CANTONESE TONES AND TONE MARKS: HOW PAST STUDIES CAN HELP PRESENT LEARNERS

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The history of Cantonese phonology, and in particular that of Cantonese tones, departs very early from Mandarin and needs to be told separately. The earliest materials for Cantonese language teaching report a variable total of twelve, eleven, ten, nine or seven tones with different, quite industrious ways to mark them around the characters or transcribed syllables. Nowadays it is quite accepted that learning six (or seven) tones is enough to pronounce Cantonese syllables properly. However, since there is no definitive, official phonetic transcription of Cantonese sounds, different tone-marking systems still coexist.

After an analysis of the main works used for the didactics of Cantonese in China and abroad in the 19th and 20th centuries, this paper will try to answer the following questions: how many tones were recognized in Cantonese in the language materials (dictionaries, grammars, primers, phrasebooks etc.) compiled by Western missionaries and officials? How were they described? How were they marked? Can these works

help to devise a better system to mark Cantonese tones for foreign learners today?

The present study, first of all, will sketch the history of Cantonese tones to the present day. Afterwards, it will present an overview of early Cantonese tone descriptions and tone-mark systems devised by Westerners to better teach and acquire them. Finally, it will show how good use of these past studies can be made, by proposing a more suitable, iconic way to mark the tones that, according to a recent survey, could benefit second language learners. The preliminary results obtained can be used for further studies on the new tone-marks and their application in classes of Cantonese as a second/foreign language[1].

1. Brief history of Cantonese tones and traditional tone-marks

Sinitic languages are tonal languages, where different tone inflections or contours are fundamental to convey different meanings. As Sagart (1999: 2) states: "Chinese tones are complex suprasegmental events distinguishing (otherwise) homophonous syllables, which are often – but not always – meaning-bearing units, or morphemes". A tone contour is defined by its pitch level or register (which can be high, medium or low) and by its pitch movement, from the beginning of the tone until its end. The movement can be level, rising or falling (Bauer and Benedict 1997: 111).

The historian Shen Yue 沈約 (441-513) is believed to be the first to have recognized and described the Chinese tonal system in his *Sìshēngpǔ* 四聲譜, labelling the tones as: *píngshēng* 平聲 "level tone", *shǎngshēng* 上聲 "rising tone", *qùshēng* 去聲 "departing tone", and *rùshēng* 入聲 "entering tone". Only the first three categories were contrasting tones, while the last one was used only to refer to syllables ending with a glottal consonant stop *(-p, -t,* or *-k)* (Bauer and Benedict 1997: 154). This tonal system was immediately used to arrange rhyme dictionaries as in Lu Fayan's 陸法言 *Qie Yun* 切韻 of 601 (Sagart 1999: 3-4). Starting from the Song dynasty, the traditional method to mark the tones was the *sìshēng quāndiǎn* 四聲圈點 or *sìjiǎo biāoquānfǎ* 四角標圈法

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[1]   For space and time reason, the phenomenon of tone-sandhi in Cantonese will not be dealt with in the present study.

'four tone/corner circle marking', where the four tones were indicated adding by hand a circle or a semicircle in one of the four corners of a sinogram (Branner 1997: 251; Chung 2016: 757), for example:

<div align="center">

˚上   去˚

。平   入。

</div>

Also, in order to remember the position of the tone diacritics, the later *Kāngxī zìdiǎn* 康熙字典 (1716) would use the image below:

Figure 1. How to remember the four tones in *Kāngxī zìdiǎn*

However, already in the eighth century, the northern and southern tonal systems had begun to part. In 880, the Japanese Buddhist monk Annen 安然 (ca. 841-915), in his treatise on Sanskrit phonology, wrote about the existence of a northern Chinese tone system, where the *píng* and *shǎng* tones had split, while words with *shǎng* tone and voiced initial stops and affricates or fricative had merged with words with *qù* tone. In 847, two monks, Master Yuishō 惟正 and in 877 Master Chisō 智聰, returned to Japan reporting that in southern China all the four tones had split into two. This presumably happened because the originally voiced stop and affricate initial consonants had lost their voicing, becoming voiceless (Chang 1975: 637-639; Bauer and Benedict 1997: 154-157).

Therefore, at this point in history, Cantonese, as well as other southern dialects, had seen its tone number more than doubled in a *yīn* 陰 set and in a *yáng* 陽 set. The word *yīn* was used in traditional Chinese linguistics to mark the high and middle registers, while *yáng* was used for the low registers (Bauer and Benedict 1997: 121). In Cantonese, in particular, the entering tone had a further subdivision: not only did it split into *yīnrù* 陰入 and *yángrù* 陽入, but *yīnrù* also split into two. This further division presumably happened because of vowel length: syllables with phonetically short vowels moved into the "high" entering tone category, and syllables with long vowels into the "mid" entering tone category (Bauer and Benedict 1997: 155). Table 1 below shows modern Cantonese tones as they developed from ancient Chinese:

		平聲	上聲	去聲	入聲
陰	上 中	**55/52 (53, 51)**	**35 (25)**	**33**	**5 33**
陽	下	**21 (31)**	**23 (13, 24, 25)**	**22**	**2/22**

Table 1. Cantonese tones developed from ancient Chinese.

In the table above, the values outside the parentheses are those indicated by Y.R. Chao 趙元任 (1892-1982) in his *Cantonese Primer* (Chao 1947: 24), that are mainly confirmed by Yue-Hashimoto (1972: 92) and others. Bauer and Benedict (1997: 116) and Matthews and Yip (2011: 28) both report the high rising as being changed in recent years to 25. Other studies set the tone contours slightly higher or lower (see values in parentheses): Yue-Hashimoto (1972: 92), for example, defines the low rising as 24; Cheung (2007: 59) has the low falling as 31 and the low rising as 13. Recent studies on Hong Kong Cantonese have also proved a trend to merge (in production) or to not distinguish (in reception) the high and the low rising tones, the mid level and the low level tones, or the low falling and the low level tones (Mok *et al.* 2013).

2. The tones in modern Cantonese: variety, number, and tone marks

Lexical tones are a very important contrastive feature in modern Cantonese phonology. They provide a "second phonetic dimension – in addition to consonants and vowels – for contrasting words" (Bauer and Benedict 1997: 109). It is already quite accepted nowadays that modern Cantonese has a system of six basic tones. The 'discount' from the previous acknowledged ten/nine/seven tone systems (see Section 3) is due to mainly two factors: 1. in the past, different tones were assigned to syllables with finals in *-p*, *-t* or *-k* (the entering tone, *rùshēng*, of Middle Chinese), whereas this distinction is not made anymore because it is not contrasting: the vowels, and therefore the tones, are simply shorter in those syllables, but the tone contour is the same; 2. several studies have proved that the high-level and the high-falling tones are not distinctive anymore in the majority of Cantonese speakers (Bauer and Benedict 1997: 111; Lau 2010: 1; Matthews and Yip 2011: 27-29; see also Chu and Taft 2011: 58-61). Thus, the current situation can be synthetized as in Table 2 below:
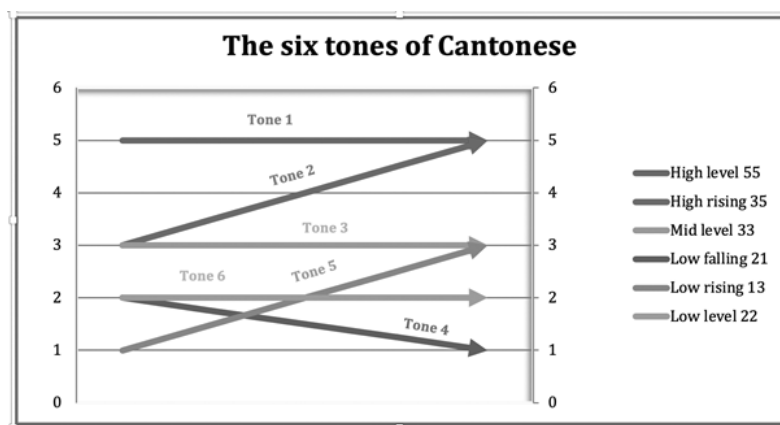

Table 2. Modern Hong Kong Cantonese tones.

As the graphic shows, we can state that in modern Hong Kong Cantonese there are three level tones: high (55), mid (33) and low (22), which are the reference for the other three: the high rising (35), the

low rising (13) and the low falling (21). These values mainly follow Cheung (2007: 59) – except for reporting 21 instead of 31 for the low falling tone – and Lam and Paternicò (2017: 10).

Concerning the tone marks, according to the Yale transcription system – judged by the author the best available, so far, for teaching Cantonese as second/foreign language (Lam-Paternicò 2017: XVIII) – the tone is graphically signalled on the vowel of a syllable or on the first vowel of a diphthong, for example: *fā* (high level → first tone), *séui* (high falling → second tone). In the case of the nasal syllables *m* and *ng* the tone is exceptionally placed on the consonant, ex. ḿ, or on the first one of two consonants, ex. *ńg*. The mid level → third tone is the only one that is not graphically marked. The three lower tones are signalled by adding letter *h* after the vowel or the diphthong. Below, a description of the six tones with tone marks in Yale.

First tone or high level (55):
The first tone is a flat, high-pitched sound emission which does not change its course. It is marked with a macron on top of the vowel, for example: *wāi* (威 'powerful').

Second tone or high rising (35):
The second tone is a high rising tone. It starts at a lower pitch and ends at a slightly higher point. It is graphically marked with an acute accent on top of the vowel, for example: *wái* (毀, 'to destroy').

Third tone or mid level (33):
The third tone is a flat, medium-pitched sound emission which does not change its course. It is lower than the first tone. It is not marked because it is similar to natural pitch in non-tonal languages, for example: *wai* (慰, 'to console').

Fourth tone or low falling (21):
The fourth tone has a falling course. It starts quite low and descends even lower, like a sigh. It is marked by a grave accent on the vowel, and by letter *h* after the vowel or after the second vowel of a diphthong, for example: *wàih* (唯, 'only').

Fifth tone or low rising (13):
The fifth tone has a rising course, like the second, but starts lower and does not end quite as high. It is marked by an acute accent on the vowel, and by letter *h* after the vowel or after the second vowel of a diphthong, for example: *wáih* (偉, 'great').

Sixth tone or low level (22):
The sixth tone is a flat, low-pitched sound emission which does not change its course. The only graphic mark for this tone is letter *h* after the vowel or after the second vowel of a diphthong, for example: *waih* (胃, 'stomach').

As the next paragraph will show, the earliest romanization systems were devised by Westerners in southern China in the 19th century. Nowadays, there is not one univocally recognized standard, and several systems coexist (Cheng and Tang 2016). The above-mentioned Yale transcription was devised by Parker Po-fei Huang and Gerald P. Kok in the 1960s for the manual *Speak Cantonese* and other materials produced at Yale University, from which it takes its name (Huang and Kok 1960). From that moment, it has been widely used in Cantonese language teaching materials for foreigners. It has quite a few advantages: it looks similar to the *Pinyin* transcription for Mandarin; it was created for English speakers, so it is simpler for foreigners in general; the tone marks are iconic and easier to learn compared to other systems with numerical or letter notation. Its only arbitrary sign would be letter *h* for the lower range tones. It originally included a seventh tone, the high-falling, which is not precepted as contrastive anymore, as we have already said (Cheng and Tang 2016: 39-41).
Another two systems, created in the 1960s were: the Hong Kong Government Cantonese Romanization and the Sidney Lau system. The first is based on E.J. Eitel's dictionary (I ed. 1877, II ed. 1910) and of J. Dyer Ball's language materials (1883; 1886). However, it merely aimed at transcribing anthroponyms and toponyms to use in street signs. It was not meant to be a teaching tool (although it is the only system many locals know). It cannot be considered a system *stricto sensu*, since it lacks internal coherence, and there is no correspondence from grapheme to phoneme and vice versa. The tones are not marked

(Kataoka and Lee 2008). The second was created by the dean of the Hong Kong Government Language School, Sydney Lau Sek-cheung 劉錫祥, for the radio series "Cantonese by radio", and later on used in his Cantonese primers published in the 1970s. This system is an adaptation of the former romanization devised by the missionaries B.F. Meyer and T.F. Wempe in 1934, in turn inspired – with exception of tone marks – by Chalmers (1870). It quite resembles the Yale system, except for some finals and for the way of marking tones, with superscript numbers (Lau 1972).

However, the most widespread transcription system today, especially in Hong Kong and mainland China, is *Jyutping* 粵拼, a romanization created in 1993 by the Linguistic Society of Hong Kong. Very similar to the Yale system, it differs in the way it transcribes five finals and two initials, and because it marks the tones with numbers (Cheng and Tang 2016: 38-43, 46; Lam and Paternicò 2017: XVII-XVIII).

As it is possible to see from the most common romanization systems listed above, and from others which are less used or no longer used nowadays (Cheng and Tang 2016: 43-36) (see also Section 4), with the exception of Yale, the most common way to mark the tones in the second half of the 20th century was with numbers. Although many native speakers are used to *Jyutping* and its tone marks, the numerical tone notation might result quite arbitrary and hard to distinguish for foreign learners. Is there a better way to mark tones to help Cantonese language teaching? If we look further back in the history of Cantonese tone marks, can we find helpful insights? The following section will present an overview of the early tone descriptions and tone marks devised by and for foreigners for the purpose of learning the language.

3. Early Western descriptions of Cantonese tones and ways to mark them

In the nearly 100 years between the second decade of the 19th and the 20th century, an impressive amount of language materials of all kinds (primers, grammars, dictionaries etc.) were created to teach and learn Cantonese. Most of them were printed in Hong Kong, but also abroad, in Southeast Asian countries or in the Americas. In the following pages, we will make an overview on the way Cantonese tones were described

and marked in a selection of sources which were mainly printed in southern China by missionaries and officials. These sources were quite popular among the foreigners who had settled in the area, had several reprints, and influenced later romanization systems for Cantonese.

The earliest dictionary of Cantonese and a foreign language was Robert Morrison's *A Vocabulary of the Canton dialect* (1828). The work, in three volumes, does not present tone marks. We must wait until Elijah Coleman Bridgman (1801-1861), the first American Protestant missionary in China (Paternicò 2020: 176-177), to see the original Chinese tone mark system applied in a Western work. In the introduction to his *Chinese Chrestomathy in the Canton Dialect* (1841: III-IV), Bridgman states that for intonation, his work refers to a small duodecimo tonic dictionary commonly called *Fan-wan*[2], compiled at the beginning of the Qing dynasty by Yu Xuepu 虞學圃 and Wen Qishi 溫岐石. Bridgman describes a set of four main tones (平上去入) that are sub-divided in an upper series (陽) and a lower series (陰):

> *P'ing shing*, or the monotone, is an even sound, and is fairly represented by a horizontal line. It is characterized by an entire absence of all inflection of voice. It may be quick or slow, harsh or soft, on a high or low key; but it always continues in regard to elevation, precisely where it commenced […].
>
> *Shéung shing*, ascending tone, or rising inflection, turns the voice upwards, ending higher than it began. In English, it is heard invariably in the direct question […].
>
> *H'ü shing*, the receding tone, is a distinct prolongation of the voice, diminishing, while it is prolonged; in English, it is used in the indirect question, and also in the language of scorn, surprise, authority, and alarm […].
>
> *Yap shing*, the entering tone, is an abrupt, short sound. In English, it occurs in words like hit, hop, &c […].

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[2]   The complete is: *Kong-ú ch'ik-tuk, Fan-wan ts'iú hòp tsáp* 江湖尺牘分韻撮要合集 *Collection of Jianghu Correspondence and of Characters Divided According to their Rhymes*. It can be accessed online here: https://ctext.org/wiki.pl?if=g-b&res=94354 (visited 2023/02/20).

Each of these four tones, being subdivided, form the two series, […] one of which may be considered primary, and the other secondary, the two being parallel to each other. The four tones, forming the first series, may be regarded as the fundamental modifications of the voice; and the four forming the second series, […] may be described in precisely the same terms as the first four tones, since they are distinguished from them only by being uttered on a lower key. (Bridgman 1841: IV-V)

Inspired by the Chinese traditional system marking the tones around the characters, in Bridgman the tones of the upper series are marked with semicircles at the four corners of the Romanised syllables; for those of the lower series, a dash is added beneath the semicircle (see examples in Figures 2-3).

Figure 2. Tone-marks for the upper tones in Bridgman (1841: VI).

Figure 3. Tone-marks for the lower tones in Bridgman (1841: VII).

Bridgman's way of numbering, defining, and marking the tones is mirrored by Samuel Wells Williams (1812-1884), an American missionary who had been sent to China in 1833 in order to take care of the typography of the American Board of Commissioners for Foreign Missions in Canton (Paternicò 2020: 177). Both in his primer *Easy Lessons in Chinese* (Wells Williams 1842) and in his *A Tonic Dictionary of the Chinese Language in the Canton Dialect* (Wells Williams 1856), Wells Williams decided to keep the Chinese traditional system. In the introduction to his dictionary, he provides a reason for this choice, distancing himself from the marks adopted in works for Mandarin and other dialects from the time of Matteo Ricci (1552-1610) onward. He writes:

> The eight tones are clearly distinguished by the Cantonese, and every word in this Dictionary has been marked according to its tone by semicircles, something like the mark used by the Chinese, as here exhibited. […] As the tones in Chinese are totally distinct from accent, in their own or other languages, there are many objections to using the common and generally understood marks (´ ` ˇ ^) on the tops of the vowels to denote them, as has been done in Romanizing some dialects, and in the dictionaries of De Guignes, Medhurst, and others. By taking another sign, there is no mixing of radically different symbols over the same syllable […] where one of the marks affects the power of the vowels, and the other denotes the tone of the Chinese character. Since diacritical marks in all European languages modify the power of the vowels, it is desirable not to introduce any confusion in writing words, the more so as the tones in Chinese are so entirely different; it is better to adopt a new symbol. (Wells Williams 1856: XXIX)

He also provides a very clear chart for his readers (Figure 4) and a detailed description of the 8 tones.

Figure 4. The tones as in Wells Williams (1856: XXIX).

Bridgman's and Wells Williams' tone systems were also used in the works of the German Lutheran missionary Wilhelm Lobscheid (1822-1893): *Grammar of the Chinese Language* (1864) and *English and Chinese Dictionary* (1866-1868).

The Scottish missionary John Chalmers (1825-1899) made a finer description of the tones and of the regional differences (Paternicò 2017a: 233-234). He also introduced some variations to Williams' system. In the introduction to his dictionary *An English and Cantonese Dictionary* (1870), a very popular text that in 1891 was at its sixth edition (here quoted), he states:

> There are only eight regular tones in the Chinese language, and even these are not all found in many dialects. The upper series of tones is printed in Italics, and the lower series in Roman letters.
> 1.   Syllables without any tonal mark are in the 'even' tone.
> 2.   Those with a tonal mark (·) on the upper left corner are in the rising tone.
> 3.   Those with a tonal mark (·) on the upper right corner are in the going tone.
> 4.   And words ending in *k*, *p* or *t* are in the abrupt tone; that is to say, they end in a close consonant which cannot be sung out. (Chalmers 1891ed.: IV-V)

Chalmers also provides a scheme which compares his system with William's (Figure 5).

Figure 5. Chalmers tone marks compared to Williams' (Chalmers 1891 ed.: V).

Chalmers was therefore the first in the history of Cantonese tone notation to decide to leave those syllables he considered natural speech (even tones) unmarked. Also, he differentiated the upper and lower tone-series simply writing the former in Italics. The result is a script with less diacritics and less burdening for the eye. However, the use of such a system could prove quite confusing for a learner.

Chalmers was also the first to acknowledge the merit of E.H. Parker (1849-1926) who, in an article written on the *Overland China Mail* (October 27, 1874), drew the attention on "additional tones" that can be heard in Cantonese colloquial, and on tone sandhi, for which he devises new tone marks, that Chalmers synthesized as follows:

> First, there are three even tones instead of two, the uppermost one being a sort of cry. [...] They are distinguished in this Dictionary by a tonal mark in the lower left corner of the syllable aside its being printed in italics. I have been guided entirely by a Cantonese teacher in this and the following distinctions of tones. Second, there are three abrupt tones instead of two [...] a middle abrupt tone takes place in connection with long vowels. [it is not marked]"
> Third, all the tones, except perhaps the upper even and the upper abrupt, are liable to be changed into an exag-

gerated rising tone. [...] This is indicated by an asterisk
on the upper left side of the syllable.

In 1877, Ernest Johann Eitel (1838-1908), a Protestant missionary of
the Basel Mission (Paternicò 2020: 182), compiled a dictionary which
would be considered a fundamental tool for generations: *A Chinese
Dictionary in the Canton dialect*, London (1877-1887), in 2 volumes
(II ed. 1910-1911). In the *Introduction*, he retraces the history of Chi-
nese and "vernacular" tones and ton-splits (Eitel 1877: XXIV) and
then proposes a system of 4 tone classes, each of which is split into
two, with the exception of the fourth that is split into three, thus a
total of 9 tones are recognized, as in the figure 6 below:

I. Tone class.
 ꜀[] Upper even tone (上平)   e. g. 呼 ꜀fú.
 ꜀[] Lower even tone (下平)   „ 扶 ꜀fú.

II. Tone class.
 '[] Upper rising tone (上土)   „ 府 'fú.
 ꜄[] Lower rising tone (下土)   „ 婦 ꜄fú.

III. Tone class.
 [] Upper departing tone (上去) „ 富 fú'.
 []² Lower departing tone (下去) „ 父 fú'.

IV. Tone class.
 []₁ Upper entering tone (上入)   „ 竹 chuk₁
 []₀ Medial entering tone (中入) „ 捉 chuk₀
 []₂ Lower entering tone (下入)   „ 濁 chuk₂

Figure 6. Eitel's 9 tone system (1877: XXV-XXVI).

However, he adds that in daily speech, other tones might be heard,
which are derived from the above basic tones or simply "modulat-
ed under the influence of emphasis or emotion" (Eitel 1877: XXIV).

He decides not to take into consideration the medial even tone 中平, since – according to him – the difference with the other two even tones is not of practical importance. As we can see from figure 5, Eitel preserves the traditional tone marks adding a circle "as in the Siam and Annam tradition" for the medial entering tone 中入.

A thorough study of tones and tone-marks in Cantonese was made by James Dyer Ball (1847-1919), son of a missionary in Canton, who worked in the Hong Kong Civil service for 35 years with different positions. Dyer Ball dedicated several works to Cantonese language. In his primer *Cantonese Made Easy*, he makes a long description of the tones (Dyer Ball 1883: XVIII-XXXII) and adopts the system of 10 tones (as in Chalmers) plus tone sandhi, as in Figure 7:

Figure 7. The tone set and tone marks in Dyer Ball (1883: XXIII).

As for what tone notation is concerned, Dyer Ball makes a review of other systems devised by Westerners. He states that the accent system used for Pekingese or Hakka (with macrons and accents) cannot work for Cantonese because the latter has more tones, there are no typesets available to print them and they are unknown to the locals, with the paradox that a foreign student would need to explain what these marks stand for to his native speaker teacher. He also does not share Chalmers' point of view in leaving some tones unmarked: for Dyer Ball, every syllable needs to have its tone signalled. That is why he prefers to keep the traditional way of marking tones with semicircles and dashes as in Bridgman. For the three newly identified tones, Dyer Ball decides to use a circle at the bottom left corner for 中平, a circle at the bottom right position

for 中入 and to signal tone sandhi through an asterisk (Dyer Ball 1883: XXIX-XXXI).

The earliest materials using numerical tone marks for Cantonese (probably under the influence of the Wade-Giles system developed in the second half of the 19th century for Mandarin) were the dictionaries compiled by Louis Aubazac (1871-1919), a MEP missionary who arrived in China in 1894: the 法粵字典 *Dictionnaire Français-Cantonnais* (1902) and the 粵法字典 *Dictionnaire Cantonnais-Français* (1912). Aubazac (1902: VII) describes a system of 4 main tones, divided in high, middle and low registers (for a total of 9 tones), which he marks with superscript or subscript numbers, with the exception for the 中入, which he marks with a subscript circle. He also specifies that the fourth tone is used only in syllables ending with a glottal stop, as Figure 8 below shows:

Figure 8. Aubazac's tone system as in the *Dictionnaire Français-Cantonnais* (1902), p. VII.

To our knowledge, the first to use a more iconic way to mark Cantonese tones was the Lieutenant Leblanc for his *Cours de langue Chinoise Parlée, Dialecte Cantonnais*, published in Hanoi in 1910. Leblanc uses the same 9 tone system as his predecessors but changes the way to mark them, in his words: "*La notation qui nous parait la plus logique est une notation figurative qui représente autant que possible les caractères distinctifs de chaque ton*"[3] (Leblanc 1910: 8). He then presents the set that can be seen in Figure 9:

Figure 9. Leblanc's "figurative" tone marks (Leblanc 1910: 9).

It was with the quite popular Meyer-Wempe romanization system (Meyer and Wempe 1935), devised by two Catholic missionaries in

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[3]   Translation: "The notation we find most logical is a figurative notation, which represents the distinctive traits of each tone as much as possible".

Hong Kong, Bernard F. Meyer and Theodore F. Wempe, that the tone system was reduced to 6 and an attempt was made at marking them with different diacritics that were easily available for printing presses and familiar to a Western eye (see Table 3 below):

Tone	Description	Tone mark	Example
1	high level/high falling	no mark	*ma*
2	high rising	acute accent (´)	*má*
3	mid level	grave accent (`)	*mà*
4	low falling	circumflex (ˆ)	*mâ*
5	low rising	caron (ˇ)	*mǎ*
6	low level	macron (ˉ)	*mā*

Table 3. Meyer-Wempe tones and tone marks.

In this system, the high level and the high falling tones are treated as not distinctive anymore and left unmarked; the macron is used for the low level tone. The grave accent, which one would expect for a falling tone, is instead used for the mid level. All in all, the marks are still not truly iconic.

Another example of the first half of the 20th century comes from Thomas O'Melia's famous primer *First Year Cantonese* (Hong Kong 1939), which was used by the Hong Kong Government as the syllabus for the Final Examination in Cantonese, organized by the Board of Examiners for the so-called Cadet System (Paternicò 2019: 31). O'Melia clearly states that he believes the Cantonese tone system has only 6 tones and decides to mark them slightly differently from Meyer and Wempe see Table 4:

Tone	Description	Tone mark	Example
1	upper even	no mark	*ma*
2	upper rising	acute accent (´)	*má*
3	upper going	grave accent (`)	*mà*
4	lower even	macron (ˉ)	*mā*
5	lower rising	caron (ˇ)	*mǎ*
6	lower going	circumflex (ˆ)	*mâ*

Table 4. O'Melia's tones and tone system (1939: XIX).

It is therefore clear that at the beginning of the 20th century the trend of the previous decades was changing, moving from a conservative attitude, aiming as much as possible at the preservation of the Chinese traditional tone notation, which was familiar to native Chinese teachers, towards a learner-centred approach, which made use of diacritics that could be more familiar to Westerners and easier to reproduce by the press.

4. Later proposals and new trends

In the 1920s-1930s Y.R. Chao began to develop a system of "tone letters" which would be later acknowledged as an option by the IPA and is now universally known (Chao 1930: 25). The system used a vertical line to mark the tone height and a horizontal or slanted line at its left to mark the contour. He also used them to explain the tones in his *Cantonese Primer* (Chao 1947: 24):
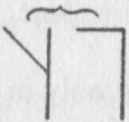
Figure 10. Tone description for Cantonese (Chao 1947: 24).

However, aside from the graphic explanation of the tones, the tone mark system Chao employed in the *Cantonese Primer* is quite a complicated mix of diacritics and other Latin letters, as we can see in the table of comparison with other systems he offers to his reader (Figure 11):

TABLE 13. COMPARISON OF TONES

	Present System	Jones and Woo	Eitel	Ball	Meyer and Wempe
Upper Even	a ai au an ang	ʿa	a̗	a̗	a
Upper Rising	ax ae ao anx ag	ᴧa	ꞔa	ꞔa	á
Upper Going	ah ay aw ann aq	⌐a	aʾ	aʾ	à
Upper Entering { High Short vowels	ʿat	at͵	at͵	at
{ Low Long vowels	⌐aːt	át͵	át͵	aàt
Lower Even	Same as above,	ₐa	ₓa	ₓa	ā
Lower Rising	but with lower-	ₐa	ₓa	ₓa	ă
Lower Going	tone initials.	ₐa	aᵌ	aᵌ	â
Lower Entering		ₐat	at͵	at͵	ât
Changed Tones					
Upper Even	a°	ᴧ̀a	—	ₒa*	—
Others	ha*	ᴧa	—	ₐa*	ₐa*

Figure 11. Y.R. Chao's tone marks (Chao 1947: 33).

Convinced that "[…] the constant addition of the necessary diacritical marks and tonal figure makes words and sentences so confusing to the eye that it is not only extremely wasteful of effort, but usually results in the student's inability to gain any clear idea of the sounds of words or to make sure connections between meanings" (Chao 1947: 16), Chao leaves most of the tones unmarked and 'simply' changes the spelling of the syllable's final. Furthermore, he distinguishes the upper and lower series by the initial. The result is a mix of letters that are meant to be pronounced and of other letters that simply indicate the tone, see Figure 12.

TABLE 6 A. EXAMPLES OF UPPER-TONE FORMS

Ending	Even Tone	Rising Tone	Going Tone
zero	ka 'home'	kax 'false'	kah 'frame'
−i	sai 'west'	sae 'wash'	say 'small'
−u	kau 'ditch'	kao 'nine'	kaw 'enough'
−m	kam 'present'	kamx 'so' (manner)	kamm 'so' (degree)
−n	pin 'border'	pinx 'flat, thin'	pinn 'change'
−ng	foang 'square'	foag 'imitate'	foaq 'let go'

TABLE 6 B. EXAMPLES OF LOWER-TONE FORMS

Ending	Even Tone	Rising Tone	Going Tone
zero	ma 'hemp'	max 'horse'	mah 'scold '
−i	lai 'come'	lae 'propriety'	lay 'example'
−u	mou 'have not'	moo 'have not'	mow 'fog'
−m	laam 'blue'	laamx 'behold'	−laamm 'warship'
−n	yün 'round'	yünx 'far'	yünn 'court'
−ng	zeung 'constant'	zeug 'go up'	zeuq 'up'

Figure 12. Upper and Lower tone series in Chao (1947: 26).

The author admits that memorising the charts he proposes is the only way to proceed further in the study. Whether Chao's romanization and tone marks could be useful to teach Cantonese was object of debate in the following years (Barnett 1950; Ulving 1958; Egerod 1958). The scholars, on one hand, felt a deep respect towards Chao and his contribution to linguistics, however, on the other hand, they felt that from a didactic point of view, his romanization could be perfected. In particular, Kenneth M.A. Barnett (1911-1987), a civil servant of the Hong Kong Government, proposed some changes and devised a solution that would be known as the Barnett-Chao romanization system (Barnett 1950). As far as the tones are concerned, this transcription method still uses letters before or after the main vowel or diphthongs to mark the tone: if a letter *h* is placed before the vowel, it means that the start of the tone is high, while after the vowel it indicates that the tone falls; if a letter *r* is placed before the vowel it means that the start of the tone is low, while after the vowel it indicates that the tone rises. The rising or falling tone is also signalled by changing the spelling of the finals (see Table 5 below). The total number of tones is 10, plus one modified tone option. See the example below for syllables *si* and *sin*:

Tone	Barnett-Chao		
high-falling	shih	shinn	
mid-rising	sir	sirn	
mid-flat	si	sin	
low-falling	srih	srinn	
low-rising	srir	srirn	
low-flat	sri	srin	
high-entering			shek
mid-entering			sit
low-entering			srek
high-flat	shihx	shinnx	
mid-rising modified	shihv	shinnv	

Table 5. Barnett-Chao Romanization system.

Although it was adopted by the London School of Oriental and African Studies (SOAS) and by the Chinese Language Training Section of the Hong Kong Government from 1963 to 1967, this romanization was considered too complex for teaching Cantonese as a second language (see for example Ulving 1958: 93 and Egerod 1958: 371, both proposing their own 'not less complicated' alternatives) and was, thus, abandoned in favour of Sydney Lau's system, which used superscript numbers for tones and paved the way to the longer lasting fortune of the *Jyutping* romanization (see Section 2).

All in all, the constant trend in the second half of the 20th century was to move towards simplification and against the use of too many diacritics. This has been evident in Hong Kong and southern China in general, where the numerical system prevailed for a while for both Mandarin (with Wade-Giles) and Cantonese. In the following pages we will try to argue that an iconic system would be preferable for foreign learners of Cantonese, in China or abroad, and especially for those who are already familiar with the iconic *pinyin* tone marks adopted for Mandarin.

5. Is it possible to devise a better iconic system to mark Cantonese tones?

The necessity of using or creating a proper transcription system with an accurate way of marking the tones was felt as a strong duty by scholars and teachers of Cantonese in the second half of the 20th century. As Ulving writes:

> The prospect student of Chinese is no doubt aware of some of the difficulties lying ahead of him. He is prepared to meet a sound system with several strange sounds and a wholly unfamiliar phenomenon of significant tone inherent in every syllable, he knows that he will find a grammar unlike anything familiar to him from European languages, and he may shudder at the thought of having to remember thousands of complicated and seemingly arbitrary characters [...].

> And while he will resignedly accept the difficulties of pronunciation, grammar and script as inherent in the Chinese language and nothing to be done with, he may feel a justified indignation about unnecessary complexities created by badly devised methods of transcription. (Ulving 1958: 6)

The search history of an unequivocal tone marking system is quite long and controverted for all the languages with lexical tones. As far as Cantonese is concerned, the trend in the last century has been towards simplification in at least four main directions: 1. few simple diacritics, leaving high or mid level tones unmarked; 2. letter tone marks with no diacritics, except for tone sandhi; 3. numerical tone marks; 4. iconic tone marks. We agree with other scholars, that the best way to have an analytical and transparent (for the reader) notation is an iconic tone system (Heselwood 2013: 75), which can describe the tone pitch and contour in a stylised manner. Chao's tone letters, as already explained, are one of the best ways to represent tones iconically, but quite complex to reproduce in a typeset or to use within the phonetic transcription in a handbook to teach Cantonese as a second/foreign/additional language. As a matter of fact, Chao himself did not use them in his primer, preferring letters (Section 4).

The lack of grasp of tone contour can be quite frustrating for those learners whose first language is neither Cantonese nor a tonal language (Li *et al.* 2016: 10-11), however a proper tone marking system could help foreign students learning and remembering Cantonese tones and their contours. In fact, there is evidence that learning Cantonese can be easier to those who have previous literacy in Mandarin and its tones (Li *et al.* 2016: 13-14).

Bearing in mind the above premises and aiming at helping learners of Cantonese as a second/foreign/additional language, we want to propose a new way of marking the 6 tones of Cantonese in a new iconic way. See examples in Figure 13 below:

1st High level tone	$\bar{a}$	$\bar{e}$	$\bar{\imath}$	$\bar{o}$	$\bar{u}$
2nd High rising tone	$\acute{a}$	$\acute{e}$	$\acute{\imath}$	$\acute{o}$	$\acute{u}$
3rd Mid level tone	a	e	i	o	u
4th Low falling tone	$a̗$	$e̗$	$i̗$	$o̗$	$u̗$
5th Low rising tone	$a̗$	$e̗$	$i̗$	$o̗$	$u̗$
6th Low level tone	$\underline{a}$	$\underline{e}$	$\underline{i}$	$\underline{o}$	$\underline{u}$

Figure 13. New proposal for Cantonese tone marks.

This new system clearly derives from the Yale Romanization, fixing the total of the tones to 6 (Section 2) and eliminating the arbitrary use of letter *h* to mark the tones of the lower register. This choice has been made mainly because letter *h* is already used in Yale as initial consonant *h-* or as *ch-*, but also because it seems preferable to see a tone mark before or right on top of the sound it belongs to. Drawing a lesson from the past systems devised in the last two centuries, which used superscript and subscript symbols/numbers for the tones, it also occurred to us that placing the diacritics for the lower tones below the vowel would be more appropriate and iconic.

All the tones, in this new system, are marked with diacritics, with exception of the third mid level tone. The tone marks are simple, stylised and transparent to the reader. The high level tone is marked with a macron above the vowel, the high rising tone with an acute accent above the vowel, the low falling tone with a grave accent below the vowel, the low rising with an acute accent below the vowel, the low level with a macron below the vowel.

This system can be especially helpful for foreign learners who are already familiar with Mandarin and its *pinyin* transcription which,

having long time ago abandoned the numerical notation of Wade-Giles, makes use of the same tone marks placing them all above the vowel.

A first brief survey recently conducted on 24 Cantonese learners as a foreign language, with prior knowledge of Mandarin, has shown that the majority of them think that this new system might have helped them learning Cantonese tones. In particular, the new system was deemed as 'definitely helpful' by those who had studied Cantonese with Yale transcription (78%), and 'probably helpful' by those who had used *Jyutping* or other romanizations (22%).

This preliminary result is quite encouraging. We therefore intend to carry on further studies, using this new notation system (and others in control groups) directly in teaching Cantonese tones to a larger number of foreign students, in order to prove whether it can be more effective than others in acquiring Cantonese tones.

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