

Phonetic Patterns in Sino-Japanese Poetry

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Abstract. The focus of this paper is on phonetic patterns of ancient Chinese poetry and Sino-Japanese poetry, and one objective is to assess the validity of the Cantonese dialect for reconstructing the phonetic rules of ancient Chinese poetry. A comparative data analysis is presented. While our results are in accordance with widely accepted facts in Chinese phonology on the topic, they also include several counter-intuitive exceptions. This study aims to be relevant not only in Chinese poetry but also in a Japanese literary context, as the work of a large number of prominent Japanese literary thinkers includes numerous Sino-Japanese poems, or *nihon kanshi* (日本漢詩), whose rules and patterns are known to be based on ancient Chinese phonetics rather than on Japanese phonetics. Numerical data and examples are provided.

Keywords: Sino-Japanese poetry, Chinese phonology, Cantonese dialect

Introduction

Ancient Chinese poems, or *kanshi* (漢詩), are known to have permeated Japanese literature and poetry for centuries. While the emphasis of their study at the primary school and junior high school levels has somewhat dwindled in post-war Japan, numerous ancient Chinese poems are still present in the Japanese culture of today. Examples include the following Japanese renderings, or *yomikudashibun* (読み下し文), of a few well-known verses from Tang dynasty poetry, or *tōshi* (唐詩):

<i>Shunmin akatsuki wo oboezu</i> (Meng Hao Ran)	春眠暁を覚えず (孟浩然)
<i>Kuni yaburete sanga ari</i> (Du Fu)	国破れて山河あり (杜甫)
<i>Hakuhatsu sanzenjō</i> (Li Bai)	白髪三千丈 (李白)
<i>Jinsei iki ni kanzu</i> (Wei Zheng)	人生意気に感ず (魏徵)

It is also well-known that the work of many prominent Japanese literary thinkers such as Natsume Sōseki (夏目漱石) includes numerous Sino-Japanese poems, or *nihon kanshi* (日本漢詩), and a noteworthy fact is that the great majority of these poems is seen to strictly follow a large set of poetry rules from ancient Chinese poetry. There is also a trend among modern Japanese literary thinkers to compose Sino-Japanese poems according to ancient Chinese poetry rules, as suggested by the wide range of mainstream books on the topic, namely, Japanese books on how to write Sino-Japanese poetry (Ishikawa, 2007).

In this paper, we use the term “ancient Chinese” to loosely refer to the Chinese

language and some of its dialects spoken between the 6th century and the 10th century, namely, during Southern and Northern Dynasties, the Sui, Tang, and Song dynasties. Further, we use the term “ancient Chinese poetry” to loosely refer to Chinese poetry written during that same period. Ancient Chinese poetry includes two main sets of rules: Rhyme rules, or *ōinhō* (押韻法) and tonal pattern rules, or *hyōsokuhō* (平仄法). These two sets of rules are based on the phonetics of ancient Chinese. Unfortunately, phonetics of modern Chinese have lost a considerable portion of sounds and tones from ancient Chinese, so that it is now impossible to verify ancient Chinese poetry rules using the phonetics of modern Chinese alone (Pulleyblank, 1984). This makes writing ancient Chinese poetry a somewhat tedious process, as poems need to be verified word by word, usually with the use of a standard Japanese *kanji* dictionary such as *Kanji Gen* (漢字源), in which ancient Chinese poetry rhymes and tonal patterns are provided for the listed Chinese characters (Ōshima, 2009).

In light of the above, it would be arguably more natural to first memorize all the phonetics of ancient Chinese or their reconstruction (Karlgren, 1922) in order to write such poetry. This task, albeit a daunting one, would at least spare us the use of a dictionary while composing a poetic verse. On a more practical note, Chinese dialects of regions such as Shanghai, Fujian and Guangdong have preserved a wider range of phonetics from ancient Chinese, and can help derive a closer approximation of ancient Chinese poetry rules, in comparison to Mandarin Chinese (Newman & Raman, 1999).

In this paper, we focus on the Chinese dialect of the province of Guangdong, namely, Cantonese. Our main goal is to determine, through data analysis, the extent to which Cantonese can provide a satisfactory approximation of ancient Chinese poetry rules. It is hoped that the results shown in this paper can help provide new insights in Sino-Japanese poetry and Chinese phonology.

Data sets

The data comes from two sources: A rhyme dictionary for ancient Chinese poetry and a phonetic Cantonese dictionary. Our goal is to perform a consistency check using both sources for a significant number of characters. What follows is a description of each data set.

Data Set on Ancient Chinese Poetry

The first data set includes a list of 106 ancient Chinese poetry rhymes. Its source is a rhyme dictionary called *Shui Ping Yun* (平水韻) in which each character, or *kanji*, is attributed to one or several rhymes. We note that this dictionary is based on earlier

dictionaries such as *Qie Yun* (切韻) and *Guang Yun* (廣韻), which comprise a wider range of rhymes, and that the *Shui Ping Yun* is usually considered the prevalent standard to follow when writing ancient Chinese poetry (Ishikawa, 2007). The data also includes ancient Chinese tones, and we compare them with modern Cantonese tones in the next section.

The data shows that some characters are attributed to more than one rhyme, for ancient Chinese, just as modern Chinese and Japanese *onyomi*, sometimes includes different ways of pronouncing one same character. However, the data also shows that out of a total of 3,009 characters, as many as 2,708 characters are solely attributed to one rhyme. In this paper, we limit our scope to characters with a unique rhyme, and find that the resulting pared-down data set still remains of reasonable significance.

Cantonese data set

The second data set is list of characters and their pronunciations in the Cantonese dialect according to the Cantonese Yale romanization system, as used in most standard Cantonese dictionaries.

As in the previous section, arises the issue of characters with multiple readings. However, unlike in the previous section, the data shows this time that, out of the above subset of 2,708 characters, as many as 847 characters have multiple Cantonese readings. This now results in a pared-down data set of 1,861 characters. While this reduced sample decreases the accuracy of our analysis, we also find that as many as 1,189 characters of this new subset belong to the Japanese list of 1,945 commonly used *kanji*, or *jōyō kanji* (常用漢字). As much as two thirds of our reduced data set consists of commonly used characters, and this represents a proportion virtually identical to that of our original and larger data set. This suggests that our final pared-down data set of 1,861 characters can still yield results of practical significance in a linguistic framework.

Data results

In this section, data results are presented and some examples are provided.

Ancient Chinese tones and Cantonese tones

The phonetics of ancient Chinese comprise four tones: Level (平), rising (上), departing (去), and entering (入). We note that while modern Mandarin Chinese also has four tones, they do not match with those of ancient Chinese. Finally, Cantonese

tones are also level (平), rising (上), departing (去), and entering (入), and are further subdivided into the categories of high (陰, lit. “dark”), low (陽, lit. “light”), and sometimes medium (下陰, lit. “lower dark”), to give a total of nine tones. The following table shows the three sets of tones.

Ancient Chinese	Mandarin	Cantonese	Tone number
Level (平)	High level (陰平)	High level (陰平)	1
	Low level (陽平)	Low level (陽平)	4
Rising (上)	Rising (上)	High rising (陰上)	2
		Low rising (陽上)	5
Departing (去)	Departing (去)	High departing (陰去)	3
		Low departing (陽去)	6
Entering (入)		High entering (上陰入)	7
		Medium entering (下陰入)	8
		Low entering (陽入)	9

It can be seen in the above table that the entering (入) tone from ancient Chinese is present in Cantonese but not in Mandarin. Incidentally, this fact suffices to confirm that ancient Chinese poetry rules cannot be derived from Mandarin phonetics alone (Newman & Raman, 1999). Whether this is the case or not for Cantonese, on the other hand, cannot be inferred from the above table, as all four tones in ancient Chinese are also present in Cantonese, as well as subcategories of these tones. The data results below help answer this last question.

Cantonese	Ancient Chinese	Characters
High level	Level	409
Low level	Level	468
High rising	Rising	164
Low rising	Rising	86
High departing	Departing	186
Low departing	Departing	190
LOW DEPARTING	RISING	47
High entering	Entering	87
Medium entering	Entering	63
Low entering	Entering	134
Total		1,834

With the exception of the low departing tone, and a small number of other occurrences not presented here, the above results confirm the common consensus that Cantonese phonetics might suffice to derive ancient Chinese poetry rules, at least as far

as tonal patterns are concerned (Hashimoto & Yue, 1972). The case of the low departing tone, however, is a somewhat unexpected and counter-intuitive evidence that Cantonese phonetics are not entirely valid in ancient Chinese poetry. Indeed, for words with a low departing tone in Cantonese, our sample shows as much as one chance in five to wrongly infer that these words also have a departing tone in ancient Chinese. We also note that as many as 35 of these characters are commonly used *kanji*. Here are some examples.

Character	戶	幸	受	負	部	士	象	靜
Cantonese	wu6	hang6	sau6	fu6	bou6	si6	jeung6	jing6
Mandarin	hu4	xing4	shou4	fu4	bu4	shi4	xiang4	jing4

Tone 6 in Cantonese is the low departing tone, and we note that tone 4 in Mandarin is also the departing tone, so that, in the previous examples, Mandarin phonetics would also lead to a wrong conclusion regarding the corresponding ancient Chinese tone. Finally, we note that these last examples also conflict with earlier rhyme dictionaries such as *Guang Yun* (廣韻).

As the above results seem to lead us to rule in disfavor of Cantonese phonetics, we now examine in more details the tonal pattern rule for ancient Chinese poetry. This rule is called *hyōsoku* (平仄) in Japanese, or *pingze* in Chinese, and regroups the four ancient Chinese tones into two categories: the level (平) tone and the oblique (仄) tones, which are all the tones other than level tones. Thus, the only condition for Cantonese tones to satisfy this *hyōsoku* rule is that Cantonese level tones also lead to level tones in ancient Chinese, and that the remaining Cantonese non-level tones lead to tones other than level tones in ancient Chinese. The previous data results satisfy this condition, for neither the high departing tone nor the rising tone are level tones.

As mentioned above, data results also included a small number of cases running counter the tonal pattern rule. We conclude this section by providing such examples. While they are only a handful, they are noteworthy in that they not only run counter the general rule for ancient Chinese tones, but also violate the less restrictive *hyōsoku* rule, an essential component of ancient Chinese poetry rules.

Character	頸	恍	捲	誹	判
Cantonese	geng2	fong2	gyun2	fei2	pun3
Cantonese tone	Low	Low	Low	Low	Low
	rising	rising	rising	rising	departing
Ancient Chinese tone	Level	Level	Level	Level	Level

We note that, except for the character “恍”, these last examples would not count in the earlier and wider rhyme dictionary *Guang Yun* (廣韻), as these characters are listed with both level and non-level tones. Further, as the number of these exceptions is negligible, we conclude that Cantonese renderings of Chinese characters are sufficient for reconstructing tonal patterns in ancient Chinese poetry.

Ancient Chinese rhymes and Cantonese finals

In this paper, we use the term “final” to refer to the part of a syllable following its initial consonant. We compare the Cantonese finals with ancient Chinese rhymes and attempt to determine the extent to which the former can be predictive of the latter. Our data set includes 56 Cantonese finals, and if we include their tones, we obtain as many as 223 finals. As there are only 106 ancient Chinese rhymes, it seems reasonable to speculate that Cantonese finals combined with tones might suffice to predict ancient Chinese rhymes. This, however, is not the case, as shown in the following results.

Rhymes	Finals	Characters	Examples
6	1	19	at9
5	2	21	eui6, eui3
4	7	125	ou6, ai3, ai6, aan1, u6, aan4, an2
3	32	420	an1, uk9, ing4, ik7, an4, ik9, ai1
2	64	655	ung1, ung4, uk7, ou4, i1, ei1, au6
1	117	621	au4, eung4, ong4, iu1, iu4, au1, i4
Total	223	1861	

The above data results show that only half (117 out of 223) of the Cantonese finals can fully predict an ancient Chinese rhyme. Even worse is the fact that this half only accounts for only a third (621 out of 1861) of our total data set of characters. We list below a few noteworthy examples from the top two rows of the above table.

Cantonese final and tone: at9

Character	寔	物	罰	拔	乏
Rhyme	質	物	月	黠	洽
Cantonese	sat9	mat9	fat9	bat9	fat9

The above example shows that the same Cantonese final and tone includes characters from as many as five different ancient Chinese rhymes. We note that this Cantonese final ends with the consonant *t*, indicating that it is an entering tone. Since Mandarin phonetics do not have entering tones, they would not be suitable either for ancient Chinese rhymes in this above example. We consider one more example.

Cantonese final and tone: eui6

Character	序	罪	淚	具	銳
Rhyme	語	賄	寘	遇	霽
Cantonese	jeui6	jeui6	leui6	geui6	yeui6
Mandarin	xü4	zui4	lei4	jü4	rui4

As in the previous example, this Cantonese final and tone will lead to a wrong ancient Chinese rhyme as many as four times out of five. We note that, in the case at hand, Mandarin phonetics might fare better, as the set can further broken down into three different Mandarin finals. In particular, the character “淚” can be uniquely identified to its ancient Chinese rhyme “寘” by combining the Cantonese final “eui6” with the Mandarin final “ei4”. On the other hand, combining Cantonese with Mandarin does not suffice in the remaining above examples, as summarized in the table below.

<u>Cantonese final</u>	<u>Mandarin final</u>	<u>Combination of finals</u>	<u>Resulting ancient Chinese rhymes</u>
eui6	ei4	eui4 + ei4	寘
eui6	ui4	eui4 + ui4	either 賄 or 霽
eui6	ü4	eui4 + ü4	either 語 or 遇

The data results presented so far lead to conclude that Cantonese finals are mostly not valid for inferring ancient Chinese rhymes. We now further analyze these results by considering the frequency or number of occurrences of each Cantonese final within an ancient Chinese rhyme, namely, the number of characters which share both the same Cantonese final and the same ancient Chinese rhyme. The following is frequency table of each pair of Cantonese final and ancient Chinese rhyme.

<u>Occurrences within data set</u>	<u>Pairs of Cantonese finals and ancient Chinese rhymes</u>	<u>Characters involved</u>
10 or more	53	768
6, 7, 9 or 9	51	380
4 or 5	56	247
3	47	141
2	80	160
1	165	165
Total	452	1,861

According to the above frequency table, our set of 223 Cantonese finals and 106 ancient Chinese rhymes yield a total of 452 possible pairs. We bear in mind that, in the ideal

case where each Cantonese final could lead to a unique ancient Chinese rhyme, we would obtain exactly 223 possible pairs, and that 452 being in excess of 223 is due to some Cantonese finals leading to more than one possible ancient Chinese rhyme. We also see that as many as 165 such pairs only occur once in the entire data set of 1,861 characters. Similarly, as many as 80 pairs only occur twice, and 47 pairs only occur three times. Further, the numbers of characters involved in these low frequency pairs are respectively 165, 160 and 141, or a total of 466 characters. This means that paring down our data set by removing the pairs with low frequency would still leave us with a data set of as many as 1,395 characters. Revised data results from this newly pared-down data set are as follows.

Rhymes	Finals	Characters	Examples
3	6	141	an1, at9, ik7, ik9, ing4, un4
2	26	452	ung1, uk9, ung4, uk7, ou4, an4, u4, ei1
1	90	802	au4, eung4, ong4, iu1, iu4, au1, i4, a1, ai6
Total	122	1,395	

These revised results show an improvement, for as much as 74 percent of the Cantonese finals can now correctly determine an ancient Chinese rhyme. Further, this accounts for more than half of the 1,395 characters involved. Finally, most of the remaining Cantonese finals have no more than two possible rhymes, and only a few have three possible rhymes. These results overall lead us to conclude that Cantonese finals combined with tones can more often than not correctly lead to an ancient Chinese rhyme. Previous examples have also shown that combining Cantonese finals with Mandarin finals can also help to reduce the number of possible ancient Chinese rhymes, thus leading to an even higher rate of accuracy.

A Sino-Japanese Poem

As an example of applying Cantonese phonetics to Sino-Japanese poems, we present a famous poem composed by General Uesugi Kenshin (上杉謙信, 1530-1578) in the battle field. For reference, we begin with its Japanese rendering.

九月十三夜、陣中作

Kugatsu jūsan'ya, Jinchū saku

霜は軍営に満ちて秋気清し

Shimo wa gun ei ni michite, shūki kiyoshi

数行の過雁 月三更

Sūkō no kagan, tsuki sankō

越山 併せ得たり 能州の景

Etsuzan awasete etari, Nōshū no kei

遮莫 家郷 遠征を憶う

Samo araba are, kakyō ensei wo omou

Below is the original Sino-Japanese form of this poem, as well as corresponding Cantonese phonetics derived from our Cantonese data set.

霜	滿	軍	營	秋	氣	清
seung1	mun5	gwan1	ying4	chau1	hei3	ching1
數	行	過	雁	月	三	更
sou3	hang4	gwo3	ngaan6	yut9	saam1	gang1
越	山	併	得	能	州	景
yut9	saan1	bing3	dak7	nang4	jau1	ging2
遮	莫	家	郷	憶	遠	征
je1	mok9	ga1	heung1	yik7	yun5	jing1

We now proceed to verify a few basic properties in ancient Chinese poetry and their validity in the above Cantonese rendering. We begin with a basic rhyming property, in which the first, second and fourth verse should rhyme. The ending words of these verses are in the table below.

Verse	Verse ending	Cantonese	Mandarin	<i>Ping Shui Yin</i> rhyme	<i>Guang Yin</i> rhyme
1	清	cing1	qing1	庚	清
2	更	gang1	geng1	庚	庚
4	征	cing1	zheng1	庚	清

The above shows that the second verse does not rhyme in Cantonese, and that the first verse does not rhyme in Mandarin. According to the book of rhymes, and current standard, *Ping Shui Yin* (平水音), all three verses do rhyme. It is also worth noting that the Cantonese results are in fact consistent with the *Guang Yin* (廣音), an earlier and more comprehensive book of rhymes used in *kanji* dictionaries such as the *Kanji Gen* (漢字源), as previously mentioned.

We continue with tonal pattern rules, or *hyōsokuhō* (平仄法), where tones are either level (平) tones or oblique (仄) tones, which are tones other than the level tone. We recall that level tones in Cantonese are tones 1 and 4, and oblique tones are the remaining other tones. Some basic conditions in these tonal pattern rules concern the ending of the verses, as well as the second, fourth and sixth word of each verse. We summarize these conditions in the table below, by denoting level (平) tones with the

symbol ○ and the oblique (仄) tones by the symbol ●.

Word	2	4	6	7
Verse 1	●	○	●	○
2	○	●	○	○
3	○	●	○	●
4	●	○	●	○

We now combine the above table with the previous Cantonese renderings and verify that the tonal pattern rule remains valid.

霜	滿	軍	營	秋	氣	清
soeng1	mun5	gwan1	ying4	chau1	hei3	ching1
	●		○		●	○
數	行	過	雁	月	三	更
sou3	hang4	gwo3	ngaan6	yut9	saam1	gang1
	○		●		○	○
越	山	併	得	能	州	景
yut9	saan1	bing3	dak7	nang4	jau1	ging2
	○		●		○	●
遮	莫	家	鄉	憶	遠	征
je1	mok9	ga1	heung1	yik1	yun5	jing1
	●		○		●	○

The above combined tables show that the *hyōsoku* (平仄) tonal pattern rule holds in the Cantonese rendering of this poem by General Uesugi Kenshin (上杉謙信). In light of the data results presented in this paper, this should be of little surprise, as we found from our data sets that Cantonese tones matched with the *hyōsoku* tonal pattern rule, except for a negligible number of exceptions. Further, we note that in the above poem, Cantonese tones also correctly predicted all four ancient Chinese tones. Indeed, at the beginning of the previous section, our data results showed that a low departing tone in Cantonese had one chance in five to lead to a wrong ancient Chinese tone. In the above poem, however, the only occurrence of a low departing tone (陽去聲), or tone 6, is with the character “雁”, which is also a departing (去聲) tone in ancient Chinese. All Cantonese tones are then consistent with ancient Chinese tones in the above poem.

As previously discussed, Mandarin tones are not adequate for analyzing the *hyōsoku* (平仄) tonal pattern rule, mainly due to the absence of the entering tone (入聲) in Mandarin. This is confirmed in the third verse of the above poem, with the character “得”, which has a low level tone (陽平聲) in Mandarin. This tone would then wrongly

be mapped to a level (平) tone in ancient Chinese, namely, to the symbol ○, whereas the high entering (上陰入) tone in Cantonese correctly maps to an oblique tone (仄) in ancient Chinese, namely, to the symbol ●. The example shown in this section confirms the conclusion of our data analysis, namely that Cantonese phonetics can correctly identify all ancient Chinese tones but not all ancient Chinese rhymes.

Conclusion

A data analysis of ancient Chinese rhymes compared to Cantonese phonetics was presented in this paper. Data results from a sample of significant size showed that Cantonese phonetics can more often than not suffice to determine the correct ancient Chinese rhyme. We found that Cantonese renderings of poems are overall consistent with tonal patterns in ancient Chinese poetry. This result concurs with the consensus in Chinese phonology (Newman & Raman, 1999). However, our data showed some unexpected exceptions. In particular, one Cantonese tone, the low departing tone, could lead to a wrong ancient Chinese tone as much as once every five times. Numerical results and examples were presented. Some examples of combining Cantonese and Mandarin phonetics were also included, and it was found that such combination had the potential to further increase the accuracy of predicting the correct ancient Chinese rhyme of a Chinese character.

The framework of classical Japanese literature was discussed in the introduction of this paper, as ancient Chinese rhymes and tonal patterns are relevant to the great majority of Sino-Japanese poems, or *nihon kanshi* (日本漢詩). It is hoped that the data results presented in this paper can help derive new insights in Sino-Japanese poetry and Chinese phonology.

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