

# On The Names of Chinese Tones in Japanese

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## 1 Introduction

The awareness of the Chinese tones must have come to Japan quite early. Though the original, writing-only, diffusion of Classical Chinese texts, mostly Buddhist and through the mediation of Sino-Paekche or other Korean variations, could theoretically dispose of the tonal distinctions whatsoever, as early as 630 Japanese state started to send diplomatic missions to Tang China, where an everyday, spoken form of Chinese was to be encountered and learned.

In the 8th century, we already encounter the widespread composition of Chinese-style poetry at the court, which requires tonal knowledge for the correct distribution of syllables in lines (*Kaifūsō*, the earliest of the extant anthologies, was compiled in 751), while the orthography of the poems in the so-called “alpha” section of *Nihon Shoki* of 720 (Miyake 2003, pp. 37–9) has been suspected since (Takayama 1981) to contain the distinction between the high and low pitch of Japanese syllable, represented by the distinctions between level and oblique tones pertaining to Chinese characters (also inspired by the forms of Chinese poetry).

The most important function of tones, however, was (and still remains) the correct chanting of Buddhist formulae. Though doctrinal texts are normally

reset in kanbun-kundoku (in fact, these were one of the first texts to get such a treatment starting with late 8th century (Frellesvig 2010, p. 182), such as the *Konkōmyō saishō ō kyō*, glossed in early 9th century; see (Zisk, 2018). Yet, the so-called *dhāraṇī*, or mystical formulae, required pronunciation as exact as possible, and it was specifically for the pronunciation of those the production of tones was studied in the Buddhist circles vigorously (De Boer 2010, Vol. II, pp. 350ff.), starting with the *Shittan-zō* “The Treasury of Siddham” written by the Tendai monk Annen in 880 based on the explicit descriptions of people who studied Chinese in China, as well as the oral tradition passed from the Chinese informants (*idem*, p. 371).

With this widespread study of tonal language it would be expected for the fixed names of the tones themselves to be established in Japan. And indeed, any dictionary provides us with the correct terms. But the terms themselves are peculiar and do not match to either the most popular readings of the corresponding characters or any of the formalized systems of readings existing in Japan. In this article we try to establish the reasoning that led to the emergence of these readings (especially the aberrant *hyō*) and learn whether they are an accident of history or can actually tell us something about the reception of tone in premodern Japan.

## 2 Names for Tones

The four tones, with their readings in modern Mandarin, are: *píngshēng* “level tone,” *shǎngshēng* “rising tone,” *qùshēng* “departing tone,” *rùshēng* “entering tone”. None of these characters is decidedly rare in common usage in Chinese or Japanese, and for some of those multiple Japanese readings exist. In Table 1, the modern Mandarin label, a reconstructed Early Middle Chinese (EMC) reading, as well as *Go-on* and *Kan-on* layers of readings in Japan are listed for convenience. They are supplemented by the readings of the character for “tone” itself. Note that here and later, instead of Baxter notations, as described in (Baxter 1992, pp. 45–86), we use IPA-style reconstructions of Early Middle Chinese pronunciation in Pulleyblank-Miyake system, that is, the readings of (Pulleyblank 1991) as emended by (Miyake 2003, pp. 146-9) and re-converted for the ease of comprehension from Miyake’s notation back to Pulleyblank’s IPA-like one.

Character	“level”	“rise”	“depart”	“enter”	“tone”
Mandarin	<i>píng</i>	<i>shǎng</i>	<i>qù</i>	<i>rù</i>	<i>shēng</i>
EMC	biəŋ <sup>˥</sup>	ʃiəŋX	k <sup>h</sup> iəH	ŋip <sup>˥</sup>	ɕiəŋ <sup>˥</sup>
Formal Go-on	byaũ	zyaũ	ko	nipu	syau
Formal Kan-on	peĩ	syau	kyo	zipu	seĩ

TABLE 1 Names of the tones

Now we consider the readings given for tone names in the general Japanese dictionaries (*kokugo jiten*), namely, the following three:

1. *Daijisen*, “Great Fountainhead of Words” (Shōgakukan, since 1995), edited by Matsumura Akira;
2. *Daijirin*, “Great Forest of Words” (Sanseidō, since 1988), edited by Matsumura Akira;
3. *Seisenban Nihon Kokugo Daijiten*, “Shōgakukan’s Japanese Dictionary, Concise Edition” (Shōgakukan, 2006). The abridgement of the complete 14-volume edition is done by eliminating around 40% of entries and deleting half of the usage quotations; the words in question are retained.

The following current readings for the tone names are attested by all three in agreement. The readings are given in modern pronunciation and (in parentheses) in transliteration of historical kana orthography, with **bold** emphasis on the main entry, supposed to represent the “main,” or “most recognized” reading.

- level tone: **hyō-shō** (**pyaũ-syaũ**), hyō-sei (pyaũ-seī), hei-sei (peī-seī);
- rising tone: **jō-shō** (**zyaũ-syaũ**), jō-sei (zyaũ-seī);
- departing tone: **kyo-shō** (**kyo-syaũ**), kyo-sei (kyo-seī);
- entering tone: **nis-shō** (**niQ-syaũ**), nis-sei (niQ-seī).

We observe that, despite no standardization of the usage of *sei* vs. *shō*, though *Go-on* reading seems to be marginally more popular. However, there is internal consistency in the names of the tones themselves, but the consistency is peculiar.

- While *peī* is Kan-on, *pyaũ* is an unexpected combination of a Kan-on-like voiceless initial with a Go-on final;
- The reading *zyaũ* is explicitly Go-on;
- The reading *kyo* is explicitly Kan-on;
- The reading *niQ* is explicitly Go-on.

What could be the explanation of such a mismatch in patterns?

### 3 Why the Layers of Readings are Different

Theoretically, there could be two kinds of circumstances where the current tone name readings could form. One is the circle of the courtiers. While soon after the establishment of the official contacts with Tang China the professional Chinese teachers hired from mainland Asia became available (the *on-hakase*), as early as late 9th century, soon after the break of contacts, this practice ceased (De Boer 2010, p. 343). The educated lay people no more had a reliable source to learn tonal distinctions. Meanwhile, the composition

of Chinese poetry never ceased, and the awareness of tones was still required for it – but, more importantly, the vocalic rendition of those became unneeded and even redundant due to the fact these poems were increasingly, as any other Chinese, vocalized through *kanbun-kundoku*. Thus, the only necessary data about tones was the fact that the characters (or the particular meanings of the characters) can be either “level” (*hyō*) or “oblique” (*soku*, itself a Kan-on term), with the remaining three tones subsumed under this descriptive label; sometimes the property of being *soku* is retrievable from kana rendering (specifically, in the case of entering tones), sometimes not. Were the labels coming from this circle, we would expect either using Kan-on altogether – Kan-on, as based on the vernacular of Chang’an, was imported as a “lay” or “Confucian” vocalization (De Boer 2010, p. 344) – or just using the simplest everyday readings of the characters.

Were the names coming from the Buddhist circles though, that would mean they emerged in an atmosphere where tones were studied and attempted to be vocalized for centuries after the direct contacts with China ceased, in a multitude of competing schools of reading. The pronunciations employed here would more likely be Go-on than Kan-on, though it is not guaranteed, but, more importantly, they are expected to form some kind of system and being chosen consciously.

In both cases, it is possible that alternate names competed or that some of the names were later replaced by more “regular” or “familiar” ones, leading to further confusion in the system.

Still, the mismatch between the persistence of Go-on and Kan-on systems begs for an explanation. As proposed by Zev Handel (p.c.), one possible explanation is to notice that *kyo* “departing” is the aberrant entry, with the remaining (main) readings being Go-on or Go-on-connected; in this case, it could be proposed that all the readings were initially chosen in Go-on, with *ko* being replaced by *kyo* through analogy with the glide present in the previous two entries, similar to how the reading *yo* for the numeral 4 when counting was replaced by *yon* through analogy with *san* “3” beside it: \**hyō-jō-ko-nit* > *hyō-jō-kyo-nit*. This theory has an additional attractive side as it explains the domination of *shō* reading over the Kan-on *sei*: all the readings were initially Go-on.

#### 4 The Distribution of the Readings in Everyday Japanese

An alternate, and, perhaps, easier option that I prefer is that the readings picked were simply the ones most completely assimilated into the Japanese language in general. In order to check that, we however, should first analyze which readings of the characters under question are prevalent in everyday language. The results, with reference to the official *Jōyō* table of characters and

the actual usage, are as follows.

- *píng* “level”: Both *byō* and *hei* are Jōyō, but *hei* is overwhelmingly more popular. In fact, the whole usage of the reading *byō* is completely limited to one word, *byōdō* “equality,” that started as a Buddhist term, but was appropriated during Meiji era for an important Western political concept<sup>1</sup>.
- *shǎng* “rising”: Both *jō* and *shō* are Jōyō, but *jō* is decidedly more recognizable. While the list of words where *shō* appears is not small, it is still shorter than one for *jō* and apparently assembles words where *shǎng* is used for its metaphoric extensions of “high in society” (as *shushō* “emperor”) or “impeccable in morals” (as *shōnin* “holy man, saint”); none of words where *shǎng* means literally “up” as a direction seem to employ *shō*.
- *qù* “departing”: Both *ko* and *kyo* are Jōyō, but *kyo* is overwhelmingly more popular. The only usage of *ko* is a frequent but lone word *kako* “the past.” Strictly saying, this (Sanskrit *atīta*) is also a Buddhist concept; note that its parallel concepts, “the present” (*genzai*, not *\*\*kensai*, *kenzai*) and “the future” (*mirai*, not *\*\*birai*) are also persistent in Go-on readings (and perhaps influenced the fact that only Go-on readings remain in the language for all its component characters).
- *rù* “entering”: Only *nyū* <*nipu* is given in Jōyō. The reading corresponding to the Kan-on *zipu* also exists, but mutated to *ju* (with short *u*), and, apparently, all of the rare words employing it also have variant with the usual *nyū* (*jusui* “suicide by drowning” is also *nyūsui*, and in the literal meaning “enter water” even *nyūsui* only; *juraku* “proceeding to Kyoto” also *nyūroku*). Note that the reading *niQ-* we encounter in *nis-shō* seemingly does not occur elsewhere; *nyū* consistently shows this form even before sei’on, as *nyūsha* “enter a company,” *nyūka* “being entered in a new family register”, etc.
- *shēng* “voice, tone”: the presence of the reading *sei* here is overwhelming; however, the rare words connected with tones or chanting all are read with *shō*. With this, the idea of the Buddhist provenance of the names becomes more probable.

The strange behaviour of *rù*, however, is neither exceptional nor unexpected; it merely shows the trend towards the unification of forms. As soon as *nipu* > *nyū* change is finalized, it becomes hard to coexist with the bound

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<sup>1</sup> In fact, *Nihon Kokugo Daijiten* provides examples of the usage *fyōdō* and even *hyōtō* in the 17th century, but these should probably be considered fiction; until Meiji period, there was no standardization in the usage of the dakuten.

The occasional *heitō*, resetting the whole word into Kan-on, however, are obviously real; in Meiji, seemingly, there was an attempt to secularize the word by doing this conversion, which was doomed, perhaps due to the existence of the word *byōdō* in general language from, say, the name of the temple *Byōdō-in* in Uji, Kyoto.

form *niQ-*. The reformation to the separate form *nyū* is an expected behaviour; something similar to the emergence of *ju* happens also to the numeral “ten”, where the bound form *jiQ-* with counters almost turned to *juQ-*.

To summarize, the appearance of specifically *hei* (as secondary option), *jō*, *kyō*, and a form starting with *n* need not to be internalized through Go-on vs. Kan-on dichotomy as these are generally the main forms used. It is still possible to assume that the names were initially given in Go-on; but the change *ko* > *kyō*, if it ever existed, could be caused by the popular use and not by association. Possibly, both explanations are valid.

It may be possible to argue that some of these readings refer not to tones, but to some additional meanings of these binomes. In fact, one of the four words under question has an obvious secondary meaning, namely *shāngshēng*, that can easily mean nothing but “high voice.” However, the dictionaries are aware of that fact. Still, the readings corresponding to that meaning in *Nihon Kokugo Daijiten* are, nevertheless, the vernacular *uwagoe* and the expected *jōsei*; this does not change the fact both *jōshō* and *jōsei* are valid readings for this tonal name.

However, nothing of the previous discussion before explained the unusual-looking form *hyō* for the name of the level tone. Now we will shift our attention to this problem.

## 5 Additional Evidence

There is an option that there is nothing to discuss and this (these) reading(s) emerged recently, say, in Edo period, due to purely internal processes. However, we have earlier attestations. It is hard to find examples with proper furigana, especially with guarantee of the correct voiced distinction, but we have the abundance of Western sources on the language of the 17th century.

The Nippo jisho dictionary (Doi et al. 1980) does not mention the names of any tone. However, it also does not mention any occurrence of *píng* read as “fiǒ.” It contains “equality” with the expected “biǒdǒ” reading and multiple occurrences of “fei.”

On the other hand, the *Arte da Lingoa de Iapam* (Rodrigues 1604) by João Rodrigues features an extensive section “Da Poesia de Japam” (Vol. II, pp. 180ff.). Within it, he describes the practice of Chinese-style composition and explains the tonal metre of Chinese regulated verse. In the explanation, he divides the tones into “level” and “oblique,” calling them *Fiǒ* and *Socu*, respectively.

Notably, this is the only occurrence of *píng* read like “fiǒ” in the Portuguese corpus. Rodrigues deviates with the modern usage in the second case where currently the reading *hyō* has gained acceptance, that is, in era names.

Everyone perusing the list of era names in modern Japan, finds an ad-

ditional evidence of *píng* as *hyō* outside of contexts connected with music and tone. These are, first, the multiple Tenpyō eras (729–767) and, secondly, Kanpyō (889–898). Even now, yet, there is no fixed usage; *Kōjien* dictionary, for example, gives Tenbyō and even Tenhei as alternatives for the first, and Kanbei, Kanpei, and Kanhei for the second. Japanese version of Wikipedia is more conservative on the first, with only Tenpyō, but explicitly refuses to declare a correct version from among Kanpyō, Kanpei, and Kanhei for the other one.

For Rodrigues, however, these peculiar *-pyō* forms do not exist. The only reading for the era now known as Tenpyō is given to be “Tembiō,” while the current Kanpyō is instead “Quampeī.” Of course, it is possible that *Tembiō* stands for *Ten+piō̄*, not *biō*, but the evidence of *Quampeī* in the same list rather points that *biō* is just it, *biō*.

## 6 Possible Reasoning for *pyō*

It is possible that the reading *pyaū* was incorporated from some intermediate stage of Middle Chinese, after the devoicing of the initial already happened, while the final still had a glide: probable \*[pʰiəŋʰ], which appears during the development of EMC [biəŋʰ] to Chang’an LMC [pʰiəŋʰ].

The phenomenon of combining go-on and kan-on elements in the initial and final of the same Sinitic segment is known and not limited to *pyaū* “level”; as commented in (Wenck 1957), the same happens specifically with several characters using “level” as phonetic element, such as *píng* “to comment on; to discuss; to debate”<sup>2</sup> and *píng* “apple”, both also rendered in Japanese as *hyō*. It is thus plausible to propose *pyaū* as borrowed from some intermediate stage of Middle Chinese, as described above. This would explain the naming of Tenpyō era (if it is indeed ancient). However, any explanation has to account for the strange retention of *pyaū* specifically in the context of tones despite the constant competition against the “correct” kan-on and go-on, which are both frequent.

Perhaps, the answer to the perseverance of *pyaū* despite both *byaū* and *peī* being widely used and immediately recognizable is in the specific feature of the tone names themselves. As we already established, a Go-on etymology of the original tone names is the most probable<sup>3</sup>. But the tones names in Chinese are all of the same tones themselves: [biəŋʰ] is level, [tʰiəŋX] is rising, [kʰiəH] is departing, [ŋipʰ] has a final obstruent; in fact, in modern Mandarin, where both of the historical readings of “rising” character, [tʰiəŋH] and [tʰiəŋX], coalesced into *shàng*, for the tone name only, *shǎng* is used, to retain the

<sup>2</sup> This reading is ancient, as (Doi et al. 1980) contains many entries confirming it.

<sup>3</sup> And, as *soku* is itself Kan-on, only then penetrated the poetic circles, where Kan-on was preferred.

relation<sup>4</sup>.

Thus, it is possible that the creators of the Japanese renderings would want to retain this property. This can immediately explain the peculiar form *nissei* for the entering tone, which emphasizes the final obstruent of *niQ-*, unlike the forms similar to *nyū*.

It is though less clear why would *pyaū* be considered “more flat” than *byaū*. A possible option would be to consider the tonal split of Late Middle Chinese. The Japanese were obviously aware of its emergence (De Boer 2010, p. 386), and the logical sequence could follow a similar path.

The overview of the initial consonants of Middle Chinese according to their behaviour during the tonal split is given in Table 2 below.

Name of the category	Definition	EMC	LMC
<i>qīng</i> (clear)	voiceless	[p]	[p]
<i>cìqīng</i> (second clear)	voiceless aspirated	[p <sup>h</sup> ]	[p <sup>h</sup> ]
<i>zhuó</i> (muddy)	voiced	[b]	[pfɪ]
<i>cìzhuó</i> (second muddy)	nasal	[m]	[ <sup>m</sup> b] or [m]

TABLE 2 Categories of the initials

Note that the *second muddy* category included both prenasalized (normally) and nasal (when followed by nasal-ending final, as (Miyake 2003, pp. 155-6) explains) LMC reflexes.

The route of the tonal split is represented differently in the modern varieties of Sinitic; however, the primary distinction was consistently between *clear* (including also *second clear*, strictly saying, irrelevant for the tonal split but included due to the analogy with the Sanskrit classification (De Boer 2010, p. 381) that was taken for inspiration) and *muddy* categories, sometimes (as in modern Mandarin) additionally complexified by the differences in the tonal treatment of the *second muddy* consonants. To simplify, the shift involved the absence of change in *clear* but devoicing and denasalization leading to the changed contour in *muddy*.

The word EMC [biəŋ<sup>1</sup>] “level” contains a muddy initial [b] and is thus submitted to the tonal split: EMC [biəŋ<sup>1</sup>] high level > Chang’an LMC [pfɛŋ<sup>1</sup>] rising. The following logical sequence could have been followed: the character “level”, when referring to tone, should be read with (shifted) level tone. However, in the Go-on reading <sup>m</sup>*byaū* the initial consonant does not correspond to the *muddy* class that should have been rendered as [pfɪ]. An honest

<sup>4</sup>In modern Mandarin, the name *shāng* refers to the tone melody 214, which is the descendant of the historical Rising Tone in most of the situations; however, with voiced non-nasal initials, present in [ʔiəŋX], it merged into *qù*, now pronounced 51, instead.



mistake or desire to maintain the tonal image of the original could have led to the substitution on the Kan-on reading for the initial.

A question appearing immediately: why, in such case, was there no substitution in the reading of *zyaũ* “rising”? The same argument holds: the initial consonant [ʧ] is *muddy*, and thus “rising” underwent the split. Hence, the continuous presence of the voiced and prenasalized (Frellesvig 2010, pp. 34ff.) consonant *z* could have been considered undesirable. Perhaps, the popular forms could have given some influence, due to the exact Kan-on form with the voiceless consonant being ever less prominent for *shǎng* than for *píng*.

## 7 Conclusion

The question of the strange readings of the tonal names in Japanese still requires further study. An indispensable source that might lead to a decisive solution would be the attestations of furigana annotation specifically for the tone names, especially in a context strictly distinguishing voiceless and voiced elements of consonantal pairs.

Judging by the evidence assembled as of now, the conjectures about a borrowing from an intermediate stage of Middle Chinese before the loss of the medial (especially if the evidence of *hyō* (*píng*) “to comment on; to discuss; to debate” is relevant) and the desire to imitate the tonal qualities of the words somehow possess the most explicative power. It can be stated with some surety that the names of the tones are of Buddhist provenance and likely not immediately from the community of the poetry writers, and they are of Go-on provenance. However, as previously observed, no explanation can deal with the details exhaustively. The question merits further research.

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