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Abstract: Suprafixation (more specifically, tonal affixation) is a word-building strategy that is somewhat frequently employed in Cantonese. This article explores the development of the lexical suprafixes in Standard Cantonese from three perspectives: (a) earlier descriptions of the Cantonese suprafixes and the behaviour of the lexical suprafixes in some older Romanised Cantonese texts; (b) the behaviour of the lexical suprafixes in some non-standard Cantonese varieties; and (c) the behaviour of the suprafixes and diminutives in Yuè and Pínghuà dialects in general. A definite answer cannot be found to the question of what the origin of the Cantonese suprafixes is. Nonetheless, the theory that the Cantonese lexical suprafixes stem from the diminutive suffix *ŋi 兒 (Cantonese *ji4*, Mandarin *ér*) remains the most convincing.

Keywords: Cantonese; Yue; Pinghua; suprafixation; tone change; tonal affixation; morphological derivation

1. Introduction and Preliminaries

Affixes do not necessarily involve segments; some affixes consist of only suprasegmental features. An affix of which the form only includes suprasegments is a *suprafix*. One type of suprasegment is tone, and tonal affixes are not uncommon amongst Sinitic languages (Chappell 2023). Suprafixes (tonal affixes in this case) are reasonably common in Cantonese, especially lexical suprafixes (see Section 1.2 on 'lexical' versus 'non-lexical' suprafixes). This article looks at the development of the Cantonese lexical suprafixes from different perspectives.

Section 2 looks at what happened within Cantonese itself. Section 2.1 discusses some properties of the lexical suprafixes in modern Standard Cantonese. Section 2.2 looks at the history of the lexical suprafixes in older documents: explicit linguistic descriptions of their phonetics and phonology, and the behaviour of them in older tone-marked Romanised Cantonese texts. Section 2.3 discusses the situation with the lexical suprafixes in some non-standard Cantonese varieties. The data show that the lexical suprafixes on many words do not have a long history. Words can gain or lose suprafixes, although there are more cases of the former. Sections 2.2 and 2.3 represent original research.

Section 3 looks at what other Yuè dialects and the Pínghuà dialects might tell us about the origin of the Cantonese lexical suprafixes. Section 3.1 discusses briefly the range of diminutive suffixes in Yuè and Pínghuà, Section 3.2 discusses the *-ŋi^A* and *-ŋi^H* diminutive suffixes, and Section 3.3 reviews the various opinions on the relationship between the diminutive suffixes and the Cantonese lexical suprafixes. Ultimately, an undisputable answer cannot be found to the question of where the Cantonese lexical suprafixes originated. Nonetheless, the popular theory that the Cantonese lexical suprafixes have the diminutive suffix *ŋi 兒 as their origin (e.g., Whitaker 1955–1956; Kwok 2016) is still the most-plausible.

Section 3 is mainly a summary of opinions, especially that of Kwok (2016)'s theory on the development of Yuè lexical suprafixes. It is one of the aims of this article to bring (snapshots of) excellent Chinese articles on this topic—like Kwok (2016), Kao (2007), and Shào (2005)—to the Anglophone audience. In Section 3.2, new data from Pínghuà dialects and some extreme-western Yuè dialects are presented, and a proposal is made for a small

extension to Kwok (2016)'s theory: before a high-toned -*ɲi*^{H} diminutive suffix is developed, there is a preceding step of a -*ɲi*^{A} diminutive suffix in its citation tone (see the discussions in Section 3.2).

1.1. 'Cantonese', and Some Transcription/Presentation Issues

Yuè is a dialect group within the Sinitic language family. Cantonese is the representative of the Yuè dialect group. What is considered 'Cantonese' varies greatly; different people use the term 'Cantonese' to cover different ranges of Yuè dialects. A somewhat-narrow definition of 'Cantonese' is adopted here: Cantonese is the language of Canton (i.e., Guǎngzhōu) and its derivatives (e.g., de Sousa 2022). Since the First Opium War (1839–1842), there have been massive waves of migration in all sorts of directions from the Pearl River Delta region. Migrants from the Canton area were particularly successful in making their version of the Yuè language the dominant speech in many towns and cities in Far Southern China (and also in many Chinatowns overseas). Many Cantonese enclaves can be found throughout Far Southern China. Some examples are Hong Kong, Macau, Zhàn-jiāng, Běihǎi, and Nánníng. Cantonese pushed the pre-existing Yuè, Hakka, Mǐn, Pínghuà, Southwestern Mandarin and/or Zhuàng varieties in those places away from the town or city centre. The various Cantonese varieties are slightly different from each other, due to, for instance, the difference in the language contact environment, and having preserved different features of earlier Cantonese. Nonetheless, they have remained fairly mutually intelligible, given the short history of divergence, and the (various degrees of) interactions that the different Cantonese enclaves have with each other.

Nowadays, there are two 'standard' varieties of Cantonese: Canton and Hong Kong Cantonese. ('Standard' is in quotation marks here, as there are only informal standards used for, e.g., broadcast. In the Hong Kong education system, only a small part of Cantonese is codified, namely the pronunciation used for reading Written Chinese. The suprafixes used in colloquial Cantonese are not standardised, although there are strong norms.) Given that Canton and Hong Kong are (traditionally) the two most important commercial centres in the Cantonese world, and that they are geographically not very far away from each other, Canton and Hong Kong have maintained strong contacts with each other, and the difference between these two Cantonese standards is very small (especially in comparison with the other Cantonese varieties). The Cantonese data presented in this article are from Hong Kong Cantonese by default, spoken by speakers under 50 years old or so. For the Hong Kong Cantonese data, consultations have been made with Bauer (2020)'s dictionary and the online dictionary *words.hk* 粵典.

Broad-phonetic IPA transcription (i.e., phonemes with their 'main' allophones) is used for the data provided by the author. When quoting from published sources, non-IPA transcriptions are converted to IPA, except with sources that are more than one hundred years old (see Section 2.2.3). Tonal categories (tonemes, allotones) are notated using full-sized numbers (e.g., *nœy5* 女 'female' is in 'tone 5'), while tone values (phonetic realisations) are notated using superscript numbers, with [^{5}] being the highest pitch (in modal register) and [^{1}] being the lowest pitch (e.g., *nœy*^{13} 女 'female' has a low-rising tone, i.e., Standard Cantonese tone 5 is a low-rising tone). Suprafixes in Yuè and Pínghuà dialects are usually substitutive, i.e., the suprafix tone replaces the citation tone (the underlying tone) of the host syllable. They are separated by a hyphen; before the hyphen is the citation tone that is not pronounced, and after the hyphen is the suprafix. For instance, *nœy5-2/nœy*$^{13\text{-}25}$ 女 'daughter' has a tone 2 suprafix, which is a high-rising tone. (Other than substitutive suprafixes, there are also additive suprafixes, e.g., Cantonese described by Chán (1900) (Section 2.2.2) and modern Toishanese (Section 3.2). Additive suprafixes are those where both the citation tone and the suprafix tone are pronounced on a lengthened host syllable.) In older Cantonese, there was a distinction between the suprafix version and the ordinary version of tone 2 and tone 1. When there is a contrast, the suprafix version is notated with a star, e.g., 'tone 2*' and 'tone 1*', while the ordinary version lacks a star, e.g., 'tone 2' and 'tone 1'.

Modern Standard Cantonese has six tonemes (Section 2.1). Unlike the Sidney Lau Romanisation and Jyutping, which number the tones 1, 2, 3, 4, 5 and 6, this article follows the S. L. Wong Romanisation and Cantonese Pinyin in numbering the tones of obstruent-ending syllables as 7, 8 and 9, while reserving 1, 2, 3, 4, 5 and 6 for sonorant-ending syllables. (When an obstruent-ending syllable takes a tone 2 or 1 suprafix, it is notated as in *tip9-2* 碟 'plate'.) This separation is primarily for philological reasons: the late-nineteenth/early-twentieth century Romanised Cantonese texts transcribed the tones on obstruent-ending versus sonorant-ending syllables separately, following Chinese linguistic traditions. In addition, sometimes they can behave differently. For instance, tones 1 and 7, both high level in pitch, behaved differently in the 1960s Hong Kong Cantonese tone sandhi rules (Section 2.2.1).

Lexical suprafixes are very rarely reflected in the Chinese script. For instance, both *nø y5* 'female' and *nø y5-2* 'daughter' are written 女. (Nonetheless, *nø y5-1* 'queen (playing card)' may be written with a separate character 囡, and *nø y5-4 nø y5-2* or *nø y5-4 nø y5-1* 'darling daughter/girlfriend' may be written 囡囡 or 女女.) Instead, the study of Cantonese suprafixes primarily relies on Romanised texts that are tone-marked.

The glossing in this article basically follows the Leipzig glossing rules (see also Chén et al. (2014) for the application of the Leipzig glossing rules with Sinitic languages). Two 'non-Leipzig' abbreviations that are frequently used in this article are SUPR for suprafix and DIM for diminutive.

1.2. Suprafixation versus Tone Sandhi, and Non-Lexical vs. Lexical Suprafixation

The Cantonese suprafixes can cause a change in meaning and/or word class. Cantonese suprafixation is also known in the literature by terms like *tone change* (e.g., Matthews and Yip 2011, chap. 1.4.2), *changed tone* (e.g., Jurafsky 1988; Liu 2016; Alderete et al. 2022), *morphological tone* (e.g., Alan Yu 2007), *pin3 jɐm1/binyam/biànyīn* 變音 (lit. 'changed sound'; e.g., Bauer and Benedict 1997, chap. 2.11; Kwok 2016), and *pin3 tiu6/biàndiào* 變調 (lit. 'changed tune' or 'changed tone'; e.g., Cheung 2000; Yiu 2010). The last term, *pin3 tiu6/ biàndiào* 變調, is also used to mean tone sandhi. It is important to note the difference between tone sandhi and suprafixation. Tone sandhi is a largely automatic phonological process where one tone transforms into another tone under the conditioning of another tone in the vicinity. (Sometimes there can be morphosyntactic constraints involved.) The Yuè dialects tend to be poor in tone sandhi. Modern Standard Cantonese has no tone sandhi. (However, see Section 2.2.1 for the tone sandhi rules in the 1960s involving tones 1 and 1*.) On the other hand, suprafixation is not triggered by the tones or other phonological features in the vicinity. Suprafixes are just like other affixes; whether one uses a suprafix or not depends on lexical, morphosyntactic, semantic and/or pragmatic considerations. (Although sometimes there can be phonological constraints.)[1]

The Cantonese suprafixes are here divided into 'non-lexical' and 'lexical' suprafixes. 'Non-lexical' and 'lexical' refer to the lexical identity of the base. Non-lexical suprafixes are not constrained by the lexical identity of the base. They often convey grammatical functions. For instance, there is a tone 2 (high-rising) suprafix that signifies the perfective aspect (a contraction of the perfective particle *tsɔ2* 咗). There are constraints such as a) this suprafix cannot be at the end of an utterance, and b) the host syllable cannot be in tone 1/7 (high level) (e.g., *fei1* 飛 'fly' → **fei1-2* 'flew', *tık7* 剔 'tick' → **tık7-2* 'ticked'). Otherwise, the host can be any verb (or verby adjective), e.g., *fɐn3 kau3* 瞓覺 'sleep' → *fɐn3-2 kau3* 'slept/fell asleep', *ji4mɐn4* 移民 'migrate' → *ji4-2mɐn4* 'migrated'. (In Cantonese, *fɐn3* 瞓 and *ji4* 移 are the verb, cf. *ji4 tsɔ2 mɐn4* 移咗民 'migrated'.) Other examples of non-lexical suprafixes include the following: (a) the *-tei2* 哋 '-ish' construction, which involves the reduplication of a monosyllabic adjective, a tone 2 suprafix on the copy, and a suffix *-tei2*, e.g., *lam4 lam4-2 -tei2* 藍藍哋 'bluish'; and (b) the contraction of *jɐt1* 一 'one', e.g., *mat8 jɐt1 mat8 kʰø y5* 抹一抹佢 (wipe one wipe 3SG) → *mat8-2 mat8 kʰø y5* 'wipe it a bit' (signifying the delimitative aspect in this case).

On the other hand, lexical suprafixes depend on the lexical identity of the base. Whether it is applied to a base or not is mostly unpredictable. For instance, *ji5 wan4-2* 耳環 'ear ring' has a tone 2 suprafix, but *pei6 wan4* 鼻環 'nose ring' does not. The use of the lexical suprafix in *ji5 wan4-2* 耳環 'earring' has nothing to do with the phonological environment. As is sometimes the case with derivational morphology, the application of the lexical suprafix in *ji5 wan4-2* 耳環 'earring' is not entirely explainable. (The explainable part is that 'earring' is a more-familiar concept than 'nose ring' and other piercing/accessorial rings. However, being familiar does not guarantee a lexical suprafix.)

The Cantonese lexical suprafixes are quite often considered diminutives (e.g., Chén 2002; Kao 2007; Kwok 2016). While the lexical suprafixes most probably stem from diminutive suffixes (Section 3), in the majority of cases, the lexical suprafixes no longer have any diminutive-type meaning in Cantonese (Section 2). This article refrains from calling the Cantonese lexical suprafixes diminutives, but it is acknowledged they are at least derivatives of diminutives, regardless of meaning.

2. Lexical Suprafixes in Cantonese

Section 2.1 describes some aspects of the lexical suprafixes in modern Hong Kong Cantonese. Section 2.2 takes a diachronic look at the suprafixes in Standard Cantonese. Sections 2.2.1 and 2.2.2 look at how there used to be separate suprafix and ordinary versions of tones 1 and 2, respectively, in the twentieth century. Section 2.2.3 looks at how words in modern Cantonese have gained, maintained, lost, or changed suprafixes in comparison with those in Ball (1888, 1894). Section 2.3 looks at the use of lexical suprafixes in some non-standard Cantonese varieties. Section 2.4 is an interim summary.

2.1. Modern Standard Cantonese

Some basic properties of the lexical suprafixes in modern Standard Cantonese are outlined in this section. For fuller accounts, please see the studies quoted in this section.

Table 1 shows the inventory of tones in modern Hong Kong Cantonese, arranged in relation to Middle Chinese categories.[2] (The Middle Chinese categories are not essential for the understanding of this article. They are provided here only for the convenience of historical phonologists.)

Table 1. Tones in modern Standard Cantonese in relation to Middle Chinese categories (tone values from Matthews and Yip 2011, p. 28).

	A	B	C	D(L)	D(S)
*voiceless	1 [^{55}]	2 [$^{25\sim35}$]	3 [^{33}]	8 [^{33}] (=3)	7 [^{55}] (=1)
*voiced	4 [$^{21\sim11}$]	5 [$^{23\sim13}$]	6 [^{22}]	9 [^{22}] (=6)	

There are two lexical suprafixes in modern Standard Cantonese: the tone 2 (high-rising) suprafix and the rarer tone 1 (high-level) suprafix.[3] They replace the citation tone of the host syllable. Like some other derivational affixes, whether a lexical suprafix can be used or not, which one is used, and what effects it has on the base are not quite predictable. The following are examples of these two lexical suprafixes applied to the noun root *mui6* 妹 (< Middle Chinese *mwoj*^{C}) 'younger sister'. First of all, in citation tone, the root *mui6* 'younger sister' is a bound morpheme; most usually it occurs in a compound, e.g.,

(1) a.   *mui6*   *fu1*   妹夫
               y.sis   husband
               'younger sister's husband'
        b.   *hɪŋ1*   *tɐi6*   *tsi2*   *mui6* 兄弟姊妹
               o.bro y.bro   o.sis   y.sis
               'siblings'

To say 'younger sister' on its own, *mui6-2* 妹 is used, with a tone 2 suprafix. The tone 2 suprafix is also applied in some other cases unpredictably, e.g., example (2b) below.

(2)   a.   *ŋɔ5*   *kɔ3*   *mui6-2*   我個妹
                1SG   CLF   y.sis\SUPR
                'my younger sister'

        b.   *tsi2*   *mui6-2*   姊妹
                o.sis   y.sis\SUPR
                'sisters' (cf. (1b) above)

With a tone 1 suprafix, *-mui6-1* 妹 is a suffix meaning '-girl'. The tone 1 suprafix is also applied to the root *mui6* 妹 unpredictably in some nouns, e.g., example (3c) below.

(3)   a.   *lʊŋ4 -mui6-1*   聾妹
                deaf -y.sis\SUPR
                'deaf girl'

        b.   *ma5lai1 -mui6-1*   馬拉妹
                Malay -y.sis\SUPR
                'Malay girl'

        c.   *mui6-1 -tsɐi2*   妹仔
                y.sis\SUPR -DIM
                'young female servant'

With the suffix *-mui6-1* 'girl', suprafixation is applied at the morpheme level (i.e., *-1* is applied to *-mui6*, and then *-mui6-1* is suffixed to a base). However, suprafixation is often applied at the word level instead. For instance, with the suffix *-pʰɔ4* 婆 '-woman', while *kʷɐi2 -pʰɔ4* 鬼婆 'European woman' and *pat3 -pʰɔ4* 八婆 'bitchy woman' do not take a lexical suprafix, *tin1 -pʰɔ4-2* 癲婆 'crazy woman' and *jɐu5 tsʰin4-2 -pʰɔ4-2* (have money\SUPR -woman\SUPR) 有錢婆 'rich woman' do, for no apparent reason. This arbitrariness can also be demonstrated using place names. The place name *ou3mun4-2* 澳門 'Macau' is most usually pronounced with a lexical suprafix tone 2 (see also Section 2.3). On the other hand, most other *-mun4* 門 'door' place names do not carry a suprafix, e.g., *tʰyn4 mun4* 屯門 'Tuen Mun (suburb of Hong Kong)', *tɐu2 mun4* 斗門 'Dǒumén (district of Zhūhǎi), *kɔŋ1 mun4* 江門 'Kongmoon/Jiāngmén', and *ha6 mun4* 廈門 'Amoy/Xiàmén'. The place name *hɔ4 lan4-1* 荷蘭 'Holland' has the rare tone 1 suprafix, but the other *-lan4* 蘭 place names do not, e.g., *fɐn1 lan4* 芬蘭 'Finland' and *nɐu2 sɐi1 lan4* 紐西蘭 'New Zealand'.

Only words that depict familiar concepts have a lexical suprafix. For instance, in Canton, *hɔ4 nam4-2* 河南 (river south), with a lexical suprafix, is the suburbs of Canton south of the river (basically Hǎizhū District), whereas *hɔ4 nam4* 河南, without a lexical suprafix, is the relatively unfamiliar Hénán province in northern China. In another example, 'Vancouver' is *wɐn1 kɔ1 wa4* 溫哥華 in Cantonese, but a 'true' Cantonese Vancouverite calls their city *wɐn1 kɔ1 wa4-2*, with a tone 2 suprafix.

Historically, the lexical suprafixes probably came from a diminutive suffix (Section 3). In modern Standard Cantonese, lexical suprafixes can sometimes still have diminutive-type meanings. For instance, while *lɔ4* 籮 is a basket of any size, *lɔ4-1* is a basket that is not very big. Some names habitually carry a lexical suprafix (primarily involving tone 4 becoming tone 2), and this clearly has an endearment meaning, e.g., *hɔ4-2 pak8* 何伯 (Ho\SUPR old.man) 'Uncle Ho' and *lɪŋ4 lɪŋ4-2* 玲玲 'Ling Ling'. Nonetheless, most lexical suprafixes do not have any diminutive-type meaning. For instance, *lœŋ4 tʰɪŋ4-2* 涼亭 is a gazebo of whatever size, and **lœŋ4 tʰɪŋ4* is not a valid word in colloquial Cantonese (in Hong Kong/Canton). Nouns depicting small things do not necessarily carry a lexical suprafix. For example, looking at two similarly small-sized fruits, while *wɔŋ4 pʰei4-2* 黃皮 'wampi' carries a lexical suprafix tone 2, *lʊŋ4 ŋan5* 龍眼 'longan' does not, and cannot, carry a lexical suprafix. Similarly, while *pɛ1 lei4-2* 啤梨 'Western pear' carries a lexical suprafix, *syt8 lei4* 雪梨 'Chinese pear' does not.

Correlating with the fact that diminutives are suffixes in Cantonese, the host syllable that obtains a suprafix is often at the end of a word. However, the suprafixed syllable is not necessarily word-final. For instance, a suprafixed base can be followed by a suffix, e.g., *tip9-2 -tsɐi2* 碟仔 (plate\SUPR -DIM) 'little plate'. One example that is harder to explain is the

name of the suburb of *jœŋ4-2 kɐi1* 楊箕 (Yángjī) in Canton; *jœŋ4* 楊 came from *jœŋ4 tʰou4-2* 楊桃 'star fruit', i.e., *jœŋ4* 楊 was not even word-final to begin with.

The citation tone of a suprafixed syllable is usually known by people, as the syllable (morpheme) in citation tone is usually found in some other environments. For instance, 'egg' is *tan6-2* 蛋, and 'fowl egg' is *kɐi1 tan6-2* 雞蛋. The citation-tone morpheme *tan6* 蛋 is still known by people, as it appears in words like *tan6 gou1* 蛋糕 'cake' and *kɐi1 tan6 -tsɐi2* 雞蛋仔 (fowl egg -DIM) 'egg waffle'. (With a lexical suprafix, *kɐi1 tan6-2 -tsɐi2* (fowl egg\SUPR -DIM) would be literally 'little fowl egg'.) However, with some morphemes, the original citation-tone form is lost. One example is *tsʰaŋ2* 橙 'orange'; this morpheme 橙 is now pronounced *tsʰaŋ2* in all environments. Very few people know that 橙 is meant to have a citation-tone pronunciation of *tsʰaŋ4* (< Middle Chinese *ɖɛŋ⁴*). (The root 橙 'orange' has remained in tone 4 in most other Yuè dialects. One could also figure this citation tone 4 out through cognates in other Sinitic languages, e.g., Mandarin *chéng* 橙.) In another example, the highest mountain in Hong Kong, *tai6 mou6 san1*, is sometimes written incorrectly as 大霧山 (big fog mountain), as the pronunciation suggests. Nonetheless, *mou6* is actually the citation-tone pronunciation of *mou6-2* 帽 'hat' (i.e., 大帽山 (big hat mountain))—a fact that is often not consciously known by younger speakers in Hong Kong (unlike, e.g., older speakers in Macau, many of whom still say *mou6* for 'hat'; see Section 2.3.).

With some words, the citation tone and suprafixed versions are in free variation. One example is *ap8 ~ ap8-2* 鴨 'duck'. (However, the diminutive form does not take a suprafix: *ap8-tsɐi2* 鴨仔 'duckling'. There is also the slang *ap8-2* 鴨 'male prostitute', always with a suprafix.) In some cases, a citation-tone syllable and a suprafixed syllable are both morphologically free words, with different semantics. One example is *tʰɔŋ4* 糖 'sugar' vs. *tʰɔŋ4-2* 糖 'lolly/candy'. (Cf. one common function of diminutives is denoting a delineated part of a mass (Jurafsky 1996)). With polysyllabic (and polymorphemic) words, not uncommonly the suprafixed version is an established compound with a less-transparent meaning, while the citation-tone version has the literal meaning. For instance, *wɔŋ4 pʰei4-2* 黃皮 is the fruit 'wampi', while *wɔŋ4 pʰei4* 黃皮 is literally 'yellow skin'. (The aforementioned *kɐi1 tan6 -tsɐi2* 雞蛋仔 'egg waffle' versus *kɐi1 tan6-2 -tsɐi2* 雞蛋仔 'little fowl egg' are counter-examples.)

Occasionally, lexical suprafixes are found with non-noun bases. For instance, 大 *tai6* is 'big', but *tai6-1* is unexpectedly small. (This usage of *tai6-1* is now perhaps slightly dated. The distinction is not expressed in the Chinese script.)

(4)　*nei5*　　*tsɛk8*　　*kɐu2*　　*kɐm3*　　*dai6-1*　　*tsɛk8*　　*kɛ2?*　　你隻狗咁大隻嘅？
　　　2SG　　CLF　　dog　　so　　big\SUPR CLF　　SURPRISE
　　　'Your dog is so small?!'

For non-noun bases, often they become nouns when a lexical suprafix is applied. For instance, verb *tsʰat8* 刷 'to brush' vs. noun *tsʰat8 ~ tsʰat8-2* 刷 'brush'; classifier *tʰʊŋ4* 筒 for small cylindrical objects vs. noun *tʰʊŋ4-2* 筒 'tube-shaped object'; and numeral *lœŋ5* 兩 'two' vs. noun (or unit classifier) *lœŋ5-2* 兩/两 'tael'.

The tone 2 lexical suprafix can be applied to a host syllable in any tone other than tone 1/7 (high level). As for host syllables that are in tone 2 (high rising), there would be no perceptible difference if a tone 2 lexical suprafix is applied to it, and I remain agnostic as to whether a tone 2 host syllable can take a tone 2 suprafix or not in modern Cantonese. (There are no data that suggest that middle-aged and younger speakers produce and perceive a difference between an ordinary tone 2 and a suprafix tone 2 (Section 2.2.2). In the late-nineteenth century when there was such a contrast, on rare occasions, a suprafix tone 2* could be applied to a tone 2 syllable (Section 2.2.3).) In the following (modern) examples, the suprafixed forms can function as independent nouns, while the citation-tone forms cannot, except (5e) *ap8* 鴨 'duck' and (5d) *tɔi6* 袋 in the sense of 'scrotum'. The citation-tone forms can function as bound noun roots, and sometimes as independent words in other word classes.

(5)　　　　citation tone　　　　　　　　　　　　　　lexical suprafix tone 2

a.　　片 *pʰin3*　　　　　　　　　　　　　　　　片 *pʰin3-2*
　　　classifier 'slice'noun, e.g., 片面 *pʰin3 min6*　　noun 'film', 'slice'
　　　'one-sided'

b.　　房 *fɔŋ4*　　　　　　　　　　　　　　　　房 *fɔŋ4-2*
　　　classifier 'wing of family'noun, e.g., 心房　　noun 'room'
　　　sɐm1 fɔŋ4 'heart atrium'

c.　　女 *nɵy5*　　　　　　　　　　　　　　　　女 *nɵy5-2*
　　　noun, e.g., 女性 *nɵy5 sɪŋ3* 'female sex'　　noun 'daughter'

d.　　袋 *tɔi6*　　　　　　　　　　　　　　　　袋 *tɔi6-2*
　　　classifier 'bag'　　　　　　　　　　　　noun 'bag'
　　　verb 'to (put into a) bag'
　　　noun, e.g., (春)袋 *(tsʰɵ n1) tɔi6* 'scrotum'

e.　　鴨 *ap8*　　　　　　　　　　　　　　　　鴨 *ap8-2*
　　　noun, e.g., 鴨 *ap8* 'duck',　　　　　　　noun 'duck', 'male prostitute'
　　　鴨屎 *ap8 si2* 'duck faeces'

f.　　碟 *tip9*　　　　　　　　　　　　　　　　碟 *tip9-2*
　　　classifier 'plate'　　　　　　　　　　　noun 'plate', 'disc'
　　　noun, e.g.,
　　　碟頭飯 *tip9 tʰau4-2 fan6* 'rice dish'

The tone 1 suprafix is much rarer. The tone 1 suprafix can be applied to a host syllable in any tone. (Similarly, I remain agnostic as to whether a tone 1 suprafix can be added to a host syllable in tone 1/7 (high level). Examples of tone 8 taking the tone 1 suprafix cannot be found; maybe this is an accidental gap, given the rarity of the tone 1 suprafix, and the relative rarity of tone 8 syllables.) In the following examples, in citation tone, only (6d) *mei5* 尾 'tail' can function as an independent noun.

(6)　　　　citation tone　　　　　　　　　　　　　lexical suprafix tone 1

a.　　己 *kei2*　　　　　　　　　　　　　　　　自己 *tsi6kei2 ~ tsi6kei2-1*
　　　noun, e.g., 私己錢 *si1 kei2 tsʰin4-2*　　pronoun 'self'
　　　'(secret) personal money'

b.　　派 *pʰai3*　　　　　　　　　　　　　　　派 *-pʰai3 ~ -pʰai3-1*
　　　verb 'distribute', 'hand out'　　　　　'-faction,' e.g., 左派 *tsɔ2 pʰai3~1*
　　　noun 'faction,' e.g., 門派 *mun4*　　　'left faction'
　　　pʰai3 'sect'

c.　　欄 *lan4*　　　　　　　　　　　　　　　欄 *lan4-1*
　　　noun, e.g., 圍欄 *wɐi4 lan4* 'fence'　　noun 'animal pen', 'vegetable
　　　　　　　　　　　　　　　　　　　　market'

d.　　尾 *mei5*　　　　　　　　　　　　　　　尾 *-mei5-1*
　　　noun 'tail'　　　　　　　　　　　　　e.g., 第尾 *tɐi6 -mei5-1* 'final, last'

e.　　妹 *mui6*　　　　　　　　　　　　　　　妹 *-mui6-1*
　　　noun, e.g., 妹夫 *mui6 fu1* 'younger　　e.g., 泰妹 *tʰai3 -mui6-1* 'Thai girl'
　　　sister's husband'

f.　　掠 *lœk9*　　　　　　　　　　　　　　　掠水 *lœk9-1 sɵy2* 'rob money'
　　　verb, e.g., 搶掠 *tsʰœŋ2 lœk9* 'rob'

2.2. Earlier Cantonese

In modern Cantonese, the suprafix tone 2 is indistinguishable from the ordinary tone 2 (the tone 2 of syllables that inherently have a tone 2), and for the vast majority of speakers, the suprafix tone 1 is indistinguishable from the ordinary tone 1. On the other hand, in earlier Cantonese, they were different. (When there is a contrast, the suprafix versions are notated as 2*/1*, and the ordinary versions as 2/1. Nonetheless, in the past, there were rare cases where the suprafix was tone 2/1 and not tone 2*/1*; see Section 2.2.3.) Nowadays, a distinction between tones 1 and 1* can still be observed in the speech of some older speakers, but in the last forty years or so, there has been no report of speakers perceiving two different versions of tone 2.

In Section 2.2.1, we shall look at some earlier descriptions of tone 1 and tone 1*, and in Section 2.2.2, some earlier descriptions of tone 2 and tone 2* will be visited. In Section 2.2.3, we shall look at the use of the lexical suprafixes in the late-nineteenth/early-twentieth century.

2.2.1. Tone 1*

The loss of tone 1* as a distinct toneme in Standard Cantonese is rather recent. In fact, impressionistically, there are still older speakers in Canton, Hong Kong, and Macau who maintain a clear contrast between tones 1 and 1*. The following are some descriptions of tone 1 and tone 1* in the literature.

Matthews and Yip (1994, pp. 21–22; 2011, pp. 27–28) describe modern Hong Kong Cantonese tone 1 as a high-level tone. There is only one tone 1. They made a side comment that high falling is an infrequently encountered free variation of tone 1. The side comment was made in the main text in (1994) and in an endnote in (2013). This decrease in prominence impressionistically correlates with an actual decrease in the occurrence of the high-falling realisation. Tang (2015, p. 359) basically agrees that the high-falling tone has largely disappeared in the speech of younger speakers in Hong Kong, and high falling is not contrastive with high level. Nonetheless, he lists two remaining minimal pairs: noun $ts^h\varepsilon^{55}$ 車 'vehicle' vs. interjection $ts^h\varepsilon^{53}$ � (expressing disdain), and adverb sin^{55} 先 'first, prior' vs. question particle sin^{53} 先 'actually…?', e.g., $pin^{55}k\sigma^{33}\ h\theta\ y^{33}\ sin^{55}\ sin^{53}$ 邊個去先先 (who go first actually.Q) 'actually who goes first?'

Zhān et al. (2002, p. 10) mention that in Canton, tone 1 has the free variations of high level and high falling. They also mention that while high level is the norm, in some situations, tone 1 has to be pronounced as high falling. They offer the examples of verb $\int \varepsilon i^{53}$ 篩 'to sieve, to filter' vs. noun $\int \varepsilon i^{55}$ 篩 'sieve' and verb pau^{53} 包 'to include' vs. noun pau^{55} 包 'bag'.

Bauer and Benedict (1997, p. 117) mention that amongst their participants from Hong Kong, only three had a high-falling tone: one had high falling and high level as free variations, one used the high-falling tone in 'certain syntactic environments', and one used the two tones contrastively, similar to their three participants from Canton.

Samuel Hung-nin Cheung ([1972] 2007) claims that high level and high falling are free variations of one toneme (p. 5) but then shows minimal pairs (p. 6). Perhaps speakers who made the distinction, and speakers who did not, were both commonly encountered in Hong Kong in the 1970s.

Yat-Shing Cheung (1969) presents Hong Kong Cantonese as clearly distinguishing tone 1 and tone 1*. In isolation, tone 1 was high falling, and tone 1* was high level. Cheung presents tens of minimal pairs; the following are three examples:

Hong Kong Cantonese in the 1960s (Yat-Shing Cheung 1969, p. 84).

(7)		Tone 1 [^{53}] (ordinary tone)	Tone 1* [^{55}] (suprafix tone)
	a.	鞭 *pin1* 'whip' (noun/verb)	辮 *pin1** 'braid'
	b.	忠 *tʃʊŋ1* 'loyal(ty)'	鐘 *tʃʊŋ1** 'clock'
	c.	燒 *ʃiu1* 'burn'	簫 *ʃiu1** 'flute'

Other than being the realisation of suprafix tone 1*, high level could also be a sandhi tone of ordinary tone 1. The rules in Hong Kong were as follows (Yat-Shing Cheung 1969, pp. 94–95):

(8) a. ^{53} (tone 1) + ^{5} (tone 7) → ^{53} + ^{5} [no change]
e.g., $\int an^{53} + k\sigma k^5 → \int an^{53}\ k\sigma k^5$ 山谷 'mountain valley'
   b. ^{53} (tone 1) + ^{55} (tone 1*) → ^{55} + ^{55}
e.g., $\int an^{53} + l\sigma \eta^{55} → \int an^{55}\ l\sigma \eta^{55}$ 山窿 (mountain hole) 'cave'
   c. ^{53} (tone 1) + ^{53} (tone 1)
→ ^{55} + ^{55} in colloquial context, ^{53} + ^{53} in literary context
e.g., $h\alpha \eta^{53} + t\int^h yn^{53} → h\alpha \eta^{55}\ t\int^h yn^{55} \sim h\alpha \eta^{53}\ t\int^h yn^{53}$ 鄉村 'rural village'

These 1960s Hong Kong sandhi rules contrasted with those in Canton, where the first syllable became high level in all three cases (rule c: $^{53} + ^{53} \rightarrow ^{55} + ^{53}$; Yat-Shing Cheung 1969, p. 94, quoting Zōng 1964).

Tone 1* is here considered a suprafix tone, as it behaves like the modern-day tone 2 suprafix. With a modern tone 2 suprafix (high rising), (a) the resulting base is usually a noun (e.g., verb *sou3* 掃 'brush, sweep' vs. noun *kɐi1 mou4 sou3-2* 雞毛掃 (fowl hair brush\SUPR) 'feather duster'), and (b) some roots must take a tone 2 suprafix (e.g., *tsʰaŋ4-2* 橙 'orange'), some roots must not take a suprafix tone 2 (e.g., *tʰou4* 圖 'diagram'), and some roots vary, depending on the word (e.g., *ap8* 鴨 'duck' in *siu1 ap8 ~ siu1 ap8-2* 燒鴨 'roast duck' vs. *tsʰɐu2 siu2 ap8* 醜小鴨 (ugly little duck) 'ugly duckling'). The situation with the 1960s tone 1* (high level) was the same: a) the resulting base is usually a noun (e.g., adjective *hɔn4 ʃyn1* 寒酸 (cold sour) 'poverty-stricken' vs. noun *jim4 ʃyn1-1** 鹽酸 (salt sour\SUPR) 'hydrochloric acid', verb *ʃan1* 閂 'close (e.g., door)' vs. noun *mun4 ʃan1-1** 門閂 (door close\SUPR) 'door lock'), and b) some roots must take a suprafix tone 1* (e.g., *mau4-1** 貓 'cat'), some roots (in a non-sandhi environment) must not have a high-level tone (e.g., *tʰin1* 天 'sky'), and some roots vary, depending on the word (e.g., *fʊŋ1* 峯 'peak' in *kou1 + fʊŋ1 → kou⁵⁵ fʊŋ⁵⁵ ~ kou⁵³ fʊŋ⁵³* 高峯 'tall peak' (sandhi rule 8c) vs. *ʃan1 + fʊŋ1-1* → ʃan⁵³⁻⁵⁵ fʊŋ⁵⁵* 山峯 'mountain peak' (sandhi rule 8b)).

Nonetheless, Yat-Shing Cheung (1969) analyses tones 1 and 1* as two ordinary tones in Hong Kong Cantonese. Lǐ et al. (1995) have a similar stance for Canton Cantonese. While they acknowledge that tone 1* started off as a diminutive suprafix, the use of tone 1* had become so ubiquitous that people no longer had a sense that tone 1* was a derivative of tone 1, so it is better to treat them as two ordinary tones.

Shī (2004) looks at the situation with tones 1 and 1* in Ball (1883) and Ball (1912). The situation was similar. Ball (1888) (a newer edition of Ball 1883) offers minimal pairs like *shí1* 尸 'corpse' vs. *shí1** 詩 'hymn' and *tsz1* 貲 'wealth' vs. *tsz1** 資 'postage' (p. xxxiii). One difference with later descriptions is that, in Ball (1888), suprafix tone 1* syllables could only have citation tone 1, and occasionally tone 4 (see Section 2.2.3), whereas in Yat-Shing Cheung (1969), a wider range of citation tones were possible (although the citation tone was still predominantly tone 1).

There are also descriptions that describe tone 1* as an extra-high-level tone. Gāo (1980, p. 7) mentions that in Canton, tone 1 could be high falling or high level, while the high-level suprafix (tone 1*) was even higher than the normal high-level tone. Wong ([1941] 1997) also describes the suprafix tone 1* as extra-high level. (Wong was from Canton and moved to Hong Kong in the early 1950s.)

2.2.2. Tone 2*

There has been no report of speakers perceiving two different types of tone 2 in the last forty years or so. However, there have been some rather-recent reports of speakers still producing such a distinction.

Liu (2016) measures the speech of a 77-year-old native speaker 'born in the Province of Guangdong', and the length of suprafixed tone 2 syllables (i.e., tone 2 syllables with a different citation tone) were on average double that of ordinary tone 2 syllables. (In contrast, with the ten subjects aged 20 to 25 years old, the difference was minimal.) Also quoted by Liu (2016) is Yu (2007)'s study: although the subjects produced the two types of high-rising tone (tone 2) with subtle differences, they were not able to perceive the difference between the two types of high-rising tone.

Both Matthews and Yip (1994, pp. 21–22; 2011, pp. 27–28) and Bauer and Benedict (1997, p. 116) mention that there is only one high-rising tone (tone 2) in Hong Kong.

Gāo (1980, p. 7) mentions that in Canton, the high-rising suprafix tone (tone 2*) rose even higher than the ordinary high-rising tone (tone 2).

Chao (1947, pp. 34–35) describes tone 2* as having a larger rise [25] than tone 2 [35]. Bauer and Benedict (1997, p. 170) mention that Benedict (1942) came to a similar con-

clusion. They also mention Søren Egerod's personal communication with Robert Bauer, where Egerod observed this difference while learning Cantonese in Canton in 1949/1950.

Kwok (2009), in his article on the Cantonese grammatical suprafixes (a type of non-lexical suprafixes), quotes the phonetic descriptions in Ch'an Chan Sene (1900) (also quoted by Ball 1907).[4] In Chán (1900)'s description, except for the suprafix version (^{55}) of tone 1 (^{53}), the high-tone suprafix was an additive suprafix: the citation tone was pronounced, and then the pitch rose. The syllable as a whole was lengthened. (This is similar to the modern day Toishanese high-rising suprafixes; see Section 3.2.) For Cantonese, this represents an intermediate stage in which the tone merger had not yet completed.

Ball (1888, p. xxxi) describes the 'third rising tone' as 'a longer tone than the other two Rising Tones [tones 2 and 5], banning lower and ascending higher than either of them'. In other words, tone 2* was a 'dramatic' dip, something like [^{315}]. Ball (1888) provides minimal pairs like *fong2* 訪 'inquire' vs. *fong2** 房 'room' and *yöng2* 抴 'shake (e.g., cloth)' vs. *yöng2** 樣 'pattern'.

2.2.3. Suprafixes in Ball's Cantonese Textbooks

James Dyer Ball (1847–1919) was born in Canton. He grew up in Canton and spoke Canton Cantonese natively. He worked as a civil servant in Hong Kong between the 1870s and the 1900s. Ball was considered the most-knowledgable Westerner on Cantonese at the time. Amongst his many publications were descriptions of Cantonese, some other Yuè dialects (e.g., pre-Cantonesised Macau), and Hakka. (He has also published on a wide range of other topics.) The language publications include Chinese characters, Romanisations that are fully tone-marked, glossing, and translations. In this section, we will discuss some similarities and differences in the usage of suprafixes in some of Ball's Cantonese publications versus usage in modern-day Standard Cantonese.

Probably the best known amongst Ball's language publications are his *Cantonese Made Easy* textbooks; the first to third editions were published in 1883, 1888, and 1907, and a fourth edition was published posthumously (Ball 1924). In this section, we will primarily look at the second edition (Ball 1888). Also discussed in this section is *Readings in Cantonese Colloquial* (Ball 1894, fourth edition). In the data presented below, his Romanisation is used for the segments, while the tones are notated using numerals like the rest of this article.[5]

Looking at Ball (1888), host syllables with suprafix tone 1* most usually had tone 1 as the citation tone, and rarely tone 4.[6] (Kwok (2016, p. 291) makes the observation that, amongst the cases of suprafix tone 1* syllables with a non-tone-1 citation tone listed by Mài (1995, p. 267), the onset is most usually sonorant. In other words, most usually, only non-tone-1 syllables with a sonorant onset can take either suprafix tone 1* or tone 2*. Otherwise, there is usually only one choice, with tone 1/7 taking tone 1* and tones 3/8, 4, 5, and 6/9 taking tone 2*.) In Ball (1888), there were some cases where the suprafix was tone 1 (high falling) and not tone 1* (high level), e.g., *sz1 nái5-1* 師奶 'lady' and *man4-1* 蚊 'mosquito'.

With the suprafix tone 2*, the citation tone was one of the low tones—usually tone 4 or 6, sometimes tone 5, and there was one case of tone 9: *ts'ak9-2* 賊 'thief'. (This last case was so rare that Ball (1888) had a footnote about it (p. 31).) Importantly, the suprafix tone 2* did not have tone 2 as its citation tone. (With one exception: the verb *ts'ui2-2** 娶 'get wife'. This was a lexical suprafix, as *ts'ui2-2** 娶 had a suprafix in isolation and in whatever aspect-mood. That this is a verb perhaps also explains why this tone 2 could take a suprafix tone 2* unexpectedly; perhaps this was originally a non-lexical suprafix, and non-lexical suprafixes did not have this constraint.) Other than suprafix tone 2*, there were cases where the suprafix was tone 2 (see Table A4 in Appendix A). While there are discussions in the literature on tones 1* and 2* as suprafixes, there do not seem to be discussions on tones 1 and 2 being lexical suprafixes during times when tones 1/2 and 1*/2* were distinguished.

In comparison with Ball (1888), Ball (1907) sees more cases of tone 1*. The following are some examples.

(9)

			Ball (1888)	Ball (1907)
a.	師奶 'lady'		*sz1 nái4-1*	*sz1 nái4-1~1**
b.	蚊 'mosquito'		*man4-1*	*man4-1**
c.	啲 (mass classifier, comparative)		*ti1 ~ tí1*	*ti1* ~ tí1**
d.	都 ('all')		*tò1*	*tò1~1**
e.	資 'postage'		*tsz1~1**	*tsz1**
f.	艙 'cabin/hold'		*ch'ong1 ~ ts'ong1**	*ts'ong1**

(See also Shī (2004)'s study comparing tones 1 and 1* in Ball (1883) and another textbook (Ball 1912), with the same conclusion that there was an increase in tone 1*.) Yiu (2010) (which, in a sense, is a follow up of Cheung (2000)) looks at Romanised Cantonese texts in different time periods, and shows that cases of tone 1* (high level) have continuously increased, at the expense of tone 1 (high falling). In other words, tone 1 [53] has merged into tone 1* [55]. The high-falling tone [53] has now basically disappeared; at most, it is a rarely used free variation of a tone that we now call tone 1. With differences,[7] tone 2 [35] has also merged into tone 2* [25] (using Chao (1947)'s tone values), becoming what we now call tone 2 [25].

Comparing the lexical items in Ball (1888, 1894) with their modern equivalents, one can see that many words that had a lexical suprafix back in the late-nineteenth century still have a lexical suprafix nowadays. Some words have since gained a suprafix. Importantly, the opposite has also occurred: some words have lost their suprafixes, usually reverting back to their citation-tone pronunciation. The Tables 2 and 3 show the number of unique lexical items in Ball (1888, 1894) that have gained, maintained, lost, or changed lexical suprafixes in comparison with modern Cantonese. The lexical items themselves are shown in Tables A1–A6 for Ball (1888) and Tables A7–A11 for Ball (1894) in the appendix. (Some lexical items are shown in more than one table, e.g., free variations. Cases of non-lexical suprafixes are ignored. Some verbs and adjectives always carried a lexical suprafix, regardless of the grammatical environment.)

Table 2. Number of unique lexical items in Ball (1888) that have gained, maintained, lost, or changed a lexical suprafix (see Tables A1–A6 for the lexical items involved).

Items Shown in Table:	Tone in Ball (1888)	Tone in Modern Cantonese	Suprafix:	Number of Items
A1	citation tone	suprafix tone 2	gained	33
A2	suprafix tone 2*	suprafix tone 2	maintained	34
A3	suprafix tone 2*	citation tone	lost	19
A3	suprafix tone 2*	suprafix tone 1	changed	2
A4	suprafix tone 2	suprafix tone 2	maintained	2
A4	suprafix tone 2	citation tone	lost	2
A5	suprafix tone 1*	suprafix tone 1	maintained	28
A5	suprafix tone 1	suprafix tone 1	maintained	1
A6	suprafix	(word is now obsolete)	?	11

Obviously, textbooks only demonstrate a small portion of the vocabulary used during a particular time period. One cannot conclude from simply comparing the suprafixed words in old textbooks versus modern language that the number of suprafixed words overall has increased or decreased. Nonetheless, that there are more gains than losses within each textbook (here in Section 2.2.3), and the lower prevalence of lexical suprafixation in other Cantonese varieties (Section 2.3 below), strongly suggests that, on average, there has been an increase in the number of suprafixed words in Standard Cantonese.

Table 3. Number of unique lexical items in Ball (1894) that have gained, maintained, or lost a lexical suprafix (see Tables A7–A11 for the lexical items involved).

Items Shown in Table:	Tone in Ball (1894)	Tone in Modern Cantonese	Suprafix:	Number of Items
A7	citation tone	suprafix tone 2	gained	14
A8	suprafix tone 2*	suprafix tone 2	maintained	27
A9	suprafix tone 2*	citation tone	lost	6
A10	suprafix tone 2	suprafix tone 2	maintained	1
A10	suprafix tone 2	citation tone	lost	1
A11	citation tone	suprafix tone 1	gained	1
A11	suprafix tone 1*	suprafix tone 1	maintained	7
A11	suprafix tone 1*	citation tone	lost	1
A11	suprafix tone 1	suprafix tone 1	maintained	1

(As discussed in Yiu (2010, pp. 24–25), prior to Ball (1883), the earliest publications with Romanised texts of Cantonese which displayed suprafixation were Dennys (1874) and Eitel (1877). Earlier publications with Romanised texts were either not tone-marked or documented only literary language, where suprafixation either did not occur or was not recorded.)

2.3. Other Cantonese Varieties

(See Section 1.1 above for a definition of 'Cantonese'.) There is another perspective that enables us to look into the development of the lexical suprafixes in Standard Cantonese, albeit somewhat indirectly: the behaviour of the lexical suprafixes in other Cantonese varieties. There are many enclaves of Cantonese speakers outside the Canton area (e.g., de Sousa 2022). Except the Wúzhōu and Hèzhōu Cantonese enclaves, the Cantonese enclaves started developing after the First Opium War (1839–1842). The city centre of Hong Kong became Cantonese-dominant relatively early, in the last decades of the 19th century (e.g., Ball 1883). Most other cities became Cantonese-dominant later. For instance, Cantonese migrants started arriving in Tsamkong 湛江 (Zhànjiāng/Fort-Bayard) after the start of French colonisation in 1898.[8] Macau (Zhān et al. 2002, pp. 201–2) and the city centre of Nánníng (Lì 2008) did not become Cantonese-dominant until the 1940s. Canton and Hong Kong Cantonese are at the forefront of the development of lexical suprafixes; there are no reports of Cantonese varieties that have more suprafixed words than Canton and Hong Kong Cantonese. The following are quotes commenting on the lower number of suprafixed words in the Cantonese of Macau, Nánníng, and Běihǎi.

[In Macau Cantonese, in contrast to Hong Kong Cantonese:]

人们戏称，说 [ɔu³³ mun¹¹ jan¹¹] 者是真正的澳门人，说 [ɔu³³ mun³⁵ jan¹¹] 者是假冒的澳门人。不过这种差别正在缩小。

'People joke that, one who says *ou3 mun4 jɐn4* is a real Macau person, one who says *ou3 mun4-2 jɐn4* is a fake Macau person. But this type of difference is narrowing.' (Wong 2007, p. 91)

[In Nánníng Cantonese, the high-rising (tone 2) suprafix:]

使用远无广州、香港白话那么普遍，基本可以穷尽。

'The usage is far less common than in Canton and Hong Kong Cantonese, [examples of suprafixed words] can basically be exhaustively listed.' (Lín and Qín 2008, p. 90)

[In Běihǎi Cantonese, the high-level (tone 1) and high-rising (tone 2) suprafixes:]

例子很少，在我们的词汇表里，我们一共记录了七个有变调的词。

'There are very few examples, in our vocabulary list [of 2179 items], we have recorded seven items with a suprafix in total.' (Chén and Chén 2005, p. 26)

The following is a small sample of words in three varieties of Cantonese that the author has some familiarity with: (a) Nánníng Cantonese (exposure in tandem with fieldwork on Nánníng Pínghuà; data here are from Lín and Qín 2008); (b) 'Older Macau Cantonese' (the speech of the author's parents, born around the wars in the 1940s); and (c) Hong Kong Cantonese (exposure since birth). Traditionally, Nánníng and Macau Cantonese have far fewer suprafixed words than Hong Kong Cantonese. (Although Macau Cantonese is quickly 'catching up' due to the strong influence of nearby Hong Kong.) Most words in the 'Older Macau Cantonese' list below are still commonly used amongst older speakers in Macau. In comparison, the Macau-type of suprafix-less-ness is very rare in Hong Kong and Canton. The data below demonstrate some suprafixed words (nouns) in Hong Kong Cantonese, as well as their equivalents in Nánníng and Older Macau Cantonese. Nánníng and/or Macau have the same nouns in citation tone, except (10j) *hɐt7-ji4-1* 乞兒 'beggar'.

(10)	nouns:	Nánníng Canto.	Older Macau Canto.	Hong Kong Canto.
a.	繩 'string'	$ʃeŋ^{21}$ (4)	$sɪŋ^{21}$ (4)	$sɪŋ^{25}$ (4-2)
b.	鉗 'pliers'	$k^hɛm^{21}$ (4)	k^him^{21} (4)	k^him^{25} (4-2)
c.	碟 'plate'	tip^2 (9)	tip^2 (9)	tip^{25} (9-2)
d.	澳門 'Macau'	$u^{33}\ mun^{21}$ (4)	$ou^{33}\ mun^{21\sim25}$ (4 ~ 2)	$ou^{33}\ mun^{25}$ (4-2)
e.	名 'name'	$mɛŋ^{21}$ (4)	$mɛŋ^{21\sim25}$ (4 ~ 2)	$mɛŋ^{25}$ (4-2)
f.	帽 'hat'	mu^{22} (6)	mou^{22} (6)	mou^{25} (6-2)
g.	枱 'table'	$t^hɔi^{21}$ (4)	$t^hɔi^{21\sim25}$ (4 ~ 2)	$t^hɔi^{25}$ (4-2)
h.	枱布 'table cloth'	$t^hɔi^{21}$ (4) pu^{33}	$t^hɔi^{21}$ (4) pou^{33}	$t^hɔi^{25}$ (4-2) pou^{33}
i.	-話 '-speech'	$-wa^{22}$ (6)	$-wa^{25}$ (6-2)	$-wa^{25}$ (6-2)
j.	乞兒 'beggar'	$hɐt^5-ji^{55}$ (4-1)	hat^5-ji^{55} (4-1)	$hɐt^5-ji^{55}$ (4-1)
k.	乞兒仔 'little beggar'	?	hat^5-ji^{21} (4) $-tsɐi^{25}$ (beg-DIM-DIM)	$hɐt^5-ji^{55}$ (4-1) $-tsɐi^{25}$
l.	眼鏡 'eye glasses'	$ŋɛn^{24}\ kɛŋ^{33}$ (3)	$ŋan^{13}\ kɛŋ^{33}$ (3)	$ŋan^{13}\ kɛŋ^{25}$ (3-2)
m.	袋 'bag'	$tɔi^{22}$ (6)	$tɔi^{22}$ (6)	$tɔi^{25}$ (6-2)
n.	-文 '-script/-language'	$-mɐn^{21}$ (4)	$-mɐn^{21}(\sim^{25})$ (4 (~2))	$-mɐn^{(21\sim)\,25}$ ((4~) 2)

There are two probable reasons why non-standard Cantonese varieties have fewer suprafixed words than Standard Cantonese. Firstly, when comparing with the late-nineteenth century data (Section 2.2.3), in many cases, the non-standard Cantonese varieties have preserved the older citation-tone version of the words used in Canton (or the less-urban parts of the Canton area where many migrants came from). Secondly, the Sinitic languages originally spoken in these new locations, with far fewer cases of lexical suprafixes, would have helped with the preservation of the citation-tone version of the Cantonese words to some degree. Perhaps there were also cases of superfixed words reverting back to their citation-tone pronunciations in these newer Cantonese varieties, due to many people applying sound correspondence rules from their first language to Cantonese. Comparing the words in (10) with those in Ball (1888) (see Section 2.2.3 above), (a) to (d)— 繩 'string', 鉗 'pliers', 碟 'plate', and 澳門 'Macau'—did not have a suprafix in Ball (1888), while (e) to (j)—名 'name', 帽 'hat', 枱 'table', 枱布 'table cloth', -話 '-language', and 乞兒 'beggar'—did. (Examples (k) to (n)—乞兒仔 'little beggar', 眼鏡 'eye glasses', 袋 'bag', and -文 '-script'—are not found in Ball (1888).) Given that Nánníng and Macau did not become Cantonese-dominant until the 1940s (see above), this suggests that many words that have a suprafix nowadays in Canton (or the less-urban parts of the Canton area, where many of the migrants came from) did not have a suprafix as late as the 1940s or slightly prior. (On the other hand, Hong Kong's city centre became Cantonesised more than 50 years prior and always had stronger commercial contacts with Canton. This caused Canton and Hong Kong Cantonese to remain linguistically very close to each other, including having a very similar range of suprafixed words.)

That the lexical suprafixes in Hong Kong Cantonese are older than those in Older Macau Cantonese is also reflected in the morphological level where they are applied. In Hong Kong Cantonese, the lexical suprafixes are often applied at the morpheme level. For example ('>2' here indicates the step where the suprafixation of tone 2 is applied),

Hong Kong Cantonese

(11) *i.* *tʰɔi4>2* table 枱
      'table'

(12) *i.* *tʰɔi4>2* table 枱
      ii. *mat8 tʰɔi2* wipe table 抹枱
      iii. *mat8 tʰɔi2 pou3* wipe table cloth 抹枱布
      'table-cleaning cloth'

(The Standard Cantonese in Ball (1888) was similar: *tʰɔi4-2** 'table' (p. xlii), *tʰɔi4-2* pou3* 'table cloth' (p. 17). But 'on the table' could be *tʰɔi4 min2** or *tʰɔi4-2* min2** (p. 11).) On the other hand, in Older Macau Cantonese, the lexical suprafix is often applied at a later step, typically at the word level. In example (13), the tone 2 suprafix can be applied to the word *tʰɔi4* 'table' optionally. (The verb phrase 'wipe table' would be *mat8 tʰɔi4* or *mat8 tʰɔi4-2*.) In example (14), in the noun compound *mat8 tʰɔi4 pou3* 'table-cleaning cloth', the lexical suprafix did not have a chance of being applied to *tʰɔi4* 'table' at the morpheme level, and at the word level, the head *pou3* 'cloth' is not a morpheme that can take a lexical suprafix.

Older Macau Cantonese

(13) *i.* *tʰɔi4 ~ tʰɔi4>2* table 枱
      'table'

(14) *i.* *tʰɔi4* table 枱
      ii. *mat8 tʰɔi4* wipe table 抹枱
      iii. *mat8 tʰɔi4 pou3 (*>2)* wipe table cloth 抹枱布
      'table-cleaning cloth'

Similarly, in Hong Kong Cantonese, 'Macau' is usually *ou3 mun4-2* 澳門, and noun compounds containing *ou3 mun4-2* 'Macau' also have a lexical suprafix on the morpheme *mun4-2* (unless they are imitating a Macau accent), e.g., *ou3 mun4-2 tsɪŋ3 fu2* 澳門政府 'Macau government', *ou3 mun4-2 jɐt9 bou3* 澳門日報 'Macao Daily News', *ou3 mun4-2 tai6 hɔk9* 澳門大學 'Universidade de Macau', and *pʰou4-sʊk9 ou3 mun4-2* 葡屬澳門 'Portuguese Macau'. On the other hand, in Older Macau Cantonese, 'Macau' is *ou3 mun4* or *ou3 mun4-2* 澳門, but the lexical suprafix cannot apply to *ou3 mun4* 'Macau' in compounds, unless it is at the end of a compound: *ou3 mun4 tsɪŋ3 fu2* 澳門政府 'Macau government', *ou3 mun4 jɐt9 bou3* 澳門日報 'Macao Daily News', *ou3 mun4 tai6 hɔk9* 澳門大學 'Universidade de Macau', and *pʰou4-sʊk9 ou3 mun4(-2)* 葡屬澳門 'Portuguese Macau'. Examples (10j) and (10k) above demonstrate the same point, but with a tone 1 suprafix: in Hong Kong Cantonese—*hɐt1 -ji4-1* 乞兒 (beg -DIM\SUPR) 'beggar' and *hɐt1 -ji4-1 -tsɐi2* 乞兒仔 (beg -DIM\SUPR -DIM) 'little beggar'; in Older Macau Cantonese—*hat1 -ji4-1* 乞兒 (beg -DIM\SUPR) 'beggar' and *hat1 -ji4 -tsɐi2* 乞兒仔 (beg -DIM -DIM) 'little beggar'.

Looking back at Wong (2007)'s quote above, which says that one who says *ou3mun4 jɐn4* (Macau person) is a real Macau person and one who says *ou3mun4-2 jɐn4* (Macau\SUPR person) is a 'fake' Macau person, this indeed used to be the case. Nevertheless, the Hong Kong-type suprafix patterns are becoming more and more common in Macau these days. For instance, my impressionistic observation as a native speaker is that *ou3mun4-2 jɐn4* is more common than *ou3mun4 jɐn4* in Macau these days.

Lastly, one interesting fact is that there are a few words that are suprafixed in Nánníng Cantonese but not in Standard Cantonese. In other words, the non-standard Cantonese varieties do not always follow the lead of Standard Cantonese in terms of suprafixation. Examples of this are Nánníng Cantonese *pu³⁵ ly²⁴⁻⁵⁵* 堡壘 'fortress' and *ʃaŋ³³ ŋaŋ²²⁻³⁵* 生硬 'stiff, unnatural' (Lín and Qín (2008), p. 90); the tones in 壘 *ly⁵⁵*, 生 *ʃaŋ³³* and 硬 *ŋaŋ³⁵* are probably influenced by the cognates in Old Nánníng Mandarin, a type of Southwestern Mandarin), versus Standard Cantonese *pou²⁵ lɵ y¹³* 堡壘 'fortress' and *saŋ⁵⁵ ŋaŋ²²* 生硬 'still, unnatural'. These examples further exemplify the fact that the suprafixes in some words do not have a very long history (Sections 2.2.3, 2.3 and 2.4), given the short time of divergence between Canton Cantonese and Nánníng Cantonese.

2.4. Interim Summary

In Section 2.1, some properties of the lexical suprafixes in modern Standard Cantonese—the tone 2 suprafix [25] and the rarer tone 1 suprafix [55]—are discussed. There is no difference between the suprafix tones 2/1 and the ordinary tones 2/1, respectively. In Section 2.2.1, the distinction between ordinary tone 1 [53] and suprafix tone 1* [55] in earlier Cantonese is discussed. In Section 2.2.2, the earlier distinction between ordinary tone 2 [35] and suprafix tone 2* ([25] in the 1940s and [315] in the 1900s) is discussed. In Section 2.2.3, we look at the use of lexical suprafixes in some late-nineteenth century Cantonese textbooks. Many suprafixed words back then have remained suprafixed in modern Standard Cantonese. Some non-suprafixed words have since gained a suprafix, and some suprafixed words reverted back to their citation-tone pronunciation in modern Cantonese. Section 2.3 discusses how non-standard Cantonese varieties like Nánníng Cantonese and Older Macau Cantonese have far fewer suprafixed words than the Standard Cantonese in Canton and Hong Kong. The facts demonstrated in Sections 2.2 and 2.3 strongly suggest that Canton and Hong Kong Cantonese had considerably fewer suprafixed words one century ago.

The Cantonese lexical suprafixes probably came from diminutives (Section 3). Maybe the Cantonese lexical suprafixes developed independently within Cantonese, or maybe they have the same origin as the diminutives in some other Sinitic varieties—for instance, the rhotacisation (*ér-huà* 兒化) in Northern Mandarin. It is beyond the scope of this article to address this question properly. Obviously, this is an important research topic. If one were to pursue this line of inquiry (e.g., Simmons Forthcoming), one needs to compare the range of suprafixed words in Cantonese with the range of suprafixed and/or diminutive words in other Sinitic varieties. However, as we have seen above, the suprafixes in many words in modern Cantonese do not have a long history, and words can gain or lose suprafixes rather quickly. If suitable historical material is available, it would be more useful to look at the range of suprafixed/diminutive words in earlier periods of a speech variety. It would also be useful to look into the range of words in which the suprafixation/diminutivisation is more stable and compare these across Sinitic varieties. (This would be particularly difficult for suprafixation, as suprafixation is rarely reflected in Chinese script, and not many Sinitic varieties have tone-marked written records that are 'pre-modern'.)

3. Lexical Suprafixes and Diminutives in Yuè and Pínghuà Dialects

3.1. Yuè and Pínghuà Diminutives

We note in Section 2.2.2 that tone 2* in Cantonese was a long dipping tone in the late-nineteenth century/early-twentieth century. The citation tone of a lexical suprafix tone 2* syllable was most usually a low tone (tone 4 [21], 5 [13], 6 [22], or 9 [2]). With tone 1*, we know that at least the suprafixed version of tone 7 [5] had to be long (see endnote 6). The extra length and high pitch at the end of a suprafixed syllable suggest that such syllables were originally two syllables, made up of a host syllable in citation tone followed by a suffix syllable in high tone. The segments of the suffix disappeared, leaving a high tone at the end of a compensatory-lengthened host syllable. Given the diminutive-type meaning that Cantonese lexical suprafixes sometimes have, most theories hypothesise that the high-toned suffix was a diminutive suffix (e.g., Chen 1999; Chén 2002), with most hypothesising that this was a high-tone version of Middle Chinese $ɲe^A$ 兒 (Cantonese ji4, Mandarin ér, e.g., Whitaker 1955–1956; Chao 1959; Mài 1995; Wang 1995; Zhōu 2002, pp. 154–71; Kao 2007; Kwok 2016). The morpheme 兒 (Old Chinese *$ŋe$, Middle Chinese $ɲe^A$)[9] originally meant 'male child' and then later broadened to 'child'. Looking at the reflexes in Yuè and Pínghuà dialects, the lexical word 兒 can be reconstructed as *ni^A. In the discussions below, when the tone is immaterial, this morpheme is referred to as '*ni 兒'. When 兒 in citation tone (tone A) is referred to, this is rendered '*ni^A 兒'. When it has a high-tone suprafix (usually high level or high falling), this is rendered '*ni^H 兒'.

The various versions of the *ni 兒 theory hinge on the behaviour of the diminutives in the western Yuè dialects. Standard Cantonese is spoken close to the eastern edge of the

Yuè-speaking territory. In Standard Cantonese, there are many cases of lexical suprafixa-tion, and the default diminutive suffix is **tsVj* 仔 (see below). The old **ni^H* 兒 suffix is only found in some fossilised expressions. As one heads towards the west, starting from approx-imately Guǎngxī and southwestern Guǎngdōng (Màomíng and Zhànjiāng Prefectures), **ni* 兒 becomes the dominant diminutive suffix. Below, we will base our discussions on Kwok (2016)'s cline of grammaticalisation from **ni^H* 兒 to the Cantonese lexical suprafixes. (Ob-viously I do not cover everything mentioned in Kwok (2016); the reader is encouraged to read Kwok (2016). Kwok (2016) surveys nineteen varieties of Yuè, and their **ni^H* 兒 suffixes always occur with a high-tone suprafix. I expanded the search westward and found some Yuè dialects further to the west, and many Pínghuà dialects, with an unsuprafixed **ni^A* 兒 diminutive suffix (in their citation tone, Lower tone A). The Pínghuà dialects, as defined by the *Language Atlas of China* (Wurm and Li 1987; Zhāng et al. 2012), are basically west-ern continuations of the Pearl-River Yuè dialect chain. Ignoring the Cantonese enclaves in Guǎngxī and western Guǎngdōng (which are relatively recent transplants from the Canton area), as one travels west from the heart of the Pearl River Delta, Cantonese/Guǎngfǔ Yuè gradually becomes Gōulòu Yuè in Guǎngdōng and Guǎngxī, and Gōulòu Yuè in Guǎngxī gradually becomes Southern Pínghuà. (On the other hand, 'Northern Pínghuà' presents other complications, but this is not something we need to elaborate here. See, e.g., (de Sousa Forthcoming). In this article, only data from the core 'undisputed' Northern Pínghuà dialects are presented.) My proposal of a small extension to Kwok (2016)'s theory is that these unsuprafixed **ni^A* 兒 diminutives represent one step prior to Kwok (2016)'s gram-maticalisation cline, which begins with the suprafixed **ni^H* 兒 diminutives.

There are three diminutive suffixes that are commonly found amongst Yuè dialects (e.g., Wang 1995; Kao 2007) and Pínghuà dialects. They all grammaticalised from words that meant something like 'child'. 'Child' is a very common source of diminutives (e.g., Jurafsky 1996; Heine and Kuteva 2002, pp. 65–67). The first suffix is the **ni^{A/H}* 兒 '(male) child' suffix introduced above. This diminutive suffix is only found in very few fossilised expressions in Standard Cantonese in the east, but **ni^{A/H}* 兒 diminutives are still very com-monly used amongst the western Yuè and Pínghuà dialects in the west. The second suffix is 仔 'child' (maybe etymologically the same as 崽 'young animal', Middle Chinese *sɛ(y)^A*). Looking at the reflexes in Yuè dialects, the proto-form of 仔 in Yuè would be something like **tsaj^B* (e.g., Cantonese *tsɐi^{25}*) or **tsoj^B* (e.g., Toishanese *tʰɔi^{55}*). The **tsVj^B* 仔 suffix is a newer eastern innovation, and it is now the dominant diminutive suffix in the east (e.g., Zhān et al. 2002, pp. 183–84). Nonetheless, due to the strong influence of Cantonese, the **tsVj^B* 仔 suffix is also borrowed into a great number of Yuè and Pínghuà dialects in the west (coexisting with the older **ni^{A/H}* 兒 suffix). The third suffix is 子 'child' (Old Chinese **tsəʔ*, Middle Chinese *tsi^B*). As a suffix, **tsi^B* 子 is rarely used in Standard Cantonese. There are Yuè and Pínghuà dialects where the **tsi^B* 子 suffix is commonly used, e.g., Yángjiāng Yuè (Kao 2007, p. 238; Zhān et al. 2002, p. 210), Běihǎi Cantonese (Chén and Chén 2005, pp. 390–91), and Nánníng Pínghuà (de Sousa Forthcoming). However, there is no obvi-ous geographical pattern for where the **tsi^B* 子 suffix is more prevalent amongst Yuè and Pínghuà dialects. (Except in some cases where the **tsi^B* 子 suffix is an obvious Hakka in-fluence, e.g., the Yuè dialects around Wúchuān and Huàzhōu (Kwok 2016, p. 285).) The discussions below mostly revolve around **ni* 兒, while **tsVj^B* 仔 is also discussed to a small degree. The **tsi^B* 子 suffix is only discussed briefly towards the end of Section 3.3.

3.2. The **ni^A* and **ni^H* Diminutives

In the west, many Pínghuà dialects have a diminutive suffix **ni^A* 兒 in its citation tone, Lower tone A (*yáng píng*, i.e., Cantonese tone 4, normal cases of Mandarin tone 2). This also occurs in some extreme-western Yuè dialects. (Middle Chinese tones A, B, C and D have usually developed an 'Upper' (*yīn*) and a 'Lower' (*yáng*) variant, which may or may not become phonemicised in the modern Sinitic languages. Usually the Upper tones occur with syllables with a voiceless onset in Middle Chinese, and Lower tones occur with a voiced onset in Middle Chinese.) The norm amongst Pínghuà and Yuè dialects is that all

their Lower tones are lower in pitch than their Upper counterparts, i.e., the tone in the *ɲi⁴* 兒 suffix is relatively low in pitch. Table 4 shows some Pínghuà and Yuè dialects with a citation-tone *ɲi⁴* 兒 diminutive suffix.

Table 4. Examples of Pínghuà and Yuè dialects with a diminutive suffix *ɲi⁴* 兒.

Dialect Group	Locality/Name of Dialect	Form of Suffix	Tone Category
Pínghuà, Northern	臨桂五通 Línguì Wǔtōng	兒 -ɲi³¹	Lower tone A
Pínghuà, Northern	永福桃城 Yǒngfú Táochéng	兒 -ɲi²³	Lower tone A
Yuè, Gōulòu	平樂本地話 Pínglè 'Běndìhuà'	兒 -ɲi³¹	Lower tone A
Yuè, Gōulòu	鍾山本地話 Zhōngshān 'Běndìhuà'	兒 -ɲi²³	Lower tone A
Pínghuà, Southern	三江六甲話Sānjiāng 'Liùjiǎhuà'	兒 -ɲi³¹	Lower tone A
Pínghuà, Southern	宜州得勝 Yízhōu Déshèng	兒 -ŋi³¹	Lower tone A
Pínghuà, Southern	百色那畢 Bǎisè Nàbì	兒 -ɲi³¹	Lower tone A
Pínghuà, Southern	崇左江州 Chóngzuǒ Jiāngzhōu	兒 -ɲi³²	Lower tone A
Pínghuà, Southern	崇左新和 Chóngzuǒ Xīnhé	兒 -ɲi²¹	Lower tone A
Yuè, Qīnlián	合浦(廉州) Hépǔ (Liánzhōu)	兒 -ŋi⁴⁴	Lower tone A

Some comments are needed for the Yuè varieties. As argued convincingly by Qín (2019), the Běndìhuà 本地話 'local language' varieties in places like Pínglè and Zhōngshān in Guǎngxī are Gōulòu Yuè varieties that are recently Mandarinised, and not Northern Pínghuà as per the *Language Atlas of China*. In Hépǔ (Liánzhōu), the Lower tone A [⁴⁴] sounds rather high, but it is already lower than the Upper tone A [⁴⁵].

The localities listed in Table 4 above are relatively peripheral (north, west, and south) in Guǎngxī. In mid-southern Guǎngxī, there are speech varieties like Nánníng Pínghuà (spoken in the suburbs of Nánníng, the capital of Guǎngxī) and Héngzhōu Cantonese (spoken in the city centre of Héngzhōu) where one finds a *ɲi⁴* 兒 suffix in its citation tone, Lower tone A, and also a *ɲiᴴ* 兒 suffix in a high-tone suprafix. These are shown in Table 5.

Table 5. Examples of Pínghuà and Yuè dialects with diminutive suffixes *ɲi⁴* 兒 and *ɲiᴴ* 兒.

Dialect Group	Locality/Lect Name	Form of Suffix	Tone Category
Pínghuà, Southern	南寧位子磟 Nánníng Wèizǐlù	兒 -ɲi²¹	Lower tone A
		兒 -ɲi²¹⁻⁵³	Upper tone A
Yuè, Yōngxún	橫洲白話 Héngzhōu Cantonese	兒 -ɲi²³²	Lower tone A
		兒 -ɲi²³²⁻⁵⁵	Upper tone A

Why would a diminutive suffix develop a high-tone pronunciation? One observation that is relevant is that diminutive affixes are especially susceptible to developing a high-tone pronunciation (e.g., Nichols 1971; Zhū 2004). This is perhaps due to the iconicity link between high pitch and smallness (e.g., Ultan 1978; Perlman and Cain 2014). One related point of discussion is that suprafixes are normally understood as having developed from the tone of an affix that has its segments deleted (e.g., Chappell 2023). On the other hand, at least in a speech variety with both *-ɲi⁴* and *-ɲiᴴ* diminutives, the *-ɲiᴴ* suffix can be analysed as *-ɲi⁴* plus a suprafix H. There is no evidence that this suprafix H came from another suffix. This would be a non-typical case of a suprafix not having developed from a segmental affix.

In Nánníng Wèizǐlù Pínghuà, whether a diminutive suffix can be used or not, and which diminutive suffix is used with what noun, are not quite predictable. Some nouns are compatible with more than one diminutive suffix (free variation). The citation tone *-ɲi²¹* 兒 is more commonly used with animal nouns, e.g., *kɐi⁵³ -ɲi²¹* 雞兒 (fowl -ᴅɪᴍ) 'chick' and *jøŋ²¹ -ɲi²¹* 羊兒 (goat -ᴅɪᴍ) 'kid', but some inanimate nouns can also take *-ɲi²¹* 兒, e.g., *tʃʰɛ⁵³ -ɲi²¹* 車兒 (car -ᴅɪᴍ) 'little car' and *tau⁵³ -ɲi²¹* 刀兒 (knife -ᴅɪᴍ) 'little knife'. The suprafixed *-ɲi²¹⁻⁵³* 兒 is primarily used with inanimate nouns, e.g., *tʃʰɛ⁵³ -ɲi²¹⁻⁵³* 車兒 (car -ᴅɪᴍ\ꜱᴜᴘʀ) 'little car', *ʋk³ -ɲi²¹⁻⁵³* 屋兒 (house -ᴅɪᴍ\ꜱᴜᴘʀ) 'little house', and *tʃʰɛŋ⁵³ -ɲi⁵³* 鐺兒

(wok -DIM\SUPR) 'little wok', but *-ɲi²¹⁻⁵³* 兒 can also be used with some animal nouns, e.g., *kɐu³³ -ɲi²¹⁻⁵³* 狗兒 (dog -DIM\SUPR) 'puppy' (although *kɐu³³ -ɲi²¹* 狗兒 (dog -DIM) 'puppy' is more common). There is also a newer diminutive suffix, *-tʃai³³* 仔, inspired by Nánníng Cantonese *-tʃɐi³⁵* 仔, e.g., Nánníng Wèizǐlù Pínghuà *kɐi⁵³ -tʃai³³* 雞仔 (fowl -DIM) 'chick', *tʃɵi⁵³ -tʃai³³* 豬仔 (pig -DIM) 'piglet', *tau⁵³ -tʃai³³* 刀仔 (knife -DIM) 'little knife', and *un³³ -tʃai³³* 碗仔 (bowl -DIM) 'little bowl'.

Nánníng Wèizǐlù Pínghuà also has some cases of suprafixes being applied directly on roots. The suprafix is usually a high-falling tone (Upper tone A, like that in the *-ɲi²¹⁻⁵³* 兒 suffix), e.g., *mɐn²¹⁻⁵³* 文 'Yuán' (cf. Cantonese *mɐn²¹⁻⁵⁵* 文 'Yuán/dollar') and *lau¹³ nɛŋ²¹⁻⁵³* 老娘 (old lady \SUPR) 'mother'. There are also rare cases of a high-level suprafix (unaspirated Upper tone C), e.g., *hɵi²¹ nɛŋ²¹⁻⁵⁵* 姨娘 (aunt lady\SUPR) 'mother's younger sister' and *nai¹³⁻⁵⁵ nai¹³⁻⁵⁵* 奶奶 'paternal grandmother' (inspired by Old Nánníng Mandarin *nai³⁵ nai³⁵* 奶奶 'paternal grandmother'), and a high-rising suprafix (aspirated Upper tone C) in Cantonese loanwords (phonetically the same as the Cantonese Upper tone B/tone 2 suprafix), e.g., *jɛ²¹ jɛ²¹⁻³⁵* 爺爺 'paternal grandfather'. (See de Sousa Forthcoming, for further discussions on the suprafixes and diminutive suffixes in Nánníng Wèizǐlù Pínghuà).

East of Nánníng are Pínghuà and Yuè dialects that have a suprafixed **ɲiᴴ* 兒 suffix but no citation tone **ɲi⁴* 兒 suffix. (The citation-tone pronunciation of **ɲi⁴* 兒 is still found in literary lexical words in these dialects, e.g., Cantonese *ji²¹ tʰʊŋ²¹* 兒童 'juvenile'.) Also belonging to this type is Hèzhōu Guìlǐng Yuè in the northeastern corner of Guǎngxī (near the tripoint with Guǎngdōng and Húnán). Examples of these are shown in Table 6. This step is where Kwok (2016)'s cline of grammaticalisation begins.

Table 6. Examples of Pínghuà and Yuè dialects with a diminutive suffix **ɲiᴴ* 兒.

Dialect Group	Locality/Lect Name	Form of Suffix	Tone Category
Yuè, Gōulòu	賀州桂嶺 Hèzhōu Guìlǐng	兒 *-ŋi⁵²*	Upper tone A
Pínghuà, Southern	賓陽新橋 Bīnyáng Xīnqiáo	兒 *-ŋi⁵⁵*	Upper tone C
Pínghuà, Southern	橫洲嶺鵋 Héngzhōu Lǐngliáo	兒 *-ji²⁴*	Upper tone A
Yuè, Gōulòu	貴港 Guìgǎng	兒 *-ŋi⁵⁵ ~ -ɲi⁵⁵*	Upper tone A
Yuè, Yōngxún	桂平白話 Guìpíng Cantonese	兒 *-ŋi⁵⁵*	Upper tone A

According to the **ɲi* 兒 theory, the idea of having a high-tone suprafix has to develop in the **ɲiᴴ* 兒 diminutive suffix first. After the step of having a **ɲiᴴ* 兒 diminutive suffix, there are two main types of development: 'nasal rise' and applying a suprafix directly on the root. Nasal rise involves cases where the segments of **ɲiᴴ* 兒 are eroded to only a nasal segment or a nasal feature, which is then attached to the host syllable, and the host syllable has some sort of rising tone. Examples of nasal rise can be found in southwestern Guǎngdōng and neighbouring southeastern Guǎngxī. For instance, in Màomíng 茂名 Yuè (Guǎngdōng), there are some nouns that freely alternate between a **ɲiᴴ* 兒 suffix and a nasal rise, e.g., *ʃiak² -ɲi⁵⁵* 勺兒 ~ *ʃiaŋ↗* 'little spoon' (Shào and Gān 2007, p. 21). (↗ signifies an extra-high rise; it rises to above the pitch of a normal high-level tone, often falsetto.) The case in nearby Xìnyí 信宜 Yuè is oft-quoted: a. zero-coda syllables add *-n* and an ↗ suprafix; b. plosive-coda syllables add [+nasal] to the coda and an ↗ suprafix; and c. nasal-coda syllables and glide-coda syllables (*-j -w*, here rendered *-i -u* as per the norm in Chinese linguistics) add only an ↗ suprafix (c. is not nasal rising).

Xìnyí Yuè (Shào and Gān 2007, p. 21)

(15)

	citation form	diminutive	
a*i*.	$t\!f^h\!\alpha^{23}$	$t\!f^h\!\alpha n \nearrow$	坐 'sit'
a*ii*.	$t\!f y^{53}$	$t\!f y n \nearrow$	豬 'pig'
a*iii*.	ku^{53}	$kun \nearrow$	姑 'aunt'
b*i*.	ap^3	$am \nearrow$	鴨 'duck'
b*ii*.	fut^3	$fun \nearrow$	闊 'wide'
b*iii*.	$kiak^3$	$kia\eta \nearrow$	腳 'foot/leg'
c*i*.	$p^h i\varepsilon n^{33}$	$p^h i\varepsilon n \nearrow$	片 'slice'
c*ii*.	pui^{53}	$pui \nearrow$	杯 'cup'
c*iii*.	$t^h v u^{23}$	$t^h v u \nearrow$	頭 'head'

Xìnyí Yuè also has other diminutives—for instance, a *-ɲi⁵³* 兒 suffix for animal newborns, e.g., $t\!f y^{53}$ *-ɲi⁵³* 豬兒 'newborn piglet'. (There is also $t\!f y^{53}$ *-ɲin* $\nearrow$ (pig -DIM\DIM) 'tiny weeny newborn piglet'.)

A preceding step can be shown in some words in nearby Huàzhōu Liángguāng 化州良光 Yuè. There, the **ɲiᴴ* 兒 suffix is usually still a separate syllable, but in the form of a syllabic nasal *-ŋ²³⁻⁵³*. The coda of the preceding syllable is then nasal-assimilated, and the tone of that syllable becomes high rising or high level, e.g., dit^2 *-ŋ²³⁻⁵³* → $di\eta^{35}$ *-ŋ²³⁻⁵³* 碟兒 'little plate' (Kwok 2016, p. 300; see also Lǐ 2014). Presumably, Xìnyí Yuè experienced something similar, and the suffix was later deleted.

The rules of nasal rising are slightly different in the various Yuè varieties in this southwestern Guǎngdōng/southeastern Guǎngxī region. For instance, the rules in nearby Róng County 容縣 (Róngxiàn; Guǎngxī) Yuè is similar to those in Xìnyí Yuè, except that a nasal segment is not added to vowel-ending host syllables (Zhōu 1987). In Yùlín 玉林 (Guǎngxī) Yuè, the situation with their nasal rising and suprafixes (and also tone sandhi) are rather complicated (see Zhōu 2002, pp. 148–54).

It seems that the Yuè dialects that have nasal rising also have cases where they apply suprafixes directly on the root (e.g., (15c) above for Xìnyí Yuè). However, having suprafixes on roots does not infer having nasal rising. To the east of the nasal-rising area, the **ɲiᴴ* 兒 diminutive is only found in some fossilised expressions,[10] and the **tsVjᴮ* 仔 diminutive dominates.

Suprafixes can be applied on lexical roots in the vast majority of Yuè dialects, although in many of these dialects, suprafixes are only used sparingly. For instance, to the east of the nasal-rising area, Zhān et al. (2002, pp. 179–80, 98) mention that lexical suprafixes are not used very often in the following Yuè dialects in mid-western and central Guǎngdōng: Luódìng 羅定, Yúnfú 雲浮, Xīnxīng 新興, Guǎngníng 廣寧, Sìhuì 四會, and Zhōngshān 中山. Standard Cantonese in the east peaks in the prevalence of lexical suprafixation.

There are some scholars, e.g., Wáng (2005, p. 177) and Chén (2007), who argue that the grammaticalisation pathway is **ɲiᴴ* 兒 → nasal rising → suprafix directly on the root. On the other hand, Kwok (2016, pp. 305–6) argues that the two latter steps are independent of each other, i.e., X-*ɲiᴴ* can develop into X$_N$ $\nearrow$, and X-*ɲiᴴ* can develop directly into X $\nearrow$ or X^H. Nasal rising cannot be a prerequisite of suprafixing directly on the root in Yuè dialects because the regular deletion of a nasal coda, or denasalisation of another sort, is exceedingly rare amongst Yuè dialects. In other words, if X$_N$ $\nearrow$ has developed, in the vast majority of Yuè dialects, there are no general sound change rules that delete the nasal coda in a X$_N$ $\nearrow$ syllable to become X $\nearrow$ or denasalise a X$_N$ $\nearrow$ syllable to become X$_T$ $\nearrow$.

Amongst the nineteen Yuè varieties surveyed by Kwok (2016), lexical suprafixation is found in nearly all of them (albeit lexical suprafixation is rare in some varieties). From a phonetic point of view, the lexical suprafixes can be divided into two types. (Some dialects have one, and some, like Cantonese, have both.) One type is the high-level or high-falling suprafixes. It is the same high-level or high-falling tone that the suprafixed **ɲiᴴ* 兒 diminutive suffix has, and no Yuè dialect is found to have both a high-level and a high-falling suprafix (see also Section 3.3). The segments of the diminutive suffix were deleted, and its tone replaces that of the preceding host syllable. Another type is the high-rising suprafix. The situation in Toishanese (Táishān Yuè) probably shows how the substitutive

high-rising suprafixes in the other Yuè dialects were developed. Toishanese has additive suprafixes: the citation tone of the host syllable is pronounced, and then the tone rises to a high end point. The high pitch at the end is the tone of what used to be a diminutive suffix. Toishanese has the rise and dip-rise suprafixes of [35], [25], [115] and [315]; these are the suprafixed versions of the four tonemes [33], [22], [11] and [31] (the remaining fifth toneme, [55], cannot take a high suprafix; Kwok 2016, p. 289, quoting Gān 2010). Chán (1900) also describes similar additive suprafixes in earlier Cantonese. Presumably, other Yuè dialects with high-rising suprafixes have gone through the same path, and they have later simplified the rising suprafixes into one or two rising contours.

3.3. Possible Origins of the Cantonese Lexical Suprafixes

Amongst the theories on the origin of the Cantonese lexical suprafixes,[11] the most-common theory is that they developed from a $*ni$ 兒 diminutive suffix (e.g., Whitaker 1955–1956; Chao 1959; Mài 1995; Wang 1995; Zhōu 2002, pp. 154–71; Kao 2007; Kwok 2016). It seems that none of the studies on the Yuè diminutives and suprafixes extended their investigation to include the Pínghuà dialects. Here, the Pínghuà dialects are included, as Pínghuà, Gōulòu Yuè, and Guǎngfǔ Yuè (including Standard Cantonese) lie on the same dialect continuum. In fact, the majority opinion amongst Chinese dialectologists these days is that at least Southern Pínghuà is part of the Yuè dialect group (e.g., Qín 2000; Xiè 2007; Hóu 2015; Liú 2015; see also de Sousa Forthcoming). With additional data from Pínghuà and some western Yuè dialects, Kwok (2016)'s cline of grammaticalisation, and other characterisations of the diminutives and suprafixes in Yuè, are still mostly valid. One small difference with Kwok (2016), as shown in Section 3.2, is that a preceding step of having an unsuprafixed $*ni^4$ 兒 diminutive suffix is proposed here (Kwok (2016)'s grammaticalisation cline starts with a suprafixed $*ni^H$ 兒). The following two of Kwok (2016)'s characterisations for Yuè dialects also largely hold: (a) a speech variety can have a high-level or a high-falling suprafix, but not both, and (b) the high-level or high-falling suprafix that can be used on roots is the same as the high-level or high-falling suprafix that is used on the $*ni^H$ 兒 diminutive suffix. As discussed in Section 3.2, Nánníng Wèizǐlù Pínghuà has both a high-falling and a high-level suprafix. Nonetheless, to be fair, the high-level suprafix is rare, and the more commonly used high-falling suprafix is indeed the same as that in the $-ni^{21-53}$ 兒 diminutive suffix. Given that the vast majority of Pínghuà speakers live in places where they are the minority, and the much higher linguistic diversity in Guǎngxī (than e.g., Guǎngdōng), the language contact situation that Pínghuà dialects face are on average much more complex than that faced by Yuè dialects. That Nánníng Wèizǐlù Pínghuà has a high-level suprafix (in addition to the expected high-falling suprafix) could be due to the influences from the other Nánníng languages, especially Nánníng Cantonese (see de Sousa 2015 on the language contact situation in Nánníng).

The theory here that the unsuprafixed $*ni^4$ 兒 suffix develops into the suprafixed $*ni^H$ 兒 suffix faces one slight problem. This theory predicts that speech varieties that have not developed a suprafixed $*ni^H$ 兒 suffix would not have developed lexical suprafixes that can be used directly on the root (i.e., the $*ni^H$ 兒 step would be skipped). There are indeed counterexamples. For instance, in the Southern Pínghuà of Chóngzuǒ Jiāngzhōu, there are a few cases of human nouns having a high-level suprafix that expresses affection (Lǐ and Zhū 2009, p. 16). In nearby Chóngzuǒ Xīnhé (Liáng and Lín 2009, pp. 152–53), one finds examples of a suprafixed $tʃɛk^{3-35}$ or $tʃʰɛk^{3-35}$ 雀 'bird' in, e.g., $tʃʰɛk^{3-35}$ $-ɲi^{21}$ $tɐu^{35}$ 雀兒竇 (bird\SUPR -DIM nest) 'bird nest', and ma^{31} $tʃɛk^{3-35}$ 麻雀 'sparrow' (cf. the citation-tone pronunciation in $kʰoŋ^{33}$ $tʃʰɛk^3$ 孔雀 'peacock'). Nonetheless, it is true that these speech varieties, which have not developed a suprafix in the $*ni^4$ 兒 suffix, are very poor in lexical suprafixation in general (based on data seen so far). Speakers of Chóngzuǒ Pínghuà would have come across the suprafixes in the Cantonese and Zhuàng varieties spoken in Chóngzuǒ. The (limited amount of) lexical suprafixes in Chóngzuǒ Pínghuà could easily be a contact-induced phenomenon. In addition, the Chóngzuǒ Pínghuà varieties are in contact with other Pínghuà varieties spoken along the Left River, all the way downriver

to at least the western suburbs of Nánníng, where their ancestors came from. (In Nánníng Wèizǐlù Pínghuà, similarly, there are the suprafixed *tʃɛk³⁻⁵ -ɲi²¹* 雀兒 (bird -ᴅɪᴍ) 'little bird' and *ma²¹ tʃɛk³⁻⁵* 麻雀 'sparrow', and the unsuprafixed *kʰʊŋ³³ tʃʰɛk³* 孔雀 'peacock'.) Kwok (2016)'s arguments for the Yuè dialects are still largely applicable to the Pínghuà dialects.

Countering the common theory that the Cantonese lexical suprafixes came from an earlier *ɲiᴴ* 兒 diminutive suffix, Shào Huìjūn (e.g., 2005; Shào and Gān 2007) argues that the Cantonese lexical suprafixes are not related to the **ɲiᴴ* 兒 diminutives and nasal rising found in the western Yuè dialects. Her first main argument is that, if the Cantonese lexical suprafixes came from a **ɲiᴴ* 兒 suffix, one would see a gradual decrease in the use of **ɲiᴴ* 兒 diminutives as one heads east from Guǎngxī and southwestern Guǎngdōng. However, east of the **ɲiᴴ* 兒/nasal-rising area in Guǎngxī and southwestern Guǎngdōng, there is a sudden disappearance of a productive *ɲiᴴ* 兒 suffix. Her second main argument is that the range of suprafixed words in Standard Cantonese does not match well with those in the Yuè dialects in southwestern Guǎngdōng (in which Shào is an expert).

Both of these are facts that need to be addressed. Shào's first point perhaps simply reflects the fact that the influence of Cantonese is extraordinarily strong. The eastern Yuè dialects have developed a newer diminutive suffix, **tsVjᴮ* 仔, e.g., Cantonese *tsɐi²⁵*. Theoretically, the influence from the heart of the Pearl River Delta is so strong that **tsVjᴮ* 仔 has become the dominant diminutive suffix in most Guǎngdōng Yuè dialects, causing the obsolescence of the earlier *ɲiᴴ* 兒 suffix in these dialects. Hence, one sees a large area without a productive *ɲiᴴ* 兒 suffix. As for Shào's second point, while having highly similar ranges of suprafixed words can indicate a high level of relatedness (e.g., Canton and Hong Kong Cantonese), not having similar ranges of suprafixed words cannot be used to demonstrate non-relatedness, cf. the case of Hong Kong and Macau Cantonese demonstrated in Section 2.3. Canton, Hong Kong, and Macau Cantonese are highly similar to each other. One cannot draw meaningful conclusions on the level of (un)relatedness from just the differences in the modern range of suprafixed words, as both the gaining and losing of suprafix can happen rather quickly.

Nonetheless, there are reasons to be skeptical like Shào. There is no *a priori* reason why the eastern Yuè dialects must have gone through the same grammaticalisation pathway as the western Yuè dialects. Also, it is indeed hard to prove that the eastern Yuè dialects had an earlier stage when the *ɲiᴴ* 兒 suffix was prevalent. Looking at older Romanised Cantonese texts like Ball (1888) (Section 2.2.3), with non-lexical suprafixes, we know which grammatical morpheme a high-rising suprafix alternated with. For instance, it was clearly stated (p. 15) that the non-lexical suprafix in *ká2** 'married' (woman getting a husband) was in free variation with the perfective marker *cho2* in *ká3 cho2* 嫁咗 'married'. On the other hand, with lexical suprafixes, while we know that suprafix tone 2* was a long tone, and the extra length must have come from a suffix, there is no evidence of what the identity of this suffix was.

There are two other diminutive suffixes that are commonly found amongst Yuè dialects: **tsVjᴮ* 仔 and **tsiᴮ* 子. The **tsVjᴮ* 仔 suffix (e.g., Cantonese *tsɐi²⁵*) is now the dominant diminutive suffix in the eastern Yuè dialects. While Kwok (2016) primarily argues for the **ɲiᴴ* 兒 theory, he has nonetheless also presented some arguments for and against **tsVjᴮ* 仔 being the origin of the Cantonese lexical suprafixes. In a footnote (p. 307), some alternating pairs were presented, e.g., *ma²¹⁻³⁵* 麻 and *ma²¹-tʃɐi³⁵* 麻仔 'measles'. These suggest that *-tʃɐi³⁵* 仔 could be the source of the Cantonese high-rising lexical suprafix, in at least some words. One argument against the **tsVjᴮ* 仔 theory is that, while the high-rising tone in **tsVjᴮ* 仔 explains the high-rising suprafixes well, it does not explain the high-level and high-falling suprafixes. Also, looking at the Yuè varieties listed in Kwok (2016)'s Table 4 (p. 288), they all have high-level or high-falling suprafixes but not necessarily high-rising suprafixes. This further lowers the explanatory power of the **tsVjᴮ* 仔 theory. (Nonetheless, the suprafixes amongst Yuè dialects do not need to all stem from one single source; the **ɲiᴴ* 兒 theory and the **tsVjᴮ* 仔 theory need not be mutually exclusive.)

There is also Maurice Wong (1982; quoted by Alan Yu 2007, p. 202), who argues that the Cantonese lexical suprafixes came from the *tsi^B 子 suffix. He offers alternating pairs like *min^{22-35}* 面 and *min^{22}-tsi^{35}* 面子 'face, honour' as examples. While there are Yuè (e.g., Kao 2007) and Pínghuà dialects (e.g., Nánníng Pínghuà; de Sousa Forthcoming) where the *tsi^B 子 suffix is commonly used, the *tsi^B 子 suffix is infrequently used in Standard Cantonese and other Yuè dialects in the Pearl River Delta. In the Pearl River Delta Yuè dialects, the *tsi^B 子 suffix is largely restricted to literary expressions, and there are very few alternating pairs between a high-rising suprafix and a *tsi^B 子 suffix. In addition, the *tsi^B 子 theory suffers the same problem as the *$tsVj^B$ 仔 theory, given its high-rising tone.

Looking at the Cantonese data in Ball (1888), only one word had the *ni^H 兒 suffix: *hat7 -yi4-1** 乞兒 (beg -DIM\SUPR) 'beggar'. The *ni^H 兒 theory argues that the old -ni^H suffix had already transformed into the lexical suprafixes in Cantonese; the -*yi4-1** 兒 suffix in *hat7 - yi4-1** 乞兒 (beg -DIM\SUPR) 'beggar' is a very rare remnant of the old -ni^H suffix. At the time of Ball (1888), the lexical suprafixes had already lost most of their diminutive meanings, and the primary diminutive suffix was already -*tsai2* 仔. There were no cases of lexical suprafixes freely alternating with -*tsai2* 仔, and -*tsai2* 仔 could be suffixed to suprafixed roots, e.g., *t'oi4-2** *tsai2* 檯仔 'small table' and *pò6-2** *tsai2* 部仔 'small manuscript book' (p. 41). This testifies that -*tsai2* 仔 was not the source of the lexical suprafixes in Cantonese at the time of Ball (1888). (However, this does not preclude the possibility that -*tsɐi²⁵* 仔 caused more words to acquire a high-rising suprafix in later Cantonese.)

It is notable that -*tsai2* 仔 did not have a suprafix in Ball (1888). Nonetheless, this is not a problem for the *$tsVj^B$ 仔 theory, as the perfective marker *cho2* 咗 also did not have a suprafix, and it alternated with the (non-lexical) high-rising suprafix.

The -*tsz2* 子 suffix was rarely used in Ball (1888). There were no examples of -*tsz2* 子 alternating with a suprafix. The -*tsz2* 子 suffix was most probably not the source of the lexical suprafixes in Ball (1888).

Based on all the points presented above, despite the flaws of the *ni 兒 theory, the *ni 兒 suffix remains the most likely source of the Cantonese lexical suprafixes.

4. Conclusions

This article discussed some synchronic and diachronic aspects of the Cantonese lexical suprafixes. We began by looking at the definitions of 'Cantonese' (Section 1.1) and the difference between non-lexical and lexical suprafixes. Lexical suprafixes are derivational tonal affixes that are lexically determined (Section 1.2).

The lexical suprafixes most likely originated from diminutive suffixes. Sometimes, the lexical suprafixes still have diminutive-type meanings, but usually there is no diminutive-type meaning left. They are 'just there' and may change the meaning and/or word class. In modern Cantonese, there is a tone 2 (high-rising) suprafix and a rarer tone 1 (high-level) suprafix (Section 2.1). Looking at descriptions in the twentieth century and late-nineteenth century, there used to be a distinction between suprafix tone 1* (high level) and ordinary tone 1 (high falling) (Section 2.2.1) and a distinction between suprafix tone 2* ([²⁵] in the 1940s and [³¹⁵] in the late-nineteenth century) and ordinary tone 2 [³⁵] (Section 2.2.2). We looked at the lexical items in some late-nineteenth century Cantonese textbooks. In comparison with modern Cantonese, some words that had a lexical suprafix back then are still suprafixed nowadays, some words have gained a suprafix, and some words have lost a suprafix (usually reverting back to their citation-tone pronunciation). Looking at just the words found in these texts, there has been an increase in the number of suprafixed words (Section 2.2.3). In Section 2.3, we looked at the use of suprafixes in some non-standard Cantonese varieties like Nánníng Cantonese and Older Macau Cantonese. They developed later than Canton and Hong Kong Cantonese (the standard varieties of Cantonese), and they have far fewer suprafixed words than Standard Cantonese. The facts discussed in Sections 2.2 and 2.3 strongly suggest that in Standard Cantonese, overall, there has been an increase in the number of suprafixed words, and that in many words, their lexical suprafixes do not have a long history.

In Section 3.1, we looked at the three most-commonly used diminutive suffixes amongst Pínghuà and Yuè dialects: $*ni^{A/H}$ 兒, $*tsVj^B$ 仔, and $*tsi^B$ 子. (Pínghuà and Yuè basically lie on a dialect continuum, with Pínghuà in the west and Standard Cantonese close to the eastern edge of the dialect continuum.) The majority opinion is that the lexical suprafixes in Standard Cantonese came from a $*ni^H$ 兒 diminutive suffix. In Section 3.2, based on Kwok (2016)'s grammaticalisation cline from $*ni^H$ 兒 to the lexical suprafixes in Yuè dialects, this study expands westward and includes data from some Pínghuà and some extreme-western Yuè dialects. Many Pínghuà dialects and some extreme-western Yuè dialects only have an unsuprafixed $*ni^A$ 兒 diminutive suffix in its citation tone—Lower tone A. Then, in mid-southern Guǎngxī, one finds speech varieties like Nánníng Wèizǐlù Pínghuà and Héngzhōu Cantonese; other than the unsuprafixed $*ni^A$ 兒 suffix, they have also developed a suprafixed $*ni^H$ 兒 diminutive suffix. Some Pínghuà and Yuè dialects further east only have a suprafixed $*ni^H$ 兒 diminutive suffix. From $*ni^H$ 兒, there are two independent development pathways: 'nasal rising' (a nasal coda or nasal feature attached to a root, plus a rising tone) and suprafixing directly on a root. It seems that speech varieties with the former also have cases of the latter, but having the latter does not infer the former. Geographically, nasal rising is only found in southwestern Guǎngdōng and neighbouring southeastern Guǎngxī. On the other hand, suprafixing directly on a root is found in the vast majority of Yuè dialects, and also in some Pínghuà dialects. Nonetheless, in many Yuè and Pínghuà dialects, the use of lexical suprafixes is rather marginal. Lexical suprafixation is the most developed in Standard Cantonese.

Ultimately, an undisputable answer cannot be found to the question of the origin of the Cantonese lexical suprafixes. With non-lexical suprafixes, we have textual evidence of what grammatical particles they alternated with. On the other hand, with lexical suprafixes, there is no such textual evidence. Section 3.3 discusses the merits and flaws of the $*ni^A$ 兒, $*tsVj^B$ 仔, and $*tsi^B$ 子 origin theories. Out of these three (types of) theories, the $*ni^A$ 兒 theory remains the most promising.[12]

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Appendix A

In the tables below, words with lexical suprafixes in Ball (1888, 1894) and words in Ball (1888, 1894) that have since gained a lexical suprafix are shown. The pronunciations shown are the pronunciations of those words in isolation. Some words/roots are featured in more than one table.

Unless a word is specified as being a classifier, the pronunciation of a word listed here does not included cases where the word is used as a classifier (classifiers rarely carry suprafixes). Some verbs and adjectives in Ball (1888, 1894) had a lexical suprafix; this means that they were always in that suprafix tone, unlike most other verbs and adjectives, which could be in their citation tone or take a non-lexical suprafix.

The non-parenthesised glosses and Chinese characters used are those in Ball (1888, 1894). They can be slightly different from modern usage or understanding.

In the transcription of tones below, (a) '*x-y*' means that *x* is the unpronounced citation tone, and *y* is the surface suprafix tone; (b) '*x/y*' means that the pronunciations in citation tone *x* and suprafix tone *y* are in free variation; and c) '*(x/)y*' means that the pronunciations in citation tone *x* and suprafix tone *y* are in free variation, but the citation-tone pronunciation is less common.

Tables A1–A6 list words from Ball (1888). Tables A7–A11 list words from Ball (1894). Words/characters/syllables in Ball (1888) can be searched at 'Early Cantonese Colloquial Texts: A Database' (https://database.shss.hkust.edu.hk/Candbase/).

Table A1. Words that were pronounced in citation tone in Ball (1888) but are now usually pronounced in suprafix tone 2 ('suprafix gain').

	Ball (1888)		Modern Cantonese		Ball (1888)		Modern Cantonese
bangle	鈪	*ák8*	*(ŋ)ak8-2*	probably	約嘆	*yök8 mok8*	*jœk8 mɔk8-2*
duck	鴨	*áp8*	*ap8/2*	bear	熊人	*hung4 yan4* [A23]	*huŋ4 jɐn4-2*
tongs	鉗	*k'im4*	*kʰim4-2*	share (n.)	股份	*kwú2 fan6* [A2]	*ku2 fɐn6-2*
case	案件	*òn3 kín6*	*ɔn3 kin6-2*	jest	笑話	*síú3 wá6* [A2]	*siu3 wa6-2*
daughter	女	*nui5*	*nɵy5-2*	sister	姊妹	*tsz2 múi6* [A2]	*tsi2 mui(6/)2*
old woman	伯爺婆	*pák8 ye4-1** *p'o4*	*pak8 jɛ4-1 pʰɔ4-2*	domino	骨牌	*kwat7 p'ái4/2*[A2]*	*kʷɐt1 pʰai4-2*
building site	盤	*p'un4*	*pʰun4-2*	(playing) cards	紙牌	*chí p'ái4/2**	*tsi2 pʰai4-2*
string	繩	*shing4*	*sŋ4-2*	Yamen	衙門	*ngá4 mún4/2**	*ŋa4 mun4-2*
sail	行船	*háng4 shún4*	*haŋ4 syn4-2*	thief	賊	*ts'ák9/2**	*tsʰak9-2*
plate	碟	*tip9*	*tip9-2*	home country	鄉吓	*höng1 há5/2**	*hœŋ1 ha5-2*
peach	桃	*t'ò4*	*tʰou(4/)2*	chess	碁	*k'éi4/2**	*kʰei4-2*
sheep	綿羊	*min4 yöng4*	*min4 jœŋ4-2*	temple	廟	*míú6/2**	*miu6-2*
mattress	牀褥	*ch'ong4 yuk9*	*tsʰɔŋ4 jɔk9-2*	pill	丸	*yün4/2**	*jyn4-2*
Macao	澳門	*Ò3 mún4*	*ou3 mun(4/)2*	table	檯/臺	*t'oi4/2**	*tʰɔi4-2*
B.A.	秀才	*sau3 ts'oi4*	*sau3 tsʰoi(4/)2*	city	城	*sheng4/2**	*sɛŋ4-2*
general assistant	打雜	*tá2 tsáp9*	*ta2 tsap9-2*	dollars	銀	*ngan4/2**	*ŋɐn4-2*
monastery	祠堂	*ts'z4 t'ong4*	*tsʰi4 tʰɔŋ4-2*				

[A23] This root is also featured in another word in Tables A2 and A3. [A2] This root is also featured in another word in Table A2. *yök8 mok8* 約嘆 'probably': one would expect *yök8 mok9* from usual sound-change rules from Middle Chinese; perhaps the tone in *mok9* was assimilated by the tone of *yök8*.

Table A2. Words that were pronounced in suprafix tone 2* in Ball (1888) but are now usually pronounced in suprafix tone 2 ('suprafix maintained').

		Ball (1888)	Modern Cantonese			Ball (1888)	Modern Cantonese
man	人	*yan4-2* A13*	*jɒn4/2*	compradore	買辦	*mái5 pán6-2**	*mai5 pan6-2*
share (n.)	份	*fan6-2* A1*	*fɐn6-2*	priest	和尚	*wo4 shöng6-2**	*wɔ4 sœŋ6-2*
(-language)	話	*-wá6-2* A1*	*-wa6-2*	who	乜誰	*mi1 shui4-2**	*mɐt1 sə y4-2*
younger sister	妹	*múi6-2* A1*	*mui6-2*	egg	蛋	*tán6-2**	*tan6-2*
card	牌	*p'ái4-2* A1*	*pʰai4-2*	master	事頭	*sz6 t'au4-2**	*si6 tʰɐu4-2*
Yamen	衙門	*ngá4 mún4/2**	*ŋa4 mun4-2*	sun	熱頭	*yit9 t'au4-2**	*jit6 tʰɐu4-2*
thief	賊	*ts'ák9/2**	*tsʰak9-2*	peach	桃	*t'ò4-2**	*tʰou4-2*
home country	鄉下	*höng1 há5/2**	*hœŋ1 ha5-2*	persimmon	柿	*ts'z5-2**	*tsʰi5-2*
chess	碁	*k'éi4/2**	*kʰei4-2*	vase, pot	壺	*ú4-2**	*wu4-2*
temple	廟	*míú6/2**	*miu6-2*	picture	畫	*wá6-2**	*wa6-2*
pill	丸	*yün4/2**	*jyn4-2*	kite	鳶	*yíú6-2**	*-jiu6-2*
table	檯/臺	*t'oi4/2**	*tʰɔi4-2*	pattern	樣	*yöng6-2**	*jœŋ6-2*
city	城	*sheng4/2**	*sɛŋ4-2*	fish	魚	*yü4-2**	*jy4-2*
orange	橙	*ch'ang4-2**	*tsʰaŋ4-2*	garden	園	*yün4-2**	*jyn4-2*
prisoner	犯	*fán6-2**	*fan6-2*	college	院	*yün6-2**	*jyn6-2*
room	房	*fong4-2**	*fɔŋ4-2*	commission	用	*yung6-2**	*joŋ6-2*
hong	行	*hong4-2**	*hɔŋ4-2*	ferry	渡	*tò6-2**	*-tou6/2*
plan	計	*kai3-2**	*kɐi3-2*	(be a) cook		*tsò6 ch'ü4-2**	*tsou6 tsʰy4-2*
sedan	轎	*kíú6-2**	*k(h)iu6-2*	(that time)	嗰陣時	*ko3 chan6 shí4-2**	*kɔ2 tsɐn6 si4/2*
accountant	掌櫃	*chöng2 kwai6-2**	*tsœŋ2 kʷɐi6-2*	(CLF)	位	*wai6-2**	*wɐi6-2*
basket	籃	*lám4-2**	*lam4-2*	about	度	*tò?-2**	*tou2*
fox	狸	*léi4-2**	*-lei4-2*	get wife	娶	*ts'ui2-2**	*tsʰθ y2*
blinds	簾	*lím4-2**	*lim4-2*	allow	由	*yau4-2**	*jɐu4-2*
name	名	*meng4-2**	*mɛŋ4-2*	certain	定	*ting6-2**	*tɪŋ6-2*
face, top	面	*min6-2**	*min6-2*	cook (n.)	火頭	*fo2 t'au4-2* A3*	*fɔ2 tʰɐu4-2*
hat	帽	*mò6-2**	*mou6-2*	house	樓	*lau4-2* A3*	*lɐu4-2*
pass book	部	*pò6-2**	*pou6-2*	money	銀	*ngan4-2* A3*	*ŋɐn4-2*

A13 This root is also featured in another word in Tables A1 and A3. A1 This root is also featured in another word in Table A1. A3 This root is also featured in another word in Table A3. *tɪŋ6-2* 定 'certain' sounds slightly old, but it is still used.

Table A3. Words that were pronounced in suprafix tone 2* in Ball (1888) but are now usually pronounced in another tone ('suprafix loss' or 'suprafix changed').

		Ball (1888)	Modern Cantonese			Ball (1888)	Modern Cantonese
who	乜人	*mi1 yan4-2* A12*	*mɐt1 jɐn4*	together	一齊	*yat7 ts'ai4-2**	*jɐt7 tsʰɐi4*
beginning	起頭	*héi2 t'au4-2* A2*	*hei2 tʰɐu4*	rope	纜	*lám6-2**	*lam6*
upstairs	樓上	*lau4-2* shöng6 A2*	*lɐu4 sœŋ6*	shanty	寮	*líú4-2**	*liu4*
money	銀錢	*ngan4/2* ts'ín4-2* A2*	*ŋɐn4 tsʰin4-2*	pineapple	波羅	*po1 lo4-2**	*pɔ1 lɔ4*
ferry	渡	*tò6-2**	*-tou6/2*	furnace	爐	*lò4-2**	*lou4*
(that time)	嗰陣時	*ko3 chan6 shí4-2**	*kɔ2 tsɐn6 si4/2*	bridge of nose	鼻梁	*pei6 löng4-2**	*pei6 lœŋ4*
now	呢陣	*ni1 chan6-2**	*ni1 tsɐn6/2*	place	定	*teng6-2**	*tɛŋ6*
how long (time)	幾耐	*kéi2 noi6-2**	*kei2 nɔi6*	rhyme	韻	*wan5-2**	*wɐn5*
(verb CLF)	吓	*há5/2**	*ha5*	tonight	今晚	*kam1 mán5-2**	*kɐm1 man5/1*
sit	坐	*ts'o5-2**	*tsʰɔ5*	sister-in-law	姨	*yí4-2**	*ji4-1*
heavy	重	*ch'ung5-2**	*tsʰʊŋ5*				

A12 This root is also featured in another word in Tables A1 and A2. A2 This root is also featured in another word in Table A2.

Table A4. Words that were pronounced in suprafix tone 2 in Ball (1888) and are now pronounced in suprafix tone 2 or another tone ('suprafix maintained' or 'suprafix lost').

	Ball (1888)		Modern Cantonese		Ball (1888)		Modern Cantonese
tael	両	*löng5-2*	*lœŋ5-2*	cess-pool	氹	*t'am5-2*	*tʰɐm5*
antithetical sentence	對	*tui3-2*	*tɵy3-2*	coiffure	髻	*kai3-2*	*kɐi3*

Table A5. Words that were pronounced in suprafix tone 1* (or 1) in Ball (1888) but are now usually pronounced in suprafix tone 1 ('suprafix maintained').

	Ball (1888)		Modern Cantonese		Ball (1888)		Modern Cantonese
tetter	瘡	*chong1/1**	*tsʰɔŋ1*	cloves	丁香	*ting1-1* höng1-1**	*tɪŋ1 hœŋ1*
plaster	膏	*kò1-1**	*kou1*	colour of nature	青	*ts'ing1-1**	*tsʰɪŋ1*
market	欄	*lán4-1**	*lan4-1*	salad	英	*yíng1-1**	*jŋ1*
dollar	文	*man4-1**	*mɐn4-1*	hold/cabin	艙	*ts'ong1-1*/ch'ong1*	*tsʰɔŋ1*
cat	貓	*máu4-1/1**	*mau4-1*	go-down	貨倉	*fo3 ts'ong1-1**	*fɔ3 tsʰɔŋ1*
thirty	卅	*sá1/1**	*sa1*	note paper	箋	*tsín1-1**	*tsin1*
star	星	*seng1/1**	*sɪŋ1*	old man	伯爺公	*pák8 ye4-1* kung1*	*pak8 jɛ4-1 koŋ1*
hymn	詩	*shí1/1**	*si1*	old woman	伯爺婆	*pák8 ye4-1* p'o4*	*pak8 jɛ4-1 pʰɔ4-2*
court	廳	*t'eng1/1**	*tʰɛŋ1*	beggar	乞兒	*hat7 yí4-1**	*hɐt1 ji4-1*
gun	鎗	*ts'öng1/1**	*tsʰœŋ1*	hawk	鷹	*ying1-1**	*jŋ1*
postage	(信)資	*(sun3) tsz1/1**	*sɵn3 tsi1*	fly	烏蠅	*wú ying4-1**	*wu1 jŋ4-1*
jingling	玎	*ting1/1**	*tɪŋ1*	slight rain	雨微	*yü5 méi4-1**	*jy5 mei4-1*
throughout	通	*t'ung1/1**	*tʰʊŋ1*	scorch	燶	*nung?-1**	*nʊŋ1*
cent	仙	*sin1* (loanword)*	*sin1*				
hand gong	玎璫	*ting1-1* tong1-1**	*tɪŋ1 tɔŋ1*	mosquito	蚊	*man4-1*	*mɐn4-1*

*ts'ing1** 青 'colour of nature' was different from *ts'eng1* 青 '(dark) blue' in Ball (1888). 英 'salad' can perhaps be considered obsolete; in *words.hk*, 英 'salad' can be found in the entry *kʷa1 jŋ1* 瓜英 'papaya slices preserved by sugaring'.

Table A6. Words with lexical suprafixes in Ball (1888) that are now too dated.

	Ball (1888)			Ball (1888)	
tetter	火疔瘡	*fo2 teng1 teng1-1* chong1-1**	cash	X個錢	*X ko3 ts'ín4-2**
posts of a certain frame	文篋	*man4 kui6-2**	dollar	X個銀	*X ko3 ngan4-2**
capital	本銀	*pún2 ngan4-2**	pò-tsz	寶字	*pò2 tsz6-2**
ingot	錠	*ting3-2**	six-barrelled revolver	六口連	*lúk9 hau2 lín~m4-2**
shop-coolie		*kún2-tím3/2**	sailing ship	桅棒船	*wai4 p'ang5-2 shün4*
mistress	東家婆	*tung1 ká1 p'o4-2**			

Table A7. Words that were pronounced in citation tone in Ball (1894) but are now usually pronounced in suprafix tone 2 ('suprafix gain').

	Ball (1894)		Modern Cantonese		Ball (1894)		Modern Cantonese
mother	老母	*lò5 mò5*	*lou5 mou5-2*	mother-in-law	家婆	*ká1 p'o4*	*ka1 pʰɔ(4/)2*
pear	沙梨	*shá1 léi4*	*sa1 lei4/2*	granny	婆婆	*p'o4 p'o4*	*pʰɔ4 pʰɔ4-2~1*
jasmine	茉莉花	*mút9 léi4 fá1*	*mut9 lei4-2 fa1*	oppress	難為	*nán4 waí6*	*nan4 wɐi4/2*
daughter	女	*nuí5*	*nɵ y5-2*	bear	熊人	*hung4 yan4* [A89]	*huŋ4 jɐn4-2*
city	城	*sheng4*	*sɛŋ4-2*	money	錢銀	*ts'ín4ngan4-2** [A89]	*tsʰin4-2ŋɐn4-2*
church	教會	*káu3 wúi6*	*kau3 wui(6/)2*	such as	之類	*chí1 luí6/2**	*tsi1 lɵ y6/2*
holy church	聖公會	*shing3 kung1 wúi6*	*sɪŋ3 kɔŋ1 wui6-2*	spice	香料	*höng1 líú6/2**	*hœŋ1 liu6-2*

[A89] This root is also featured in another word in Tables A8 and A9.

Table A8. Words that were pronounced in suprafix tone 2* in Ball (1894) but are now usually pronounced in suprafix tone 2 ('suprafix maintained').

	Ball (1894)		Modern Cantonese		Ball (1894)		Modern Cantonese
man	人	*yan4-2** [A79]	*jɐn4-2*	room	房	*fong4-2**	*fɔŋ4-2*
money	錢	*ts'ín4-2** [A79]	*tsʰin4-2*	money	錢銀	*ts'ín4 ngan4-2**	*tsʰin4-2 ŋɐn4-2*
spice	香料	*höng1 líú6/2**	*hœŋ1 liu6-2*	and be done with	罷	*pá6-2**	*pa6-2*
peach	桃	*t'ò4-2**	*tʰou4-2*	court	衙門	*ngá4 mún4/2**	*ŋa4 mun4-2*
bean	豆	*tau6-2**	*tɐu6-2*	disorderly	亂	*lün6-2**	*lyn6-2*
flower garden	花園	*fá1 yün4-2**	*fa1 jyn4-2*	a little	略略	*lök9 lök9-2**	*lœk9 lœk9-2*
not (very) long	冇(幾)耐	*mò5 (kéi2) noí6-2**	*mou5 (kei2) nɔi6-2~1*	pattern	樣	*yöng6-2** [A9]	*jœŋ6-2*
sun	熱頭	*yit9 t'au4-2**	*jit9 tʰɐu4-2*	name	名	*meng4-2** [A9]	*mɛŋ4-2*
who	乜誰	*mat7 shui4-2**	*mɐt7 sɵ y4-2*	potato	薯	*shü4-2** [A9]	*-sy4/2*
widow	寡母婆	*kwá2 mò5 p'o4-2**	*kʷa2 mou5 pʰɔ4-2*	such as	之類	*chí1 luí6/2** [A9]	*tsi1 lɵ y6/2*
thing	物件	*mat9 kín6-2**	*mɐt6 kin6-2*	probably	大概	*tái6 k'oi3-2** [A9]	*tai6 kʰɔi3/2*
old (man)	老大	*lò5 tái6-2**	*lou5 tai6-2*	once	一排	*yat7 p'ái4-2** [A9]	*jɐt1 pʰai4/2*
(classifier)	位	*waí6-2**	*wɐi6-2*	gradually	漸漸	*tsím6 tsím6-2** [A9]	*tsim6 tsim6/2*
				that (CLF) time	個陣時	*ko3 chan6 shí4-2** [A9]	*kɔ2 tsɐn6 si4/2*

[A79] This root is also featured in another word in Tables A7 and A9. [A9] This root is also featured in another word in Table A9.

Table A9. Words that were pronounced in suprafix tone 2* in Ball (1894) but are now usually pronounced in another tone ('suprafix loss').

	Ball (1894)		Modern Cantonese		Ball (1894)		Modern Cantonese
who	乜人	*mi1 yan4-2** [A78]	*mɐt1 jɐn4*	probably	大概	*tái6 k'oi3-2** [A8]	*tai6 kʰɔi3/2*
wages	工錢	*kung1 ts'ín4-2** [A78]	*kɔŋ1 tsʰin4*	once	一排	*yat7 p'ái4-2** [A8]	*jɐt1 pʰai4/2*
appearance	樣子	*yöng6-2* tsz2* [A8]	*jœŋ6 tsi2*	gradually	漸漸	*tsím6 tsím6-2** [A8]	*tsim6 tsim6/2*
Lord's holy name	主之聖名	*chü chí1 shing3 meng4-2** [A8]	*tsy2 tsi1 sɪŋ3 mɪŋ4*	that (CLF) time	個陣時	*ko3 chan6 shí4-2** [A8]	*kɔ2 tsɐn6 si4/2*
potato	薯	*shü4-2** [A8]	*-sy4/2*	constantly	常常	*shöng6 shöng4-2**	*sœŋ4 sœŋ4*
such as	之類	*chí1 luí6/2** [A8]	*tsi1 lɵ y6/2*	sit	坐	*ts'o5-2**	*tsʰɔ5*

[A78] This root is also featured in another word in Tables A7 and A8. [A8] This root is also featured in another word in Table A8.

Table A10. Words that were pronounced in suprafix tone 2 in Ball (1894) but are now pronounced in suprafix tone 2 or another tone ('suprafix maintained' or 'suprafix lost').

	Ball (1894)		Modern Cantonese		Ball (1894)		Modern Cantonese
cross	十字架	*shap9 tsz6 ká3/2*	*sɐp6 tsi6 ka3/2*	stomach	肚	*t'ò5-2*	*tʰou5*

Table A11. Words that were pronounced in suprafix tone 1* (or 1) in Ball (1894) and are now pronounced in suprafix tone 1 or citation tone ('suprafix maintained', 'suprafix lost'), or words that have gained a suprafix tone 1 ('suprafix gained').

	Ball (1894)		Modern Cantonese		Ball (1894)		Modern Cantonese
eh?	呢	*ni1**	*nɛ1*	bend down head	垂低頭	*shuí4 tai1-1* t'au4*	*sø y4 tɐi1 tʰɐu4*
descendent	子/仔孫	*tsz/tsaí 2 sün1-1**	*tsi2 syn1*	finally	收尾	*shau1 méi5-1**	*sɐu1 mei(5/)1*
side	側邊	*chak7 pín1-1**	*tsɐk7 pin1*	mosquito net	蚊帳	*man4-1 chöng3*	*mɐn4-1 tsœŋ3*
which- spear	邊 鎗	*pín1-1*- ts'öng1/1**	*pin1- tsʰœŋ1*	evening	挨晚	*ái1 mán5*	*ai1 man5-1*

Source of Data Not Referenced in the Main Text
Mandarin, Southwestern:

- Old Nánníng Mandarin 南寧(邕州官話): Zhōu et al. (2006).

Pínghuà, Northern:

- Línguì Wǔtōng 臨桂五通: Zhōu (2005).
- Yǒngfú Táochéng 永福桃城: Xiè (2007).

Pínghuà, Southern:

- Bǎisè Nàbì 百色那畢: Xiè (2007).
- Bīnyáng Xīnqiáo 賓陽新橋: Qín et al. (2016).
- Chóngzuǒ Jiāngzhōu (Zhèyuánhuà) 崇左江州(蔗園話): Lǐ and Zhū (2009).
- Chóngzuǒ Xīnhé (Zhèyuánhuà) 崇左新和(蔗園話): Liáng and Lín (2009).
- Héngzhōu Lǐngliáo 横洲嶺鷯: Bì (2003).
- Nánníng Wèizǐlù 南寧位子碌: author's fieldwork.
- Sānjiāng (Liùjiǎhuà) 三江(六甲話): Wéi (2007).
- Yízhōu Déshèng (Bǎixìnghuà) 宜州得勝(百姓話): Xiè (2007).

Yuè, Cantonese (Guǎngfǔ):

- Standard (Hong Kong) Cantonese: general knowledge, words.hk.
- 'Older' Macau Cantonese: author's parents' speech.

Yuè, Cantonese (Yōngxún):

- Guìpíng Cantonese 桂平(白话): Chén and Wēng (2010).
- Héngzhōu Cantonese 横洲(白話): Xiè (2007).
- Nánníng Cantonese 南寧(白話): Lín and Qín (2008), general knowledge.

Yuè, Gōulòu:

- Guìgǎng 貴港: Chén and Wēng (2010).
- Hèzhōu Guìlǐng 賀州桂嶺: Chén (2007).
- Pínglè (Běndìhuà) 平樂(本地話): Xiè (2007).
- Zhōngshān, Guǎngxī (Běndìhuà) 鍾山(本地話): Xiè (2007).

Yuè, Qīnlián:

- Hépǔ (Liánzhōu) 合浦(廉州): Chén and Chén (2005).

Notes

[1]   Another phenomenon that needs to be distinguished is the change of tone in a normal historical linguistic sense. A change of tone can simply be a regular or irregular historical sound change, without suprafixation or (regular) tone sandhi being involved. For instance, *kau5 fu6-2* 舅父 'mother's brother' is nowadays often pronounced *kau3 fu6-2* by younger speakers in Hong Kong. This change from *kau5* to *kau3* does not involve affixation (e.g., it is not a regular occurrence to change to tone 3 for a specific meaning or function), and this is also not tone sandhi (i.e., there is no sandhi rule that says that tone 5 has to change to tone 3 before tone 6 or 2). This is just a sound change in a historical linguistic sense.

[2]   The categories are as follows: (a) voicing of the initial (i.e., non-glide onset) in Middle Chinese; (b) tones A, B, C and D in Middle Chinese, with tones A, B and C being tones on sonorant-ending syllables and tone D signifying that the syllable is obstruent-ending; (c) 'L' and 'S' are sets of Middle Chinese vowels that correspond with the long and short vowels in Cantonese (Middle Chinese is not thought of as having a vowel-length distinction).

[3]   There is also a tone 4 (low-falling) suprafix, but this is very rare. A tone 4 suprafix is most usually next to a tone 2 or 1 syllable (so perhaps the suprafix is the entire melody and not just the tone 4), but this is not always the case. The tone 4 suprafix used with address terms clearly has an endearment meaning. For instance, from the roots *kɔ1* 哥 'elder brother' and *mui6* 妹 'younger sister' are the words *kɔ1-4 kɔ1* 哥哥 'elder brother' and *mui6-4 mui6-2* 妹妹 'younger sister, little girl'. There are also nicknames (here using nicknames of deceased Hong Kong celebrities as examples) like *mui4-1 tsɛ2-4* 梅姐 (Mui\sᴜᴘʀ elder.sister\sᴜᴘʀ) for Anita Mui Yim-fong, and *tat6 kɔ1-4* 達哥 (Tat elder.brother\sᴜᴘʀ) for Richard Ng Man-tat. When used in place names, it is harder to argue that endearment is involved, but at least it is still the case that only familiar place names obtain a tone 4 suprafix. For instance, *wan1-4* 灣 'bay' can be found in place names like *nam4 wan1-4* 南灣 (south bay) 'Praia Grande' in Macau, and *tʰʊŋ4 lɔ4 wan1-4 ~ tʰʊŋ4 lɔ4 wan1* 銅鑼灣 (copper gong bay) 'Causeway Bay' in Hong Kong (see [Lau and Tang 2020](#) on Hong Kong 灣 'bay' placenames). Applying suprafixes correctly to local place names is a shibboleth.

[4]   This name is rendered Cʜ'ᴀᴜ Cʜᴀɴ Sᴇɴᴇ in [Ball](#) (1907, p. xxxiii). In other publications, this name is rendered Ch'an Chan Sene.

[5]   [Ball](#) (1888) marks tones using a modified version of the Chinese 'four-corner' system (using the syllables *fan* and *chit* as examples): tone 1 ⌐*fan*, tone 1* ₒ*fan* or ⌐*fan**, tone 2 ⌐*fan*, tone 2* ᶦ*fan**, tone 3 *fan*⌐, tone 4 ⌐*fan*, tone 5 ⌐*fan*, tone 6 *fan*⌐, tone 7 *chit*⌐, tone 8 *chit*ₒ, and tone 9 *chit*⌐. The ways that tones are marked are slightly different in the various editions of *Cantonese Made Easy*.

[6]   Tone 7 syllables with a suprafix are described in [Ball](#) (1907, p. xxxii) as a prolongation of tone 7. (He calls this suprafix tone the 'variant Upper Entering Tone'). In other words, tone 7* was the same, or at least in complementary distribution, with tone 1*. However, there are only two examples of this in [Ball](#) (1907), and both raise some questions: (a) *shik7-7** 識 'to know' (p. 1) comes in isolation with no further explanations (i.e., it is impossible to tell whether this is a lexical or non-lexical suprafix); and (b) *hák8-7** 客 'visitor' (p. 59), with citation tone 8, would normally have a suprafix tone 2 in modern day understanding. Cases of the tone 7* suprafix are not further discussed in this article.

[7]   While [Yiu](#) (2010) is correct in pointing out that there are differences in these two mergers, she has perhaps not explained the differences in the best way. With the 1-to-1* merger, it was indeed the case that it was caused by an increase in the amount of tone 1 (high-falling) syllables being pronounced in suprafix tone 1* (high level). In more than 95% of cases, tone 1* syllables had tone 1 as their citation tone; 1-1* was the default pathway for both 1→ and →1*. In addition, high level was also a sandhi realisation of tone 1 (Section [2.2.1](#)). High level and high falling are phonetically not that similar; it was the variation in the same syllables/morphemes being pronounced high level or high falling (by different people, and also in the speech of the same person) that the contrastiveness between high level and high falling began to collapse. The situation was different with the 2-to-2* merger. The change in the number of morphemes having the tone 2* suprafix is immaterial in this case. (There has been an increase from my point of view, but [Yiu](#) (2010) argues that the opposite is true.) When there was a contrast between tones 2 and 2*, it was not the case that tone 2 morphemes started gaining a suprafix and became suprafix tone 2*; in fact, in nearly 0% of cases, tone 2* morphemes had tone 2 as their citation tone in [Ball](#) (1888). The one exception known to me is the verb *ts'ui2-2** 娶 'get wife', with a lexical suprafix tone 2*. This was still largely the case in later publications that distinguished tones 2 and 2*. For instance, [Chao](#) (1947, p. 35) offers examples of words in suprafix tone 2* with the citation tones 3, 4, 5, 6, 7, 8 and 9, but citation tone 2 was specifically crossed out. In [Gāo](#) (1980), amongst the many cases of →2*, there were only two cases of 2-2*: *fan2 tɐu2-2** 反斗 'naughty' and *tʰʊŋ2-2** 桶 'bucket'. So, the 2-to-2* merger was not caused by tone 2 syllables gaining a suprafix and becoming tone 2*. The merger was simply a case of tones 2* and 2 having very similar phonetic realisations: tone 2* [^{25}] and tone 2 [^{35}] according to [Chao](#) (1947, pp. 34–35).

[8]   湛江市霞山区志, 宗教方言民俗. http://www.zjxs.gov.cn/zlxs/zjxs/xsqz/content/post_482997.html; accessed 17 June 2024.

[9]   Romanised Middle Chinese forms are usually not 'starred', as they are transcriptions of the phonology system of the *Qièyùn* 切韻 (601 ᴄᴇ), not a reconstruction. On the other hand, the non-attested earlier Yuè/Pínghuà forms like **ni⁴* 兒 are starred, as they are the hypothesised earlier forms that existed in these Yuè/Pínghuà varieties. They do not necessarily have the same form as Middle Chinese forms like *ɲe⁴* 兒.

[10]   In Standard Cantonese, the fossilised cases of *-ɲi^H* 兒 that I know of are a) *hɐt⁵ -ji²¹⁻⁵⁵* 乞兒 (beg -ᴅɪᴍ\sᴜᴘʀ) 'beggar'; b) *tsʊk⁵ -ji²¹⁻⁵⁵ jɐn²¹⁻⁵⁵* 捉兒人 (catch -ᴅɪᴍ\sᴜᴘʀ person\sᴜᴘʀ) 'hide and seek'; and c) *mau⁵⁵ -ji²¹⁻⁵⁵* 貓兒 (cat -ᴅɪᴍ\sᴜᴘʀ) 'kitten' (found in sayings like the rhyming proverb 老狗嫩貓兒，食死冇人知 *lou¹³ kɐu²⁵ nyn²² mau⁵⁵ -ji²¹⁻⁵⁵, sɪk² sei²⁵ mou¹³ jɐn²¹ tsi⁵⁵* (old dog

immature cat -DIM\SUPR, eat be.dead NEG.exist person know) 'Old dog and young kitten [meats are so toxic that if you] eat [the meat you] will be dead before anyone knows').

¹¹ Probably also valid is Zhū (2004)'s proposal that child-directed speech is the origin of suprafixes.

¹² Not discussed in this article is the low-tone suprafix that is very common amongst Szeyap/Sìyì Yuè dialects. See, e.g., Gān (2010, pp. 35–39) and (Tan 2010; Tán 2011). This low-tone suprafix coincides with their Lower tone B. Kwok (2016, pp. 307–8) observes that in a number of geographically peripheral and non-contiguous Szeyap varieties, their Lower tone B is a high tone instead. Based on this, Kwok hypothesises that the Lower tone B was a high tone in Proto-Szeyap; the low-tone suprafix in the modern-day Szeyap dialects is an older suprafix that existed in Proto-Szeyap, and it was originally a high-tone suprafix.

References

Alderete, John, Queenie Chan, and Shin-ichi Tanaka. 2022. The morphology of Cantonese "changed tone": Extensions and limitations. *Gengo Kenkyu* 言語研究 161: 139–69.

Ball, James Dyer. 1883. *Cantonese Made Easy: A Book of Simple Sentences in the Canton Dialect, with Free and Literal Translations, and Directions for the Rendering of English Grammatical Forms in Chinese*, 1st ed. Hong Kong: China Mail Office.

Ball, James Dyer. 1888. *Cantonese Made Easy: A Book of Simple Sentences in the Canton Dialect, with Free and Literal Translations, and Directions for the Rendering of English Grammatical Forms in Chinese*, 2nd ed. Hong Kong: China Mail Office.

Ball, James Dyer. 1894. *Readings in Cantonese Colloquial: Being Selections from Books in the Cantonese Vernacular with Free and Literal Translations of the Chinese Character and Romanised Spelling*. Hong Kong, Shanghai, Yokohama and Singapore: Kelly & Walsh, Limited.

Ball, James Dyer. 1907. *Cantonese Made Easy: A Book of Simple Sentences in the Canton Dialect, with Free and Literal Translations, and Directions for the Rendering of English Grammatical Forms in Chinese*, 3rd ed. Singapore, Hong Kong, Shanghai and Yokohama: Kelly & Walsh, Limited.

Ball, James Dyer. 1912. *How to Speak Cantonese: Fifty Conversations in Cantonese Colloquial; with Chinese Character, Free and Literal English Translations, and Romanised Spelling with Tonic and Diacritical Marks, &c*, 4th ed. Hong Kong, Shanghai, Singapore and Yokohama: Kelly & Walsh, Limited.

Ball, James Dyer. 1924. *Cantonese Made Easy: A Book of Simple Sentences in the Canton Dialect, with Free and Literal Translations, and Directions for the Rendering of English Grammatical Forms in Chinese*, 4th ed. Singapore, Hong Kong, Shanghai and Yokohama: Kelly & Walsh, Limited.

Bauer, Robert S. 2020. *ABC Cantonese-English Comprehensive Dictionary*. ABC Chinese Dictionary Series; Edited by Victor H. Mair. Honolulu: University of Hawai'i Press.

Bauer, Robert S., and Paul K. Benedict. 1997. *Modern Cantonese Phonology*. Berlin: Mouton de Gruyter.

Benedict, Paul K. 1942. Cantonese phonology. Manuscript.

Bì, Sīmíng 闭思明. 2003. Jì Guǎngxī Héngxiàn Pínghuà de yǔzhuì 记广西横县平话的语缀 [On the affixes in Guangxi Hengxian Pinghua]. *Journal of Wuzhou Teachers College of Guangxi* 广西梧州师范高等专科学校学报 19: 17–18, 63.

Chao, Yuen Ren. 1947. *Cantonese Primer*. Cambridge and Massachusetts: Harvard University Press.

Chao, Yuen Ren. 1959. The morphemic status of certain Chinese tones. *Transactions of the International Conference of Orientalists in Japan* 4: 44–48.

Chappell, Hilary. 2023. Tone morphemes in Sinitic: Where prosody meets morphology. *Journal of Chinese Linguistics* 51: 483–521. [CrossRef]

Chán, Chan Sene. 1900. Rules for the use of the variant tones in Cantonese. *China Review* 24: 209–26.

Chen, Zhongmin. 1999. The common origin of diminutives in southern Chinese dialects and Southeast Asian languages. *Linguistics of the Tibeto-Burman Area* 22: 21–47.

Chén, Xiǎojǐn 陈晓锦, and Tāo Chén 陈滔. 2005. *Guǎngxī Běihǎishì Yuèfāngyán diàochá yánjiū* 广西北海市粤方言调查研究 [*Investigative Studies of the Yue Dialects in Beihai City, Guangxi*]. Beijing: China Social Science Press 中国社会科学出版社.

Chén, Xiǎojǐn 陈晓锦, and Zéwén Wēng 翁泽文. 2010. *Yuèyǔ xīyì kǎochá: Guǎngxī Guìgáng Yuèyǔ zhī gè'àn yánjiū* 粤语西翼考察：广西贵港粤语之个案研究 [*Inspections on the Western Wing of Yue: Studies on the Case of Guangxi Guigang Yue*]. Guangzhou: Jinan University Press 暨南大学出版社.

Chén, Xiǎomíng 陈小明. 2007. "-Ér", "-zǎi" duì Yuèyǔ xiǎochēng géjú de yǐngxiǎng "一儿"、"一仔"对粤语小称格局的影响 [The influence "-ér", "-zǎi" have on the pattern of diminutives in Yuè]. In *Dìshíjiè Guójì Yuèfāngyán Yántǎohuì lùnwénjí* 第十届国际粤方言研讨会论文集 [*Proceedings of the 10th International Conference on Yue Dialects*]. Edited by Samuel Hung-nin Cheung 张洪年, Song Hing Chang 张双庆 and Hung Kan Chan 陈雄根. Beijing: China Social Sciences Press 中国社会科学出版社, pp. 277–86.

Chén, Xiǎoyàn 陈小燕. 2007. *Duō zúqún yǔyán de jiēchù yǔ jiāoróng: Hèzhōu Běndìhuà yánjiū* 多族群语言的接触与交融: 贺州本地话研究 [*Contact and Interactions between Multiple Ethnolinguistic Groups: Studies of Hezhou Bendihua*]. Beijing: The Ethnic Publishing House 民族出版社.

Chén, Yùjié 陈玉洁, Hilário de Sousa, Jiàn Wáng 王健, Sing Sing Ngai 倪星星, Xùpíng Lǐ 李旭平, Wěiróng Chén 陈伟蓉, and Hilary Chappell. 2014. Láibǐxī biāozhù xìtǒng jí qí zài Hànyǔ yǔfǎ yánjiū zhōng de yìngyòng 莱比锡标注系统及其在汉语语法中的应用 The Leipzig glossing rules and its application in the research of Chinese grammar. *Fāngyán* 方言 2014: 1–13.

Chén, Zhōngmǐn 陈忠敏. 2002. Lùn Guǎngzhōuhuà xiǎochēng biàndiào de láiyuán 论广州话小称变调的来源 [On the origins of the Cantonese diminutive tone change]. In *Dōngfāng yǔyán yǔ wénhuà* 东方语言与文化 [*Eastern Language and Culture*]. Edited by Wùyún Pān 潘悟云. Shanghai: Orient Publishing Center 东方出版中心, pp. 167–81.

Cheung, Samuel Hung-nin 张洪年. 2000. Zǎoqī Yuèyǔ zhōng de biàndiào xiànxiàng 早期粤语中的变调现象 [Changed tone phenomenon in early Cantonese]. *Fāngyán* 方言 2000: 299–312.

Cheung, Samuel Hung-nin 張洪年. 2007. *Xiānggǎng Yuèyǔ Yǔfǎ de Yánjiū (Zēngdìngbǎn)* 香港粤語語法的研究（增訂版） *A Grammar of Cantonese as Spoken in Hong Kong (Revised Edition)*. Hong Kong: The Chinese University Press 中文大學出版社. First published 1972.

Cheung, Yat-Shing 張日昇. 1969. Xiānggǎng Yuèyǔ yīnpíngdiào jí biàndiào wèntí 香港粤語陰平調及變調問題 A study on the upper even tone and changed tones in Cantonese as spoken in Hong Kong. *The Journal of The Institute of Chinese Studies of The Chinese University of Hong Kong* 香港中文大學中國文化研究所學報 2: 81–107.

Dennys, Nicholas B. 1874. *A Handbook of the Canton Vernacular of the Chinese Language: Being a Series of Introductory Lessons, for Domestic and Business Purposes*. Hong Kong: The "China Mail" Office.

de Sousa, Hilário. 2015. Language contact in Nanning: Nanning Pinghua and Nanning Cantonese. In *Diversity in Sinitic Languages*. Edited by Hilary M. Chappell. Oxford: Oxford University Press, pp. 157–89. [CrossRef]

de Sousa, Hilário. 2022. The Expansion of Cantonese Over the Last Two Centuries. In *The Palgrave Handbook of Chinese Language Studies*. Edited by Zhengdao Ye. Singapore: Springer Nature, pp. 409–40. [CrossRef]

de Sousa, Hilário. Forthcoming. *A Grammar of Nanning Pinghua*. Sinitic Languages of China Series; Berlin and Boston: Gruyter Mouton.

Eitel, Ernest John. 1877. *A Chinese Dictionary in the Cantonese Dialect*. Hong Kong: Lane, Crawford & Co.

Gāo, Huánián 高華年. 1980. *Guǎngzhōu fāngyán yánjiū* 廣州方言研究 [*Studies on Guangzhou Dialect*]. Hong Kong: The Commercial Press 商務印書館.

Gān, Yū'ēn 甘于恩. 2010. *Guǎngdōng Sìyì fāngyán yǔfǎ yánjiū* 广东四邑方言语法研究 [*Studies on the Grammar of Guangdong Siyi Dialects*]. Guangzhou: Jinan University Press 暨南大学出版社.

Heine, Bernd, and Tania Kuteva. 2002. *World Lexicon of Grammaticalization*. Cambridge: Cambridge University Press.

Hóu, Xīngquán 侯兴泉. 2015. Yuánshǐ Xībù Yuèyǔ de shēngdiào gòuní 原始西部粤语的声调构拟 [The reconstruction of the tones in Proto-Western-Yue]. *Nánfāng Yǔyánxué* 南方语言学 7: 18–26.

Jurafsky, Daniel. 1988. On the semantics of the Cantonese changed tone. *Proceedings of the Annual Meeting of the Berkeley Linguistics Society* 14: 304–18. [CrossRef]

Jurafsky, Daniel. 1996. Universal tendencies in the semantics of the diminutive. *Language* 72: 533–78. [CrossRef]

Kao, Wan-yu 高婉瑜. 2007. Lùn Yuèyǔ xiǎochēngcí jí qí yǔfǎhuà 論粤語小稱詞及其語法化 On the diminutives in Yue dialect and their grammaticalization. *Bulletin of The Department of Chinese Literature, National Taiwan University* 臺大中文學報 27: 229–62.

Kwok, Bit-Chee 郭必之. 2009. Zǎoqī Guǎngzhōuhuà de yǔfǎ biànyīn—Cóng Ch'an (1900) tánqǐ 早期廣州話的語法變音—從 Ch'an (1900) 談起 Tone change in early Cantonese as revealed in Ch'an (1900). *Bulletin of Chinese Linguistics* 中國語言學集刊 3: 169–84. [CrossRef]

Kwok, Bit-Chee 郭必之. 2016. Yuèyǔ fāngyán xiǎochēng biànyīn de lèixíng jí qí lìshǐ láiyuán 粤語方言小稱變音的類型及其歷史來源 Diminutive sound changes in the Yue dialects: Typology and historical origins. *Chinese Studies* 漢學研究 34: 281–314.

Lau, Chaak-Ming 劉擇明, and Sze-Wing Tang 鄧思穎. 2020. Xiānggǎng dìmíng "wān" de tèshū dúfǎ 香港地名"灣"的特殊讀法 The special pronunciation for the character "Waan1" in Hong Kong place names. *Current Research in Chinese Linguistics* 中國語文通訊 99: 105–16.

Lǐ, Jiàn 李健. 2014. *Wúhuà Yuèyǔ yánjiū* 吴化粤语研究 [*Studies on Wuhua Yue*]. Beijing: China Social Science Press 中国社会科学出版社.

Lǐ, Liánjìn 李连进, and Yàn'é Zhū 朱艳娥. 2009. *Guǎngxī Chóngzuǒ Jiāngzhōu Zhèyuánhuà Bǐjiào Yánjiū* 广西崇左江州蔗园话比较研究 [*Comparative Study of Guangxi Chongzuo Jiangzhou Sugarcane Plantation Language*]. Guilin: Guangxi Normal University Press 广西师范大学出版社.

Lì, Mínghuì 利明慧. 2008. Nánníng wénhuà de "Yuè-huà" jí qí yímín bèijǐng 南宁文化的"粤化"及其移民背景 [The Yue-isation of Nanning culture and its migration background]. *Hēilóngjiāng Shǐzhì* 黑龙江史志 2008: 71–74.

Lǐ, Xīnkuí 李新魁, Jiājiào Huǎng 黄家教, Qíshēng Shī 施其生, Yún Mài 麦耘, and Dìngfāng Chén 陈定方. 1995. *Guǎngzhōu fāngyán yánjiū* 广州方言研究 [*Studies on the Guangzhou Dialect*]. Guangzhou: Guangdong People's Publishing House 广东人民出版社.

Liáng, Wěihuá 梁伟华, and Yì Lín 林亦. 2009. *Guǎngxī Chóngzuǒ Xīnhé Zhèyuánhuà Yánjiū* 广西崇左新和蔗园话研究 [*Studies on Guangxi Chongzuo Xinhe Sugarcane Plantation Language*]. Guilin: Guangxi Normal University Press 广西师范大学出版社.

Lín, Yì 林亦, and Fèngyú Qín 覃凤余. 2008. *Guǎngxī Nánníng Báihuà yánjiū* 广西南宁白话研究 [*Studies on Guangxi Nanning Cantonese*]. Guilin: Guangxi Normal University Press 广西师范大学出版社.

Liú, Lěi 刘磊. 2015. Guǎngxī Gōulòupiàn Yuèyǔ yǔyīn yánjiū 广西勾漏片粤语语音研究 [Phonological Studies of Guangxi Goulou Yue]. Ph.D. thesis, Jinan University 暨南大学, Guangzhou, China.

Liu, Te-hsin. 2016. On the nature of changed tones in Cantonese. In *Commemorative Essays for Professor Yuen Ren Chao: Father of Modern Chinese Linguistics* 现代漢語語言學之父–趙元任先生紀念論文集. Edited by Andy Chi-on Chin, Bit-Chee Kwok and Benjamin K. Tsou. Taipei: Crane Publishing 文鶴書店, pp. 107–26.

Mài, Yún 麦耘. 1995. Guǎngzhōuhuà de yǔsù biàndiào jí qí láiyuán hé shànbiàn 广州话的语素变调及其来源和嬗变 [Morphological tone change in Cantonese and its origin and evolution]. In *Yìnyùn yǔ fāngyán lùnjí* 音韵与方言论集 [*Collected Papers on Phonology and Dialects*]. Edited by Yún Mài 麦耘. Guangzhou: Guangdong People's Publishing House 广东人民出版社, pp. 241–82.

Matthews, Stephen, and Virginia Yip. 1994. *Cantonese: A Comprehensive Grammar*, 1st ed. London and New York: Routledge.

Matthews, Stephen, and Virginia Yip. 2011. *Cantonese: A Comprehensive Grammar*, 2nd ed. London and New York: Routledge.

Nichols, Johanna. 1971. Diminutive consonant symbolism in western North America. *Language* 47: 826–48. [CrossRef]

Perlman, Marcus, and Ashley A. Cain. 2014. Iconicity in vocalization, comparisons with gesture, and implications for theories on the evolution of language. *Gesture* 14: 320–50. [CrossRef]

Qín, Fèngyú 覃凤余, Dōngshēng Qín 覃东生, and Chūnlái Tián 田春来. 2016. Xiàpiān: Pínghuà de yǔfǎ yánjiū 下篇 平话的语法研究 [Lower section: Grammatical studies of Pinghua]. In *Guǎngxī Pínghuà Yánjiū* 广西平话研究 *[Studies on Guangxi Pinghua]*. Edited by Jǐn Yú 余瑾. Beijing: China Social Science Press 中国社会科学出版社, pp. 281–426.

Qín, Yuǎnxióng 覃远雄. 2000. Guìnán Pínghuà yánjiū 桂南平话研究 [Studies on Southern Guangxi Pinghua]. Ph.D. thesis, Jinan University 暨南大学, Guangzhou, China.

Qín, Yuǎnxióng 覃远雄. 2019. Guǎngxī Pínglè, Zhōngshān "Běndìhuà" de xìngzhì 广西平乐、钟山"本地话"的性质 'The Local Vernacular' in Pingle County and Zhongshan County. *Fāngyán* 方言 2019: 484–95.

Shào, Huìjūn 邵慧君. 2005. Guǎngdōng Màomíng Yuèyǔ xiǎochēng zōnglùn 广东茂名粤语小称综论 A study on the diminutives of Maoming dialect in western Guangdong Province. *Fāngyán* 方言 4: 337–41.

Shào, Huìjūn 邵慧君, and Yū'ēn Gān 甘于恩, eds. 2007. Guǎngdōng Màomíng Yuèyǔ xiǎochēng zōnglùn 广东茂名粤语小称综论 [Review of diminutives in Guangdong Maoming Yue]. In *Guǎngdōng fāngyán yǔ wénhuà tànlùn* 广东方言与文化探论 *[Explorations in Guangdong Dialects and Cultures]*. Guangzhou: Sun Yat-Sen University Press 中山大学出版社, pp. 20–25.

Shī, Qíshēng 施其生. 2004. Yìbǎiniánqián Guǎngzhōuhuà de yīnpíngdiào 一百年前广州话的阴平调 Notes on yinping tone of Cantonese one-hundred-years ago. *Fāngyán* 方言 2004: 34–46.

Simmons, Richard VanNess 史皓元. Forthcoming. Historical phonology beyond the rime books: A preliminary exploration of the phonological path of *ér* suffix morphology 韵书以外的历史音韵学：儿尾词法的音韵轨迹. *Studies in Chinese Language and Linguistics* 汉语研究. (Paper in the inaugural volume of this journal published by The Institute of Dialects and Culture, Nanjing University 南京大学方言与文化研究所.).

Tan, Yutian. 2010. The Diminutive Tone Change in Siyi Dialects. MPhil thesis, Hong Kong University of Science and Technology, Hong Kong, China.

Tán, Yǔtián 譚雨田. 2011. Guǎngdōng Sìyì fāngyán de xiǎochēng biàndiào: Qiǎntàn lìshǐ fēncéng 廣東四邑方言的小稱變音：淺探歷史分層 [Diminutive sandhi in Guangdong Siyi dialect: Brief explorations into historical stratification]. *Estudos de Cantonense* 粤語研究 10: 66–73.

Tang, Sze-Wing 鄧思穎. 2015. *Yuèyǔ yǔfǎ jiǎngyì* 粵語語法講義 *Lectures on Cantonese Grammar*. Hong Kong: The Commercial Press 商務印書館.

Ultan, Russell. 1978. Size-sound symbolism. In *Universals of Human Language II: Phonology*. Edited by Joseph Greenberg. Stanford: Stanford University Press, pp. 525–68.

Wáng, Fútáng 王福堂. 2005. *Hànyǔ fāngyán yǔyīn de yǎnbiàn hé céngcì* 汉语方言语音的演变和层次, Revised ed. 修订本. Beijing: Language & Culture Press 语文出版社.

Wang, Pen-Ying 王本瑛. 1995. Hànyǔ fāngyán zhōng xiǎo'àichēng de dìlǐ lèixíng yǔ yǎnbiàn 漢語方言中小愛稱的地理類型與演變 Diminutive in Chinese dialects: Its typology, geographical distribution and development. *Tsing Hua Journal of Chinese Studies* 清華學報 25: 371–98.

Wéi, Yùjuān 韦玉娟. 2007. Liùjiǎhuà de cízhuì hé chóngdié xíngshì 六甲话的词缀和重叠形式 [Affixes and reduplication constructions in Liujia]. *Journal of Guangxi College of Education* 广西教育学院学报 2007: 123–25.

Whitaker, Katherine Po Kan. 1955–1956. A study of the modified tones in Spoken Cantonese. *Asia Major* 5: 9–36, 184–207.

Wong, Shik-Ling 黃錫凌. 1997. *Yuèyīn yùnhuì* 粵音韻彙 *A Chinese Syllabary Pronounced According to the Dialect of Canton*. Hong Kong: Chung Hwa Book Co. 中華書局. First published 1941.

Wong, Yee 黄翊. 2007. *Àomén Yǔyán Yánjiū* 澳门语言研究 *[Studies on Macau Languages]*. Beijing: The Commercial Press 商务印书馆.

Wurm, S. A., and Rong Li, eds. 1987. *Language Atlas of China*, 1st ed. Hong Kong: Longman Group (Far East) Ltd.

Xiè, Jiànyóu 谢建猷. 2007. *Guǎngxī Hànyǔ fāngyán yánjiū* 广西汉语方言研究 *[Studies of Chinese Dialects in Guangxi]*. Nanning: Guangxi People's Publishing House 广西人民出版社.

Yiu, Yuk-man Carine 姚玉敏. 2010. Yě tán zǎoqī Yuèyǔ zhōng de biàndiào xiànxiàng 也谈早起粤语中的变调现象 Revisiting the use of change tones in early Cantonese. *Fāngyán* 方言 2010: 18–29.

Yu, Alan C. L. 2007. Understanding near mergers: The case of morphological tone in Cantonese. *Phonology* 24: 187–214. [CrossRef]

Zhān, Bóhuì 詹伯慧, Xiǎoyàn Fāng 方小燕, Yū'ēn Gān 甘于恩, Xuéqiáng Qiū 丘学强, Choi Lan Tong 汤翠兰, Jiànshè Wáng 王建设, and Qí Zhōng 钟奇, eds. 2002. *Guǎngdōng Yuè fāngyán gàiyào* 广东粤方言概要 *An Outline of Yue Dialects in Guangdong*. Guangzhou: Jinan University Press 暨南大学出版社.

Zhāng, Zhènxīng 张振兴, Zhènghuī Xióng 熊正辉, Xíng Huáng 黄行, and Dob 道布, eds. 2012. *Zhōngguó yǔyán dìtújí* 中国语言地图集 *Language Atlas of China*, 2nd ed. Beijing: The Commercial Press 商务印书馆.

Zhōu, Běnliáng 周本良. 2005. *Guìběi Pínghuà yǔ tuīguǎng Pǔtōnghuà yánjiū—Língguì Yìníng huà yánjiū* 桂北平话与推广普通话研究—临桂义宁话研究 *[Studies on Northern Pinghua and the Promotion of Putonghua—Studies on the Yining Dialect of Lingui]*. Nanning: Guangxi Nationalities Publishing House 广西民族出版社.

Zhōu, Běnliáng 周本良, Xiánghé Shěn 沈祥和, Píng Lí 黎平, and Yùjuān Wéi 韦玉娟. 2006. Nánníng Xiàguōjiē Guānhuà tóngyīn zìhuì 南宁下郭街官话同音字汇 A list of homonyms of Xiaguo street dialect in Nanning. *Journal of Guilin Normal College* 桂林师范高等专科学校学报 20: 1–8.

Zhōu, Liètíng 周烈婷. 2002. Yùlínhuà yánjiū 玉林话研究 A Study of Yulin Yue Dialect. Ph.D. thesis, National University of Singapore, Singapore.

Zhōu, Zǔyáo 周祖瑶. 1987. Guǎngxī Róngxiàn fāngyán de xiǎochēng biànyīn 广西容县方言的小称变音 [Diminutive modification in Guangxi Rong County dialect]. *Fāngyán* 方言 1987: 58–65.

Zhū, Xiǎonóng 朱晓农. 2004. Qīnmì yǔ gāodiào—duì xiǎochēngdiào, nǔguóyīn, měiméi děng yǔyán xiànxiàng de shēngwùxué jiěshì 亲密与高调—对小称调、女国音、美眉等语言现象的生物学解释 [Intimacy and high pitch—biological explanations towards linguistic phenomena like diminutive tones, nǒguóyīn, měiméi]. *Contemporary Linguistics* 当代语言学 2004: 193–222.

Zōng, Fúbāng 宗福邦. 1964. Guānyú Guǎngzhōuhuà yīnpíngdiào de fēnhuà wèntí 关于广州话阴平调的分化问题 [On the question of the split of yin ping tone in Guangzhou dialect]. *Zhōngguó Yǔwén* 中国语文 1964: 376–89.