The Hong Kong English Syllable Structure

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Abstract Hong Kong English (HKE) is a contact variety between two languages that have very distinct syllable structure: Cantonese with a simple structure allowing only three segments and English where syllables can be quite large. Unraveling the structure of the HKE syllable is however quite difficult because evidence is scarce. We do not have a sufficiently large corpus of HKE poetry and rhyme, neither has HKE been known to have language games (ludling) that involve syllable manipulation. In particular, ludlings are the phonological equivalent of a cloud chamber where the syllables may be smashed and their components observed, and hence it is a good probe into HKE syllable structure. In this study, speakers are taught a form of ludling involving "backwards" manipulation by encoding polysyllabic Cantonese words in reverse order of the syllables, hence *Hong Kong* is encoded as *Kong Hong*. These speakers are then invited to encode English words (both mono- and polysyllabic). This study reports a number of interesting findings on the basis of the range of possible "backwards" manipulations: (i) HKE allows diphthongs as the nucleus of a syllable; (ii) the HKE coda prefers plosives or nasals; (iii) the HKE onset allows clusters but fricatives tend to be treated as syllabic; and (iv) HKE allows syllabic obstruent segments.

Keywords: Syllable, Structure, "Backwards" manipulation, Play language, Hong Kong

1.   Introduction

The last decade has seen many studies on the phonology of Hong Kong English (henceforth HKE): for phonetic inventory (e.g. Hung, 2000); for prosody (e.g. Hung, 2005; Wee and Cheung, 2015); for tonal properties (e.g. Cheung, 2009); and for segmental phonology (e.g. Peng and Setter, 2000). The HKE syllable structure remains somewhat under-researched, and one remains uncertain as to its structure, if any.

This is an attempt to address part of the gap about the HKE syllable. The syllable is an abstract phonological entity, part of the mental grammar, thus internal organization of the segments that comprise the syllable can only be revealed through probes into how a speaker may manipulate a given string of segments. For example, given an audio stimulus like [mbira] (a musical instrument made with flattened nails affixed to a sound board and played with the thumb), a speaker would reproduce that as [bi.ra], [m.bi.ra], or [mbi.ra] depending on his/her mental grammar (formed from the language environment where he/she acquired his/her language). A "typical" English speaker might produce [bi.ra], a "typical" Chinese speaker [m.bi.ra] and a "typical" Shona (Zimbabwe) speaker [mbi.ra].

The investigation reported in this paper takes the form of probes into how HKE speakers manipulate strings of segments in mono- and polysyllabic words. The range of possible manipulations will inform us how segments are organized in the HKE speaker's mental phonology. To this end, this paper employs a ludling (i.e. Play

Language, from Latin *Lud* "game") that involves reversal of phonological units (see Bagemihl 1995 for the relationship between ludling and phonological theorizing).

The evidence found in this study shows that that the HKE syllable template allows a maximum of six segments, unlike that of Cantonese (which allows a maximum of three segments, no branching nucleus and allows high vowels in the coda). The Cantonese syllable is sometimes described as (Cw)V(X), where [w] is a glide and X is any segment. If so, the [w] glide's restricted distribution (either occurring as a sole onset or following a velar plosive) would be puzzling. More tenable is Zee's (1999) phonetic study, which indicates that the [w] glide is in fact labialization of the preceding velar plosive, a position recognized also by the Linguistics Society of Hong Kong (2002, p.19). The HKE syllable template is also unlike "standard" English (which allows a maximum of nine segments, Hammond 1999, Chapter 3). Of course, the term "standard" requires qualification, especially in consideration Singh (2012) who argued how the term "native" fails to apply meaningfully to different varieties of English. However, "standard" can still be meaningfully considered in terms of what is prescribed through textbooks and the classroom. Contact between Cantonse and English presumably begot HKE.

The ensuing section sets the stage for HKE as Chinese English. Section 3 introduces the "backwards" language game. Section 4 unravels the HKE syllable through attested "backwards" manipulations. Section 5 discusses some implications of the study and offers a conclusion.

2.   Hong Kong English as Chinese English

Hong Kong (population approximately 7.19 million, HKSAR Census, 2014), is predominantly Cantonese-speaking. Annexation to the British crown in the nineteenth century linked Hong Kong intimately to the English-speaking world. For a long time, Hong Kong was the Chinese representation to the world as China kept her doors closed until as late as the 1970s (with the reform and open-door policies of Deng Xiaoping) and the modernization of Taiwan starting only in 1949. In fact, Bolton's (2003) title *Chinese Englishes* was a study of what is essentially Cantonese English, starting from Mundy's diary of his stay in Macau in the 17th century (ibid, p.139), and then covering the southern coast of Yue-speaking China where Hong Kong plays a prominent role.

Today, the picture is much enriched with both the People's Republic becoming more globalized and with Taiwan having enjoyed decades of post WWII economic prosperity. There are also the participants in the Chinese diaspora that have taken new identities as Singaporeans and Malaysians (also to weaker extents Thai, Filipino, or various Chinatowns too). Chinese-affiliated Englishes would include Singapore English, Malaysian English, Hong Kong English, Taiwan English etc.

HKE is Chinese English through having Cantonese, a Han language/dialect, as one of its parent languages. Until the end of the 20th century, Cantonese was arguably the lingua franca of most of the Chinatowns around the world (just watch the Hollywood movies that feature a Chinese language up to *Indiana Jones Temple of Doom*, 1984). Among other early language manuals, the preface of T'ong (1862) explains that the transliterations provided therein are to be read in Cantonese. Many of these transliterations have since entered the lexicon of modern Hong Kong Cantonese as loanwords (e.g. *plum* as [pou33.lʌm55], *store* as [si33.tɔ55]*, money* as [mʌn55] via [mʌn55. nei21]), which attest to the intermingling between Cantonese

and English in Hong Kong. Stronger evidence comes also from the various descriptions of HKE that reveal a heavy Cantonese influence. Hung (2000) provided a segmental inventory of HKE that was constrained by the Cantonese inventory; and Cheung (2009) gave a comprehensive description of the tone-like properties of HKE speech, which Wee and Liang (forthcoming) demonstrated to have F0 values that relate to Cantonese.

Summarizing from the preceding paragraphs, the case for HKE as Chinese English is substantiated on three fronts: (i) demographics; (ii) history and (iii) linguistic affinity. In contrast, other candidates such as Singapore English invariably include a much stronger presence of other local languages such as Malay, Peranakan, and even Indian languages from the Indian diaspora (Lim 2014 among others).

3.   The "Backwards" Language Game

Any community is likely to have lots of interesting things they do with their language(s). Most commonly, one sees rhymes, verse, limericks and songs, but closer study would also reveal secret or play languages invented by users to encode their message. In the United States for example, children may use a play language called Pig Latin, which involves the transposition of any word-initial consonant cluster to the end followed by a suffix [ei]. Hence *pig* is [igpei], *Latin* [ætɪnlei] and *sleep* [i:pslei]. This provides evidence about the constituency of the consonant clusters (for why else would [sl] be transposed as a unit in *sleep*?). Similarly, Chao (1931) reported on eight different *fanqie* languages used in different regions of China for clandestine communication, where essentially each syllable is split into two by inserting material between the onset consonant and the rhyme, for instance [ma] would be encoded as [mai.ka]. *Fanqie* languages would also attest to the internal organization of the segments as epenthesized material are licensed only between the onset and the rhyme (or in traditional Chinese phonology parlance between the *shengmu* and *yunmu*).

Coming back now to Hong Kong, HKE has been used for purposes of punning (as in (1)), though nothing as intricate as play languages have hitherto been observed.

(1)   A pun on *child* and the family name *Chow* (a 2006 advertisement poster)

The poster in (1) is a pun on the last name of this popular singer Chow and the word *child*, both pronounced [tʃʰau] in HKE, an effect normally lost to non-HKE speakers. Phenomena such as punning and rhyming attest to the HKE speakers' ability to manipulate phonology in systematic ways that underlie their mental grammars.

In this study, ten HKE speakers (balanced for gender) are invited to learn a ludling that requires them to "reverse" their speech, thereby manipulating phonological strings. Participants are Cantonese-English bilinguals native to Hong Kong and have not spent extensive uninterrupted periods abroad. They are from middle-income families, have received or are undergoing undergraduate education and speak English proficiently. Their representativeness is further checked by having anonymized samples of their recordings judged for typicality by other at least three other Hong Kongers. These participants are taught "backwards" manipulation using Cantonese materials so as not to affect their performance in HKE. The training is done by first providing the participants with polysyllabic Cantonese words with the encoded forms in reversed order of the syllables, as in (2).

(2)　　"Backwards" Cantonese

normal word　[σ_1　　σ_2　　…　　σ_{n-1}　　σ_n]

backwards　　[σ_n　　σ_{n-1}　　…　　σ_2　　σ_1]
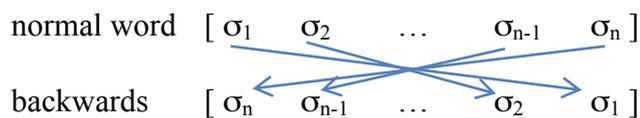
Normal	"Backwards"	gloss
[tsiŋ.tiŋ]	[tiŋ.tsiŋ]	dragonfly
[dik.si.nei]	[nei.si.dik]	Disney
[tsau.tau.fu]	[fu.tau.tsau]	stinky tofu

When the participants appear comfortable with reversing the order of the syllables, they are presented with monosyllabic Cantonese words and then asked to suggest the "backwards" form. At no point do we attempt to correct the participants for their attempts, thus whatever they produce as their version of "backwards" we simply nod in agreement. This is important because we want to find out what kinds of manipulations are most natural to the participants. Though taken aback at first, participants appear to be able to produce some encoded form or another, producing [kit] out of 敵 [tik] "enemy" and [am] out of [ma] "mother". Most participants become quite excited at this stage. Participants are then shown a few English words in print and asked to encode those as well so that they know to transfer their encoding methods to HKE. To avoid priming the participants, English stimuli are never read to them.

The trained participants are then invited to make recordings of a list of English words, all presented visually. Recordings are done using a prompt question, first in normal articulation and then in "backwards" form. If the target word begins with a plosive, the prompt is "What was it?", to which the participants will respond "It was X." Otherwise, the prompt question is "What do you say?" to which they respond, "I say Y" (where X and Y are the target words). Each word is recorded three times for normal and three times for "backwards", with the repetitions done over separate sessions. Normal utterances allow the experimenter to ascertain the HKE pronunciation of the word by each speaker, and the "backwards" forms allow observation of the kinds of manipulation most natural to the participants. Having the

repetitions in separate sessions allows the checking for consistency in the manipulation strategies that might qualify for "backwards". The wordlist for collection of backwards language consists of about 500 items that have consonant clusters word-initially, medially and finally as well as those that have various combinations of vowel sequences.

As may be expected, such an experiment will produce quite a handful of variation in the data. Variations come from a variety of sources:

I. Same word, different pronunciations
   The same word may have been pronounced differently by different HKE users, yielding different "backwards" forms. For example, words like *ants* may be [ɛnts] or [ɛns] in HKE.
II. Different "backwards" forms due to different operations
   Given a monosyllabic sequence, the backwards form could have been formed by (i) linearly reversing all the segments, (ii) flipping the order of the onset and coda; or (iii) pre-posing only the coda. Similarly, given a disyllabic or polysyllabic sequence, the backwards form could have been formed by (i) linearly reversing the order of the syllables, (ii) reversing the order of the feet, so that *absolutely becomes lutely-abso* rather than *ly-lute-so-ab*; or (iii) by merely preposing the final syllable. These are all possible operations, even if some are not strictly "backwards".
III. Performance errors
   Subjects are likely to have performance errors due either to anxiety or to other factors. Such performance errors can never be totally discounted or eradicated.

The variations in the data do not invalidate the study, rather they reveal the extent to which manipulations are possible. However, care must always be taken not to jump to conclusions. For example, if *cat* [kæt] were to yield [tæk], one cannot conclude if there is a reversal of the linear order of the segments or if the onset and coda have switched places, but if *Kate* [keit] yields [teik], the preservation of the vowel sequence [ei] would allow us to conclude that the onset and coda changed positions.

4. Deriving the HKE syllable template

In normal articulation, it is difficult to ascertain the properties of HKE's (or any other language's) syllables for two reasons. Firstly, it is not always easy to decide how word-medial consonants are to be treated. For example, is the syllable break in *disclaim* before [s], before [k], before [l]] or after [skl]? Similarly with *filming* pronounced [fimiŋ] in HKE, [m] could be a single segment shared by two syllables and/or geminate. Secondly, a monosyllabic word in RP may not be monosyllabic in HKE. For example, *isle* is often perceived and articulated as disyllabic by HKE speakers.

These issues can only be teased apart by evidence internal to the linguistic patterns of the users. Such evidence can come from phonological alternation (such as allophonic distribution), cleverly designed perceptual experiments, or production manipulations (pause insertions, ludling such as "backwards" language). This paper, however shall not address the inventory of HKE phonemes and their allophones,

focusing strictly on the issue of syllable structure. The interested reader is instead referred to Hung (2000) for an excellent treatment on the phonological inventory.

4.1 Vowel nuclei

We begin the exploration with the vowels that may form the nuclei of the HKE syllable. Note that an intra-syllabic vowel sequence, say [ei], is not *a priori* a diphthong. In Cantonese, [i] is the coda, since no consonant can follow [i] or [u] inside a syllable when either are preceded by another vowel. (All di-vocalic sequences in Cantonese ends with [i] or [u].) Evidence that the HKE syllable does tolerate a diphthong nucleus can however be found in "backwards" articulations, as seen in (3).

(3)   Vowel sequences in HKE

	Word	Normal articulation	"backwards" form
i.	town [au]	[taun]	[naut], [ãũt]
ii.	ounce [au]	[auns]	[saun], [s.aun]
iii.	fly [ai]	[flai]	[laif], [aif]
iv.	like [ai]	[laik]	[kai], [kail], [k.lai]
v.	gave [ei]	[geif]	[f.gei], [feik]
vi.	range [ei]	[reindʒ]	[dʒu.rein], [tʃein]
vii.	boat [ou]	[bout]	[toub], [t.bou]
viii.	owns [ou]	[ouns]	[soun], [s.oun]
ix.	coin [oi]	[koin]	[noik], [õĩk], [oiŋ.k]
x.	Troy[oi]	[troi]	[oits], [oi.tr], [roitʃ]
xi.	help [eu]	[heup]	[peuh], [p.heu]
xii	new [iu]	[niu]	[iun], [wiun], [win], [wni]
xiii.	milk [iu]	[miuk]	[kium], [k.miu]

The examples in (3) provide all possible vowel sequences in HKE that are potentially diphthongs. In HKE, V-schwa is always parsed as two syllables, hence sequences involving schwa may be omitted presently. Notice that vowel sequences like [ai], [ei], [ou], [oi] and even [iu] are preserved in the "backwards" forms even when the framing consonants are metathesized. For example, *boat* [bout] yields [toub] or [t.bou], where [t] and [b] may swap places or [t] may be fronted, but always leaving [ou] intact rather than producing *[utbo] or *[tuob]. Noteworthy among the list of diphthongs is [iu]. This diphthong is presumably not found in R.P. varieties, as words like *new* are transcribed [nju:], suggesting [j] as part of the syllable onset.

For the comparativists, HKE is unlike Cantonese in allowing diphthong syllable nuclei and unlike RP in having [iu] as a diphthong. For the HKE phonologist, an interim conclusion is that the HKE syllable allows two vocalic segments in the nuclei, and they are [au, ai, ei, ou, oi, iu].

4.2 Coda

For the HKE syllable coda, one can look at postvocalic consonants and see what happens with "backwards" manipulation. (Pre-vocalic consonant sequences not helpful because only one segment is allowed in the HKE coda. Thus, prevocalic strings that might otherwise have been back-ended undergo deletion or re-syllabification.) For example, "backwards" *ox* [ɔks] produces [sɔk], [si.ɔk], [skɔ], [sɔ],

never *[ksɔ]. One account for the absence of *[ksɔ] is to claim that the [s] in *ox* [ɔks] never formed the coda constituent in the first place, and [s] might have been some kind of syllabic obstruent or might have been extrasyllabic, thus only [s] is fronted in the "backwards" manipulation. This is not unlike Berber where even fricatives can serve as syllabic nucleus if it is a sonority peak, as reported in Dell and Elmedlaoui (1985). Ong's (2007, Chapter 3) study of Malaysian Cantonese also adds to the possibility that HKE could too allow syllabic obstruents. (Recall (2) that in the "backwards" manipulation, polysyllabic strings have the order of the syllables reversed.) An alternative account would be that [ks] is disallowed in the HKE onset, which is precisely what *[ksɔ] involves. In fact, both accounts could be simultaneously true, making it all the more challenging to unveil the true nature of HKE codas. For now, consider the data in (4).

(4)   Coda consonants

	Word	Normal articulation	"backwards" form
i.	ant	[ɛnt]	[tɛn]
ii.	close	[klous]	[s.klou], [souk]
iii.	fed	[fɛd]	[dɛf], [ɛt.f]
iv.	fuse	[fius]	[s.fiu], [siuf]
v.	ink	[iŋk]	[kiŋ], [kin]
vi.	kept	[kɛpt]	[t.kɛp], [tɛk]
vii.	larks	[la:ks]	[s.la:k], [s.kə.la:], [kəs.la:]
viii.	leap	[lip]	[pli], [piu],
ix.	look	[luk]	[ku:], [klu]
x.	lump	[lʌmp]	[plʌm]
xi.	mute	[miut]	[tium], [t.miu]
xii.	puff	[paf]	[fap], [f.pa]
xiii.	thin	[θin]	[niθ], [inθ]

The data in (4) allow a number of inferences. Firstly, codas generally do not allow more than one segment. For example, "backwards" (4vi) *kept* [kɛpt], pre-poses [t] leaving [kɛp] as a syllable, breaking [pt] string that might have looked like the coda to *kept*. This fronted [t] is sometimes accompanied by epenthesis so that it could form a syllable, or else it forms a rather unusual syllabic consonant (more in section 4.5). Alternatively, if [p] were deleted, then [k] and [t] metathesize, in which case, also demonstrating that [t] and [k] are acceptable codas, but not the cluster [pt]. Similarly, in (4v) *ink*, the [ŋk] sequence is broken when "backwards", as are also (4i, vii, x). Here, the test is to see if consonant clusters are broken/breakable.

Secondly, plosives and nasals are good coda segments. The case for plosives can be seen with (4iii, vi, vii, viii, xi, xi, xii). In (4viii) *leap* for example, we know that the [p] must have been in the coda because it swapped places with the initial [l] to produce [piu], where the final [u] is the result of [l] vocalization (see Wee 2009 for L-vocalization in HKE). Similarly with (4xi) *mute* [miut], the backwards form [tium] tells that both [m] and [t] are good in the HKE coda position. By the same reasoning, (4v, xiii) make the case for nasal codas.

Thirdly, fricatives are dispreferred as HKE codas, though marginally allowed. This can be seen by the inconsistency in how [f], [θ] and [s] behave. Take (4iv) *fuse* [fius] for example. The acceptability of [siuf] as the backwards form suggest that both

[s] and [f] are viable codas, yet the option [s.fiu] seems to indicate that [s] was not part of the coda of [fius] in the first place, as if it were a different syllable.

With respect to the HKE coda, one can make the interim conclusion that only one segment is licensed in the coda, preferably a plosive or a nasal, collectively describable as [-continuant]. In comparison with Cantonese, HKE is similar with respect to having singleton codas (unlike RP), but differs in tolerating fricatives (which Cantonese strictly forbids).

4.3   Onset

For the HKE syllable onset, one can likewise look for consonant sequences attested on either side of the vowel nuclei and observe their patterning under "backwards" manipulation. In fact, many of the data that helped us with understanding the HKE coda also illustrate the kinds of onsets allowed in HKE. Going through the data in (3) and (4), it should be evident that the HKE onset allows plosives [p, t, k, b, d, g], nasals [m, n][1] and fricatives [s, f, θ, h][2], affricate [tʃ] (cf. (3vi)) and liquids [r, l] as onsets. All these segments have attested instances in "backwards" manipulation as either serving the onset of a syllable or as being exchanged with what is the coda in normal articulation, e.g. (3iii, v) and (4iv, xi) among others.

To be added to the list of singleton HKE onsets are the glides [j, w] and also di-segmental sequences, inferable from the data in (5).

(5)   Onset consonants

	Word	Normal articulation	"backwards" form
i.	yet	[jet]	[tei], [t.je]
ii.	cow	[kau]	[wauk], [auk]
iii.	implore	[implɔ]	[plɔ. im], [pɔ.im]
iv.	Britain	[britən]	[tən.bri]
v.	improve	[impruf]	[pru.vim], [puf.im], [f.pru.im]
vi.	drape	[dreip]	[p.drei], [p.drei], [reip.t], [pei.dr], [pid.rei]
vii.	tradition	[trədiʃən]	[ʃən.di.trə]
viii.	grape	[greip]	[p.grei], [preig]
ix.	crown	[kraun]	[nauk], [n.krau], [raun.k]
x.	clear	[kliə]	[ə.kli]
xi.	freshness	[frɛʃnəs]	[nəs.frɛʃ], [nə.ʃ.frɛ], [s.nə ʃ.frɛ]
xii.	small	[smɔu]	[mɔu.s], [mɔus]
xiii.	snatch	[snɛtʃ]	[tʃ.snɛ], [nɛtʃ.s], [tʃ.nɛ.s]
xiv.	stain	[stein]	[tein.s], [ein.st]
xv.	stupid	[stiupid]	[pid.stiu]
xvi.	sphere	[sfiə]	[fiəs], [əs.fi], [ə.fi.s]

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[1] Notably missing [ŋ], accountable by firstly, HKE words from British or American sources have no such instances other than heterosyllabic ones like *finger, hangar* and *singing*; secondly most HK Cantonese speakers today no longer have the velar nasal as an onset, thus ruling out also any HKE words of Cantonese origin.

[2] In normal articulation, [h] is not attested as a coda. However, in "backwards" manipulation *help* [heup] → [peuh], we see that HKE speakers allows [h] in the coda after swapping places with [p].

| xvii. | spare | [spɛə] | [ə.spɛ], [əs.pɛ],[pɛ.ə.s], [ə.pɛ.s] |
xviii.	skate	[skeit]	[keit.s], [t.keis]
xix.	skating	[skeitiŋ]	[tiŋ.skei], [tiŋ.kei.s]
xx.	spring	[spriŋ]	[priŋ.s], [riŋ.sp]
xxi.	splendid	[splɛndit]	[dis.plɛn], [dit.splɛn], [dit.plɛn.s]

(5i, ii) are rather straightforward in showing that glides [j, w] are possible onsets in HKE. Ignoring for the moment the rather unusual-looking obstruent syllabic consonants (see section 4.5), we set our sights on whether the "backwards" manipulation would split or preserve the consonant sequences found in the normal articulations. The data in (5iii-xv) show that di-consonantal strings are marginally acceptable as HKE onsets. For example, in (5iii), we see the [pl] sequence from *implore* [implɔ] preserved as [plɔ.im], though in the [pɔ.im] rendition, [l] is deleted, leaving only [p].

The longest possible string of consonants potentially possible as HKE onsets are tri-consonantal, and such strings always begin with [s]. One can see in (5xx, xxi) that the trend is to displace the initial [s] with the exception of [dit.splɛn] as one of the attested "backwards" forms for *splendid*. In all the data generated from the experiment, evidence for tri-consonantal onsets is scarce, with most speakers preferring to displace the [s].

4.4   The HKE syllable template

Putting the preceding discussions together, "backwards" manipulation allows us to infer the HKE syllable template, as in (6).

(6)   The HKE syllable template
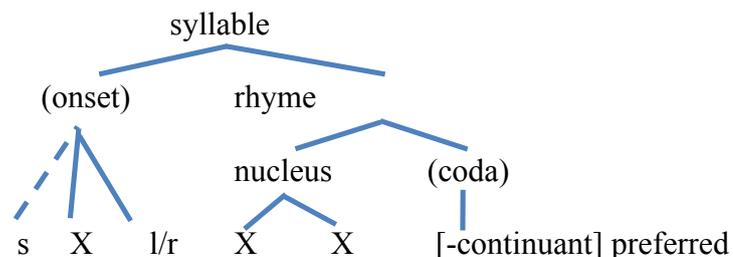
In (6), the syllable is shown to have obligatory nucleus that allows for branching, optional onset and optional coda. The onset has a tenuous association with [s]. The validity of (6) will of course require further testing and can only be accepted when there is converging evidence (such as suggested in section 5).

From section 4.1, we know that the nucleus allows for diphthongs (and thus also monophthongs). From section 4.2, we can discern that the coda normally accepts only one segment, preferably a plosive or a nasal (i.e. [-continuant]) though sometimes fricatives have appeared as codas as well. Section 4.3 demonstrated that onsets allow more consonantal strings, but they are preferably di-segmental. Apparently, the HKE coda and the onset are not very stable because they show preferences rather than strict requirements. This is hardly surprising given that there is an entire culture supported by American movies and R.P.-guided education in Hong

Kong, nudging each generation of Hong Kong young people towards a non-local kind of English.

4.5 Syllabic consonants

Before evaluating the validity of (6), there is one other aspect of the HKE syllable that the "backwards" manipulation has highlighted: the syllabic consonant. As seen in (3v) *gave* [geiv] → [f.gei], (3ix) *coin* [koin] → [oiŋ.k], (4iv) *fuse* [fius] → [s.fiu], (4vi) *kept* [kɛpt] → [t.kɛp], (5viii) *grape* [greip] → [p.grei], (5xiii) *snatch* [snɛtʃ] → [tʃ.s.nɛ], (5xx) *spring* [spriŋ] → [riŋ.sp], among many others, almost anything can serve as a syllabic consonant in HKE, even in careful/deliberate speech as when undertaking "backwards" manipulation. This is a rather unusual state of affairs given that neither Cantonese nor typical varieties of English license obstruents as syllabic in careful/deliberate speech.

Going back to the recordings of the "backwards" manipulation, there are a few things to note. Firstly, the transcriptions were done independently by three research assistants, so the "syllabicity" was perceived by more than one independent researcher. Secondly, there is no lack of instances where a slight pause separates the alleged syllabic obstruent from its surroundings. Thirdly, many of these "syllabic" obstruents appeared to be accompanied by a voiceless vowel (like whispering). Finally, these alleged syllabic obstruents tend to have a distinctly longer duration, especially the fricatives. Even if one does not admit that there are syllabic obstruents in HKE, there can be no debate that under "backwards" manipulation, these obstruents behave rather as if they were syllabic.

From the data in (3-5), one can at least observe that "syllabic" obstruents surface only when (A) there are consonantal strings in the base (non-backwards) form, (B) "backwards" forms might produce consonant sequences within a syllable coda, and (C) fricatives might appear in coda positions. The case of (C) is most strikingly seen with examples like *elves* [ɛufs] which yields [s.f.ɛu] as the backwards form. Here the diphthong sequence is preserved, and [f] and [s] are treated as if each were a syllable of its own, so that [eu.f.s] produces a mirror image [s.f.ɛu]. Interestingly, conditions (A), (B) and (C) converge on the syllable template in (6). In other words, where the words involve violations to (6), HKE phonology resolves that by producing "syllabic" consonants, which could then fit into the template. While syllable nuclei tend to be vowels, there is really no need for such a restriction as long as one requires that nuclei peak in sonority, standard fare in syllable theory. One is reminded of the enigmatic extra-consonants reported in Setter and Deterding (2003), which might perhaps find partial explanation here, the idea being that the extra consonants are added for prosodic weight to obstruent syllabic items.

5. Implications and conclusion

The template in (6) is founded only on "backwards" manipulation, but provides evidence into the internal structure of the HKE syllable. It stands upon the shoulders of precedent research on HKE consonant cluster "simplification" by deletion (Peng and Setter, 2000), substitution (Chan, 2006) or epenthesis (Silverman, 1992) and on the existence of diphthongs (Deterding et al., 2008).

Validating (6) would require a number of other tests. With respect to the syllabicity of the consonants, phonetic experiments can be done to measure their

length in comparison with other segments. Pause-insertions by speakers offer another window, as would syllable-counting games. Each of these will require a separate paper, though my informal investigations with HKE speakers using pause-insertions and syllable counting games have converged on the possibility of syllabic obstruents.

For nuclei structure, assonance and poetry might offer insights. The prediction in (6) is that identical vowel sequences will assonate in HKE, but not in Cantonese where [i] and [u] are in the coda. Thus [eit], [eip] and [ei] but not [en] will assonate in HKE, but in Cantonese [en] and [ei] will assonate. This will require perception tests. Similar strategies apply for rhyming to check the coda constituents; and for alliteration to check for the onset. For example, (6) predicts that for speakers who do not accept [s] as part of a complex onset, then *sleep* alliterates with *lake*. One can try teaching HKE speakers ludlings that involve transposition (e.g. Pig Latin) or substitution (e.g. F-language) or division (e.g. Chinese *fanqie*). At this stage, none of these are easy options, but (6) now offers a testable model of the HKE syllable that is founded on some evidence internal to HKE.

The fluidity in association of [s] with the onset and in allowing continuant codas invites contemplation. One possibility is that the fluidity stems from combining the grammars of 10 different participants of the experiment. That can be discounted because fluidity was observed in the individual responses as well. Another is the influence of Cantonese as participants are bilingual speakers. However, that is only at best a partial explanation since Cantonese does not allow syllabic obstruents or consonant clusters in the first place. One final possibility is that HKE is in fact very unstable and is still engaged largely in exonormative alignment, so it is not quite yet an endonormative variety.

To conclude, this chapter has presented a "novel" method of probing into the HKE syllable structure by prompting speakers to manipulate HKE words in reverse. The finding is that while a template can be established (weakly ternary branching onset, branching nucleus, and singleton coda, as in (6)), it also suggests that HKE phonology is at the exonormative stage (Schneider 2007, Chapter 3) and is likely to remain a rather unstable system for the time being.

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