文殊師利	[mĭuən ʑĭu ṣi li]
e.	Ma<u>ñ</u>juśrī	文殊	[mĭuən ʑĭu]
f.	mahāpra<u>jñ</u>ā	摩訶般若	[muɑ xɑ puɑn ʈĭak]
g.	pra<u>jñ</u>ā	般若	[puɑn ʈĭak]

Since there is no corresponding palatal nasal in Chinese, the Sanskrit /ñ/ in the coda position was nativized as a dental nasal /n/, as in (18a-e); when the /ñ/ was in the consonant cluster /jñ/, the consonant cluster was transliterated into Chinese as /ʈ/ as in (18f-g).

Moreover, the Sanskrit retroflex nasal /ṇ/ occurs 30 times in our data: twelve in the onset position and 18 in the coda position. All were transliterated into a Chinese dental nasal /n/ without exception. Some examples are given in (19):

3.2.6. Semivowels

The semivowel /r/ in Sanskrit became the liquid /l/ in Chinese, since there was no corresponding sound in Chinese. In our data Sanskrit /r/ was nativized into Middle Chinese /l/ in all 82 examples without exception. Some of these examples are given in (22):

(22) a.	anuttara	阿耨多羅	[ɑ nəu tɑ lɑ]
b.	Asura	阿修羅	[ɑ sĭəu lɑ]
c.	mandārava	曼陀羅	[mĭwɐn dɑ lɑ]
d.	kinnara	緊那羅	[kĭĕn nɑ lɑ]
e.	māra	魔羅	[muɑ lɑ]
f.	dhāraṇī	陀羅尼	[dɑ lɑ ni]
g.	pārājika	波羅夷	[puɑ lɑ ji]
h.	pāramitā	波羅蜜多	[puɑ lɑ mĭĕt tɑ]
i.	rākṣasa	羅叉娑	[lɑ tṣ'a sɑ]
j.	rākṣasī	羅叉私	[lɑ tṣ'a si]
k.	Śarīra	舍利	[ɕĭɑ li]
l.	harītakī	訶梨怛雞	[xɑ li tɑt kiei]
m.	Mañjuśrī	曼殊室利	[mĭwɐn ʑĭu ɕĭĕt li]
o.	sumeru	修迷樓	[sĭəu miei ləu]
p.	sumeru	須彌樓	[sĭu mĭe ləu]
q.	sumeru	蘇迷盧	[su miei lu]

The Sanskrit dental semivowel /l/ was transliterated as the Chinese /l/ in 19 out of 20 examples. Some examples are given in (23a-f). However, in one case, /l/ was realized in Chinese as /n/, as shown in (23g), which might be an example of careless transliteration:

(23) a.	Ālaya	阿剌耶	[ɑ lɑt jĭa]
b.	Ālaya	阿梨耶	[ɑ li jĭa]
c.	kalaviṇka	迦陵頻伽	[ka lĭəŋ bĭĕn gĭɑ]
d.	palārdhas	波賴他	[puɑ lɑi t'ɑ]
e.	sāla	娑羅	[sɑ lɑ]
f.	ullambana	盂蘭盆	[jĭu lɑn buən]
g.	maṇḍala	曼達拿	[mĭwɐn dɑt na]

Our data show that the Sanskrit labial semivowel /v/ was usually transliterated into Chinese as the voiced labial /b/ in Guo's (1986) reconstruction. In fact, /v/ was transliterated into Chinese in 20 cases, and in 15 cases it was trans-

literated as /b/ in Middle Chinese. Some examples are as follows in (24):

(24) a.	vārṣika	婆師迦	[buɑ ʃi ka]
b.	śītavana	尸多婆那	[ɕi tɑ buɑ nɑ]
c.	kalaviṇka	迦陵頻伽	[ka liəŋ bǐěn gǐɑ]
d.	avīci	阿鼻旨	[ɑ bi tɕi]
e.	nirvāṇa	泥畔	[niei buɑn]
f.	Veda	毗陀	[bi dɑ]
g.	Veda	吠陀	[bǐwɐi dɑ]
h.	veśa	毗舍	[bi ɕǐɑ]
i.	veśa	裨舍	[bǐe ɕǐɑ]
j.	veśa	吠奢	[bǐwɐi ɕǐɑ]

In Shou-Wen's thirty Zimu's there was only one labial series, namely, the bilabial one: 不 p, 芳 p', 並 b, 明 m. However, at the time of Song Dynasty the labials had split into two series: labials 幫 p, 滂 p', 並 b, 明 m, and labiodentals 非 f, 敷 f', 奉 v, 微 ɱ. This corresponds to Da-Xin Qian's 錢大昕 hypothesis, that there were no labiodental stops in Archaic Chinese. According to Shi (1981), the divergence of the two series occurred after the Tang Dynasty (around 618-907 A.D.). This hypothesis is supported by Shi (1983) in his study of the Chinese monk Xuan-Zang's 玄奘 (600-664 A.D.) translation of Buddhist texts. Shi (1983) pointed out that translators had used the same initials to translate both bilabials and labiodentals before Xuan-Zang; however, Xuan-Zang distinguished bilabials from labiodentals using different Zimu's (phonetic radicals). Thus, one might assume that the examples in (24) were transliterated before Xuan-Zang's 玄奘 time, when no labiodentals were available in Chinese. The other possibility is that the Sanskrit /v/ corresponds to /b/ in Pāli. For example, (24e) 'nirvāṇa' becomes 'nibbāna' in Pāli. Whitney (1936) said that, "From an early period in the history of the language, but increasingly later, **b** and **v** exchange with one another, or fail to be distinguished in the manuscripts.... In the Bengal manuscripts, **v** is widely written instead of more original **b**." (p.18). Therefore the reason that /v/ was transliterated as /b/ in Chinese might be that the words were borrowed via other languages, like Pāli, instead of directly from Sanskrit.

We did find one example where the Sanskrit /v/ was transliterated as a voiceless bilabial /p/: *rava* as 喇叭 /lat pæt/ 'trumpet'. As a matter of fact, the two words 喇 and 叭 can not be found in Guang-Yun 廣韻. The reconstructed sounds are taken from 剌 and 八, which have the same pronunciation in Mandarin as 喇 and 叭, respectively. Thus, it might be arbitrary to say that the Sanskrit /v/ was actually transliterated as a voiceless bilabial stop /p/, instead of a

voiced bilabial stop /b/; however, a similar example can be found in Chen (2000), namely, Avinivartanīya 阿鞞跋致 /ɑ pĭe buɑt ʈi/ 'never receding, an epithet of every Buddha' in which the Sanskrit /v/ was also transliterated as a voiceless bilabial stop /p/. Furthermore, there are four examples in (25) which use 云母 (喻三) as in (25a-b) or 匣母 (25c-d), to transliterate the Sanskrit /v/. In ancient Chinese 喻三 and 匣母 belonged to the same initials. As well translators used closed vowels (合口音) to transliterate the Sanskrit /v/, since both had similar features, such as backness, highness and roundedness. It goes without saying that the translators were very meticulous in transliterating Sanskrit sounds.

(25) a. nirvāṇa 泥曰 [niei jĭwɐt]
b. Veda 韋陀 [jĭwəi dɑ]
c. nirvāṇa 泥洹 [niei ɣuɑn]
d. vandana 和南 [ɣua nɒm]

3.2.7. Fricatives

There are four fricatives in Sanskrit: velar fricative /h/, palatal fricative /ś/, retroflex fricative /ṣ/ and dental fricative /s/. To begin with, /h/ occurs 15 times in our data and all except one of these were transliterated as the Chinese /x/. Some of the examples are shown in (26a-e) and the exception is given in (26f). It is not clear in (26f) why the Sanskrit /h/ was transliterated as the Chinese /b/. This may be just one example of careless transliteration.

(26) a. ahūṁ 阿吽 [ɑ xəu]
b. arhat 阿羅漢 [ɑ lɑ xɑn]
c. harītakī 訶梨怛雞 [xɑ li tɑt kiei]
d. mahā 摩訶 [muɑ xɑ]
e. sahā 沙訶 [ṣa xɑ]
f. sahā 娑婆 [sɑ buɑ]

Secondly, the palatal fricative /ś/ is transliterated as the alveolo-palatal fricative /ɕ/, retroflex fricative /ṣ/, or dental fricative /s/. Some examples are presented in (27):

(27) a.	Śarīra	舍利	[ɕĭa li]
b.	Śākyamuni	釋迦牟尼	[ɕĭɛk kĭɑ mĭəu ni]
c.	śītavana	尸多婆娜	[ɕi tɑ buɑ nɑ]
d.	veśa	毗舍	[bi ɕĭa]
e.	śūdra	首陀	[ɕĭəu dɑ]
f.	śūdra	首陀羅	[ɕĭəu dɑ lɑ]
g.	śramaṇa	沙門	[ṣa muən]
h.	śrāmaṇera	沙彌	[ṣa mĭei]
i.	śrāmaṇerikā	沙彌尼	[ṣa mĭei ni]
j.	śuka	朱陀	[ʂɑu dɑ]
k.	śūdra	須陀	[sĭu dɑ]
l.	śūdra	戍陀羅	[sĭwĕt dɑ lɑ]
m.	śūdra	戍達羅	[sĭwĕt dɑt lɑ]
n.	śūdra	戍捺羅	[sĭwĕt nɑt lɑ]

In (27a-f) we see that the Sanskrit palatal fricatives were transliterated to their nearest Chinese counterpart, namely, the alveolo-palatal fricative /ɕ/. Pulleyblank (1983) has indicated that Waldschmidt (1932) found that in the Kharoṣṭhi Dharmapada, the Sanskrit word *śramaṇa* (27g) was spelt as *ṣamaṇa*. Schlegel (1900) pointed out that 沙彌 /ṣa mĭei/ was transliterated from the Pāli word *sāmaṇera* and 沙彌尼 /ṣa mĭei ni/ from the Pāli *sāmaṇerikā*, rather than from Sanskrit. Moreover, Feng (1930-31) has claimed that 沙門 /ṣa muən/ came from Koutcha *Samane* and 沙彌 /ṣa mĭei/, *Sanmir*. They all indicate that these words were not transliterated directly from Sanskrit, but from other languages, though they might not agree with each other as to which languages the words were transliterated from. There are two other transliterations of the word *śramaṇa*, as shown in (28):

(28)	śramaṇa	桑門	[sɑŋ muən]
		娑門	[sɑ muən]

The fact that both transliterations used the initial dental fricative /s/, instead of an alveolo-palatal fricative /ɕ/, implied that they might not be transliterated from Sanskrit, but from Pāli or some other Middle Asian language. Moreover, Pulleyblank (1983) has also suggested that the form 沙 /ṣa/ is a more common and simpler character, which has been substituted through a graphic corruption of 娑 /sɑ/.

The retroflex fricative /ṣ/ appears in 13 Chinese renditions, which were consistently transliterated as /ṣ/ in Middle Chinese. Some examples are shown

in (29a-f), while in example (29g-h) the /ṣ/ was transliterated as a dental fricative /s/:

(29) a.	kaṣāya	袈裟	[ka ṣa]
b.	poṣadha	褒沙陀	[pɑu ṣa dɑ]
c.	poṣadha	布灑他	[pu ṣa dɑ]
d.	tuṣita	堵史多	[tu ṣĭə tɑ]
e.	tuṣita	兜率陀	[təu ṣĭwĕt dɑ]
f.	vārṣika	婆師迦	[buɑ ṣi ka]
g.	poṣadha	布薩陀婆	[pu sɑt dɑ buɑ]
h.	poṣadha	布薩	[pu sɑt]

Moreover, in Sanskrit there is one common consonant cluster /kṣ/, which in the Devanagari script is written as क्ष, which is a compound, unit graphic symbol whose component parts are indistinguishable. This consonant cluster occurs in 21 Chinese transliterations, 17 of which were transliterated as the Chinese retroflex affricate /tṣ'/. Some examples are given in (30a-g), but as /k'/ in (30h-i), as two consonants /k'/ and /ṣ/ as in (30j) and as /m/ in (30k):

(30) a.	bhikṣu	苾芻	[bĭĕt tṣ'ĭu]
b.	bhikṣuṇī	愊芻尼	[p'ĭək tṣ'ĭu ni]
c.	kṣaṇa	剎那	[tṣ'at nɑ]
d.	rākṣasa	羅叉娑	[lɑ tṣ'a sɑ]
e.	rākṣasa	羅察娑	[lɑ tṣ'æt sɑ]
f.	rākṣasī	羅叉私	[lɑ tṣ'a si]
g.	yakṣa	夜叉	[jĭa tṣ'a]
h.	bhikṣu	比丘	[pi k'ĭəu]
i.	bhikṣuṇī	比丘尼	[pi k'ĭəu ni]
j.	kṣaṇa	乞沙拏	[k'ĭət ṣa na]
k.	bhikṣu	怖魔	[p'u muɑ]

In (30h-i) the Sanskrit compound sound /kṣ/ is treated as a consonant cluster /k/ plus /ṣ/, and since there were no consonant clusters in Middle Chinese, the second consonant /ṣ/ was deleted, but the flow of air was kept. Thus the aspirated stop /k'/ was used in the transliteration. Another explanation for this might be that the Chinese terms 比丘 /pi k'ĭəu/ and 比丘尼 /pi k'ĭəu ni/ were not transliterated directly from Sanskrit, but from the Pāli words *bhikkhu* and *bhikkhuni*. However, in (30j) another strategy for resolving consonant clusters in Sanskrit was employed, namely, the insertion of a vowel between two consonants. Thus, /kṣ/ was transliterated as two syllables in Middle Chinese: 乞

/k'ĭət/ and 沙 /ṣa/. As for the labial nasal /m/ used to transliterate the Sanskrit /kṣ/, the reason might be quite simple: careless transliteration.

Finally, the Sanskrit dental stop /s/ occurs 63 times in this data, and 57 out of these instances were transliterated as Middle Chinese /s/ in the data. Six examples of exceptions are shown in (31):

(31) a.	sahā	沙訶	[ṣa xɑ]
b.	Sindhu	身毒	[ɕĭĕn duok]
c.	Sindhu	申毒	[ɕĭĕn duok]
d.	Sindhu	賢豆	[ɣien dəu]
e.	ṣtūpa	率都婆	[ṣĭwĕt tu buɑ]
f.	Samā	差摩	[tṣ'ai muɑ]

As mentioned earlier in (28), 沙 /ṣa/ in (31a) could be a graphic corruption of 娑 /sɑ/. Examples (31b-d), in which /s/ was transliterated as /ɕ/, were not transliterated directly from Sanskrit. Xu (1993) has said that the origin of 身毒 /ɕĭĕn duok/in (31b) might be from the Old Persian *Hinduka*, not the Sanskrit *Sindhu*. Example (31c) 申毒 /ɕĭĕn duok/ might come from the same origin as example (31d). Cen (1990) has also pointed out that 賢豆 /ɣien dəu/ originated from the Old Persian *Hendhu*. As a result, the reasons why the examples shown in (31) were not transliterated with a dental fricative /s/ were either due to graphic corruption, or the originated from other languages. However, I do not have a plausible explanation for example (31e-f) in which /s/ became a retroflex. Perhaps they are careless transliterations.

3.3. Summary

If the Sanskrit sounds had equivalents in Chinese, they would have been transliterated with their corresponding sounds, for example, velar stops /k, g/, dental stops /t, d/, bilabial stops /p, b/ or nasals /ŋ, n, m/. Some Sanskrit sounds, however, had no equivalent sounds in Middle Chinese, and so similar sounds were used to transliterate the Sanskrit ones. For instance, the Sanskrit long vowels were represented by Middle Chinese short vowels, Sanskrit palatal stops and retroflex fricative /ṣ/ by Middle Chinese alveolo-palatal sibilants, Sanskrit semivowel /v/ by Middle Chinese bilabials /b/ or /p/, Sanskrit /r/ by Middle Chinese /l/, Sanskrit *anusvāra* /ṁ/ by Middle Chinese /m/, Sanskrit palatal nasal /ñ/ and retroflex nasal /ṇ/ by Middle Chinese dental nasal /n/, etc. Most of the examples were systematically transliterated. However, there were some exceptions, which could be accounted for by various factors, for example, the terms were transliterated from different languages, not from Sanskrit.

4. Syllable Structure and Syllabe Length Sinicization

Shi (1991) points out that when words are borrowed into Chinese, there are three major features in the phonology necessary to Sinicize the foreign sounds. They are, phonetic Sinicization, syllable structure Sinicization, and syllable length Sinicization. The first process, namely, phonetic Sinicization is what Hock (1991) calls 'phonological nativization', and was discussed in Section 3. In this section, we will deal with syllable structure Sinicization and length Sinicization.

4.1. Syllable Structure Sinicization

Sanskrit and Middle Chinese are quite different in syllabic structure per se. On the one hand, only certain consonants were allowed in the coda position and there were no consonant clusters in Middle Chinese. Thus, when some unmatched codas or consonant clusters occurred in Sanskrit, measures had to be taken to resolve the Sanskrit syllabic construction.

4.1.1. Codas

We know that in Middle Chinese only the nasals /n/, /m/, /ŋ/, and the stops /p/, /t/, and /k/ are possible codas in the syllables. Thus, when Sanskrit words ended with the semivowels /r/ or /l/, three approaches were employed to transliterate the words into well-formed Chinese syllables. The first approach was to delete the semivowels, since syllables with final /r/ or /l/ were not allowed in Middle Chinese. Examples (32a-b) show the deletion of the semivowel /r/:

(32) a. arghya 阿伽 [ɑ gĭɑ]
b. vārṣika 婆師 [buɑ ṣi]

The second approach was to convert the syllable with the liquid sound in the coda position into a good Chinese syllable, that is, to replace the ill-formed coda with a well-formed one. The following examples (33a-e) show where the stops [t], [p], or the off-glide [i], were employed to solve the ill-formed syllables:

(33) a. karma 羯磨 [kǐɐt muɑ]
b. kalpa 劫波 [kǐɛp puɑ]
c. nirvāṇa 泥畔 [niei buɑn]
d. palārdhas 波賴他 [puɑ lɑi t'ɑ]
e. cāturdiśa 招提 [tɕǐɛu diei]

The third approach to deal with the final /r/ or /l/ was to insert a vowel to change the ill-formed syllable into two well-formed syllables. Examples (34a-c) demonstrate that either /i/ or /a/ was inserted after the final /r/ to become the onset of the following syllable:

(34) a. sūrya 須梨耶 [sǐu li jǐa]
b. ācārya 阿闍梨 [ɑ ʑǐa li]
c. arhat 阿羅漢 [ɑ lɑ xɑn]

However, when the codas in Sanskrit could be licensed in Chinese syllables, they were preserved, as in examples (35a-f):

(35) a. bodhisattva 菩薩 [bu sɑt]
b. siddham 悉談 [sǐĕt dɑm]
c. siddhi 悉地 [sǐĕt di]
d. kinnara 緊那羅 [kǐĕn nɑ lɑ]
e. Ānanda 阿難陀 [ɑ nɑn dɑ]
f. Sindhu 申毒 [ɕǐĕn duok]

There were still some cases in which the final stop was deleted, though it was a well-formed coda in Middle Chinese. Some examples are illustrated in (36a-b). These might simply be due to inexact transliterations.

(36) a. anuttara 阿耨多羅 [ɑ nəu tɑ lɑ]
b. pattra 貝多羅 [pɑi tɑ lɑ]

4.1.2. Consonant Clusters

The second case in the Sinicization of the syllablic structure is to break up the consonant clusters, which were not permitted in Middle Chinese. There are four approaches in dealing with the consonant clusters in Sanskrit. First of all, when the semivowel /r/ is preceded by a stop, a vowel is inserted between /r/ and the stop to break up the consonant cluster. Examples are illustrated in (37):

(37) a.	pattra	貝多羅	[pɑi tɑ lɑ]
b.	pātra	波多羅	[puɑ tɑ lɑ]
c.	Maitreya	彌帝隸	[mǐe tiei liei]
d.	śūdra	須陀羅	[sǐu dɑ lɑ]
e.	Indra	因陀羅	[ǐěn dɑ lɑ]
f.	mudrā	母陀羅	[məu dɑ lɑ]
g.	brāhmaṇa	婆羅門	[buɑ lɑ muən]

As mentioned in (22), the semivowel /r/ in Sanskrit was always borrowed as the liquid /l/ in Chinese; all the examples in (37) show the /r/ → /l/ phonological nativization.

The second subgroup in the consonant clusters shows words in which the semivowel /r/ is preceded by the palatal fricative /ś/. In this environment the /r/ is deleted in examples (38a-c), while the high front vowel /i/ is inserted between the consonant clusters, as shown in (38d):

(38) a.	śramaṇa	沙門	[ṣa muən]
b.	śrāmaṇera	沙彌	[ṣa mǐe]
c.	śrāmaṇerikā	沙彌尼	[ṣa mǐe ni]
d.	Mañjuśrī	曼殊室利	[mǐwɐn ʑǐu ɕǐět li]

However, as mentioned in Section 3.2.7. the Chinese terms in (38a-c) were not transliterated from Sanskrit, but from Pāli or other Middle Asian language. Thus, /r/ simply did not appear in the words, and there were no consonant clusters involved at all.

The third subgroup in the consonant clusters is the common Sanskrit consonant cluster /kṣ/. It is found that in two words the second consonant, namely, the retroflex fricative /ṣ/ is deleted as in (39a-b), while in five other words the consonant cluster /kṣ/ is treated as an retroflex affricate /tṣ'/ as in (39c-g). Alternatively, it is possible that the first consonant, here /k/, is deleted, and the retroflex fricative /ṣ/ is transliterated as /tṣ'/:

(39) a.	bhikṣu	比丘	[pi k'ǐəu]
b.	bhikṣuṇī	比丘尼	[pi k'ǐəu ni]
c.	bhikṣu	苾芻	[bǐět tṣ'ǐu]
d.	bhikṣuṇī	苾芻尼	[bǐět tṣ'ǐu ni]
e.	rākṣasa	羅叉娑	[lɑ tṣ'a sɑ]
f.	rākṣasī	羅叉私	[lɑ tṣ'ạ si]
g.	yakṣa	夜叉	[jǐa tṣ'a]

In fact, /ṣ/ in the consonant clusters /kṣ/ in (39a-b) might not have been deleted, but might not have existed at all, as suggested by Schlegel (1900): "The transcription 比丘 pi-kiu is that of the Pāli-form *Bhikkhu*, rather than that of the Skt. *Bhikshu*." (p.253). Pulleyblank (1983) stated that "it must be based on a Prakrit form like Gāndhārī *bhikhu*, . . ." (p.78). Both suggested that the term was not transliterated from Sanskrit, but from some Indian dialects.

The last subgroup of the consonant clusters consists of those words in which a stop is followed by the semivowel /y/. In these cases, the semivowel /y/ in Sanskrit seems to maintain its vowel quality and becomes an on-glide /i/, or a full vowel /i/ as displayed in examples (40a-e):

(40) a.	asaṁkhyeya	僧祇	[səŋ gǐe]
b.	arghya	阿伽	[ɑ gǐɑ]
c.	dhyāna	禪那	[ʑǐɛn nɑ]
d.	Śākyamuni	釋迦牟尼	[ɕǐɛk kǐɑ[17] mǐəu ni]
e.	nyagrodha	尼拘陀	[ni kǐu dɑ]

Finally, there were two other examples, where the Chinese terms were transliterated from Pāli, in which no consonant clusters were present:

(41) a.	bodhisattva	菩提薩埵	[bu diei sɑt tuɑ]
	stūpa	塔婆	[t'ɑp buɑ]

Schlegel (1900) has claimed that the Chinese term 菩提薩埵 /bu diei sɑt tuɑ/ was transliterated from the Pāli-form *Bodhisatto*, not that of the Skt. *Bodhisattva*. Li (1989) has mentioned that 塔婆 /t'ɑp buɑ/ originated from Pāli 'thūpa'. Thus, there was no need to break up the consonant clusters in the two words, since there were none at all.

4.2. Syllable Length Sinicization

The third principle for nativization is to make the syllables more like Chinese. Out of the 293 loanwords, 4% are monosyllabic words, 49%, disyllabic words, 39% tri-syllabic words, and 8%, words more than three syllables in length. It is evident that when transliterating Sanskrit terms, Chinese preferred disyllabic words, since they are the most commonly used in Chinese. Moreover, Notvotná (1967a), who has studied loan words in Modern Chinese, has found that

17. One of the reviewers pointed out that there were two readings for the word 迦: /ka/ (古牙切) and /kǐɑ/ (居伽切). The latter one was not reconstructed in Guo (1986); however, /kǐɑ/ should be used here, since in Guang Yun 廣韻 the pronunciation /kǐɑ/ refers to '釋迦' (Śākyamuni).

the average length of assimilated loans is 2.25 syllables, which are within the limits of preferred word lengths in Modern Chinese. The average length of unassimilated loans is 3.27 syllables, which exceeds the limits of the preferred length. Thus, when a term in Sanskrit was transliterated as a four-syllable word, it was usually abbreviated as a disyllabic word. Examples are illustrated in (42):

(42)	Full Transliterations		Abbreviated Forms	
a. bodhisattva	菩提薩埵	[bu diei sɑt tuɑ]	菩薩	[bu sɑt]
b. saṁghārāma	僧伽藍摩	[səŋ gĭɑ lɑm muɑ]	僧藍	[səŋ lɑm]
c. kalaviṇka	迦陵頻伽	[ka lĭəŋ bĭěn gĭɑ]	迦陵	[ka lĭəŋ]
d. Mañjuśrī	文殊師利	[mĭuən ʑĭu ʃi li]	文殊	[mĭuən ʑĭu]
e. poṣadha	布薩陀婆	[pu sɑt dɑ buɑ]	布薩	[pu sɑt]

In examples (42a-b) the first and the third syllables are preserved in the disyllabic abbreviation, while in (42c-e) the first two syllables are kept for abridgment.

Moreover, we find that tri-syllabic words beginning with 阿/ɑ/ also underwent disyllabification. In Chinese 阿 /ɑ/ is considered as an optional prefix. The syllable 阿 /ɑ/ is added to a noun to show familiarity, as in 阿姐 *Ajie* 'older sister', 阿公 *Agong* 'grandpa', 阿芬 *Afen* 'a girl's name' or in a pejorative sense, like 阿狗 *Ago* 'a nobody', 阿貓 *Amao* 'a nobody', 阿飛 *Afei* 'Teddy boy', 阿Q *Akiu* 'a name in a novel; a stupid person'. Some examples with 阿/ɑ/ being deleted are shown in (43):

(43)	Full Transliterations		阿 /ɑ/ Deletion	
a. agada	阿伽陀	[ɑ gĭɑ dɑ]	伽陀	[gĭɑ dɑ]
b. arhat	阿羅漢	[ɑ lɑ xɑn]	羅漢	[lɑ xɑn]
c. asaṁkhyeya	阿僧祇	[ɑ səŋ gĭe]	僧祇	[səŋ gĭe]
d. Asura	阿修羅	[ɑ sĭəu lɑ]	修羅	[sĭəu lɑ]
e. āraṇya	阿蘭若	[ɑ lɑn ʐĭak]	蘭若	[lɑn ʐĭak]

Although here the syllable 阿 /ɑ/ was employed to transliterate the Sanskrit /a/ or /ā/, the transliterated terms shown in (43) were somewhat Sinicized. They are monomorphemic words, but they look like compounds with the prefix 阿 /ɑ/. This is a kind of folk etymology, shown in (44):

(44) Chinese: 阿婆 ɑ buɑ → 婆 buɑ
阿姨 ɑ ji → 姨 ji

Transliterated words: agada 阿伽陀 ɑ gĭɑ dɑ → 伽陀 gĭɑ dɑ
arhat 阿羅漢 ɑ lɑ xɑn → 羅漢 lɑ xɑn
Asura 阿修羅 ɑ sĭəu lɑ → 修羅 sĭəu lɑ

However, two examples can be found where the tri-syllabic words have 阿 /ɑ/s which are not deleted, though they are abbreviated as a disyllabic word. Instead, the third syllable is deleted; see the examples in (45a-b):

(45)	Full Transliterations	Abbreviated Forms
a. Avīci	阿鼻旨 [ɑ bi tɕi]	阿鼻 [ɑ bi]
b. Ānanda	阿難陀 [ɑ nɑn dɑ]	阿難 [ɑ nɑn]

4.3. Summary

In Section 4 we discussed two kinds of Sinicization process, namely, syllable structure modification and syllable length adjustment. In Middle Chinese, only nasals /m/, /n/, /ŋ/ and stops /p/, /t/, /k/ could be licensed as codas. Unlicensed codas were deleted, or changed to licensed codas, or a vowel was inserted after the unlicensed coda to become the onset of the second syllable. Likewise, consonant clusters were split up by inserting vowels between them. However, some examples with consonant clusters in Sanskrit were in fact not transliterated from Sanskrit, but from Pāli.

5. Conclusion

Although there are many scholars working on Chinese loanwords from different languages, most of them focus on words from English and Japanese; only very few have ever worked on those from Sanskrit. The classification of Chinese loanwords from Sanskrit is handled according to Haugen's (1950), Wu's (1994) and Chen's (2000) studies. That is, the 293 Sanskrit terms are divided into phonetic loans (transliteration), as in *nirvāṇa* 涅盤那 /niet buɑn nɑ/, loanblends, which include transliteration plus a semantic marker, as in *arghya* 閼伽水 /ɑt gĭɑ ɕwi/, half-transliteration and half-translation as in *bodhidruma* 菩提樹 /bu diei ʑĭu/, and hybrids with the combination of synonymous or near-synonymous Sanskrit and Chinese words *saṁgha* 和合僧 /ɣuɑ ɣɑp səŋ/, and inexact renditions (here transliteration plus added information) as in *Amitābha* 阿彌陀佛 /ɑ mĭe dɑ bĭwət/. The fact that only twenty out of the 293 loanwords are not phonetic

loans seems to suggest that there are few equivalent words which can be used to translate words regarding the spiritual practices of Buddhism, and that people would like to preserve the original sound of the Sanskrit terms since they were considered as sacred. Moreover, phonological nativization is dealt with according to the different Sinicization strategies, namely, phonemic substitution, which employs the same or the most similar sounds, to transliterate Sanskrit terms, syllable structure adaptation, which resolves the ill-formed codas and consonant clusters in Sanskrit, and syllable length modification, which favors two-syllable words. I hope this study can inspire other scholars who may be interested in working on Chinese loanwords from different languages.

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Appendix: Sanskrit Loanwords in Chinese[18]

Sanskrit	Chinese	Middle Chinese	Gloss	
1. ahūṁ	阿吽	ɑ xəu	'the supposed foundation of all sounds and writing; "A" being the open and "hum" the closed sound'	p.427
2. agada	伽陀	gĭɑ dɑ	'free from disease, an antidote; elixir of life; universal remedy'	p.324
	阿伽陀	ɑ gĭɑ dɑ		p.427
	阿揭陀	ɑ kĭɛt dɑ		p.427
	ॐ伽陀藥	gĭɑ dɑ jĭak		
	ॐ普去	p'u k'ĭo		
	ॐ不死藥	pĭəu si jĭak		
3. Amitābha	彌陀	mĭe dɑ	'the Buddha of eternal light and life'	p.102
	※阿彌陀佛	ɑ mĭe dɑ bĭwət		p.423
	ॐ無量壽佛	mĭu lĭaŋ ʑĭəu bĭwət		
	ॐ無量光佛	mĭu lĭaŋ kuɑŋ bĭwət		
	ॐ無量清靜佛	mĭu lĭaŋ ts'ĭɛŋ dzĭɛŋ bĭwət		
4. anuttara	阿耨多羅	ɑ nəu tɑ lɑ	'unsurpassed, unexcelled, supreme'	p.424
	ॐ無上	mĭu ʑĭaŋ		
5. anuttara-samyak-saṁbodhi	阿耨多羅三藐三菩提	ɑ nəu tɑ lɑ sɑm mĭɛu sɑm bu diei	'Unexcelled complete enlightenment; an attribute of every Buddha; omniscience'	p.424
	ॐ無上正遍知	mĭu ʑĭaŋ tɕĭɛŋ pien tĭe		
	ॐ無上正遍道	mĭu ʑĭaŋ tɕĭɛŋ pien dɑu		
	ॐ無上正等正覺	mĭu ʑĭaŋ tɕĭɛŋ təŋ tɕĭɛŋ kɔk		
6. añjana	安闍那	ɑn ʑĭa nɑ	'an Indian eye medicine'	p.445
	安膳那	ɑn ʑĭɛn nɑ		p.445

18. The symbol ※ in the appendix indicates that the Chinese lexical items are non-phonetic loans found in the *Guoyu Ribao Dictionary*, while the symbol ॐ shows that the items are hybrids or semantic borrowings not found in the same dictionary, but are commonly used.

7.	arghya	阿伽	ɑ gǐɑ	'lit. "water", but it specially indicates	p.427
		※閼伽(水)	ɑt gǐɑ (ɕwi)	ceremonial water, e.g. offerings of scented water, or water containing fragrant flowers'	p.431
8.	arhat	羅漢	lɑ xɑn	'the saint, the perfect man of Hīnayāna;	p.218
	(arhān)	阿羅漢	ɑ lɑ xɑn	the 16, 18, or 500 famous disciples	p.426
		ॐ眞人	tɕiɛn ȶǐěn	appointed to witness to Buddha-truth and save the world'	
9.	asaṁkhyeya	僧祇	səŋ gǐe	'innumerable, countless'	p.405
		阿僧祇	ɑ səŋ gǐe		p.429
10.	Asura	修羅	sǐəu lɑ	'originally meaning a spirit, spirits, or	p.341
		阿修羅	ɑ sǐəu lɑ	even the gods, it generally indicates	p.428
		阿須羅	ɑ sǐu lɑ	titanic demons, enemies of the gods,	p.428
		阿須倫	ɑ sǐu lǐuěn	with whom, especially Indra, they	p.428
		阿蘇羅	ɑ su lɑ	wage constant war'	p.429
		阿素羅	ɑ su lɑ		p.429
11.	avīci	阿鼻	ɑ bi	'the last and deepest of the eight hot	p.423
		阿鼻旨	ɑ bi tɕi	hells, where the culprits suffer, die, and	p.423
		ॐ阿鼻地獄	ɑ bi di ŋǐwok	are reborn to suffering, without interruption'	
12.	ācārya	闍梨	ʑǐa li	'spiritual teacher, master, preceptor'	p.375
		阿闍梨	ɑ ʑǐa li		p.428
13.	Āgama	阿含	ɑ ɣɒm	'a collection of doctrines, general	p.426
		ॐ無比法	mǐu pi pǐwɐp	name for the Hīnayāna scriptures'	
14.	Ālaya	阿剌耶	ɑ lɑt jǐa	'an abbreviation for ālaya-vijñāna; the	p.425
		阿賴耶	ɑ lɑi jǐa	receptacle of intellect or consciousness;	p.425
		阿梨耶	ɑ li jǐa	the receptacle of intelligence'	p.426
15.	Ānanda	阿難	ɑ nɑn	'name of the most learned disciple of	p.424
		阿難陀	ɑ nɑn dɑ	Buddha, and famed for hearing and remembering his teaching'	p.425
16.	āraṇya	蘭若	lɑn ȶǐak	'lit. "forest" where there is no sound of	p.204
		阿蘭若	ɑ lɑn ȶǐak	discord; here it means the temple in	p.425
		阿蘭那	ɑ lɑn nɑ	which the ascetics live'	p.425

17. bhikṣu	比丘	pi k'ĭəu	'a religious mendicant, an almsman,	p.36
	苾芻	bĭĕt tṣ'ĭu	one who has left home, been fully	p.38
	愊芻	p'ĭək tṣ'ĭu	ordained, and depends on alms for	p.39
	怖魔	p'u muɑ	a living'	p.49
18. bhikṣuṇī	比丘尼	pi k'ĭəu ni	'a nun, or almswoman'	p.36
	苾芻尼	bĭĕt tṣ'ĭu ni		p.38
	愊芻尼	p'ĭək tṣ'ĭu ni		p.39
	尼	ni		p.184
19. bodhi	菩提	bu diei	'knowledge, understanding; perfect	p.64
	𑖨𑖽道	dɑu	wisdom; the illuminated or enlightened	
	𑖨𑖽覺(悟)	kɔk (ŋu)	mind'	
20. bodhidruma	※菩提樹	bu diei ʑĭu	'the wisdom-tree, i.e. that under which	p.65
(bodhivṛkṣa)	𑖨𑖽道樹	dɑu ʑĭu	Śākyamuni attained his enlightenment,	
	𑖨𑖽覺樹	kɔk ʑĭu	and became Buddha'	
21. bodhisattva	菩薩	bu sɑt	'a being of enlightenment; one whose	p.66
			essence is wisdom'	
22. brāhmaṇa	婆羅門	buɑ lɑ muən	'the highest of the four castes, those who	p.51
			serve Brahma, his offspring, the keepers	
			of Vedas'	
23. Buddha	步陀	bu dɑ	'Buddha means "completely conscious,	p.49
	沒馱	muət dɑ	enlightened", and came to mean the	p.87
	佛	ḅĭwət	enlightener'	p.117
	佛陀	bĭwət dɑ		p.118
	佛圖	bĭwət du		p.118
	浮圖	bĭəu du		p.129
	佛馱	bĭwət dɑ		p.118
	浮頭	bĭəu dəu		p.129
	浮屠	bĭəu du		p.129
	浮陀	bĭəu dɑ		p.130
	休屠	xĭəu du		p.339
24. caṇḍāla	旃荼羅	tɕĭɛn ḍa lɑ	'the generic name for a man of the lowest	p.356
	旃陀羅	tɕĭɛn dɑ lɑ	and most despised of the mixed tribes'	p.356
25. cāturdiśa	招提	tɕĭɛu diei	'belonging to the four quarters, i.e. the	p.354
			Saṁgha or Church; name for a	
			monastery'	

26. Cīna	眞旦	tɕiɛn tan	'the name by which China is referred	p.356
	震旦	tɕiɛn tan	to in the laws of Manu in the	p.357
	振旦	tɕiɛn tan	Mahābhārata, and in Buddhist works'	p.356
	神丹	dʑiĕn tan		p.379
27. dhyāna	禪	ʑiɛn	'meditation, thought, reflection, especially profound and abstract	p.360
	禪那	ʑiɛn na	religious contemplation'	p.361
28. dhyāna samādhi	※禪定	ʑiɛn dieŋ	'*dhyāna* and *samādhi*, *dhyāna* considered as meditating, *samādhi* as abstraction; or meditation in the realms of the visible or and known, concentration on the invisible, or supramundane'	p.360
29. dāna	檀	dam	'the sixth *pāramitā*, almsgiving, i.e. of	p.167
	檀那	dam na	goods or the doctrine, with resultant	p.167
	陀那	da na	benefits now and also hereafter in the	p.178
	馱囊	da naŋ	forms of reincarnation, as neglect or	p.178
	ॐ布施	pu ɕĭe	refusal will produce the opposite consequences'	p.178
30. dānapati	檀那	dam na	'an almsgiver, a patron of Buddhism'	p.167
	※檀越	dam jĭwɐt		p.168
	ॐ施主	ɕĭe tɕĭu		
31. dhāraṇī	陀羅尼	da la ni	'mantra; an incantation, spell, oath,	p.178
	ॐ咒	tɕĭəu	curse; also a vow with penalties for	
	ॐ眞言	tɕiĕn ŋĭɐn	failure'	
32. dhūta	杜多	du ta	'stirring up to duty; discipline (to	p.156
	杜荼	du ḍa	shake off sin)'	p.157
	頭陀	dəu da		p.166
33. gāthā	偈	kĭɛt	'a metrical narrative or hymn,	p.304
	偈他	kĭɛt t'a	with moral purport, described	p.304
	偈陀	kĭɛt da	as generally composed of thirty-	p.305
	伽陀	gĭa da	two characters'	p.324
	ॐ頌	zĭwoŋ		

34. harītakī	訶梨怛雞	xɑ li tɑt kiei	'the yellow *Myrobalan* tree and fruit,	p.277
	訶梨勒	xɑ li lək	used for medicine'	p.277
	訶羅勒	xɑ lɑ lək		p.278
	※訶子	xɑ tsɨə		p.278
35. Indra	因陀羅	ɨěn dɑ lɑ	'the lord of the gods of the sky'	p.469
37. kalaviṇka	迦陵	ka lɨəŋ	'a bird with a beautiful voice'	p.310
	迦陵頻伽	ka lɨəŋ bɨěn gɨɑ		p.310
38. kalpa	劫	kɨɛp	'a fabulous period of time, a day of	p.314
	劫波	kɨɛp puɑ	Brahmā or 1,000 yugas, a period of four hundred and thirty-two million	p.314
	劫簸	kɨɛp puɑ	years of mortals, measuring the duration of the world'	p.314
39. karma	羯磨	kɨɐt muɑ	'deeds and their effects on the character,	p.314
	𑖌𑖼作業	tsɑk ŋɨɐp	especially in their relation to succeeding	
	𑖌𑖼業	ŋɨɐp	forms of transmigration'	
40. kaṣāya	袈裟	ka ṣa	'the monk's robe, or cassock'	p.311
41. kinnara	緊那羅	kɨěn nɑ lɑ	'the musicians of *Kuvera*, with men's	p.318
	眞陀羅	tɕɨěn dɑ lɑ	bodies and horses' heads'	p.356
	𑖌𑖼人非人	ʈɨěn pɨwəi ʈɨěn		
42. koṭi	拘利	kɨu li	'a million'	p.319
	俱利	kɨu li		p.319
43. kṣaṇa	乞沙拏	k'ɨət ṣa na	'an indefinite space of time, a moment,	p.322
	剎那	tṣ'at nɑ	an instant; the shortest measure of time,	p.360
	一剎那	ɨět tṣ'at nɑ	as *kalpa* is the longest'	p.452
	𑖌𑖼一念	ɨět niem		
44. mahā	摩訶	muɑ xɑ	'great, large, big; all-pervading, all-	p.83
	莫訶	mɑk xɑ	embracing; numerous, surpassing;	p.86
			mysterious; beyond comprehension'	
45. mahā-maudgalyāyana		目(犍)連	'one of the ten chief disciples of Buddha,	p.112
		mɨuk (gɨɛn) lɨɛn	especially noted for miraculous powers'	
46. mahāprajñā	摩訶般若	muɑ xɑ puɑn ʈɨak	'great wisdom, great insight into all	p.83
	𑖌𑖼大智慧	dɑ ʈɨe ɣiwei	truth'	

47. mahāsattva	摩訶薩埵	muɑ xɑ sɑt tuɑ	'great being; one with great compassion	p.83
	𑖥大眾生	dɑ tɕĭuŋ ʃɐŋ	and energy, who brings salvation to	
	𑖥大有情	dɑ jĭəu dzĭeŋ	all living beings; a Bodhisattva'	
48. Maitreya	※彌勒(佛)	mĭe lək (bĭwət)	'the Buddhist Messiah, or next Buddha,	p.101
	彌帝隸	mĭe tiei liei	who is to come 5,000 years after the	p.101
			nirvāṇa of Śākyamuni'	
49. maṇḍala	滿荼羅	muɑn ḍa lɑ	'a circle, globe; a magic circle; a	p.91
	曼達拿	mĭwɐn dɑt na	plot or altar on which Buddhas and	p.91
	曼荼羅	muɑn ḍa lɑ	Bodhisattvas are placed of	p.93
	曼荼	muɑn ḍa	enlightenment; a round or square place'	p.93
	曼拏	mĭwɐn na		p.94
	曼陀羅	mĭwɐn dɑ lɑ		p.94
	曼拏羅	mĭwɐn na lɑ		p.95
	漫怛羅	muɑn tɑt lɑ		p.95
	𑖥壇	dɑn		
	𑖥道場	dɑu ḍĭaŋ		
50. mandārava	曼陀羅	mĭwɐn dɑ lɑ	'the coral tree, the *Erythrina indica*,	p.93
	曼荼	muɑn ḍa	or this tree is regarded as one of the	p.93
	漫陀羅	muɑn dɑ lɑ	five trees of Paradise, i.e. Indra's	p.93
	蔓陀囉	mĭwɐn dɑ lɑ	heaven'	p.95
	𑖥適意華	ɕĭɛk ĭə xwa		
51. maṇi	摩尼	muɑ ni	'a jewel, a crystal, a pearl, symbol of	p.82
	末尼	muɑt ni	purity'	p.86
	※摩尼珠	muɑ ni tɕĭu		
52. Mañjuśrī	曼殊室利	mĭwɐn ʑĭu ɕĭĕt li	'a Bodhisattva, an idealization of	p.95
	文殊師利	mĭuən ʑĭu ṣi li	Wisdom'	p.482
	文殊	mĭuən ʑĭu		p.482
53. māra	魔	muɑ	'the Destroyer, Evil One, Devil'	p.79
	魔羅	muɑ lɑ		p.79
	麼羅	muɑ lɑ		p.86
54. mudrā	母陀羅	məu dɑ lɑ	'a seal; mystic signs with hands'	p.111
	𑖥印	ĭĕn		
55. muni	牟尼	mĭəu ni	'a sage, saint, ascetic, monk, especially	p.91
			Śākyamuni'	

56.	namaḥ	那謨	na mu	'make obeisance, pay homage to; an	p.181
	(namo)	南無	nɒm mĭu	expression of submission to command,	p.181
		南牟	nɒm mĭəu	complete commitment, reverence,	p.181
		南謨	nɒm mu	devotion, trust for salvation, etc.'	p.181
		那慕	na mu		p.182
57.	namo buddhāya	南無佛	nam mĭu bĭwət	'complete reverence to Buddha'	p.181
58.	nyagrodha	尼拘陀	ni kĭu da	'the down-growing tree, or banyan'	p.186
59.	nirvāṇa	泥畔	niei buan	'liberation from existence; dead,	p.187
		涅盤	niet buan	deceased, defunct; liberation, eternal	p.188
		泥洹	niei ɣuan	bliss; absolute extinction of individual	p.188
		泥曰	niei jĭwɐt	existence'	p.188
		涅盤那	niet buan na		p.189
60.	palārdhas	波賴他	pua lai t'a	'a particular measure or weight,	p.11
	(pala)	砵羅	pua la	interpreted as 4 ounces'	p.18
		波羅	pua la		p.12
61.	pattra	貝多羅	pai ta la	'palm leaves from the *Borassus flabelli-formis*, used as writing material'	p.28
62.	pāpīyās	波旬	pua zĭuěn	'a Buddhist term for the Evil One, the Murderer'	p.14
63.	pārājika	波羅夷	pua la ji	'the unpardonable sin; sins demanding expulsion from the order'	p.13
64.	pāramitā	波羅蜜	pua la mĭět	'highest, acme, is interpreted as to cross	p.12
		波蜜羅多	pua la mĭět ta	over from this shore of births and deaths	p.13
		播囉弭多	pua la mĭe ta	to the other shore, or nirvāṇa'	p.23
65.	pāthaka	唄	pɐi	'hymns in praise of Buddha'	p.26
		唄匿	pɐi nĭək		p.26
		婆陟	bua ṭĭək		p.52
		婆師	bua ṣi		p.52
66.	pātra	波多羅	pua ta la	'a bowl, vessel, receptacle, an almsbowl'	p.10
		砵多羅	pua ta la		p.18
		砵	pua		p.18
67.	pippala	畢砵羅	pĭět pua la	'bodhidruma, the wisdom-tree'	p.39

68. poṣadha	褒沙陀	pɑu ṣa dɑ	'fasting, a fast, the nurturing or renewal	p.29
	逋沙他	pu ṣa dɑ	of vows'	p.44
	布沙他	pu ṣa dɑ		p.47
	布灑他	pu ṣa dɑ		p.47
	布薩	pu sɑt		p.47
	布薩陀婆	pu sɑt dɑ buɑ		p.47
69. prajñā	般若	puɑn ʈĭak	'to know, understand; wisdom'	p.17
70. rava	喇叭	lat pæt	'trumpet'	p.194
71. rākṣasa	羅叉娑	lɑ tṣ'a sɑ	'malignant spirits, demons'	p.218
	羅察娑	lɑ tṣ'æt sɑ		p.218
	羅剎	lɑ tṣ'at		p.219
	羅剎娑	lɑ tṣ'at sɑ		p.219
72. rākṣasī	羅叉私	lɑ tṣ'a si	'female demons'	p.218
	囉叉斯	lɑ tṣ'a sĭe		p.219
73. sahā	沙訶	ṣa xɑ	'the earth; a universe, or great	p.373
	娑婆	sɑ buɑ	chilocosm, where all are subject to	p.409
	娑訶	sɑ xɑ	transmigration and which a Buddha	p.410
	索訶	sɑk xɑ	transforms'	p.410
74. Samā	差摩	tṣ'ai muɑ	'name of a Brahman woman, meaning peace'	p.360
75. samādhi	三摩	sɑm muɑ	'putting together, composing the mind,	p.400
	三摩提	sɑm muɑ diei	intent contemplation, perfect	p.400
	三摩地	sɑm muɑ di	absorption union of the meditator with	p.400
	三摩帝	sɑm muɑ tiei	the object of meditation'	p.401
	三昧	sɑm muɒi		p.401
76. samyak-saṁbuddha	三藐三佛陀	sɑm mĭɛu sɑm bĭwət dɑ	'the third of the ten titles of a Buddha, defined as one who has perfect universal knowledge or understanding'	p.401
77. saṁgha	※和合僧	ɣuɑ ɣɑp səŋ	'all the monks, an assembly of at least	p.280
	僧伽	səŋ gĭɑ	three monks'	p.405
	僧	səŋ		p.404

78. saṁghārāma	迦藍	ka lam	'a monastery, a nunnery, originally only	p.310
	伽藍	gĭa lam	the surrounding park'	p.325
	僧藍	səŋ lam		p.405
	僧伽藍	səŋ gĭa lam		p.405
	僧伽藍摩	səŋ gĭa lam mua		p.405
	僧伽藍磨	səŋ gĭa lam mua		p.405
79. Śarīra	舍利	ɕĭa li	'relics or ashes left after the cremation	p.376
	※舍利子	ɕĭa li tsĭə	of a Buddha or saint'	p.376
80. sāla	娑羅	sa la	'*Shorea robusta*, the teak tree'	p.410
81. sāṁghika	僧祇	səŋ gĭe	'an assembly of Buddhist monks & nuns'	p.405
82. Śākya	釋迦	ɕĭɛk kĭa	'an abbreviation of Śākyamuni'	p.367
83. Śākyamuni	釋迦牟尼	ɕĭɛk kĭa mĭəu ni	'the saint of the Śākya tribe; the Buddha'	p.367
84. siddham	悉談	sĭĕt dam	'an established conclusion, proved fact,	p.335
(siddhānta)	悉曇	sĭĕt dɒm	axiom, dogma, a text or authoritative	p.335
	悉檀	sĭĕt dɒm	work; intp. as accomplishment'	p.335
85. siddhi	悉地	sĭĕt di	'accomplishment, complete attainment, perfection, truth, final emancipation'	p.334
86. Sindhu	身毒	ɕĭĕn duok	'India'	p.320
	申毒	ɕĭĕn duok		p.379
	賢豆	ɣien dəu		p.343
87. śītavana	尸多婆那	ɕi ta bua na	'cold grove, i.e. a place for exposing	p.364
	※尸陀林	ɕi da lĭĕm	corpses, a cemetery'	p.364
	※屍陀林	ɕi da lĭĕm		p.364
	𑖌𑖼寒林	ɣan lĭĕm		
	𑖌𑖼恐畏林	k'ĭwoŋ ĭwəi lĭĕm		
88. stūpa	浮圖	bĭəu du	'a tope, tumulus, or mound, for the	p.129
	浮屠	bĭəu du	bones, or remains of the dead, or	p.129
	塔	t'ɑp	for other sacred relics, especially of	p.161
	塔婆	t'ɑp bua	the Buddha, whether relics of the	p.162
	率都婆	ṣĭwĕt tu bua	body or the mind, e.g. bones or	p.383
	素睹波	su tu pua	scriptures'	p.409
89. śuka	臊陀	sau da	'a parrot; an epithet of the Buddha'	p.400
90. sumati	須摩	sĭu mua	'the abode of Amitābha, his Pure Land'	p.350
	須摩提	sĭu mua diei		p.350

91. sumeru	修迷樓	sĭəu miei ləu	'the central mountain of every world;	p.340
	※須彌(山)	sĭu mĭe (ṣæn)	at the top is Indra's heaven, below	p.350
	須彌樓	sĭu mĭe ləu	them are the four devalokas'	p.350
	蘇迷盧	su miei lu		p.406
92. sūrya	須梨耶	sĭu li jĭa	'the sun'	p.351
	蘇利耶	su li jĭa		p.407
	蘇哩耶	su li jĭa		p.407
93. sūtra	修單羅	sĭəu tɑn lɑ	'the thread; a classical work, especially	p.340
	修多羅	sĭəu tɑ lɑ	the sermons or sayings of the Buddha'	p.341
	修妒路	sĭəu kəu lu		p.341
	素怛纜	su tɑt lɑm		p.408
94. śramaṇa	沙門	ṣa muən	'ascetics of all kinds; Buddhist monks	p.367
	桑門	sɑŋ muən	who have left their families and quit	p.404
	娑門	sɑ muən	the passions'	p.409
95. śrāmaṇera	沙彌	ṣa mĭe	'the male religious novice, who has taken	p.368
	𡀔勤策男	gĭən tṣ'æk nɒm	vows to obey the ten commandments'	
96. śrāmaṇerikā	沙彌尼	ṣa mĭe ni	'a female religious novice who has taken	p.368
	𡀔勤策女	gĭən tṣ'æk nĭo	vows to obey the ten commandments'	
97. śūdra	須陀	sĭu dɑ	'the fourth or reviled caste, whose duty	p.351
	首陀	ɕĭəu dɑ	is to serve the three higher castes'	p.377
	首陀羅	ɕĭəu dɑ lɑ		p.377
	戍陀羅	sĭwĕt dɑ lɑ		p.383
	戍達羅	sĭwĕt dɑt lɑ		p.383
	戍捺羅	sĭwĕt nɑt lɑ		p.383
98. tagara	多羅	tɑ lɑ	'an incense-yielding tree'	p.158
(tagaraka)	多伽婁	tɑ gĭɑ ləu		p.158
	多伽樓	tɑ gĭɑ ləu		p.158
	多伽羅	tɑ gĭɑ lɑ		p.158
	伽羅	gĭɑ lɑ		p.325
	※迦南(香)	ka nɒm (xĭaŋ)		p.309
	※奇南(香)	gĭɑ nɒm (xĭaŋ)		p.321
	※奇楠(香)	gĭɑ nɒm (xĭaŋ)		p.322
	※伽南(香)	gĭɑ nɒm (xĭaŋ)		p.324
	※伽侽(香)	gĭɑ nɒm (xĭaŋ)		p.325

99. tuṣita	兜率	təu ṣĭwĕt	'contented, satisfied, gratified; name	p.147
	※兜率天	təu ṣĭwĕt t'ien	of the *Tuṣita* heaven, the fourth	p.147
	兜率陀	təu ṣĭwĕt dɑ	devaloka in the passion realm, or	p.147
	堵史多	tu ṣĭə tɑ	desire realm'	p.156
100. udumbara	※曇花	dɒm xwa	'the *udumbara* tree, supposed to	p.168
	※優曇華	ĭəu dɒm xwa	produce fruit without flowers; once	p.463
	優曇	ĭəu dɒm	in 3,000 years, it is said to flower,	p.463
	優曇鉢	ĭəu dɒm bua	hence is a symbol of the rare	p.463
	優曇婆羅	ĭəu dɒm buɑ lɑ	appearance of a Buddha'	p.463
	烏曇跋羅	u dɒm buɑt lɑ		p.473
101. ullambana	盂蘭盆	jĭu lɑn buən	'to hang upside down; to be in suspense; referring to extreme suffering in purgatory; here the festival of All Souls, held about the 15th of the 7th moon, when masses are read by Buddhist priests and elaborate offerings made to the Buddhist Trinity for the purpose of releasing from purgatory the soul of those who have died on land or sea'	p.483
102. upādhyāya	和尙	ɣuɑ ʑĭaŋ	'a "sub-teacher" of the Vedas, a term	p.280
	和上	ɣuɑ ʑĭaŋ	adopted by the Buddhists and gradually applied to all monks'	p.280
103. upāsaka	伊蒲塞	i bu sək	'a Buddhist follower, disciple, devotee'	p.448
	優婆塞	ĭəu buɑ sək		p.462
	鄔波索迦	u puɑ sɑk kɑ		p.473
104. upāsikā	優婆夷	ĭəu buɑ ji	'female lay disciples who engage to	p.462
	鄔波斯迦	u puɑ sĭe kɑ	observe the first five commandments'	p.473
105. vandana	和南	ɣuɑ nɒm	'obeisance, prostration, bowing the head, reverencing, worshipping'	p.279
106. vārṣika	婆師	buɑ ṣi	'the flower that blooms in the rains,	p.52
	婆師迦	buɑ ṣi kɑ	the aloe, *Agallochum*'	p.52
107. Veda	毗陀	bi dɑ	'knowledge; clear knowledge or	p.61
	吠陀	bĭwɐi dɑ	discernment'	p.120
	韋陀	jĭwəi dɑ		p.481

108. veśa (vaiśya)	毗舍	bi ɕĭa	'the third caste of farmers and traders explained by burghers, or merchants'	p.61
	吠舍	bĭwɐi ɕĭa		p.121
	吠奢	bĭwɐi ɕĭa		p.121
	裨舍	bĭe ɕĭa		p.62
109. yakṣa	夜叉	jĭa tṣ'a	'demons in the earth, or in the air, or in the lower heavens; they are malignant, and violent, and devourers of human flesh'	p.462
	藥叉	jĭak tṣ'a		p.485
	閱叉	jĭwɐt tṣ'a		p.485
110. yakṣa rākṣasa	夜叉羅剎	jĭa tṣ'a lɑ tṣ'at	'evil demons; *yakśa* and *rākṣasa*'	p.462
111. Yama-rāja	炎摩	jĭɛm muɑ	'in the Vedas the god of the dead, with whom the spirits of the departed dwell'	p.467
	閻摩	jĭɛm muɑ		p.467
	閻摩羅	jĭɛm muɑ lɑ		p.468
	※閻摩王	jĭɛm muɑ jĭwaŋ		p.468
	閻摩羅社	jĭɛm muɑ lɑ ʑĭa		p.468
	閻羅	jĭɛm lɑ		p.468
	焰羅	jĭɛm lɑ		p.469
	琰摩羅闍	jĭɛm muɑ lɑ ʑĭa		p.469
112. yoga	瑜珈	jĭu ka	'union, especially an ecstatic union of the individual soul with the universal soul'	p.483
	瑜伽	jĭu gĭɑ		p.483

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漢語中梵文外來語之研究

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摘　要

我國古代因翻譯佛經，而產生許多梵文的譯音詞，譬如「佛陀」、「瑜珈」、「比丘」、「菩薩」、「禪」等，都已經根深蒂固地留在我們的語言中，難以分辨其爲外來語。本研究即是從「國語日報外來語詞典」中收集了 112 個梵文外來語，但因有些梵文佛經術語在不同的時代由不同的翻譯者所翻譯，故事實上在此詞典中共列有 293 條漢語詞項。在這 293 條漢語詞項中，僅有 20 個詞不是譯音詞；也就是說有 273 個詞（約佔 93.2%）是譯音詞。在本文的第二節中介紹了許多學者對外來語的分類，並依據 Haugen (1950)，Wu (1994)，以及 Chen (2000) 的研究，將這 293 個梵文外來語分成三類：(1)譯音詞（phonetic loans），如「阿羅漢」；(2)混合詞（hybrids）：包括半音譯半意譯式，如「菩提樹」，意譯加上語意標誌（semantic marker），如「須彌山」，及雙重翻譯式（double renditions），如「和合僧」；(3)附加式的翻譯（renditions plus added information），如「阿彌陀佛」、「彌勒佛」。在第三節中我們將這 293 個漢語外來詞和其梵文做一對音比較，並討論這些外來音韻本土化（phonological nativization）的種種相關問題，其中包括梵文長母音的翻譯，送氣之有無的爭議，梵文顎音、捲舌音、鼻音、半元音、擦音等的翻譯。第四節中則討論音節結構的漢化及音節長度的漢化等問題。第五節是簡要的結論。

關鍵詞：梵文，外來語，譯音，音譯詞，混合詞（半音譯半意譯式），語意標誌，仿譯詞，外來音韻的本土化，音節結構的漢化，音節長度的漢化