PHONOLOGICAL ELISION IN MALAYSIAN CANTONESE CASUAL SPEECH

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How does a person say "thank you" when there are so many people to thank?

This thesis is dedicated to my family, who encourage me to pursue my dream without a fear. They are my mentors and heroes that make my life complete.

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Summary

In fast and casual speech, speakers of Malaysian Cantonese (MyCan) have the tendency to not fully articulate each syllable, there is elision of phonological segments during the utterance of familiar items, often characterized as either as allegro speech or as casual speech, akin to “wanna” from “want to” in English.

MyCan elision is commonly attested in casual utterances of trisyllabic strings, and it only applies at the boundaries between syllables, known as Window of Elision (WoE). The locus of elision is generally at the initial and medial syllables (WoE-1), sometimes triggering the merger of adjacent syllables and produces a disyllabic output, detectable through spectrographic analysis. This effect is attributed to the combination of the binarity requirement in casual prosody, and the rightheadedness of MyCan prosody.

Merging of syllables after casual speech elision is blocked if there are intervening residue consonants. This blocking produces bizarre obstruent syllables when the residue consonants are not allowed to form clusters. Interestingly, obstruent syllables are only produced when the input sequence involve reduplication of some kind. This is a pattern that cannot be accounted for it elision is solely triggered by the prosodic requirement. Rather it must be due to a constraint on redundant information found in reduplicants to surface during casual speech. Only unrecoverable information is allowed to surface.

There are also cases where elision cannot apply, no matter how familiar that item is. Clearly then, casual speech elision is restricted only to the susceptible segments. In fact, elision involves only either reduplicants or a very specific set of consonant segments: [j, w, h, t, t^h, s, ts, ts^h, k] for onsets and [i, u, m, n, ŋ, t, k] for codas.

List of Optimality Theoretic Constraints

BINPW[CAS]	Prosodic word must not have more than 2 feet in casual speech.
MAX	Segments in the output must correspond with segments in the input.
IDENT[MORP]	For every input morpheme there is a corresponding output morpheme.
HD-RT	The head of a prosodic word is the rightmost constituent.
IDENT[HD]	Elements of the head must have identical correspondence between the input and the output.
*[-cons $_{ONS}$]	Do not have [-cons] onsets.
*[+cons $_{NUC}$]	Do not have syllabic consonants.
*[-cons $_{ONS}$] & *[+cons $_{NUC}$] / CAS	Do not have simultaneous violations of *[-cons$_{ONS}$] and *[+cons$_{NUC}$] in casual speech.
*RED/CAS	Do not have reduplicants in the output in casual speech.
*CC	Do not allow consonant clusters within a syllable.

Chapter One

The Puzzling Phenomena of Casual Speech Elision in Malaysian Cantonese

1.1. Introduction

Cantonese is one of the most widely used Chinese languages in the world today and has been studied by numerous linguists (Chao 1947; Killingley 2002; Matthews and Yip 1994; Silverman 1992; Yip 1980, 1990, 1993 and many others). Part of the reason for its widespread acceptance lies in the prolific Hong Kong (a Cantonese speaking society) entertainment industry, but it probably owes much to the fact that many Cantonese immigrants left Canton (modern Guangzhou) to Hong Kong, Malaysia, Singapore, the USA and many other parts of the world since the 18th Century (Welsh 1997).

But like all languages, the Cantonese spoken in different parts of the world is not identical. The Pearl River Delta for example boasts a large number of nearly mutually unintelligible varieties of Cantonese (Cheng 1992, 1996 and others). While the Guangzhou variety and the Hong Kong variety have been widely studied, the Malaysian variety has hitherto received little attention. In fact, my best efforts have not turned up any work done in this area. As such, this thesis purports to fill this gap through a study of the phonology of Malaysian Cantonese (henceforth MyCan), developing in part its basic phonological inventory (Chapter Two) but focuses mostly on the peculiar and complex patterns of Elision in Casual Speech (henceforth ECS). The study draws the conclusion that MyCan ECS is prosodically motivated, which effects are contained by segmental restrictions.

The ensuing sections of this chapter presents a brief overview of the history and geographical distribution of Malaysian Cantonese community (section 1.2); a detailed presentation of the key puzzles associated ECS in MyCan casual speech in section 1.3; an outline of the field methods used in the gathering of data for this study in section 1.4; a discussion on the theoretical machinery useful for this research in section 1.5; and a survey of some earlier works relevant to this study in section 1.6. The chapter ends with an overview of the entire thesis.

1.2. Malaysian Cantonese: History and geographical distribution

This section will first begin with a concise outline of the geographical distribution of Cantonese speakers in Malaysia with glimpses into history. This is to provide some dialectological background that would help place this research in the context of Chinese languages.

Malaysia is located in South East Asia, and it comprises the Peninsular Malaysia (where the capital Kuala Lumpur is located) and East Malaysia; the two lands separated by the South China Sea. The population of Malaysia is about 24 million, with the Chinese community as the second largest community making up 24% (Dept. of Statistics, Malaysia 2005). Malaysia is a multiracial society and many different languages are spoken by different groups within Malaysia. Malay and English are the official languages. There are also the Indian languages spoken by the ethnic Indians; the native Polynesian languages such as Iban and Kadazan; and the Chinese languages such as Mandarin, Cantonese, Hakka, Hokkien, Teochew etc.

Most of the ethnic Chinese populations in Malaysia are the descendents of immigrants who came from the southern provinces of China during the 19th century. These immigrants clustered along linguistic lines so that those who belong to the same linguistic/dialectal community gathered together and took care of later similar immigrants. As a result, certain Chinese languages are predominant in certain parts of Malaysia, depending on the clustering of the early immigrants. For example Hokkien is a common tongue in Penang, Johor and Malacca, while Cantonese is widely spoken in Kuala Lumpur, Seremban and Ipoh. The Cantonese spoken in these regions is very homogenous, and it is the phonological patterns of this Malaysian Cantonese that this thesis studies.

(1) Map of Malaysia[1]

[1] Image from http://www.appliedlanguage.com/maps_of_the_world/map_of_malaysia.shtml, accessed 29 May 2007.

1.3. Key puzzles

Before beginning to present the key puzzles, it is necessary to understand what is meant by Elision in Casual Speech (henceforth ECS). By ECS, I refer to the deletion of phonological segments during the utterance of familiar items, often characterized as either as allegro speech or as casual speech, akin (but not identical) to *to*-contraction (Pullum 1997 among others) in English:

(2)
want to	→ wanna
going to	→ gonna
got you	→ gotcha
miss you	→ missya
could have	→ coulda
let me	→ lemme
got to	→ gotta
don't know	→ dunno

Such contractions are also found in Chinese languages, notably in the studies of Beijing speech in Zhang (2000) and Zhu (2001), of Taiwan Mandarin (Tseng 2005) and also of the Tianjin dialect (Wee et al 2005, 2006; and Wee 2007). And closer to MyCan, Wong (2004) presents phonetic evidence of a few utterances that suggest processes in Hong Kong Cantonese, though from the few examples, it is hard to draw substantive conclusions. In all of the above cases, familiarity is key, because ECS does not apply to

unfamiliar items, nor in cases where careful speech is needed. Bringing our focus back to MyCan, ECS is most commonly attested in trisyllabic input sequences such as the following:

(3)	a.	/**m hɔi** sɐm/	→ [**mɔi**.sɐm]	"unhappy"
	b.	/hɐi **m hɐi**/	→ [hɐi.**mɐi**]	"is it"
	c.	/**sai sɐu** kan/	→ [**sɐu**.kan]	"washroom"
	d.	/**kei tɔ** kɔ/	→ [**keɔ**.kɔ]	"how many"

1.3.1. Windows of ECS

The data in (3) reveals an interesting pattern, for in these cases it appears that ECS does not take random targets, as can be seen from the unacceptability of the following logical possible alternatives to (3a, c and d):

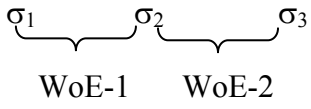
(4)	a.	/**m hɔi** sɐm/	→ [**mɔi**.sɐm] but *[mi.sɐm]	"unhappy"
	b.	/**sai sɐu** kan/	→ [**sɐu**.kan] but *[siu.kan]	"washroom"
	c.	/**kei tɔ** kɔ/	→ [**keɔ**.kɔ] but *[kiɔ.kɔ]	"how many"

(Legend: The "." indicates syllable boundary)

The unacceptable cases suggest that ECS applies only at the boundaries between the syllables, and never inside a syllable, or for that matter anywhere else. In other words, the sites of ECS are always to be at the windows between syllables. For convenience, I shall

call such potential ECS sites Windows of Elision (WoE) and each site may be numbered from left-to-right, schematically presented in (5).

(5) Windows of ECS



At this point, we have our first puzzle,

(6) Puzzle 1: Locus of ECS

Why is ECS allowed only at WoE?

However, (6) is not the only puzzle pertaining to WoEs, in fact, if one recalls the data in (3), there appears to be a puzzle with regards the choice of WoE.

(7)	a.	/**m hɔi** sɐm/	→ [**mɔi**.sɐm] but*[m.hɐm]	"unhappy"
	b.	/hɐi **m hɐi**/	→ [hɐi.**mɐi**] but *[hɐm.hɐi]	"is it"
	c.	/**sai sɐu** kan/	→ [**sɐu**.kan] but *[**s**ɐi.san]	"washroom"
	d.	/**kei tɔ** kɔ/	→ [**keɔ**.kɔ] but *[kei.tɔɔ]	"how many"

In (7), the unacceptable cases are precisely where the WoE differs from the attested examples, which lead us to the next puzzle:

(8) Puzzle 2: Choice of WoE

Given a string with more than one WoE, how is the WoE chosen?

1.3.2. Minimal Length Requirement

Implicit in the discussion above is that trisyllables freely undergo ECS, which is for the most parts true. ECS appears to apply largely polysyllabic strings, with the highest frequency in trisyllabic ones, rarely in disyllables and never in monosyllables. With longer strings, ECS is also attested, as is shown in (9).

(9) a. Disyllabic strings

i.	/m hou/	→	[**mou**]	"not good"
ii.	/m hiu/	→	[**miu**]	"do not understand"
iii.	/m ŋɔi/	→	[**mɔi**]	"do not want"
iv.	/m hai/	→	[**mai**]	"not true"
v.	/ŋam ŋam/	→	[**ŋam**]	"just a while ago"

b. Trisyllabic strings

i.	/lei hin luŋ/	→	[**lin**.luŋ]	a name
ii.	/sɐp sam ji/	→	[**sam**.ji]	"13th aunt"
iii.	/sɐp sɐp sœy/	→	[**sɐp**.sœy]	"easy-peasy"
iv.	/lei a ma/	→	[**lea**.ma]	"your mother"
v.	/san ka la/	→	[san.**k.la**]	"remote area"

vi. /hɐm paŋ laŋ/ → [hɐm.**p.laŋ**] "all"

vii. /hai m hai/ → [hai.**mai**] "is it?"

viii. /min ts^hɛŋ ts^hɛŋ/ → [min.**ts^hɛŋ**] "pale"

c. Four-syllable strings

i. /ts^hɐt ts^hɐt pɐt pɐt/ → [**ts^hɐt**.pɐt.pɐt] "almost done"

ii. /ma ma fan fan/ → [**ma**.fan.fan] "bothersome"

iii. /pou pou kou sɛŋ/ → [**pou**.kou.sɛŋ] "steady promotion"

iv. /si t^hou wiŋ ji/ → [**sou**.wiŋ.ji] a name

v. /pɔ lɔ wɔŋ si/ → [**p.lɔ**.wɔŋ.si] "alpes-de-haute-provence"

vi. /pik lik pak lak/ → [**p.lik.p.lak**] "onomatopoeia for cracking"

Examples of disyllabic inputs undergoing ECS are rare, and restricted only to cases where the final syllable has a [-consonantal][2] onset or when the two syllables are identical or at least have identical rimes. The only notable exception is the onset [ŋ], which for MyCan speakers only surfaces when the syllable is articulated in isolation. As such (9iii) should probably be accounted for through an intermediate step where the [ŋ] is removed by virtue of the fact that the syllable is part of a string. This would effectively make it onsetless prior to the application of ECS.

This observation that ECS applies more easily to trisyllabic, and longer strings is a puzzle that can be stated as follows:

[2] According to Chomsky and Halle (1968), [h] and the semi-vowels are [-consonantal] since the articulation of these sounds involves no radical obstruction.

(10) Puzzle 3: Length requirement

Why is that trisyllabic sequences are liable to ECS?

The related question on what disyllabic strings may undergo ECS can be answered by a stipulation on the [-consonantal] onsets of the final syllable. However, for the sake of thoroughness, this question and its tentative answer are stated in (11) and (12):

(11) Puzzle 4: Disyllabic ECS

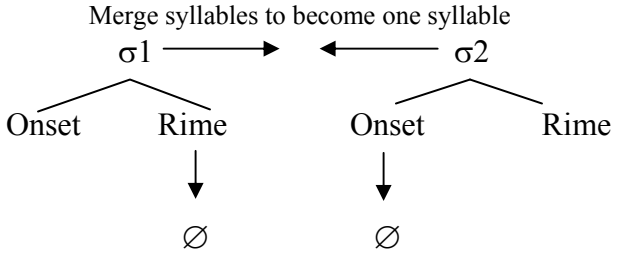
What kinds of disyllabic strings allow ECS?

(12) License for ECS

ECS applies freely to (i) [-consonantal] onsets at WoEs; and (ii) to WoEs where syllables share the same rime.

The observation (12ii) is not only true of cases such as (9a.iv), but also of similar cases in longer strings such as (9b.viii) and (9c.vi). At this point, it may be difficult to ascertain if in (9a.iv) one of the syllables is deleted, but when taken together with other cases of ECS, it should be a safe bet to say that deletion happened to the rime of the preceding syllable and the onset of the following one:

(13) Syllable Merger



The schema in (13) points to a noteworthy consequence of ECS. For many of the cases listed in (9), the residue material after ECS merges into a new syllable, effectively producing an output string with fewer syllables than the input. This observation, however, is not absolute, as can be seen in the peculiar examples in (9b.v & vi) and (9c.v & vi), presumably because the onset consonant has persisted, and any merger would produce a consonant cluster, which is forbidden in MyCan. Nonetheless, these cases appear bizarre in that even obstruents (or semi-syllable in the sense of Cho and King 2003) would have to be syllabic: a highly counterintuitive situation given that such cases are never attested outside of ECS in MyCan. (Phonetic evidence for this would be given in Chapter Three.)

(14) Blocking of Mergers

Mergers do not apply if a consonant cluster is created.

1.3.3. Blocking of ECS

Up to this point, it appears that ECS can apply freely, at least to polysyllabic strings. This is, however, no entirely true. There are examples where ECS cannot apply, no matter how familiar that item is.

(15) a. [lei.lou.tau] "your father"

b. [ma.loi.sɐi.ŋa] "Malaysia"

c. [ŋɔ.tsaŋ.lei] "I hate you"

d. [sip.ts^{h}ɛŋ.k^{w}ɐi] "a sneaky person (ghost)"

In (15), the examples forbid ECS no matter how fast one speaks, and no matter how familiar the term. This gives rise to the question on what segments (or perhaps even sequences) allow ECS.

(16) Puzzle 5: Black Sheep Cases

Why do some utterances forbid ECS?

1.3.4. Interim Summary of Key Puzzles

This section presents the 5 puzzles that are of central concern to a comprehensive understanding of MyCan ECS. Each of these puzzles would be dealt with in turn in

Chapters Three onwards, where they would be explained in greater detail and where an account for them would be developed. For now the 5 puzzles are repeated below:

(17) The 5 Puzzles of MyCan ECS

Puzzle 1: Locus of ECS

Why is ECS allowed only at WoE?

Puzzle 2: Choice of WoE

Given a string with more than one WoE, how is the WoE chosen?

Puzzle 3: Length requirement

Why is that trisyllabic sequences are liable to ECS?

Puzzle 4: Disyllabic ECS

What kinds of disyllabic strings allow ECS?

Puzzle 5: Black Sheep Cases

Why do some utterances forbid ECS?

These puzzles are complemented by the two generalizations, which will prove useful later:

(18) License ECS

ECS applies freely to (i) [-consonantal] onsets at WoEs; and (ii) to WoEs where syllables share the same rime.

(19) Blocking of Mergers

Mergers do not apply if a consonant cluster is created.

Given the puzzles, a skeptic might query the robustness of the patterns presented ECS happens in casual speech and only in familiar items. After all, if each data is as idiosyncratic as a lexical entry then no explanation is necessary, all one has to do is to learn the ECS form of each input. This is not a viable approach, as will be discussed in section 1.4.4.

The next section moves on to the fieldwork involved in the collection of MyCan ECS data.

1.4. Field Investigations

Because MyCan is largely unexplored, it is necessary to start almost from scratch through the gathering of data, bearing in mind that it is fallacious to describe any language by simply listing a set of deviations that language has from some given standard (Mohanan 1992; for an example related to MyCan, see section 2.2.4). In other words, one may not assume blindly that the structure of MyCan is identical to Standard Cantonese. This of course does not mean that one cannot draw insights from the descriptions of Standard Cantonese. In this spirit, the fieldwork investigations for this project exercises much caution in interpreting the data collected. All linguistic stimuli are constructed within a MyCan context, though as it turns out, perhaps quite expectedly, there are many similarities with Standard Cantonese.

1.4.1. Speakers

4 speakers participated in this research, 2 females and 2 males.[3] Selection of informants is based on the following criteria:

(20) Criteria for selection of speakers

a. Geographical Distribution

The predominant Cantonese spoken areas in Malaysia are Kuala Lumpur, Seremban and Ipoh. In case there is variation across these areas, the set of informants contained representatives from all these places: 2 from Seremban, and 1 from Kuala Lumpur and 1 from Ipoh.[4]

b. Age

Informants came from the age group of 20 - 30 years old. Age is an important variable in this research and keeping it controlled is necessary to avoid confusing the variety of Cantonese spoken across generations. Moreover, young Cantonese speakers are more prone to ECS than elder speakers.

[3] Details of informants in Appendix 1.

[4] The first language of each speaker is not necessarily Cantonese; however Cantonese is the language they use most often. I avoid the term "native speaker" because in Malaysia, the ethnic Chinese rarely refer to themselves as native speakers of Chinese languages. Certain Chinese languages are predominant in certain parts of Malaysia depending on the clustering of the early immigrants.

c. Education level

The speakers are all educated under Malaysia's multilingual educational system. None of them spent extensive periods abroad. Also, the speakers have never received formal training in linguistics as an academic discipline.

Though sociolinguists would be quick to point out that gender is an important parameter in the patterns of language use, this appears to have little impact on ECS in MyCan in my observation. As such gender would not be taken into consideration for the selection of speakers. In any case, the set of informants used for this study comprises equal number of men and women. As can be seen in Appendix 2 (Data), ECS applies so consistently that none of the above parameters appear to have played an important role. This speaks strongly for the possibility of ECS as an integral part of general MyCan phonology.

1.4.2. Instrumental and Auditory Approach

Recordings of speakers were done in two places. Where possible, recordings were done at the Phonetics Laboratory at the National University of Singapore Faculty of Arts and Social Sciences.[5] Where it was impossible to get the informants to come to the laboratory, recording was carried out in a quiet room in the privacy of the informants' homes[6] in Malaysia.

Informants were not told the aim of the research until all data was collected and recording. All the recordings were done using the recording facilities provided by the

[5] Thanks to Assoc. Prof Robbie Goh, Head of English Language and Literature for permission and to the laboratory technician Sunadi for his help.
[6] One in Bukit Jalil, Kuala Lumpur and another in Rasah Jaya, Seremban.

software Praat (version 4.6.05). The speakers are told to utter each trisyllabic string four times: twice carefully and twice casually.[7] This provides the raw data for both normal and casual utterances so that comparisons between them may be made to facilitate understanding of what the ECS process involves.

While the speakers were encouraged to feel relaxed and comfortable so that natural data maybe obtained, there exists the potential problem of the Observer's Paradox[8] (Labov 1972:209f). To avoid the hypercorrection when making recordings for casual speech, recording sessions are initiated with informal conversation. In addition, speakers were given time to look through the materials so that familiarity would feed to greater casualness. Since this is a research in Generative Phonology (i.e. one is trying to investigate the phonological competence of the speaker), speakers were allowed to repeat if they feel that a mistake has been made (Ohala 1986 and Mohanan 2003). Because of the large number of test items, breaks were given freely and as a result recordings are not confined to within a single day or a single session.

[7] The raw collected data are arranged into a list which is more convenient for subjects to refer during recording.

[8] The Observer's Paradox refers to the difficulty of extracting natural speech from informants in order to analyze contemporary patterns of use. Hypercorrection occurs where a speaker is aware of certain grammatical or phonological rules but their vernacular does not use the prescribed rules. At times the need to speak 'properly', in a formal situation perhaps means that our vernacular speaker has to consciously delve into his syntax memory as the rule is not part of his hardwired grammar. For further details, please see Labov (1972).

1.4.3. General Results and Discussion

Data collected are presented in Appendix 2 (List of input items) and Appendix 3 (ECS Transcriptions).[9] The following general observations may be made for the various input strings given to the informants:

(21) General Statistics

Inputs	ECS	Variation on ECS Application	No ECS	Total
Disyllabic	12	0	> 100	-
Trisyllabic	78 (78%)	7 (7%)	6 (6%)	100 (100%)
4-syllables	21 (77.8%)	0	6 (22.2%)	27 (100%)

As seen in (21), more than 100 disyllabic strings were presented to informants, but ECS remains negative. Only 12 disyllabic inputs are susceptible to ECS.[10] And so, these are left out from the list in Appendix 2 (List of input items) and Appendix 3 (ECS Transcriptions). It is very probable that the 12 listed here would (almost) exhaust the list, unless a pattern can be found to establish them as systematic exceptions (more in Chapter Four). Out of 100 trisyllabic inputs, it turns out that ECS applies to 78 of them, producing identical results for all speakers. 7 strings appeared to have ECS apply for some speakers and not others, though again, where ECS applies, the results are identical. Only 6

[9] The focus of this study is on segmental loss, and though tones are part of MyCan inventory, are left undescribed in this project.

[10] A longer list of 21 such cases are given in appendix 2, but they are really different instantiations of the same special environment where such ECS is allowed.

trisyllabic strings disallowed ECS for all speakers, though all 6 of them were very common and familiar expressions.

The statistics in (21) indicate some variation at all across speakers. As various authors note (Wong 2004, Casali 120207, Ohala 12086 etc), variation in sound change results is anticipated and in fact attested. In MyCan ECS, variation appears to be confined to whether ECS applies and not how ECS has applied (more on Variation in MyCan ECS in section 1.4.4). When one carefully combs the data in Appendix 3 (ECS Transcriptions), it should be clear that there is only variation on the applicability of ECS and not on the results of ECS. Thus, one may safely ignore the variation reported in (21), and assume that ECS is generally convergent for all speakers of MyCan.

For trisyllabic inputs that allow ECS, the locus of elision vary across windows (WoE). Given what has been said about the variation in the application of ECS, I shall include the 7 ambivalent cases into the total count of those items susceptible to ECS.

(22) WoE of ECS of Trisyllabic Inputs

Inputs	WoE-1	WoE-2	Total
Trisyllabic	64 (75%)	21 (25%)	85 (100%)

In (22), one sees that out of the 85 cases where ECS clearly applies, 64 applies to WoE-1 and 21 applies to WoE 2. Clearly, WoE-1 is a preferred target of ECS.

1.4.4. Familiarity and Lexical Specification

The matter of familiarity might give cause to the skeptic to query if ECS is really the result of lexicalization. However, with deeper inspection, familiarity cannot be an argument for lexical specification simply because of the "casualness" demanded: one cannot be casual with an unfamiliar object. Further, there is evidence of productivity, as the following paragraphs will explain with evidence from (a) Cantonese names; (b) fashionable expressions; (c) acquisition of existent expressions and (d) lack of awareness of elision.

Cantonese (like all Chinese) names usually begin with a family name (mostly mono-syllabic, but disyllabic ones are also available) followed by a given name (mostly disyllabic, and rarely in Malaysia monosyllabic). As such, most MyCan names are trisyllabic and offer fertile ground for investigation into MyCan elision. So, suppose, one takes MyCan name, such as /lei hin luŋ/, and present to 3 persons; the first familiar with the name, and the 2 others unfamiliar. Initially, the unfamiliar pair would not be able to produce an elided form, though the one familiar with the name would produce [lin.luŋ]. The unfamiliar pair, interviewed separately is allowed to converse with the investigator about the name so that the name became familiar in the discourse. Within minutes, both of them spontaneously and independently produce an elided form identical to [lin.luŋ] that produced originally by the familiar person. The coincidences cannot be explained unless it is part of the MyCan phonological system. If lexical specification were involved, there can be no convergence on the elided form. This is a situation so common that it has

often allowed the author to expand the list with relative ease in the investigation of MyCan elision.

Secondly, new trisyllabic expression enters in to the MyCan discourse, either imported from the Hong Kong media or from local creativity. These expressions, unfamiliar at first, settle into the same elided form in time, e.g. /sɐn jɐn wɔŋ/ → [sɐn.wɔŋ] "a prime recruit", /sɐu tʰɐi tin wa/ → [sɐu.ɐi.tin.wa] "cellular phone" and /sɐp sɐm ji/ → [sɐm.ji] "Aunt Thirteen"[11] among others. The settling of fashionable expressions into elided forms, again with little variation, also argues for the productivity of the MyCan elision process.

Thirdly, there is evidence from acquisition. When children learn "new" expressions, these expressions initially unfamiliar to them are often unelided. However, with familiarity, elided forms emerge, again with convergence for speakers across Malaysia. Some caution must be taken here though, because there are occasional cases where an elided form has fossilized, making any allusion to elision spurious.[12]

Finally, MyCan speakers are rarely aware of elision. When queried, the speakers would often insist that what they said in careful speech is identical to what they said in casual speech. Of course, if the speakers then retraced their utterances, they would eventually hear the difference, usually accompanied by a good chuckle and a look of amusement in their faces. All in all, the evidence that MyCan ECS is productive and part of the phonological system (hence worthy of a generative investigation) is overwhelming.

[11] This is name of a fictitious character that became popular in Malaysia through Hong Kong movies in the 1990s.

[12] An interesting case would be the word for police station in Tianjin, which was [pai.tsu,suo] at some historical point, but has been fossilized as [pai.suo]. For most speakers of Tianjin, the historical link cannot be recovered (Wee et al 2005).

1.5. Theoretical Framework

The issues that plague ECS in MyCan demand a framework within which the WoE and the elided segments can be understood. In the account provided here, two key ideas are necessary: Distinctive Features and Optimality Theory. The use of Distinctive Features allows an efficient way of describing the phonological inventory in MyCan. This will allow us to figure out the relationship between each phoneme in terms of their natural class. While the introducing of Optimality Theory sharply pinpoints the multiple ways of conflict resolution in MyCan ECS.

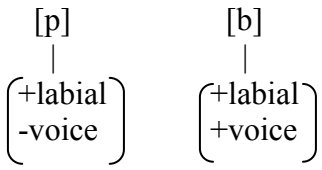
1.5.1. Distinctive Features

In studying ECS in MyCan, it may be noted that deleted material is mostly segmental. In understanding what segments get deleted, the most effective way would be to identify common properties of these deleted phones. To do so, one can appeal to the set of Distinctive Features (Chomsky and Morris, 1968) for the description of each phone. An important theme of introducing the theory of features here is to find the correct set of features that define the sounds and rules system of the language.

For example, the sound [p] in the English word "**p**it" is articulated by drawing the lips together so that they touch and blocking air flow from the mouth. The vocal folds do not vibrate in the process. Likewise, with the sound [b] in the English word "**b**it", except that the vocal folds do vibrate, i.e. [b] is voiced. The commonalities and differences

between [p] and [b] can be easily expressed if one described their articulation with a set of binary features:

(23)



Notice that in (23), we can effectively express the fact that both [p] and [b] involve the use of lips but differ in voicing. The [+] symbol before each feature indicates the presence of that feature while the [-] symbol indicates absence. On this view, languages differ in which features are recruited to encode the lexicon. Take a simple example, English distinguishes its stops in terms of [+voice] and [-voice], while MyCan employs aspiration. English does possess [p] and [p^h] (e.g. [p^hɪt] "pit" and [spɪt] "spit"), which is identical to the sounds in MyCan at the phonetic level. It is at the phonological level that two languages differ: aspiration is distinctive in MyCan but not in English. Conversely, voicing is distinctive in English but not in MyCan.

For expository convenience, the following table illustrates the set of MyCan phonetic properties to help us understand how the entire set of features is applied to the sound inventory of this language.

(24) Distinctive Features and their definitions

[+labial]	During its articulation, the lips are used.
[+coronal]	During its articulation, the tip of tongue is used.
[+nasal]	During its articulation, air flows out of the nose.
[+high]	During its articulation, the body of the tongue is raised.
[+low]	During its articulation, the body of the tongue is lowered.
[+back]	During its articulation, the body of tongue is retracted.
[+syllabic]	Forms a syllable peak (and thus can be stressed).
[+consonantal]	During its articulation, there is radical obstruction in the airflow.
[+voice]	[+voice] segments are during its articulation, the vocal cords are close enough together to allow vibration.
[+continuant]	During its articulation, air flows through the mouth.
[+aspirate]	During its articulation, there is extra puff of air.
[+lateral]	During its articulation, there is an air flow out of the sides of the mouth.
[+sonorant]	[+sonorant] segments are during its articulation, there is smooth airflow. All vowels, glides, liquids and nasals are [+son].

Besides defining phonemes, features play a role in formalizing rules, since rules are stated in terms of features. Every specification, such as [+nasal] or [-labial], defines a class of segments. The generality of a class is inversely related to how many features are

required to specify the class (Odden 2005:150). For example, the problem arising from the traditional vowels and consonants distinction is, sometimes vowels behave like "consonants" in being possible onsets or codas and consonants behave like "vowels" when they are syllabic.

One of the most important uses of features is that they allow grouping of phonological segments into their natural classes, which could consequently be identified as the target of phonological operations. Together with other phonological constructs such as the syllable and its constituencies, one can capture the distribution of segments in MyCan. This I will do in Chapter Two.

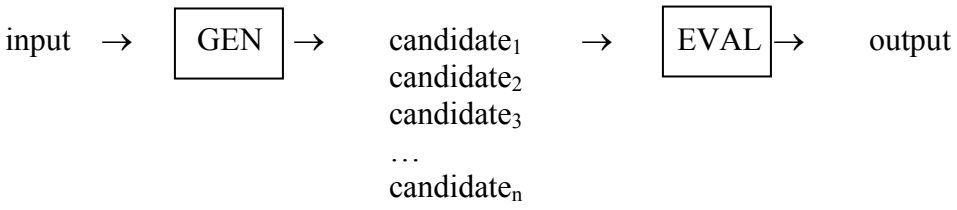
1.5.2. Optimality Theory

Recall now the examples lay out in (9); it is not difficult to see that there are some conflicting situations. For example, in a tri-syllabic string, there would be two WoEs for potential ECS application. However, ECS is allowed in only one WoE for any given trisyllabic string, sometimes the first WoE and sometimes the second. Also, some segments are more prone to elision than others (recall the phone [m] in (3a) and (3b). The conflicts one sees here are (i) choice of WoE and (ii) choice of segments, and it is not always clear which outdoes the other. A useful framework for expressing such patterns is Optimality Theory (Prince and Smolensky 1993/2004, Kager 1999, McCarthy 2002).

Optimality Theory (henceforth OT), is a theoretical framework where linguistic patterns are accounted for by the matching of any given linguistic input to a set of potential output candidates. The heart of it is made up of a ranked of hierarchy of

constraints which would serve to identify the attested output out of the set of candidates. A general schema of the OT machinery is provided in (25).

(25) The OT Machinery



Given a particular input, such as an underlying linguistic form, GEN generates a (theoretically infinite) set of candidates. Each candidate is then evaluated against a hierarchy of ranked universal constraints in the EVAL module. The most optimal candidate then surfaces as the output.

Wee (2002) explains that such a hierarchy of constraints is essentially non-monotonic calculus for conflict resolution based on prioritization. When two things are in conflict, the stronger requirement is fulfilled at the expense of a lower requirement. This is one area where OT represents a paradigm shift from classical derivational models of phonology where conflict resolution is derived through the orderly application of rules.

Going back to MyCan, ECS obviously occurs at the expense of being totally faithful to the input syllables by deleting the segments, hence there must be some output target that is achieved at the expense of faithfulness. As mentioned in Wee (2006) the constraints generally come in two flavors – (i) those preferring certain structures, known as ***markedness constraints*** and (ii) those requiring perfect correspondence of each

candidate form with the input, known as ***faithfulness constraints***. Constraints interact when their interests come in conflict. Consider the example in (26).

(26) /**sai sɐu** kan/ → [**sɐu**.kan] "washroom"

In (26), given /sai sɐu kan/, faithfulness constraints prefer [sai.sɐu.kan] while markedness constraints, such as those that demand disyllabicity in a prosodic word might prefer [sɐu.kan]. Within an Optimality Theory framework, ranking the markedness constraint » faithfulness constraint would produce [sɐu.kan], the reverse would produce an unaltered output. The account for MyCan ECS would certainly not quite be as simple as this, and would probably require a few constraints ranked in very specific ways. But it should be clear that OT is useful in this search for an account of ECS.

1.6. A Survey of the Literature

As mentioned before work done on MyCan has been few, and to the best of my knowledge, there has been no research on ECS in MyCan. However, phenomena closely related to ECS, variously described as truncation and "swallowing" are attested in other languages. This section presents some of the work done in this area that would be relevant to this project.

1.6.1. ECS Hong Kong Cantonese (Wong 2004)

Wong (2004) noted the edges of syllables are obscured by consonant deletion and vowel reduction. She called these cases "fusion". The examples cited in her paper clearly show that this is very much like the ECS in MyCan:

(27) Examples of syllable fusion forms

a.	sek $m_{ɪ}$ sek	→ se $m_{ɪ}$ sek	"know NEG know"
b.	tsiːu $t^{h}ɐu$ tsou	→ tsiːu tsou	"morning"

Wong suggests that speech rate, word frequency, prosodic position of participating syllables, morphosyntactic structure internal to (compound words) and word length are the factors contributed to syllable fusion in Hong Kong Cantonese. Of these potential factors, she hypothesizes that speech rate[13] would give rise to more occurrences of fusion forms, and produce some "extreme" fusion forms that are unaccepted in Cantonese Phonology. If her observations are correct, then ECS is certainly not particular to MyCan, and it would lend support to the claim in section 1.4.3 that ECS is triggered by familiarity (from speech rate) rather than learnt as lexical inputs. Beyond this, the examples provided by Wong are few, and do not allow us to exact generalizations of such patterns in Hong Kong Cantonese.

[13] The speech rate is defined as number of syllables per second in Wong's study. For details, please read Wong (2004).

1.6.2. Positional Asymmetry (Wee et al 2005, 2006)

Wee et al (2005, 2006) studied the ECS patterns of the Tianjin dialect, is one of those that makes explicit mention that casualness and familiarity triggers elision.[14] In fact, these papers are the source of inspiration for the current investigation into MyCan. Wee et al (2005, 2006) note that there are two processes related to Tianjin ECS, namely:

(28) a. Deletion of medial syllable in a trisyllabic sequence;

b. Merging of the initial and medial syllable in a trisyllabic sequence.

Some data that motivated the observations in (28) are presented in (29) below:

(29)	a.	/xu tɕia tʂuŋ/	→ [xua.tʂuŋ]	"name"
	b.	/tiɛn ʂʅ tɕi/	→ [tiɛr.tɕi]	"television"
	c.	/tɕhiɛ tsai tau/	→ [tɕhiɛ.tau]	"cleaver"

The observations in (29) on Tianjin dialect lead them to conclude that stability in syllabic positions is ordered: Final syllables are most stable; initial syllables less so and, medial syllables most volatile. However they have not succeeded in predicting when deletion of medial syllables occurs and when merging occurs. They did, however, notice that ECS happens at the windows between syllables, an observation which coincides with the situation in MyCan. In the case of Tianjin, the site of ECS is always located in WoE-1,

[14] Though they have used the terms "swallowing", "truncation" and "elision" interchangeably.

but this is only a strong tendency in MyCan. This fact suggests that some higher forces might be at work in MyCan, a clue of which is to be found in Tseng (2005).

1.6.3. Taiwan Mandarin Truncation (Tseng 2005)

Tseng (2005) sampled 123,320 Taiwan Mandarin syllables in 8 spontaneous conversations, and found about 32% of the overall syllables were contracted. She reports that such contractions are influenced by morphological makeup as well as the segments involved. Examples illustrating the contraction patterns are depicted below:

(30)	a.	ru35 guo214	→ [ruo352]	"if"
	b.	zhe5 yang51	→ [zɤaŋ51], [tɕiaŋ51]	"so"
	c.	suo214 yi214 wo214	→ [suiʔ41]	"so I"
	d.	dui51 bu35 dui51	→ [tueʔtue52524]	"right or not"

Unlike MyCan, Taiwanese Mandarin has widespread elision in disyllabic inputs, making up more than a half of the identified syllable contractions in Tseng (2005). This is a difference that is arguably typological. The crucial lesson to draw from Tseng's work is that segmental properties affect such contraction/ECS processes. For example, Tseng (2005) notes that the features [back] and [front] and the ordering of the segments containing them have an effect on the merging of nuclei of the initial and medial syllables. MyCan ECS does involve syllable merger (recall section 1.3.2), and it is likely that similar, if not identical, processes are involved.

Merging reduces syllable count, and potentially impacts on prosody. And this is to be found in Cohn (2004).

1.6.4. Making Binary Prosodic Words (Cohn 2004)

Cohn (2004) observed the patterns of truncations of addresses and names in Bahasa Indonesia.[15] The observations reveal that the resulting short forms (truncation) of Bahasa Indonesia will surface in the shape of CVC, as illustrated in (31).

(31) Indonesian Hypocoristic forms

a.	embok –	bok	"mother"
b.	papa –	pap	"father"
c.	bibi –	bi[ʔ]	"aunt"
d.	nyonya–	nya	"madam"
e.	Agus –	Gus	"name"
f.	Yanto –	Yan/ To[ʔ]	"name"

Cohn argues that there is a prosodic requirement on what can constitute a minimal prosodic word and in this case, the minimal prosodic word must be at least a bimoraic (i.e. either two light syllables or one heavy syllable). As may be seen in section 1.3.2, syllable mergers reduces a trisyllabic MyCan utterance into a disyllabic one, reminiscent

[15] Actually, Cohn (2004) simply calls the language "Indonesian language", which is probably imprecise since the variety she is describing is certainly Bahasa, and not Javanese or Sundanese or any of the many languages found in Indonesia,

of the binarity that Cohn is alluding to. Could it be the case that the binarity requirement on minimal prosodic words varies typologically in terms of the mora/syllable parameter?

What is noteworthy in the review is that ECS is attested across languages, involving principles/parameters/constraints not alien to the theoretical constructions of generative linguistics. They must therefore find an account within the set of universal constraints of human language.

1.7. Structure of the Thesis

In the afore sections, I have sought to lay out clearly the puzzles and challenges posed by MyCan ECS and to show that these puzzles are worthy of research, and also have promise that an account can be found from the universal linguistic. On this basis, Chapter Two provides an overview of the phonology of MyCan with attention to the aspects relevant to the study of ECS. Chapter Three focuses in particular in the locus of elision and the consequence of ECS to MyCan prosody. This ushers in the prosodic constraints in describing the motivation of MyCan ECS. The next chapter is devoted to issues that appear to challenge the account provided in Chapter Three. Some of these challenges turn out to be easily tackled, but one or two others do require further research. The central issues relate to properties segments and their interaction with ECS, so in that sense, the prosodic motivation for ECS remains feasible and defensible. Chapter Five provides a conclusion.

Chapter Two

The Phonology of Malaysian Cantonese

2.1. Setting the Stage

As mentioned in the previous chapter Malaysian Cantonese (henceforth MyCan) is hitherto unstudied, even basics such as phonology background require some establishment. This chapter provides the linguistic background of MyCan relevant for understanding some of its phonological properties, and developing the foundation needed to analyze the phonological process of Elision in Casual Speech (ECS).

To discover the MyCan phonological inventory of consonants, vowels and tones as well as how these elements come together to form the MyCan syllable, one must bear in mind that the information cannot be directly imported from Standard Cantonese (detailed in Matthews & Yip 1994; and Zhan 2002, among many others). If one did that, then one would have committed the comparative fallacy with disastrous results (Mohanan 1992). For instance, it would be misleading to treat the difference between [ŋap] and [ap] "duck" in MyCan and Hong Kong Cantonese respectively as the same result of [ŋ]-epenthesis in MyCan, or perhaps equally bizarrely as [ŋ]-dropping in Hong Kong Cantonese. The truth is that these are cognates in the two varieties of Cantonese. In Hong Kong Cantonese by its own historical evolution, velar nasals are no longer part of its lists of onsets,[16] but are preserved in MyCan. Clearly, it is not that MyCan has an epenthesis rule for "duck" nor is it that Hong Kong Cantonese has a systematic deletion rule.

[16] Older Hong Kong people and traditional-minded pundits insist on the velar nasal onset, but this is rarely found among the Hong Kong people who are below 40 years old.

However, if one starts from scratch, one would soon find that phonetic nuances of all kinds exist, so the biggest challenge here is to decide what articulatory or acoustic distinctions must be made.

Clearly then, an understanding of MyCan phonology is impossible without at least some knowledge of the way grouping these syllables into an utterance. This however would be insufficient for studying ECS, since, if one recalls the puzzles in sections 1.3 and 1.6, a large part of ECS stems from prosodic matters. This chapter must therefore provide a sketch of the prosody that would govern the patterns of phonological elision.

The ensuing sections will first attempt at establishing the inventory of consonants and vowels in section 2.2; followed by a discussion on the prosodic properties of MyCan in section 2.3. Section 2.4 provides a summary for this chapter.

2.2. Phonology of Malaysian Cantonese

The establishment of the phonological inventory of MyCan can be done by appealing to two key ideas: minimal pairs and distinctive features. Minimal pairs allow us to establish what segments contrast in a meaningful way and hence allow us to at least list the phonemes found in this language. This may not be a foolproof method for every language, but it suffices for the purposes of MyCan which shares a substantial amount of its phonology with Standard Cantonese (albeit with some non-trivial differences, more later). Having arrived at the list of phonemes, it becomes easy to see what distinctive features are relevant in the phonology of MyCan, and thus to the eventual understanding of ECS.

2.2.1. Consonants

We start with the consonants. (1) presents a few examples where consonants contrast with each other, thus ascertaining their phonological status in MyCan.

(1) Minimal pairs of some consonants found in MyCan

a. i. [tɔ55] "much" ii. [t^hɔ55] "drag"

b. i. [tɐu35] "dipper" ii. [kɐu35] "dog"

c. i. [kɔk3] "horn" ii. [k^wɔk3] "nation"

From (1), one clearly sees the relevance of (a) aspiration in [tɔ55] ~ [t^hɔ55]; (b) coronality and velarity in [tɐu35] ~ [kɐu35]; and (c) labiality in [kɔk3] ~ [k^wɔk3]. By essentially the same strategy of looking for meaningful differences such as that above, the inventory of consonants in MyCan is provided as follows:

(2) Inventory of consonants

LABIAL	Stop
[-aspirate]	p 播 "broadcast"
[+aspirate]	p^h 破 "break"

CORONAL	Stop	Affricate
[-aspirate]	t 朵 "classifier for flowers"	ts 左 "left"
[+aspirate]	t^h 他 "he/she"	ts^h 叉 "fork"

VELAR	[-labial]	[+labial]
[-aspirate]	k 角 “horn”	k^w 国 “nation”
[+aspirate]	k^h “stuck”	k^{wh} 隙 “gap”

	Nasal	Fricative	Lateral
Labial	m 马 “horse”	f 花 “flower”	
Coronal	n 雌 “female”	s 沙 “sand”	l 落 “descend”
Velar	ŋ 雅 “polite”		

[-sonorant, -voice] h 红 “red”

Like English, MyCan lists [h] among its consonants, even though [h] has the feature [-consonantal]. In this case, what distinguish it from the vowels is arguably its voicelessness and the fact that it patterns with consonants rather than with vowels.[17]

An inventory arrived at by looking at minimal pairs is very likely to have missed some phonetically (not phonemically) distinct allophones. In the case of MyCan, there are 2 such cases worthy of attention: (i) [l] and [n] are interchangeable under certain circumstances and (ii) [ts, ts^h, s] and [tʃ, $tʃ^h$,ʃ] are respectively allophonic.

First off, [l] and [n] are not distinguishable in some cases, as in (3).

(3) Examples where [l] and [n] are interchangeable

	articulation / words	[l] as onset	[n] as onset
a.	男 “man”	[lam11]	[nam11]

[17] For example, [h], like the other consonants, is never found in MyCan nucleus. The only [+consonantal] sound found in the nucleus would be [m].

b.	女”woman”	[løy35]	[nøy35]
c.	你 “you”	[lei35]	[nei35]
d.	諗 “think”	[lɐm35]	[nɐm35]
e.	哋 “female”	[la35]	[na35]
f.	嬲 “annoy”	[lɐu55]	[nɐu55]

However, one cannot conclude on the basis of (3) that the distinction of [l] and [n] not meaningful. This is because there are cases where [l] and [n] are not interchangeable, as in (4).

(4) Examples where [l] and [n] are not interchangeable[18]

	articulation / words	[l] as onset	[n] as onset
a.	蓝 “blue”	[lam11]	*[nam11]
b.	落 “descend”	[lɔk2]	*[nɔk2]
c.	莲 “lotus”	[lin11]	*[nin11]
d.	叻 “smart”	[lɛk5]	*[nɛk5]
e.	烂 “rotten”	[lan22]	*[nan22]

[18] Any word that allows an [n] onset appears to be in free variation with an [l] onset. However, the reverse is not true.

Given the interchangeability of [l] and [n] in (3) and the lack thereof in (4), it must follow that [l] and [n] are different phonemes. In fact, (3a) and (4a) would be a minimal pair.[19]

Moving on to the allophonic relation between [ts, ts^h, s] on the one hand and [tʃ, $tʃ^h$,ʃ] on the other, it is noteworthy that these two sets of phones are in complementary distribution, i.e. no minimal pairs.

(5) a. Complementarity of [ts] and [tʃ]

i.	[tsa55]	*[tʃa]	渣	“dregs”
ii.	[tsi55]	*[tʃi]	支	“diverge”
iii.	* [tsuŋ55]	[tʃuŋ55]	钟	“clock”
iv.	*[tsy55]	[tʃy55]	猪	“pig”
v.	*[tsœk35]	[tʃœk35]	雀	“bird”

b. Complementarity of [ts^h] and [$tʃ^h$]

i.	[ts^ha55]	*[$tʃ^h$a]	叉	“fork”
ii.	[ts^hi55]	*[$tʃ^h$i]	痴	“silly”
iii.	* [ts^huŋ]	[$tʃ^h$uŋ]	冲	“rinse”
iv.	*[ts^hyt]	[$tʃ^h$yt3]	拙	“clumsy”
v.	*[ts^hœŋ55]	[$tʃ^h$œŋ55]	窗	“window”

[19] It is likely that [l] and [n] are in the process of merging, but at this stage, they still are distinct phonemes.

c. Complementarity of [s] and [ʃ]

i.	[sa55]	*[ʃa55]	沙	“sand”
ii.	[si55]	*[ʃi55]	思	“thought”
iii.	[suŋ55]	*[ʃuŋ55]	鬆	“loose”
iv.	*[sy55]	[ʃy55]	书	“book”
v.	*[sœŋ55]	[ʃœŋ55]	双	“pair”

Generalizing from the examples in (5), coronal affricates in front of [y、u、œ] and the fricatives in front of [y、œ] palatalize. This maybe written in SPE type rules (Chomsky and Halle 1968:14) as follows:

(6) a. /ts/ → [tʃ] / __ [+labial, -consonantal][20]

b. /ts^h/ → [tʃ^h] / __ [+labial, -consonantal]

c. /s/ → [ʃ] / __ [+labial, -consonantal, +front]

The allophonic nature of the palatalized obstruents argue against their inclusion into the phonological inventory for the same reasons aspirated obstruents such as [p^h, t^h, k^h] are excluded from the English inventory. (Wells 1990: x-xxviii, for example, does not include the aspirate obstruents).

[20] Given the patterns of the data, the palatalization is triggered by [labial]. I am unsure what the phonetic grounding is, but this issue is tangential to this study and therefore will not be presently treated.

2.2.2. Vowels

The examples in (7) present a set of minimal pairs found in MyCan. These pairs serve to determine the relevant vowel distinctions found in this language.

(7) Minimal pairs of vowels found in MyCan

a. i. [ts^{h}i55] 痴 “silly” ii. [ts^{h}ɛ55] 车 “car” iii. [ts^{h}a] 叉 “fork”

b. i. [i35] 椅 “chair” ii. [y35] 雨 “rain”

c. i. [k^{h}œk3] 却 “reject” ii. [k^{h}ɔk3] 确 “accurate”

d. i. [i55] 衣 “clothes” ii. [u55] 乌 “black”

e. i. [tɛ55] 爹 “father” ii. [tɔ55] 多 “much”

f. i. [kau35] 搅 “stir” ii. [kɐu35] 狗 “dog”

In (7i), one cans see that there is a three-way contrast in vowel height: [i], [ɛ] and [a]. (7ii) shows that front vowels contrast in rounding, i.e. [i] and [y] form a minimal pair. (7iii and iv) shows that vowels contrast in frontness of tongue body, i.e [œ] contrasts with [ɔ] and [i] with [u]. (7vi) shows that the contrast in frontness persists even with low vowels: [a] is more fronted than [ɐ]. The vowel inventory of MyCan and the relevant phonological feature contrasts is thus presented in (8).

(8) Inventory of vowels and their relevant phonological features

	[+front]	[-front]	
[+high]	i	y u	[+labial]
[-high, -low]	ɛ (e)	œ (ø) ɔ (o)	[+labial]
[+low]	a	ɐ	

The inventory in (8) presents the list of vowels observable in MyCan, includes phonetic variants of in parenthesis. The phonetic variants are not supported by minimal pairs, and hence not part of the underlying inventory. For example, [ɛ] and [e] are complementary, so are [ɔ] and [o] as well as [œ] and [ø]. Their distributions are shown in (9) – (11).

(9) /ɛ/ → [e] / __ [i]

a.	i. [tei22]	ii. *[tɛi22]	地	“ground”
b.	i. *[kek2]	ii. [kɛk2]	屐	“clogs”
c.	i. *[leŋ33]	ii. [lɛŋ33]	靚	“pretty”

(10) /ɔ/ → [o] / __ [u]

a.	i. [hou35]	ii. *[hɔu35]	好	“good”
b.	i. *[ŋoi33]	ii. [ŋɔi33]	愛	“love”
c.	i. *[kon55]	ii. [kɔn55]	干	“dry”

(11) /œ/ → [ø] / __ [y]

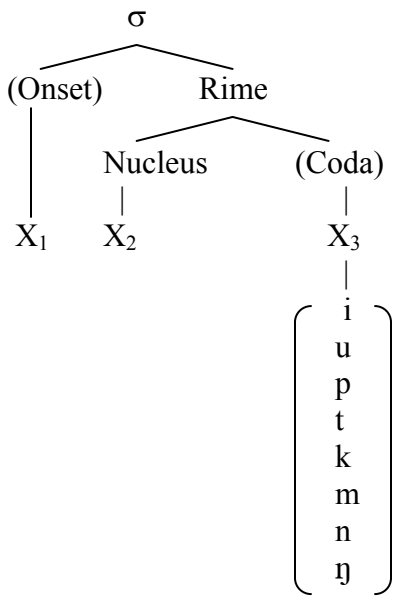
a.	i. [tøy55]	ii. *[tœy55]	堆	“pile”
b.	i. *[løk3]	ii. [lœk3]	略	“omit”
c.	i. *[ʃøŋ55]	ii. [ʃœŋ55]	伤	“wound”

We can clearly see in (9) that in MyCan, there exists two manifestations of the phoneme /ɛ/. Immediately preceding [i], /ɛ/ surfaces as [e], but it is [ɛ] elsewhere. This complementary distribution suggests that [ɛ] and [e] are allophone. Similar complementary distribution can be found in the pairs [ɔ] and [o] in (10) as well as [œ] and [ø] in (11).

2.2.3. Syllable Structure

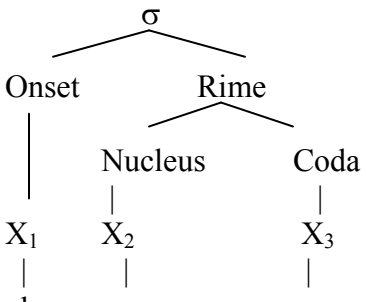
The maximal syllable of MyCan contains 3 segments where the nucleus is of course obligatory. Not all segments are legitimate codas. The set of legitimate coda segments are as depicted in the syllable template below:

(12) Syllable structure of MyCan[21]



In (12), the optionality of onsets and codas are indicated by the parentheses. A few examples of MyCan syllables are provided in (13).

(13)



a.	h	ɐ	m	冚	“all”
b.	s	i		诗	“poem”
c.		u		乌	“black”
d.		*a	e		
e.	*a	e			

[21] Please see section (2.3.2) for the further discussion on MyCan syllable structure.

It is noteworthy that sonority consistently peaks at the nucleus. In (13a) [hɐm] "all", the most sonorant vowel [ɐ] is put into X_2; X_3 is filled by [m] as a legitimate coda; the remaining consonant [h] naturally occupies X_1. (13b) [si] "poem" contains 2 segments: [i] is the nucleus by its sonority and [s] is the onset. (13c) singular vowel [u] is simply without onset and coda. [22] The requirement for sonority to peak at the nucleus coupled with the limited set of coda segments provides an explanation to the unacceptability of *[ae], *[ae] is an acceptable syllable in MyCan because satisfaction of sonority would sit [a] in X_2 forcing [e] to fill X_3 when [e] is not a legitimate coda. To satisfy the requirements of the coda, [e] would have to sit in X_2 when it less sonorant of the segments.[23]

Having more or less derived the MyCan inventory of segments in the earlier subsections, it is now possible to provide an inventory of the possible rimes in MyCan given what one has come to know about the restrictions on possible codas. This inventory is provided in (14).

(14) Inventory of rimes found in MyCan

coda / vowel	i	u	p	t	k	m	n	ŋ
i	i	iu	ip	it	ik	im	in	iŋ
y				yt			yn	
u	ui	u		ut	uk		un	uŋ

[22] The minimal word in MyCan is the syllable, therefore the syllable must be bimoraic since that would be the minimal foot. More discussion on MyCan prosody in section 2.3.

[23] Sonority scale: vowel » glides » liquids » nasals » obstruents (Kenstowicz 1994: pp.254-255). Among vowels, [+low] » [-low,-high] » [+high] (e.g. [a] » [e] »[i]); and [-labial] »[+labial] (e.g.[ɛ] »[œ]). (Ladefoged 1975:39,cited in Hawkins 1984:99).

ɛ	ei		ɛp	ɛt	ɛk	ɛm		ɛŋ
œ		øy		øt	œk		øn	œŋ
ɔ	ɔi	ou		ɔt			ɔn	ɔŋ
a	ai	au	ap	at	ak	am	an	aŋ
ɐ	ɐi	ɐu	ɐp	ɐt	ɐk	ɐm	ɐn	ɐŋ

The diagram in (14) lists all the possible rimes found in MyCan, including the vowels in leftmost column which can form simple rimes. Rimes are maximally di-segmental, with only 8 possible final segments: [i, u]; plosive stops [p, t, k]; and nasals [m, n, ŋ], very similar to Standard Cantonese (see Yip and Matthews 1994 for rime inventory). Not all logically possible combinations of segments actually occur in attested rimes. For example, [ip, ɛp, ap, ɐp] occur regularly as rime but *[yp, up, œp, ɔp, ym, um, œm, ɔm] do not, presumably due to OCP on adjacent [+labials]. However, some other gaps remain unexplained, but this does not significantly impact on the focus of this thesis. What is significant is the observation that rimes are maximally di-segmental, and that there is only a very specific set of coda segments involves in ECS. This will become relevant in Chapter 4 where the issue on what kind of segments is susceptible to ECS in MyCan will be presented.

2.2.4. Tones

Tone does not figure actively in this study. However, in the interest of providing a more comprehensive picture of MyCan, this subsection is devoted to a discussion on the tonal

inventory of MyCan. In (15), we see the syllable [fɐn] having different meanings when articulated in all the different tone contours found in MyCan.

(15) Tonal Inventory of Malaysian Cantonese

Tone Name	Tone Value	Tone contour	Examples
T1	55	H,h	[fɐn55] 分 “divide”
T2	11	L,l	[fɐn11] 坟 “grave”
T3	35	H,lh	[fɐn35] 粉 “powder”
T4	33	H.l	[fɐn33] 训 “lecture”
T5	22	L,h	[fɐn22] 份 “portion”

As may be seen from the (15), MyCan only has 5 tones. In describing the tones, I have adopted the system developed by Yip (1980) and Bao (1990) where the uppercase letter indicates Register and the lowercase letters indicate tonal contour, e.g. [H, lh] describes a rising contour “lh” with a high register “H”.[24] The tone values are indicated by five-point vertical scale first introduced by Chao (1930), where 5 and 1 represent the highest and the lowest pitch respectively.

The traditional labels of Ping, Shang, Qu and Ru are irrelevant for the purposes of this project, though in reality, Ru is not a tonal category but rather refers to closed syllables (i.e. ending in an obstruent coda [p], [t], [k]), as may be seen in the (16aii, bii, cii) cases below:

[24]Rao (1996:275) and other dialect surveys report that Standard Cantonese have a tonal inventory of 9 divided into 4 categories Ping, Shang, Qu and Ru.with subcategories of their own, shown in table below.

Tone name	Ping		Shang		Qu		Ru		
	Yin	Yang	Yin	Yang	Yin	Yang	Shang Yin	Xia Yin	Yang Ru
Tone value	55	11	35	13	33	22	5	3	2

(16) a. i. [mɐn55] 蚊 “mosquito” ii. [mɐt5] 乜 “what”

b. i. [kim33] 剑 “sword” ii. [kip3] 劫 “to rob”

c. i. [bai22] 败 “failure” ii. [bak2] 白 “white”

In closed syllables, the three level tones are traditionally transcribed with single digits (i.e. [5], [3], [2]), reflecting the shorter duration of the vowel. It is also interesting to note that MyCan does not distinguish between tones [13] and [33], which are distinctive in Standard Cantonese, (17).

(17) Difference in Tonal Classification between MyCan and Standard Cantonese

	Standard Cantonese	MyCan
a. “market”	[si13]	[si33]
b. “to try”	[si33]	[si33]

Such minor but non-trivial differences show that although MyCan and Standard Cantonese are varieties of the same language, it would be fallacious to embark on the study of one from the perspective of the other, a point made in Mohanan (1992) and also section 1.4.

2.3. Prosody of Malaysian Cantonese

The study in section 2.2 provides the raw materials for the understanding of the MyCan syllable. However, since the object of study in this project involves strings of syllables, an understanding of MyCan prosody is necessary. To begin, this section adopts the

Prosodic Hierarchy in (15), a well established universal that would also provide the technical vocabulary for understanding MyCan prosody.

(18) Prosodic Hierarchy (Selkirk 1980a, 1980b)

PrWd	(Prosodic word)
|	
F	(Foot)
|	
σ	(Syllable)
|	
μ	(Mora)

The hierarchy has units at the following levels: mora; syllable; foot; prosodic word (also known as the phonological word). Each unit is dominated by a unit at the next highest level (the Strict Layer Hypothesis; Selkirk 1984).

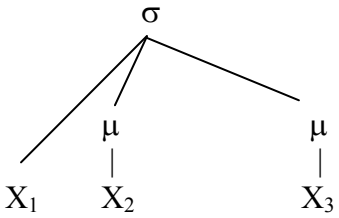
The relevance of (15) to MyCan would become clearer if one realizes that the minimal MyCan word is the syllable, which implies that the MyCan syllable is also the minimal foot from which it then projects itself as a prosodic word. Since ECS (Elision in Casual Speech) involves modifications to elements inside a syllable, it has an impact of prosodic wordhood.

2.3.1. Mora

In (15), the appeal to mora as the smallest prosodic unit of syllable weight (Prince 1980; McCarthy and Prince 1986; Zec 1988; Hayes 1989; Itô 1989; etc) would be a source of conflicting assumptions. Hayes (1989), for example, explicitly argues for a model of the

syllable as (19), rejecting such templates in (13) where notions of onsets and rimes are theoretical constructs.

(19) Moraic syllable template



The basic principle of moraic theory is that a syllable is light or heavy depending on its number of weight-bearing units, or moras. Universally, short vowels are associated to one mora, while long vowels have two moras (Gussenhoven & Jacobs 1998). Consequently, any loss of moraic segments reduces the weight of a syllable and would definitely have an impact on the prosodic structure of the utterances. In the case of MyCan, what is relevant would be if ECS wipes out mora-bearing segments.

The resolution between the models (13) and (19) is in fact rather simple, all one has to do is to think of the nucleus and the coda as being associated with one mora.[25] This effectively makes the situation rather trivial. However, if further pursuit into the matter is necessary, suffice to note that (19) cannot be an adequate model because it foregoes all the insights capturable by the constituencies of "onset" and "rime", which are essential to accounts of play languages such as Pig Latin, and in the case of Chinese languages such as Cantonese, *fanqie* languages.

[25] Onset consonants are nonmoraic, and are attached directly to the syllable node. Segments associated with the nucleus or rime are moriac because of WEIGHT-BY-POSITION (Hayes 1989) and Sherer 1994).

Given what has been said, syllable weight in MyCan is determined by properties of the syllable rime, without regard to the syllable onset.[26] More precisely, language with branching rime always count as heavy in the syllable weight categories.[27] The next move is to set this understanding in the light of MyCan where a prosodic word is minimally one syllable.

2.3.2. Foot and Syllable

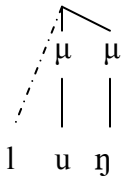
The foot is defined as roughly a grouping of two syllables into a rhythmic unit, which is primarily relevant in phonology for the description of stress assignment (Odden 2005). For instance, in English, foot is named for the combination of accented and unaccented syllables. But disyllabicity is not the only claim to a well-formed foot, bimoriac syllables qualify as well. This explains why in English, for example, [si:], [ti:], [sit], [siti] are possible (and in fact actual) words but not *[si] or [*ti], the two unattested cases being monomoraic.

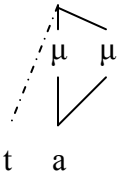
This logic must extend to MyCan as well since the minimal prosodic word in MyCan is a syllable. Essentially in MyCan, a monosyllable can be a prosodic word, thus it must follow that a syllable must itself be a bimoraic foot. By this reasoning, MyCan syllables that are CVC or CVV would be fine, but CV syllables would present a problem. What this implies is that CV syllables in reality have long vowels. The representations of

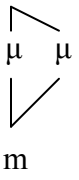
[26] In some languages, geminate onsets contribute to syllable weight. However, these are not relevant in this study.

[27] For the details of Models of syllable-internal structure, please see Blevins (1995). The model of binary branching with rime: σ → Onset Rime; Rime → Nucleus Coda is represented in traditional Chinese scholars for instance in Song Dynasty Rime Tables, and discussed at length in Chao (1941) and Karlgren (1954); Pike and Pike (1947) etc. In addition, see the detailed discussion of syllable weight distinction in Hausa (Newman 1972), Klamath (Barker 1963; 1964) and Creek (Haas 1977).

the types of syllables found in MyCan are given in (20), where (20a) is the maximal syllable that contains a coda consonant, (20b) is a syllable without coda and (20c) has syllabic nasal as a syllable.

(20) a. 

b. 

c. 

These diagrams indicate that the MyCan syllable is by default heavy, and that CV syllables and CVX syllables should have no meaningful length distinction. In my measurements, this has turned out to be true. In short, MyCan syllables that have only one vowel would have a long vowel.

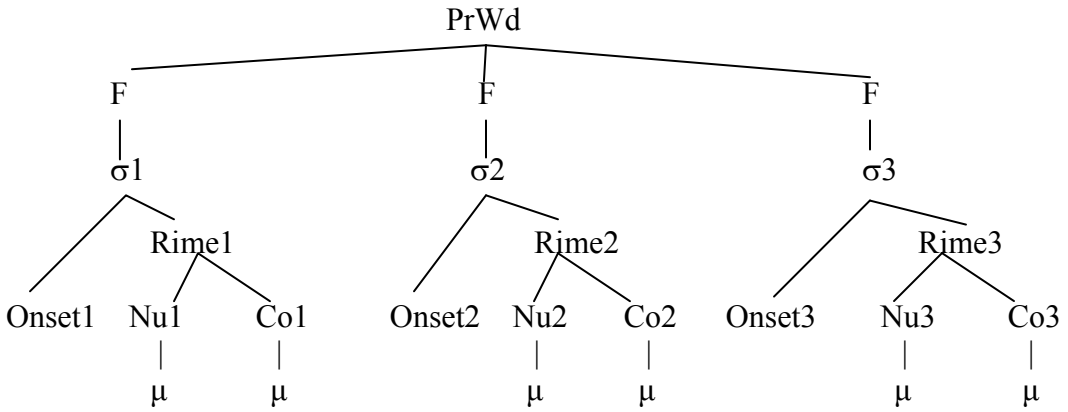
(21) 

Thus, MyCan syllables are bimoraic, qualifying them to be the minimal foot, from which a minimal prosodic word is projected.

2.3.3. Prosodic Word

The discussion in the above paragraphs is founded on the notion of the minimal prosodic word. However, prosodic words can contain more than one foot, and to the best of my knowledge, there has been no real-known theoretical upper limit. Therefore, when given a string that consist 3 syllables, that has become a "familiar" utterance, it is not hard to envision that as some kind of a large prosodic word, especially for the cases of proper names.[28] Thus for a trisyllabic string, the following prosodic structure is viable. If so, one can identify the domain of ECS to be within prosodic words.

(22) Prosodic Hierarchy of a MyCan tri-syllabic string



[28] This is not to be confused with lexicalization, see section 1.4.4. The claim here is that prosodically speaking, ECS utterances are words, but if it were lexicalized, then it would also be a lexical word. The data collected included ECS utterances of phrasal strings, and together with the productivity of ECS, a lexicalization approach would surely fall short.

2.3.4. Prosodic Headship

Having put MyCan ECS in the context of prosody, it becomes apparent that at least some of the puzzles in section 1.2 are related to prosodic, in particular, prosodic headship. Following Beckman (1998), heads are positions where faithfulness to the integrity of the elements therein is highly observed. Thus material in head positions rarely undergoes phonological alternation. If we recall the ECS data, such as the sample below, we observe that there is absolute stability in the final syllable of a trisyllabic input string.

(23)	a.	/kei.tɔ.**kɔ**/	→ [keɔ.**kɔ**]	"How many"
	b.	/lei.a.**ma**/	→ [lea.**ma**]	"Your mother"
	c.	/hɐm.paŋ.**laŋ**/	→ [hɐm.p.**laŋ**]	"All"
	d.	/hou.m.**hou**/	→ [hou.**mou**][29]	"Is it good"

In (23), the elision took place in the initial and medial syllables of the tri-syllabic strings. An important point to note would be that the final syllables always remain intact after the process of elision in MyCan casual utterances, highlighted in bold face above.

The issue of headship will become more evident in the following chapter where phonetic evidence is provided for cases like (23c).

[29] If one takes a closer look, the onset is deleted in (23d) /hou.m.**h**ou/ to become [hou.**mou**] but not in [hɐm.p.**laŋ**] in 23(c) which looks puzzling at first. However, as one will see later in section 4.2.2, this is due to the [-cons] property of [h].

2.4. Summary

This chapter takes a detour from ECS to study the general phonology of MyCan, without which an account for the puzzles of ECS would remain obscure. In this chapter, the set of consonants, vowels and tones have been presented, although tones do not feature much in this project. The syllable structure of MyCan is rather simple, involving maximally 3 segments, but all syllables in MyCan are bimoraic by virtue of the fact that the minimal MyCan prosodic word is a syllable. A glance at the prosodic structure of trisyllabic sequences reveal that for the purposes of ECS, they could feasibly be construed of as one large prosodic word with the final syllable always stable, presumably due to headship.

The stability of the final syllable in a trisyllabic sequence undergoing ECS at WoE-2 puts the spotlight on a bizarre situation where the residue obstruent has to project its own syllable. In the next chapter, phonetic evidence will be provided for this state of affairs, which in turn would provide insights to the puzzle of the choice of WoE for ECS.

Chapter Three

Windows of Elision in Malaysian Cantonese Casual Speech

3.1. The Nature of Problem

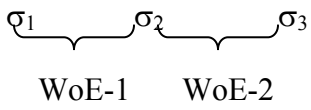
The preceding chapters have laid out the key puzzles involving MyCan (Malaysian Cantonese) ECS (Elision at Casual Speech) as well as a general introduction to MyCan phonology. With these, this chapter begins to tackle the puzzles. Recall the following set of data of MyCan ECS:

(1)	a	i. /lei/	→ [lei]	*[le]/*[ei]	"you"
		i. /hou/	→ [hou]	*[ou]/*[*h]/*[ho]	"good"
	b	i. /a ma/	→ [a.ma]	*[a]/*[ma]	"mother"
		ii. /m hou/	→ [mou]	*[m.ou]/*[m.ou]	"not good"
	c	i. /lei a ma/	→ [lea.ma]	*[lei.a.m]	"your mother"
		ii. /hou m hou/	→ [hou.mou]	*[ou.m.ho]	"good or not"
		iii. /kɔk lɔk tʰɐu/	→ [k.lɔk.tʰɐu]		"corner"
		iv. /san ka la/	→ [san.k.la]		"remote area"

Though logically possible, ECS appears never to apply to monosyllables. In the cases involving ECS, merging (reducing the residue material affected by ECS into one syllable) applies broadly, though selectively blocked in trisyllables. Further, ECS applies only at the edges of the syllables. In other words, there are no cases of ECS applying inside a

syllable without also affecting the edges. This is captured by the notion WoE (Windows of Elision), (2).

(2) Windows of Elision (WoEs, repeated from section 1.3.1:(5))



There are two potential loci of ECS in (2) and are numbered from left-to-right: (i) between the initial and medial syllables (WoE-1); and (ii) between the medial and final syllables (WoE-2). In the cases in (1c), it is notably that in MyCan trisyllabic strings, ECS can either occur in WoE-1 or WoE-2.

The problems that this chapter will address relate to a subset of the puzzles first introduced in section 1.3, and these puzzles relevant to the present chapter are listed below:

(3) Puzzle 1: Locus of ECS

Why is ECS allowed only at WoE?

Puzzle 2: Choice of WoE

Given a string with more than one WoE, how is the WoE chosen?

Puzzle 3: Length requirement

Why is that trisyllabic sequences are liable to ECS?

A quick glance at the Appendix 3 (Transcriptions) and the statistics section 1.4.3 reveals that ECS cases appear to target in WoE-1 more frequently than in WoE-2, and not just in terms of numbers, but also in terms of systematicity (to become clearer later in section 3.3). Between the two window choices, each choice may be as good or as bad as the other. Further, ECS appears to apply largely polysyllabic strings (in this study, the focus is on trisyllabic ones), but applies rarely to disyllabic strings and never to monosyllables. Such facts coupled with the problem on the choice of WoE, it leads us to wonder: what is the motivation of ECS in MyCan?

In addition, there is the problem of syllable merger.

(4)	a.	/kei tɔ kɔ/	→ [**keɔ**.kɔ]	"how many tokens?"
	b.	/sau jɐm kei/	→ [**sɐm**.kei]	"radio"
	c.	/kɔk lɔk tʰɐu/	→ [**k.lɔk**.tʰɐu]	"corner"
	d.	/san ka la/	→ [san.**k.la**]	"remote area"
	e.	/tsik pɐt lɐt/	→ [tsik.**p.lɐt**]	"very straight"
	f.	/hɐi **m hɐi**/	→ [hɐi.**mɐi**]	"is it"

At first blush, the consequence of ECS in (4) presents two fairly consistent patterns to trisyllabic inputs[30]:

[30] These results are supported by the evidence of phonetic measurements taken with Praat (version 4.6.05) on collected recordings that will be presented in the next section.

(5) a. the residual material after ECS merges into a new syllable;

b. the syllable count after ECS remains as 3 syllables.

As mentioned in section 1.3.2, merging does not occur when the result would produce a consonant cluster. However, this is done at the expense of producing a bizarre obstruent syllable (or semi-syllable in the sense of Cho and King 2003). In this chapter, phonetic evidence would be provided for this strange situation.

As I will argue at length in this chapter, in order to account for a rich and highly complex array of ECS facts, it is necessary to exploit ECS in the seminal insights of OT. Specifically, we need to explore the asymmetry between WoEs, which makes allowance for dubious status of syllable-count that ECS produces.

The ensuing sections begin first with the phonetic measurements of ECS at disyllabic strings and both WoEs in trisyllabic strings. Once it can be shown that there is difference of syllable-count in these sites of ECS, the next section would put forth an account for the motivation for merging of syllables, and that is the clear indication to the motivation behind the choice between two evils with regard to the locus of ECS and the resultant prosodic structure ECS produces, although the reasons for ECS at WoE-2 remain elusive. Finally, section 3.6 summarizes the results and presents an interim conclusion.

3.2. Window Effect: Phonetic Evidence

Recall that in (5), a point has been made that ECS does not necessarily result in the formation of a merged syllable. This section provides phonetic evidence through measurements taken with Praat (version 4.6.05) on collected recordings.

To investigate, speakers of MyCan are first asked to utter 18 trisyllabic strings four times: twice normally and twice casually. These 18 trisyllabic strings are selected based on the criteria in (6).

(6) Criteria for selection of trisyllabic sequences for spectrographic measurements

a. A sonorant initial segment at the first syllable;

b. A sonorant segment at the final syllable; and

c. Boundaries of the syllables are sequences of sonorant and obstruent segments.

(6a and b) are necessary for the determination of the total time taken for each utterance, since stops at initial and final positions would not provide spectrograms where the start point and end point of the utterances are clear. By requiring (c) sequences of obstruent and sonorant segments at the boundaries of syllables internal to the trisyllabic string (i.e. [… +son].[-son …] or [… -son].[+son …], where].[indicates syllable boundary), one would be able to measure the exact length of each syllable, at least where ECS has not taken place.

With these 18 trisyllabic strings, (averaged) measurements of the spectrograms generated from normal articulation show that each syllable in a string takes up roughly 1/3 of the time, tabled below.

(7) Timing proportion of trisyllabic sequences in normal speech

Normal Speech	Initial syllable	Medial syllable	Final syllable
Time	0.3290s	0.3322s	0.3439
Proportion	32.37%	32.78%	34.85%

In (7), syllables in the sequence are separated by columns with the last row providing the timing proportion taken for each syllable. In the row above it, the average times taken for each syllable are provided.

It is clear that in a trisyllabic string, under normal articulation, each syllable takes up roughly 0.33 seconds with the final syllable slightly longer than the others. This is probably due to finality effects where final syllables are usually somewhat longer than the others. Discounting such effects of finality, the timing proportion for each syllable is 1/3 of the time take to utter the string.

Having established the timing proportions of each syllable in normal speech, one is now ready to determine if ECS results in the merging of syllables in casual speech. Logically, if merging did occur at the window of elision, then the timing proportions would be affected. Conversely, if the timing proportions remain the same after elision, then it would follow that ECS did not result in merging.

12 out of the earlier 18 trisyllabic strings had WoE-1 is the locus of ECS, and measurements were taken from their ECS forms. It is noteworthy that the final syllable

remains stable after ECS, i.e. no segments in the final syllable is deleted. Now, in order to determine if there is merging, all one would need to do is to measure the length of that final syllable and calculate its proportion relative to the entire utterance. The averages are given in (8).

(8) Timing proportion of trisyllabic sequences with ECS at WoE-1

Utterances with ECS at Window 1	Remaining material	Final syllable
Time	0.3541s	0.2973s
Proportion	54%	46%

The measurements in (8) reveal that the final syllable takes up almost 1/2 the utterance time, unlike the situation given in (7). Prima facie, this argues for merging of what was the initial and the medial syllable.[31] To be sure, the timing proportions averaged from 7 disyllabic strings in normal speech are given in table (8):

(9) Timing proportion of disyllabic sequences in normal speech

Normal speech	Initial syllable	Final syllable
Time	0.3591s	0.4050s
Proportion	47.72%	52.28%

There is some discrepancies in the timing proportion of the final syllables in (8) and in (9). Depending on how one interprets this discrepancy, one would argue for or against

[31] This appears contradictory to (5b) where the trisyllable inputs remain as trisyllabic after ECS. This however does not mean that the description in (5b) is incorrect. (5b) applies to cases where elision is at WoE-2. More in the immediately ensuing paragraphs.

merging. The position for merging becomes stronger when we compare the situation with ECS at WoE-2.

For the measurements of ECS at WoE-2, 6 applicable trisyllabic strings are available from the earlier sample of 18. The relative fewer tokens are due to the rarity of such cases coupled with the requirement that the selected cases must fit with the criteria in (6). Unlike ECS at WoE-1, it is the initial syllable that is stable when the locus of ECS is at WoE-2. Thus we could only determine the length of initial syllable and make inferences on the remaining material on the basis of timing proportions. The averages are tabled in (10):

(10) Timing proportions of trisyllabic sequences with ECS at WoE-2

Casual speech	Initial syllable	Remaining material
Time	0.2289s	0.3849s
Proportion	38.05%	61.95%

The measurement reveals that the initial syllable takes up a little longer than 1/3 of the utterance time, roughly the same proportion with that of normal speech. Of the remaining material, the timing proportion taken here is almost 2/3 of the total utterance time. From this timing proportion, one can safely extrapolate that ECS in WoE-2 does not trigger merging. Hence, after ECS at WoE-2, the result is still a trisyllabic string, albeit having loss in phonological material.

With the help of formants and the criteria laid out in (6), it is in fact possible to identify the segments corresponding to the final input syllable. Discarding these and those of the initial syllable (which is clearly demarcated with the help of criteria laid out

in (6), the remaining material would correspond to what the medial syllable after ECS at window 2 has taken place. It turns out that the remains of the medial syllable occupy only 20.96% of the total utterance time. The averages are given in (11).

(11) Extrapolated timing proportion trisyllabic sequences with ECS at WoE-2

Casual speech	Initial syllable	Medial syllable	Final syllable
Time	0.2289s	0.1261s	0.2588s
Proportion	38.05%	20.96%	40.99%

Notice that if (11) were compared with the statistics for normal utterances, the medial syllable is significantly shorter. However, when compared with the situation in (8), the differences suggest that ECS results in the merging of syllables if intervening consonants are removed but no merging otherwise. [32]

(12) Merging occurs if the consonants at WoE are removed, otherwise ECS does not trigger merging.

3.3. Binarity of the Prosodic Word

The first clue to ECS in MyCan is to understand how ECS is implemented. Observe the example /kei tɔ kɔ/ repeated from (4a) again, paying close attention to the effect on prosody as provided in the "notes" column of (13).

[32] The data provided here is split between WoE-1 and WoE-2 ECS, which is accidental. No merging occurs for data like (4c) as well where ECS applies to WoE-1. The crucial thing is clearly the presence of intervening consonants, not windows.

(13) Process of ECS

Steps		/kei tɔ kɔ/	Notes
1	ECS of segments	ke ɔ	Coda in initial syllable is elided. Onset of medial syllable elided.
2	Merging of syllables	keɔ	Merging happens and forms a new syllable.
	Output	[keɔ.kɔ]	2 feet remaining after merging.

The pattern in (13) can be captured by postulating MyCan has a requirement on prosodic words in casual speech which must outrank the general faithfulness constraints, both stated below:

(14) BINPW[CAS]

Prosodic word must not have more than 2 feet in casual speech.[33]

MAX[34]

Segments in the output must correspond with segments in the input.

Evidence for BINPW[CAS] comes from the fact that only a very restricted set of disyllabic strings undergo ECS. Nonetheless reader may notice that ECS of disyllabic string is

[33] Though rarer, ECS in disyllabic strings are attested in MyCan, which seems to violate BINPW[CAS]. However, cases in disyllabic strings are not only prosodically motivated but also related to the segments involved in ECS. Details on disyllabic ECS will be provided in Chapter 4.

[34] MAX is not to be confused with IDENT I-O. If input X corresponds to output Y, then there is no MAX violation even though there is an IDENT I-O violation. MAX ensures correspondence, while IDENT ensures identity of the correspondence. For more on correspondence see McCarthy and Prince (1995).

permitted in (1bii): /m hou/→ [mou]. However such cases are rare in this language. [35] Further support comes from the contrast in (15):

(15)	a.	i. [kei.tɔ]	ii.*[keɔ]	"How many"
	b.	i. [kei.tɔ.kɔ]	ii. [keɔ.kɔ]	"How many tokens"

(15) shows the inclination of MyCan towards disyllabic words. In (15b), a trisyllabic input is reduced to two syllables, but the same substring is not reducible when it is disyllabic. [36] Now, if one recalls the discussion that mono-syllables are acceptable phonological words in section 2.3, each syllable must be a bi-moraic foot, thus the constraint in (14) makes references to feet.

ECS involves a violation of faithfulness: the output diverges from the input by the loss of segment. Because BINPW[CAS] is only applicable to casual speech inputs, no ECS will occur in normal speech. Within an Optimality Theoretic framework, ranking BINPW[CAS] » MAX, would produce ECS under casual speech. This is illustrated in (16) and (17) respectively.

[35] ECS in disyllabic strings is highly restricted (cf. section 1.3.2) and will be discussed in greater detail in Chapter Four..

[36] Although (15b) has a 2+1 morphosyntactic constituency, morphosyntax is irrelevant in MyCan ECS since there are other examples where ECS applies to 1+2 (e.g. /mou tsau kai/ → [mau.kai]) or flat morphosyntactic structures (e.g. /sa hɔ fɐn/ → [saɔ.fɐn]) (c.f. section 4.4.1.).

(16)

Input: /keitɔkɔ/+ Casual	BINPW[CAS]	MAX
i. kei.tɔ.kɔ	*!	
ii. ☞ keɔ.kɔ		**
iii. 💣 kei.kɔ[37]		**

(17)

Input: /keitɔkɔ/+ Normal	BINPW[CAS]	MAX
i. ☞kei.tɔ.kɔ		
ii. keɔ.kɔ		*!*

Legend: ☞ = optimal candidate
💣= erroneous optimum

Notice that candidate (16i) incurs a violation of the higher ranked constraint of BINPW[CAS], because ECS would be necessary if the higher constraint is to be satisfied. In (17), because the input does not relate to casual speech, BINPW[CAS] does not apply, thus MAX forbids ECS.

In enforcing BINPW[CAS] for cases like (16), two moras (the equivalent of a foot) would have to be removed from the input string. For the specific case above, this happens at WoE-1. On the basis of BINPW[CAS] alone, the optimal candidate need not necessarily be [keɔ.kɔ] where the syllable [keɔ] constitute a phonotactic violation as the [eɔ] vowel sequence is not attested in the inventory of syllables in MyCan.[38] In this regard, another candidate such as [kei.kɔ] would better since it would also satisfy BINPW[CAS].

[37] Logically one can imagine [ket.kɔ] which would also be optimal under this ranking and even with the inclusion of IDENT[MORP] later in (18). Such a candidate would involve ECS simultaneously at two WoEs. Since all cases discussed in this work pertain only to one WoE, I shall not pursue this candidate any further.
[38] Recall inventory of rime in section 2.2.3:(14).

Clearly then, there must be a constraint that would prefer the phonotactic violation, and that constraint is to come from morphology.

(18) IDENT[MORP]

For every input morpheme there is a corresponding output morpheme.

Input: /keitɔkɔ/+ Casual	IDENT[MORP]
i. ☞ keɔ.kɔ (cf. (16ii)	
ii. kei.kɔ (cf. 16iii)	*!

The presence of IDENT[MORP] and its superiority over phonotactics would produce the effect of suspension of phonotactic requirements by merging of syllables during casual speech. With respect to the constraints presented, there is no ranking argument for the specific placement of IDENT[MORP] in the hierarchy.

So far while BINPW[CAS] and its dominance over MAX together with IDENT[MORP] over phonotactics explain the motivation to elide certain segments, they have not provided an account to why ECS generally targets in WoE-1.

This effect can be captured by postulating that MyCan is prosodically right-headed and faithfulness to segments in the head constituent would force ECS to not target WoE-2 (see discussion on prosodic headship in section 2.3.5). To see how this can be achieved, the two responsible constraints are defined below:

(19) HD-RT

The head of a prosodic word is the rightmost constituent.

IDENT[HD]

Elements of the head must have identical correspondence between the input and the output.

Let us take a closer look at the example [kei.tɔ.kɔ] again in (20), this time adding to the set a candidate generated from ECS at WoE-2.

(20)

Input: /keitɔkɔ/+ Casual	HD-RT	IDENT[HD]	MAX
i. ☞ keɔ.**kɔ**			**
ii. **keɔ**.kɔ	*!	**	**
iii. kei.**tɔɔ**		*!	*

Legend: **bold** indicates the head syllable

In (20ii), the head syllable is indicated by boldface violates HD-RT because its head is at the left of the prosodic word, not to mention that the such a left-headship and ECS incurs additional violations of IDENT[HD]. Candidate (20iii) parses the location of the head correctly, but because of ECS at WoE-2, it incurs violations of IDENT[HD]. The optimal candidate is hence (20i) where the integrity of the right-head is preserved and where ECS satisfies the requirement of BINPW[CAS]. Crucially, HD-RT and IDENT[HD] have to outrank MAX. Summing up the results of the discussion so far, we arrive at the final ranking in (21):

(21) BINPW[CAS] ; HD-RT ; IDENT[HD]
| IDENT[MORP]
MAX

The hierarch in (21) indicates that BINPW[CAS], HD-RT and IDENT[HD] are unranked with respect to each other an that they all dominate MAX. In the absence of ranking arguments, IDENT[MORP] is unranked with respect to the above constraints, and is left by the side without any lines joining it to the larger picture.

It remains puzzling however that given this hierarchy, WoE-2 would undergo elision at all. To make things worse, there are a number of cases, in WoE-1 and WoE-2 types of elision where there is no reduction in syllable count, effectively making it futile for ECS to apply if motivated by BINPW[CAS].

3.4. WoE-2 Dilemma

ECS as accounted for in section 3.3 is motivated by BINPW[CAS] which can partially account for the preference of ECS at WoE-1 with the help of IDENT[HD]. However, in a number of cases, especially those involving WoE-2 no reduction of syllable count is observed. These disconcerting examples are presented in (23).

(22) ECS in WoE-2

a.	/san ka la/	→ [san.**k.la**]	"remote area"
b.	/hɐm paŋ laŋ/	→ [hɐm.**p.laŋ**]	"all"
c.	/jɐt kau lau/	→ [jɐt.**k.lau**]	"a big lump of something"
d.	/hou m hou/	→ [hou.**mou**]	"is it good?"
e.	/hai m hai/	→ [hai.**mai**]	"is it?"

The data in (22d & c) behave like those of WoE-1 and therefore can be analyzed in a way consistent to section 3.3, where merging occurs after the segmental deletion. However, this runs afoul with IDENT[HD].

(23) WoE-2 Challenge

If one assumes that ECS is triggered by BINPW[CAS], the syllable count must have reduced to 2 syllables. How can be cases like (22a, b & c) preserve their syllable count? How is it that ECS applies to WoE-2 in the first place given IDENT[HD]?

To illustrate, recall the constraints ranking in (21) and consider how this ranking fails to apply in WoE-2, as illustrated in the comparative tableau in (24):

(24) Comparative Tableau for ECS with /san ka la/

Input: /san ka la/+ Casual	IDENT [HD]	IDENT [MORP]	BINPW [CAS]	MAX	HD-RT
a. san.k.**la**~san.ka.**la**				L	
b. san.k.**la**~san.**la**		W	L	W	
c. san.k.**la**~san.**ka**		W	L	W	
d. san.k.**la**~san.**kla**	W		L		

Legend: **bold** indicates the head syllable

The comparative tableau was developed in Prince (2002) for the convenience of identifying a viable ranking hierarchy by comparing the desired optimal candidate with various competitors. For each pair listed in the first column, any constraint that prefers one or the other is indicated with "W" or "L", where "W" indicates that the constraint

prefers the desired winner and "L" the loser. Hence in (24a), MAX prefers the unattested candidate as is indicated by "L". It should be clear that for a viable ranking to be found, then for every "L", there has to be at least a "W" preceding it, since that is the only way to guarantee that no loser candidates are erroneously favored as the optimum. However, as may be seen in candidate (24a), this is not possible, since none of the constraints appear to select the desired optimal.

Despite this problem, there is now at least some ranking argument for the location of IDENT [MORP] in the ranking hierarchy. Having established earlier that BINPW[CAS] must outrank MAX, the only recourse for not selecting *[san.la] and *[san.ka] would be to have IDENT [MORP] ranked above BINPW[CAS].

At this point it is probably worth recalling the observations that consonant clusters are forbidden in MyCan (section 1.3.2:(14)). Though this does not solve the conundrum in (24), it might offer a clue, which would be taken up in the following chapters.

3.5. Summary

In closing this chapter, one is ready to answer the questions raised at the beginning.

(25) Puzzle 1: Locus of ECS

Why is ECS allowed only at WoE?

Puzzle 2: Choice of WoE

Given a string with more than one WoE, how is the WoE chosen?

Puzzle 3: Length requirement

Why is that trisyllabic sequences are liable to ECS?

The answer to all the above puzzles lie in the effects of it BINPW[CAS], IDENT [MORP], IDENT [HD] and HD-RT. BINPW[CAS] is responsible for why ECS applies to trisyllabic sequences. Minimally, it would take 3 syllables for there to be a violation of BINPW[CAS] that requires resolution via elision. IDENT [MORP] prevents overapplication of ECS to only a particular syllable. In a way IDENT [MORP] ensures that ECS applies at WoEs rather than at particular syllables. IDENT [HD] together with HD-RT prevent deletion of material from the final syllable, which consequently sets the target of ECS to WoE-1 (otherwise ECS at WoE-2 would target material from the rightmost syllable).

The account is, regrettably, incomplete, because when taken in this pristine form, it would predict that (i) all trisyllabic strings undergo ECS; (ii) ECS never applies to WoE-2 and that (iii) all ECS to trisyllabic strings must produce a disyllabic output through merger. Further, the account here would erroneously predict that (iv) disyllabic inputs never undergo ECS. These predictions appear to be not borne out since we do have ECS at disyllabic strings and we do have ECS where merger does not result. However, these challenges do not necessarily falsify the account provided in this chapter, though admittedly they point to the inadequacies which will be addressed in the upcoming chapter.

Chapter Four

Segments, Reduplicants, Shadows from the Past and Lengthy Issues

4.1 To BIN or not to BIN

The previous chapter was devoted to expounding the prosodic constraints relevant to Elision in Casual Speech (ECS) of Malaysian Cantonese (MyCan) and its usefulness in dealing with Windows of ECS (WoE). Nonetheless, a few questions remained unaddressed as followings:

(1) Puzzle 4: Disyllabic ECS (cf. section 1.3.4:(17))

What kinds of disyllabic strings allow ECS?

Puzzle 5: Black Sheep Cases

Why do some utterances forbid ECS?

Of the two remaining questions, the matter on disyllabic strings that allow ECS present the most formidable challenge, because it cannot be triggered by BINPW[CAS], the constraint that plays the key role in triggering ECS in trisyllabic sequences while keeping mono- and di-syllabic ones intact. The fact remains that a select few of the disyllabic sequences undergo ECS, and that must clearly be motivated by something else other than BINPW[CAS].

(2) BINPW[CAS]

Prosodic word must not have more than 2 feet in casual speech.

Still on the matter of BINPW[CAS], it is noteworthy that not all results of ECS at trisyllabic strings produce disyllabic outputs (although they generally do), which makes it rather futile for ECS to apply in the first place. But should one thus discard BINPW[CAS] as an account for MyCan ECS? To do so would be to disregard the strong motivations for it in the first place. Such is the dilemma one is facing, to accept BINPW[CAS] is to face the consequence of inadequacy in a minority set of ECS data, but to reject BINPW[CAS] would leave us no understanding of ECS.

The "black sheep" cases have also been largely ignored in the earlier chapters, but it is still true that not all strings undergo ECS. In the context of BINPW[CAS], there must be some faithfulness constraints that outrank it, preserving those strings intact. So, perhaps the main theme of this chapter can be encapsulated in the following question:

(3) Why is it that in casual speech, the application or non-application of ECS would still leave outputs that are either in clear violation of BINPW[CAS] or not motivated by it?

Three kinds of outputs are relevant here, and probably worth enumerating:

(4) a. Monosyllabic outputs from the application of ECS to disyllabic strings;

b. Trisyllabic outputs from the application of ECS to trisyllabic strings; and

c. Trisyllabic outputs from the lack of application of ECS to trisyllabic strings.

This chapter is organized as follows: Section 4.2 addresses the matter of ECS on disyllabic strings, arguing that the ECS is licensed by the need to avoid vowel-like onsets and syllabic consonants. Section 4.3 takes on the issue laid out in (4ii), where there are in fact two separate sets of data: data involving reduplication of syllables and data involving partial reduplication (shared rimes), which are primarily responsible for the presence of obstruent syllables (or semi-syllable in the sense of Cho and King 2003). Section 4.4 is focused on sequences that are exempted from ECS. When considered with section 4.2, one gets the full range of possibilities from situations where ECS is obligatory, to situations where ECS is triggered by BINPW[CAS] and finally situations where ECS is always blocked. Section 4.5 presents a summary.

4.2 ECS at Disyllabic Strings

4.2.1. Beyond the BINPW[CAS]

Recall the fact that disyllabic strings almost never undergo ECS (Section 3.4), which motivated the BINPW[CAS] constraint, supported by such exemplary pairs as (5).

(5)	a.	[kei.tɔ]	→ *[keɔ]	"how many"
	b.	[kei.tɔ.kɔ]	→ [keɔ.kɔ]	"how many tokens"

In (5b), a trisyllabic input is reduced to two syllables, but the same substring in (5a) is not reducible as disyllables. Although this pattern is robust, it is not without exceptions, as may be seen in cases like (6) (cf. section 1.3.2:(9)).

(6)	a.	/m hou/	→ [mou]	"no good"
	b.	/m hiu/	→ [miu]	"do not understand"
	c.	/m hai/	→ [mai]	"not true"
	d.	/m ŋɔi/	→ [mɔi]	"do not want"
	e.	/ŋam ŋam/	→ [ŋam]	"just (now)"

At first blush, it would seem that the generalization in BINPW[CAS] must be misguided, but there are at least two reasons for keeping it. Empirically, BINPW[CAS] successfully accounts for the a large amount of data, with cases like (6) being systematically exceptional and requires some effort to construct more examples of. In any case, given the way BINPW[CAS] is defined, cases like (6) are simply not motivated by it, and ought to be blocked by MAX. Theoretically, within an Optimality Theoretic framework, MAX can be defeated by higher constraints, making it feasible as long as the motivation for cases like (6) can be identified.

The support for the empirical validity of BINPW[CAS] and its profound impact on MyCan can be found in a short comparative study of the numeral "ten" after another

numeral (except numeral "one"). Reporting on Standard Cantonese, Hashimoto (1972), cited in Wong (2004), explains that such disyllabic strings reduce to monosyllables, for example /pat sɐp/ → [paʔ.aː] → [pa.aː] "eighty". Hashimoto claims that in the numeral that precedes "ten", the stop coda may become a glottal stop or completely lost, or in some cases the nucleus of [pat] will be shortened. The same reduction does not apply to MyCan, as can be seen in (7). Reduction is allowed only for trisyllabic inputs.

(7)	a.	/pat sɐp/	→ *[pa.a]/ *[pa]	"eighty"
	b.	/pat sɐp luk/	→ [pa.luk]	"eighty six"

Given (7b), the only reason why similar reduction cannot apply to (7a) must be due to its disyllabicity, apparently contradicting (6). So, the question is whether the pattern in (7) is the general case. If so, then (6) must be lexically specified to be exempt from BINPW[CAS]. It turns out that (7) is really a special case that applies to "ten" only: it is only with regards the morpheme for "ten" that a trisyllabic minimum must be met before ECS can take place. This means that there must be some systematicity to these exceptions that would trigger ECS not motivated by BINPW[CAS] for cases like (6).

A clue to the resolution of the challenges posed in (6) lies in the fact that as substrings, they continue to allow ECS irrespective of the windows they are found, as exemplified below:

(8)	a.	/hou m hou/	→ [hou.**mou**]	"is it good?"
	b.	/m hou t^hai/	→ [**mou**. t^hai]	"not good to look at"

c.	/m hiu kɔŋ/	→ [**miu**.kɔŋ]	"unable to talk"
d.	/m ŋɔi sik/	→ [**mɔi**.sik]	"refuse to eat"
e.	/ŋam ŋam hou/	→ [**ŋam**.hou]	"just nice"

The observations in (6) and (8) expose the inadequacies with BINPW[CAS] in capturing the full range of ECS data. Evidently, ECS is not only prosodically triggered, but also intricately related to the segments involved.

4.2.2. Segments that Delete in Casual Speech

To find a solution to the matter of ECS with disyllables, it is instructive to note that the data in (6) belong to 3 different types: (i) the elided material is a [-consonantal] segment (cf. section 1.3.2:(12), License for ECS); (ii) the elided material is a velar nasal segment and (iii) the elided material involves a reduplicant. This section shall look at the first of these 3 kinds, and here is the relevant data again, this time with a few additions:

(9) Elision of [-consonantal] segment followed by merging

a.	/m hou/	→ [mou]	"no good"
b.	/m hiu/	→ [miu]	"do not understand"
c.	/m hai/	→ [mai]	"not true"
d.	/m hɐŋ/	→ [mɐŋ]	"not agree"
e.	/m wui/	→ [mui]	"will not"
f.	/m jiu/	→ [miu]	"do not want"

What is clear in (9) is that it has a …[m] + [-consonantal]… pattern. [-consonantal] segments include [j, w, h] all of which are represented here. If this observation is correct, then one should be able to coin a new sequence, put it in the right context and elicit the same ECS pattern. This prediction is borne out in the following examples:

(10)	a.	/m hœŋ/	→ [mœŋ]	"not fragrant"
	b.	/m jɐu/	→ [mɐu]	"not fine"
	c.	/m wɔŋ/	→ [mɔŋ]	"not prosperous"

The utterances in (10) are somewhat less usual than those in (9), but are found in special contexts. For example, if a boyfriend puts on a new cologne and asks his skeptical girlfriend if he smells good, she could produce the ECS form in (10a). Or imagine a vacation on a beach of fine smooth sand, but the bored, unromantic husband responds to his wife's query on what he thinks of the fineness of the sand could produce the ECS form in (10b). Similarly, a desperate store owner could retort to the tax collector's question on how his business is doing with the ECS form in (10c).

Clearly then, the pattern is productive, but it is highly restricted to [-consonantal] segments. It is as if [-consonantal] segments must be elided at WoEs. To get this effect, one would need a constraint such as that in (11).

(11) *[-cons$_{ONS}$]

Do not have [-cons] Onsets.

However, *[-cons $_{ONS}$] cannot itself be the answer, because it cannot outrank MAX, without creating a paradox with normal speech data. The tableaux illustrate why this is so.

(12) Ranking Paradox for Normal and Casual Speech for Disyllables

Input: /m + GV/ normal speech	MAX	*[-cons $_{ONS}$]
i. mV	*!	
ii. ☞ m.GV		*

Legend: G = [-consonantal] onsets; V = vowels

Input: /m + GV/ casual speech	*[-cons $_{ONS}$]	MAX
i. ☞ mV		*
ii. m.GV	*!	

In normal speech, disyllables do not undergo elision, the patterns in (9) apply only to casual speech. Thus, it must be the case that MAX outranks *[-cons $_{ONS}$] in order not to trigger any unwarranted deletion. However, as the lower tableau in (12) shows, *[-cons $_{ONS}$] must be higher up than MAX for there to be elision at casual speech. In this case, BINPW[CAS] does not help in anyway; given the way it is formulated, monosyllables are not in violation. So, one is stuck in a ranking paradox.

The situation is not hopeless though, because the problem with (11) is that one has not taken into consideration the relevance of /m/ in the equation. The following data shows, for example, that there is something to be said about the syllabicity of /m/ in disyllabic ECS cases.

(13)[39] a. /kɐm jœŋ/ → [kɐm.mœŋ] "like this"

b. /tim jœŋ/ → [tim.mœŋ] "how"

c. /kɐm jɐt/ → [kɐm.mɐt] "today"

d. /k^{h}ɐm jɐt/ → [k^{h}ɐm.mɐt] "yesterday"

The examples in (13) shows that the merging came about possibly because of the syllabicity of the consonant, which universally prefers to be in a non-Nucleus position. To this end, one can appeal to the following constraint:

(14) *[+cons$_{NUC}$]

Do not have syllabic consonants.

Again (14) has to be ranked lower than MAX for the predictions to be correct of normal speech.

(15) Ranking for Normal Speech for Disyllables

Input: /m + GV/ normal speech	MAX	*[+cons $_{NUC}$]
i. mV	*!	
ii. ☞ m.GV		*

[39] These cases clearly involve the deletion of the [-consonant] onset followed by the spreading of the preceding coda consonant to form a heterosyllabic geminate. This minor complication would have no impact on the issues at hand, and would not be discussed further.

The fact that both *[-cons $_{ONS}$] and *[+cons $_{NUC}$] does not make the situation hopeless, even though in a simplistic conception of OT, it would be so. This is because for the /m + [-consonantal] …/ cases, they could work together to outmaneuver MAX, during casual speech a move made available to us with "constraint conjunction" (Alderete 1997, Bakovic 1999, Moreton and Smolensky 2002; Lubowicz 2005). To do this successfully, a conjoined constraint is needed.

(16) *[-cons$_{ONS}$]&*[+cons$_{NUC}$]/CAS

Do not have simultaneous violations of *[-cons$_{ONS}$] and *[+cons$_{NUC}$] in Casual Speech.

With the aid of (16), the situation becomes easily apprehensible, as is illustrated below.

(17) Normal and Casual Speech for Disyllables

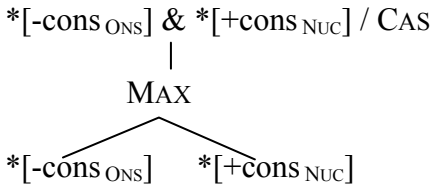
Input: /m + GV/ normal speech	*[-cons $_{ONS}$] &*[+cons $_{NUC}$] / CAS	MAX	*[-cons $_{ONS}$]	*[+cons $_{NUC}$]
i. mV		*!		
ii. ☞ m.GV			*	*
iii. m.V		*!		*

Input: /m + GV/ casual speech	*[-cons $_{ONS}$] & *[+cons $_{NUC}$] / CAS	MAX	*[-cons $_{ONS}$]	*[+cons $_{NUC}$]
i. ☞ mV		*		
ii. m.GV	*!		*	*
iii. m.V		*		*!

Because the conjoined constraint is only active in casual speech, it would not erroneously prefer an elided candidate under normal speech circumstances. In casual speech, the effect of *[-cons $_{ONS}$] & *[+cons $_{NUC}$]/CAS, their combined effect is to ensure that deletion simultaneously prevent violations of both constituent constraint. In a sense, one can say that these conjunctions are motivated by a certain economy at the locality where a syllabic consonant is immediately adjacent to a vowel-like onset. In any case, one is now able to make the correct predictions for all the cases in (9).

The above account predicts that merging would happen for cases where the consonant preceding the final syllable is part of the coda. This is because such consonants would involve no violations of *[+cons $_{NUC}$] making impossible to activate the conjoined constraint to override MAX. This is borne out in the data in (13).[40] On the basis of the discussion here, a ranking hierarchy like that of (18) is necessary.

(18) Ranking hierarchy



[40] Note crucially that the data in (13) do not incur Max violations even though the [-consonantal] segments are absent. This is because within the correspondence conception of OT, each input segment does have a corresponding output segment, though in violation of IDENT.

4.2.3. Segments that Delete Before ECS

While the ranking hierarchy in (18) is good for the cases of disyllabic strings with onsets that are [-consonantal], it appears to be powerless against the cases in (19).

(19) /ŋ/ deletion in disyllabic strings

a.	/m ŋɔi/	→ [mɔi]	"do not want" (cf. (6d))
b.	/m ŋam/	→ [mam]	"not suitable"
c.	/m ŋaŋ/	→ [maŋ]	"not hard"
d.	/m ŋɐi/	→ [mɐi]	"not short"
e.	/m ŋɔ/	→ [mɔ]	"not hungry"
f.	/m ŋai/	→ [mai]	"not hollering"

These would have been true counterexamples to the above account, except for one important observation. In MyCan, all words beginning with the velar nasal /ŋ/ are pronounced without that onset unless in isolation. In other words, the onset /ŋ/ is never found in a string of syllables. The solution to this problem presents itself: there is no velar nasal to undergo ECS for the above cases to begin with. That nasal has been deleted by the context and is thus not an effect of ECS. What ECS does is to simply merge the syllables into one, by virtue of *[+cons $_{NUC}$].

4.2.4. Reduplicants

In the earlier subsections, ECS in disyllabic strings are largely triggered by the distinctive featural properties of the segments involved correlating with the positions of their occurrence. It is this principle that is implicit in constraints on syllabic consonants. However, if one looks at the data in (6) again, it would not escape notice that elision applies to reduplicants as well, data presented below:

(20) ECS with reduplication

a.	/ŋam + RED/	→ [ŋam]	"just (now)"
b.	/tɔ + RED/	→ [tɔ]	"a lot"
c.	/siu + RED/	→ [siu]	"a few"
d.	/sɛk + RED/	→ [sɛk]	"kiss"
e.	/fai + RED/	→ [fai]	"quickly"

The thing about such cases is that they involve a REDuplicant where segmental material comes from the base. In MyCan, it is easy to construct contexts where these elided forms appear, in particular, in response to questions like "when did you arrive?" (Answer: [ŋam] casually but [ŋam.ŋam] carefully, (20a)); "how much do you need?" (Answer: [tɔ] or [siu] casually, but in two syllables when careful (20b, c)); "what do you want sweetheart?" (Answer: [sɛk] or [sɛk.sɛk] depending on the desired clarity of affection, (20d)); and "can I get you a drink?" (Answer: [fai] or [fai.fai] depending again on how casual the speech is, (20e)).

In ECS, it is perhaps not inconceivable that what is at work here is the omission of the RED in an attempt to make the allegro time that characterizes casual speech. RED is after all less of a target of faithfulness constraints than the base (Beckman 1998). In this case, let's suppose we have a markedness constraint against reduplication in casual speech.

(21) *RED/CAS

Do not have reduplicants in the output.

A constraint like (21) if ranked above Max would easily account for the cases in this subsection.

(22) *RED/CAS » MAX

input: CVC + RED	*RED/CAS	MAX
i. ☞ CVC		*
ii. CVC.CVC	***	

In (22), candidate (i) incurs a violation of Max because the RED is not represented, but candidate (ii) would have 3 items representative of the input RED. The exact count of the violations is immaterial here, since the ranking would have ensured the selection of the attested candidate.

The next section moves on to trisyllabic strings, where reduplicants are also involved, but in a more indirect way.

4.3. Trisyllabic Outputs from Trisyllabic Strings

This section addresses the trisyllabic data where ECS does not seem to have happened at WoE-1. Not only that, the results sometimes involve merger but not other times.

(23)	a	/la la lɐm/	→ [**la**.lɐm]	"hurry up"
	b.	/min tsʰɛŋ tsʰɛŋ /	→ [min.**tsʰɛ**ŋ]	"pale face"
	c	/kɔk lɔk tʰɐu/	→ [**k.lɔk**.tʰɐu]	"corner"
	d.	/hɐm paŋ laŋ/	→ [hɐm.**p.laŋ**]	"all together"

Noteworthy in (23) is that when full reduplication is involved, the ECS output always result in a reduction of syllable count. However, when only the rimes are identical, the syllable count persists, to the chagrin of BINPW[CAS].

4.3.1. Reduplicants in Trisyllabic Sequences

Data of the kind in (23a, b) present nothing new to us. They are simply the suppression of the input /RED/ so that in casual speech, there is one syllable short. In fulfilling *RED/CAS, BINPW[CAS] has also been satisfied. The interesting thing is probably the indiscrimination of the WoE in such cases. It appears that ECS need not apply to WoE-1 as predicted in Chapter Three. This again is hardly surprising. In the account in Chapter

Three, WoE-1 is the usual target of ECS by virtue of the headship at the right. In reduplication cases, the headship lies in the base material.

(24) Location of Head in trisyllables involving reduplication

Given the assumption that the head is the rightmost element, then Y will be head, not the reduplicant which is dependent on Y for the XYY case. For the XXY case, again, Y would be head, being the rightmost element, though X would be base, and thus perhaps some kind of lower-order head.

4.3.2. Partial Reduplicants and Shadows from the Past

Consider now the set of data where trisyllabic inputs that undergo ECS remain trisyllabic.

(25) Trisyllabic ECS outputs

a. WoE-1

i. /kɔk lɔk t^hɐu/	→ [**k.lɔk**.t^hɐu]	"corner"
ii. /kak lak tei/	→ [**k.lak**.tei]	"armpit"
iii. /pɔ lɔ kɔi/	→ [**p.lɔ**.kɔi]	"knee cap"

b. WoE-2

i. /hɐm paŋ laŋ/	→ [hɐm.**p.laŋ**]	"all together"
ii. /tsap paŋ laŋ/	→ [tsap.**p.laŋ**]	"mishmash"
iii. /tsim pat lat/	→ [tsim.**p.lat**]	"very sharp"
iv. /tsik pat lat/	→ [tsik.**p.lat**]	"very straight"
v. /san ka la/	→ [san.**k.la**]	"remote area"
vi. /jɐt kɐu lɐu/	→ [jɐt.**k.lɐu**]	"a bank of (mud, clouds etc)"

Recall in Chapter Three that these cases are indeed trisyllabic as evidenced by phonetic measurements. Weird as these may be, one has no choice but to figure out why the facts are the way they are.

A glimmer of hope can be seen in the observation that in all of these cases, ECS has targeted the rime, and that rime is shared by one of the syllables in the string. In fact, they are of the schema in (26a) or (26b).

(26) a. [… $rime_1$] [… $rime_1$] […]

b. […] […$rime_2$] […$rime_2$]

In (26), the subscript indices indicate that the rimes are identical. For cases like (26a), the initial rime is elided, but for (26b), it is the medial one. If one ignores the other syllable, one could reduce (26a, b) to (27).

(27) […rime$_1$] […rime$_1$]

elide this

The identity of the rime is highly significant here, reminiscent of reduplication, in this case, partial. Evidence for this is to come from historical linguistics. Take (25aiii) /pɔ lɔ kɔi/ → [p.lɔ.kɔi] "knee cap" for example. /pɔ lɔ/ came into Cantonese through transliteration from English "ball" (Bolton 2003, citing a 19th century source), and /kɔi/ is of Chinese origin meaning "cover". The reason why "ball" was transliterated the way it is, is that Cantonese does not allow a coda /l/, and a vowel had to be appended. The choice of the vowel matches that of the original base, i.e. that vowel is a reduplicant. Once it can be established as a reduplicant, the account given earlier with *RED/CAS would apply with ease.

Not all of the examples in (25) came from transliteration of course, but there is evidence to believe that these are inherited from archaic Chinese which had consonant clusters for onsets (Shi 1995, and references contained). These clusters split and the initial consonant took rimes reduplicated from the original stem. This is probably true of all the data in (25) (except aiii), because cognates can be found in other Chinese languages. For convenience, the two rhyming rimes of such instances can be schematically represented as follows:

(28) […rime $_{RED}$] […rime]

As indicated in (28), the RED in this case precedes the base. While (28) and *RED/CAS would ensure the deletion of the RED, one is still in need of an account to the unchanged syllable count, consequently failing to meet the requirements of BINPW[CAS]. Related to this, one also needs an account for the resulting obstruent syllable. To do this, the constraint against consonant clusters must be available and highly ranked.

(29) *CC

Do not allow consonant clusters within a syllable.

Suppose now that *RED/CAS and *CC outrank BINPW[CAS], then the right results would follow:

(30) Partial Reduplication and Obstruent Syllables

Input: /CR_{RED}+CVC+σ/ + casual	*RED/CAS	*CC	IDENT [MORP]	BINPW[CAS]
i. CVC.CVC.σ	*!*			*
ii. CCVC.σ		*!		
iii. ☞ C.CVC.σ				*
iv. CVC.σ			*!	

Input: /σ+CR_{RED}+CVC/ + casual	*RED/CAS	*CC	IDENT [MORP]	BINPW[CAS]
i. σ.CVC.CVC	*!*			*
ii. σ.CCVC		*!		
iii. ☞ σ.C.CVC				*
iv. σ.CVC			*!	

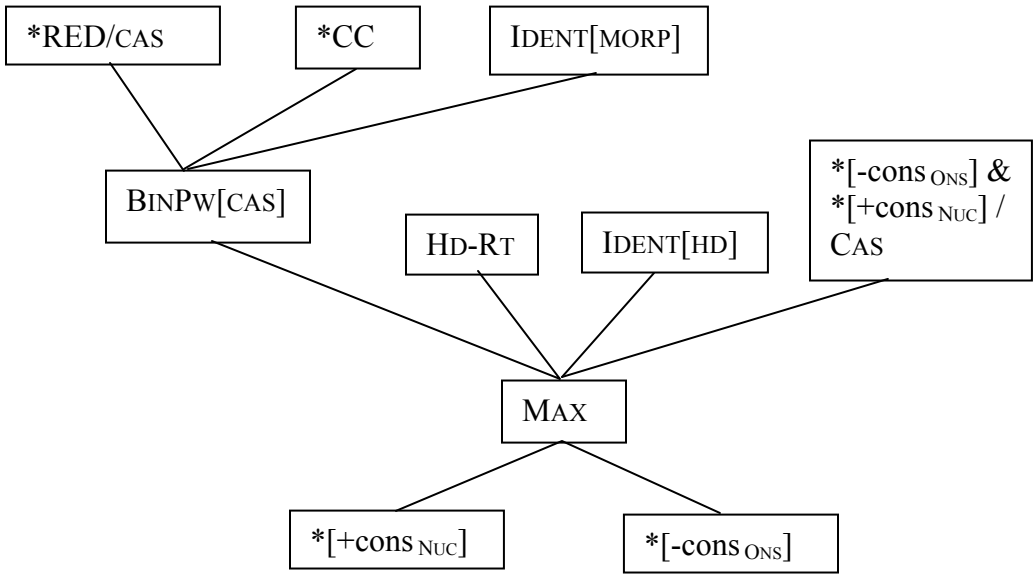
Given the constraints, with the crucial ranking that BINPW[CAS] has to be dominated, the desired output would be predicted. The above account would also predict that only identical rimes that came about from reduplication would be subject to ECS without regard to the default that WoE-1 is the locus of ECS. This prediction is borne out in cases like (31).

(31) /kei tɔ kɔ/ → [keɔ.kɔ] "how many"
*[kei.t.kɔ]

In (31), the pair of syllables that have identical rime is located at WoE-2. But this is not a case of reduplication, simply because this utterance has a syntactic structure of 2+1, so the medial syllable is not a partial reduplicant of the final one. In such cases, *RED/CAS is not applicable, hence WoE-1 would be the locus of elision by default (due to IDENT[HD] and HD-RT.

With this, the ranking hierarchy for MyCan ECS can be refined as follows:

(32) Ranking hierarchy for MyCan ECS



In (31), constraint A dominates constraint B if it is located higher up and there is a branch connecting their boxes. Some constraints do not interact with each other for the purposes of MyCan and so no lines connect their boxes.

4.4. ECS Blocking Trisyllabic Strings and Residual Problems

4.4.1. Trisyllabic Strings that do not Allow ECS

Up to this point, we have concentrated on trisyllabic strings that undergo ECS, identifying the locus of ECS to be in the windows between syllables, schematically presented below:

(33) ECS in trisyllabic strings

	Initial syllable		Medial syllable		Final syllable	
Position	Onset	Rime	Onset	Rime	Onset	Rime
Applicability of Elision	✘	✓		✓	✘	✘
		WoE-1		WoE-2		

From table (33) three concrete generalizations emerge: (i) ECS at WoE-1 involves rime of the initial syllable and onset of the medial syllable; however ECS at WoE-2 only involves rime of medial syllable. (ii) the stability in syllabic position is ordered: final syllables are most stable, initial syllables less so and, medial syllables most volatile; and (iii) non-marginal syllable are more likely to undergo elision.

However, a careful study of the data in Appendix 3 (Transcriptions) would reveal that not all trisyllabic strings are susceptible to ECS, in fact, all cases of ECS appear to involve only either reduplicants (see above sections) or a very specific set of consonant segments: [j, w, h, t, t^h, s, ts, ts^h, k] for onsets and [i, u, m, n, ŋ, t, k] for codas. Some examples are provided in (34) and (35).

(34) ECS to Onset segments

a. Deletion of [-consonantal] (i.e. [j, w, h])

i. /sau **j**ɐm kei/ → [sɐm.kei] "radio"

ii. /tɐi **j**i jɐt/ → [tɐi.jɐt] "the next day"

iii. /ts^hɔi **j**i lɐm/ → [ts^hɔi.lɐm] a name

iv. /k^hei m **w**ɐn/ → [k^hei.mɐn] "does not stand steadily"

v. /p^{h}ou m **w**ɔŋ/ → [p^{h}ou.mɔŋ] "the shop is quiet"

vi. /sa **h**ɔ fɐn/ → [saɔ.fɐn] "rice noodle"

vii. /lei **h**in luŋ/ → [lin.luŋ] a name

viii. /hɐi m **h**ɐi/ → [hɐi.mɐi] "is it"

b. Deletion of [k]

i. /siŋ **k**a pɔ/ → [sia.pɔ] "Singapore"

ii. /sei **k**ɔ jɐn/ → [seɔ.jɐn] "four persons"

iii. /pei **k**ɐu tsui/ → [pɐu.tsui] "chase by the dog"

c. Deletion of [+coronal] (i.e. [t, t^{h}, s, ts, ts^{h}])

i. /kei **t**ɔ kɔ/ → [keɔ.kɔ] "how many tokens"

ii. /si **t^{h}**ɐu pɔ/ → [sɐu.pɔ] "female boss"

iii. /mau **t^{h}**ɐu jiŋ/ → [mɐu.jiŋ] "owl"

iv. /sai **s**ɐu kan/ → [sɐu.kan] "washroom"

v. /mou **ts**au kai/ → [mau.kai] "didn't lose out (on good stuff)"

vi. /tʃy **ts^{h}**œŋ fɐn/ → [tsœŋ.fɐn] "flat rice-flour rolls"

(35) ECS to coda segments

a. Deletion of [-consonantal] (i.e. [i, u])

i. /se**i** kɔ jɐn/ → [seɔ.jɐn] "four persons"

ii. /mo**u** tsau kai/ → [mau.kai] "didn't lose out (on good stuff)"

b. Deletion of nasals

i. /sa**n** sɐn miu/ → [sɐn.miu] "mountain deity temple"

ii. /hɐ**m** sɐp lou/ → [hɐp.lou] "lewd man"

iii. /si**ŋ** ka pɔ/ → [sia.pɔ] "Singapore"

c. Deletion of [t, k]

i. /ts^{h}**ɐt** t^{h}ɐu kɔ/ → [ts^{h}ɐu.kɔ] "knee cap"

ii. /su**k** t^{h}ɐu k^{w}ai/ → [sɐu.k^{w}ai] "coward"

A careful look at the above examples also reveals that nuclei vowels are susceptible to ECS too. In this case, the pattern is systematic. All nuclei vowels can be elided, and will be elided for merging to produce a minimally bimoraic syllable.

(36) i. /s**i** t^{h}ɐu pɔ/ → [sɐu.pɔ]; *[s**i**ɐu.pɔ] "female boss"

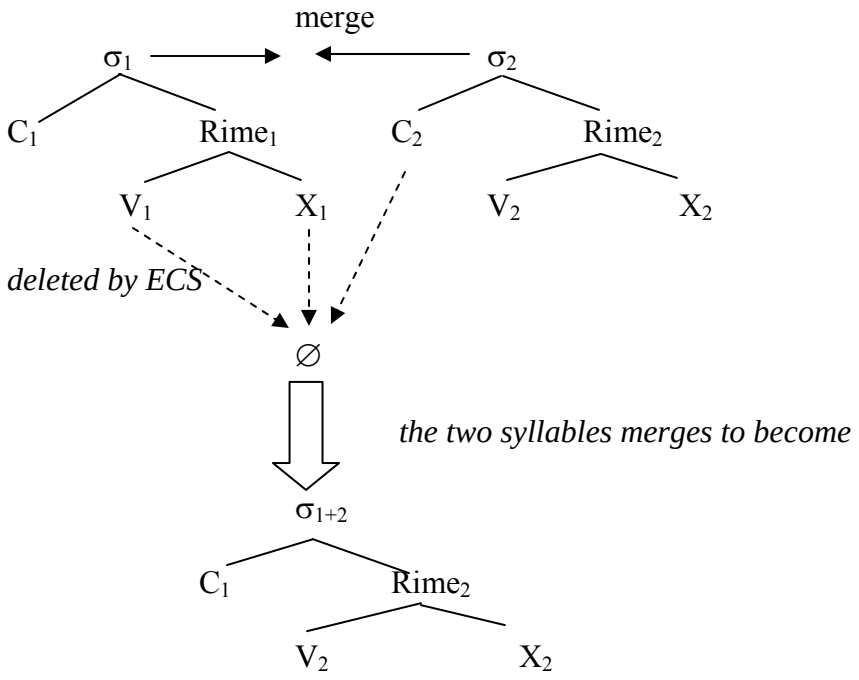
ii. /lei hin luŋ/ → [lin.luŋ]; *[lein.luŋ] a name

iii. /san sɐn miu/ → [sɐn.miu]; *[saɐn.miu] "mountain deity temple"

iv. /t∫**y** ts^{h}œŋ fɐn/ → [tsœŋ.fɐn]; *[tsyŋ.fɐn] "flat rice-flour rolls"

From (36), one can observe that elision applies to nuclei vowels in order for the resultant syllable to have a rime that contains at most two segments. This is a constraint against rimes that would potentially be trimoraic. If one recalls the syllable template of MyCan in section 2.2.3:(12) , it should be clear that this is the force at work.

(37)



What (37) seeks to represent is that if two syllables are to merge in the face of ECS, and if both syllables have branching rimes, then ECS would obliterate the first rime regardless of what the nucleus of that rime is. This is applicable if X_1 and C_2 are susceptible to ECS as presented in (34) – (36). As such what is crucial must be the ECS-target segments in (34) – (36), all other segments are protected from ECS.

Having said that, it is time to make explicit the fact that while ECS is rampant, it is rampant only in the sense of the set of segments it is allowed to target. And this appears to be a small set: [j, w, h, t, t^h, s, ts, ts^h, k] for onsets and [i, u, m, n, ŋ, t, k] for codas. To achieve this effect, what one needs to do is split MAX into two sets, one

dominated BINPW[CAS] and the other subordinate to it.[41] In other words, one needs to split the segments into two classes.

(38) Classifying the segments

	CLASS A	CLASS B
Type / Position	Segments that disallow ECS	Segments that allow ECS
Onset	[p, p^h, k^h, k^w, k^{wh}, m, n, ŋ, f, l]	[j, w, h, t, t^h, s, ts, ts^h, k]
Coda	[p][42]	[i, u, m, n, ŋ, t, k]

The kind of effect desired can be achieved if one can somehow get a ranking hierarchy such as (39).

(39) MAX-CLASS A » BINPW[CAS] » MAX-CLASS B

A ranking such as (39) would ensure that only segments of Class B are prone to ECS, and a high-ranking syllable template would trigger the rest of the elision for merger into an acceptable MyCan syllable.

However, the identification of Class A and Class B at this point is an impossible task. There is no coherent set of distinctive features to pick them out as a set. For example, aspirates occur in both class, and velar stops [k] and [k^h] are split. There appears to be no clear cut way of picking out one from the other without falling short of

[41] This situation does not apply to reduplicants. All reduplicants, as we've seen, are obliterated by ECS whatever the segments they contain. Hence, *RED/CAS as a trigger of ECS would outrank all the MAX constraints, no matter how they are split.

[42] There is one exception though, which is for the numeral ten [sɐp], otherwise, [p] is never elided in the coda position.

stipulation. This is an inadequacy of the analysis presented in this thesis, but any phonetic or phonological grounding for the division of Class A and Class B segments will have to await future research. Equally difficult is the fact that the choice of ECS-prone segments is sensitive to the positions in the syllable structure. Nasals are not elided as onsets, but only as codas. In an OT framework where syllabification (i.e. the sorting of input segments into onsets, nuclei and codas) are achieved by output constraints, such information is not available at the input. This makes it immensely difficult to formulate a constraint that would make ECS target the nasals only when they are in the coda.[43] This is one matter where the account propose in this thesis is inadequate, which perhaps may be filled in by future research.

4.4.2. 4-syllable Strings and ECS

Having discussed the main patterns of di- and trisyllabic strings of MyCan ECS, it is now appropriate to look at longer sequences. Constraints of time and resources conspired to restrict my data collection to within 4 syllables. In such 4-syllable strings, 4 kinds of inputs are possible. For convenience, I shall not attempt to notate which syllable of a reduplicate pair is the base and which is the reduplicant, but consistently mark their identity with the same letter.

[43] A point in note is that nasals generally make good codas; any language that allows codas would allow nasals in that position. As such, a coda constraint against nasals is not a viable to move to address this problem.

(40) a. Type ABCD

All input syllables are distinct (morphs).

b. Type AACD

The first pair of syllables is reduplicated (partial or full).

c. Type ABCC

The last pair of syllables is a reduplicated (partial or full).

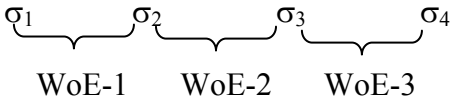
d. Type AACC

The string is made up of 2 pairs of reduplicates (partial or full).

4.4.2.1. Type ABCD

For Type ABCD, there are two choices of WoE for ECS to apply (subject to applicability of segments as discussed in section 4.4.1): WoE-1 or WoE-2, but never WoE-3, and never to more than one window. Note that with 4 syllables, there will be 3 Windows.

(41) Windows of ECS



This result is at least partially predicted by the account presented in this thesis. ECS at WoE-3 would affect the final syllable, in violation of IDENT[HD] AND HD-RT. However, our account falls short of explaining why only maximally one window is targeted. This is because BINPW[CAS] would have required further reduction of the 4 syllables into just two, instead of the actual 3. In other words, in principle, both WoE-1

and WoE-2 should undergo ECS, causing all non-final syllables to merge into one. At this point, I am unsure what the cause is, but one plausible answer could come from IDENT[MORP]. Had ECS applied to both WoE-1 and WoE-2, then the entire B-syllable would be obliterated, which would violate IDENT[MORP]. And if one recalls the ranking hierarchy in (32), IDENT[MORP] outranks BINPW[CAS], which would explain why one would rather not satisfy the binarity requirement. In this case, it is possible to ask if therefore ECS should apply at all, since it would not satisfy BINPW[CAS] anyway. The answer is still yes, because with ECS, the output incurs one violation less of BINPW[CAS] than if ECS had not occurred (compare 4 syllables with 3 syllables and a target of 2 syllables). In this case, what one needs is to understand BINPW[CAS] as a gradation constraint. Some examples of ECS of this category are given below:

(42)	a.	/si tʰou wiŋ ji/	→ [**sou**.wiŋ.ji]	a name
	b.	/saŋ ŋɔn pak tsou/	→ [**sɔn**.pak.tsou]	"unreal"
	c.	/pʰuk lei kɔ kai/	→ [pʰuk.**leɔ**.kai]	"go to hell"

4.4.2.2. Type AACD

For 4-syllabic input strings of the type AACD, the situation is very similar to that of ABCD, only this time, ECS must apply at WoE-1. Some examples are given in (43).

(43)	a. /pou pou kou siŋ/	→ [**pou**.kou siŋ]	"to get a promotion continuously"
	b. /yɐm yɐm tsui siu/	→ [**yɐm**.tsui.siu]	"to laugh sinisterly"

c. /jɛ jɛ sɐŋ kɔ/ → [**jɛ**.sɐŋ.kɔ] "playing and singing every night"

This is again predicted by our account in Chapter 3, with the constraint *RED/CAS. The reduplicant is forbidden from surfacing and is deleted. Incidentally, this would produce obstruent syllables (exactly like the cases with trisyllabic inputs) if merger would result in consonant clusters (if AA are partial reduplicants). The puzzling thing about such cases is that there is still no ECS at WoE-2 (between A and C) to further reduce the syllable count to 2 to satisfy BINPW[CAS]. After in such cases, IDENT[MORP] cannot prevent more elision if the consonants of A_1 and A_2 are kept intact as obstruent syllables (for partial reduplication). If AA were full duplicates, the same problem would also apply. In the telling at section 4.4.2.1, this is certainly unexpected.

4.4.2.3. Type ABCC

Cases of this type are exemplified below.

(44) a. /siu hɐu sɐi sɐi/ → [siu.hɐu.**sɐi**] "to laugh merrily"

b. /hou hei lin lin/ → [hou.hei.**lin**] "many good movies coming up"

c. /t^{h}ɐu nou huŋ huŋ/ → [t^{h}ɐu.nou.**huŋ**] "empty-headed"

Given *RED/CAS, elision is predicted at WoE-3, which matches the facts. Like the case of AACD, obstruent syllables are predicted for partial reduplication. However, the problems in the above subsection also persist here. One is at a loss to why ECS does not

apply at WoE-1 to satisfy BINPW[CAS]. Clearly, a solution for one would/must also work for the other.

4.4.2.4. Type AACC

These cases are interesting because there appears to be two distinct patterns depending on whether the reduplication is partial or full. I shall begin with the partial reduplication type.

(45) Partial Reduplication

a.	/p^{h}ik lik p^{h}ak lak/	→ [**p^{h}**.lik.**p^{h}**.lak]	"onomatopoeia for crackling"
b.	/ki li ku lu/	→ [**k**.li.**k**.lu]	"onomatopoeia for jabber"
c.	/kiŋ liŋ kuŋ luŋ/	→ [**k**.liŋ.**k**.luŋ]	"onomatopoeia for rumbling"

The cases at (45) indicate that for type AACC where reduplication in partial, *RED/CAS applies and removes the reduplicate material wherever applicable. This would result in obstruent syllables, again due to IDENT[MORP], so the account presented is supported here, and nothing surprises us.

However, with full reduplication, a strange thing happens, as may be seen in (46).

(46) Full Reduplication

a.	/ma ma fan fan/	→ [**ma**.fan.fan]	"troublesome"
b.	/lɐm lɐm løy løy/	→ [**lɐm**.løy.løy]	"men and women"
c.	/si si suk suk/	→ [**si**.suk.suk]	"devious"

In (46), only the A reduplicant is deleted, but the C reduplicant remains intact. On the one hand it agues that *RED/CAS is active, but on the other the constraint has failed to apply to all cases. Since this is also in violation of BINPW[CAS] (with 3 syllables at the output instead of 2), the problem might be related to that presented in sections 4.4.2.2 and 4.4.2.3.

The 4-syllabic input strings and ECS presents formidable challenges to the account developed in this thesis, but given the evidence it is clear that this account is on the right track as the effects of the constraints appealed to here are manifest in many instances across a wide spectrum. The problems of the 4-syllable string must point to a solution that would have to await future research.

4.5 Summary

This chapter takes as its point of departure the basic analysis developed in Chapter Three. It began with a discussion on ECS in disyllabic strings, which are curious because of their rarity and the specificity of the segments to which ECS applies. This leads one to discover that the quality of segments and reduplication plays an active role in the determination of where the locus of ECS is with respect to the WoE applicable. Though IDENT[HD] and HD-RT would put WoE-1 as the default location of ECS, segmental characteristics and reduplication can set the relevant WoE elsewhere.

Moving on to reduplication, it is discovered that IDENT[MORP] and *CC are very dominant constraints in MyCan, because for such cases, the bar against consonant

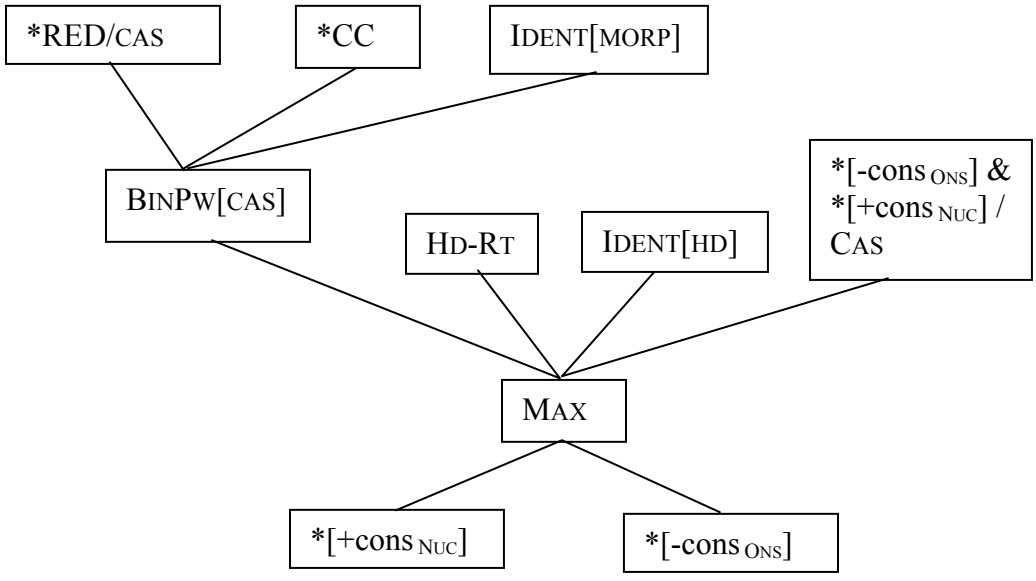
clusters and the need to preserve input morphemes would actually produce such oddities as obstruent syllables.

As may be observed in the entire set of collected data in Appendix 3 (Transcriptions), not all strings are susceptible to ECS. This harks back to the discussion on segmental properties, but here one strikes a conundrum. While the set of segments that ECS may apply (or may not apply) can be identified and enumerated, they appear to defy classification.

The problems do not end here, as more are found in 4-syllable input strings. For the most part, the account developed can provide a partial account for their ECS patterns, mostly in the identification of WoE and the existence of obstruent syllables. However, it appears that in these longer strings BINPW[CAS] is violated without any clear motivation.

In summary, the account developed thus far, despite the challenges it faces can encapsulated in the following ranking hierarchy.

(47) Ranking hierarchy for MyCan ECS



Chapter Five

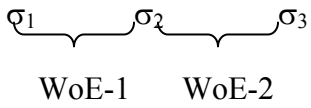
Conclusion

In casual Malaysian Cantonese (MyCan) speech, phonological material is unconsciously elided during the utterance of familiar items. Analysis of Elision in Casual Speech (ECS) in MyCan reveals that ECS does not take random targets, but follows strict phonological rules in terms of the prosodic requirement and the kinds of elision allowed.

Because ECS in Chinese languages is rarely studied (Wee et al 2005), and MyCan phonology has hitherto been unexplored, it is necessary that one has an understanding of MyCan basic phonology. Chapter Two provides such a sketch on the phonological inventory and prosodic properties of MyCan. Noteworthy is that the minimal MyCan word is the syllable (like all Chinese languages), which implies that the MyCan syllable is also the minimal foot from which a prosodic word is projected. Because prosodic words have no upper bound in terms of syllable count, it is conceivable that trisyllabic sequences can in principle be a prosodic word. If so, then given any elision that reduces a trisyllabic string into a disyllabic one, qualification for prosodic wordhood might be compromised if moraic segments are elided.

In MyCan casual speech, elision appears to apply largely to trisyllabic strings, rarely to disyllabic strings and never to monosyllables. Further, elision only applies at the boundaries between the syllables, known as Window of Elision (WoE). For example, given a MyCan trisyllabic string, there are two logically possible WoEs, (1).

(1) Windows of Elision (WoEs)



ECS can either occur in WoE-1 or WoE-2. Between the two window choices, ECS at WoE-1 are far more frequently attested than in WoE-2. Chapter Three explains that this effect is due to the rightheadedness of MyCan prosody. Since head elements are more stable, it follows that the integrity of final syllable would be maintained even in the face of ECS. Thus, WoE-1 would be the default locus of elision.

With regards to the locus of elision, there must be motivation behind the choice between two windows and the resultant prosodic structure elision produces. It is noteworthy that in the cases involving ECS, merging (reducing the residue material affected by ECS into one syllable) applies broadly, though selectively blocked in some cases. The motivation for merging of syllables is to produce a binary prosodic word that does not contain more than 2 feet in casual speech.

However, merging is blocked if there are intervening residue consonants. This produces a bizarre effect when the entire rime is deleted under ECS: the residue consonants do not merge to form a complex onset, but instead produces an obstruent syllable (or semi-syllable in the sense of Cho and King 2003).

There are also cases where ECS cannot apply, no matter how fast one speaks, and no matter how familiar the item. It turns out that all the ECS appear to involve only either reduplicants or a very specific set of consonant segments: [j, w, h, t, t^h, s, ts, ts^h, k] for onsets and [i, u, m, n, ŋ, t, k] for codas. The other cases do not undergo ECS, which

would challenge the claim that prosodic binarity motivates for ECS. Particularly relevant parameters for ECS are therefore (i) the quality of segments and (ii) the presence of reduplication.

Typically, consonants at the WoE are targeted, but in cases where reduplicants are present, ECS would target the reduplicants first. Because reduplicants always involve rimes, the rimes get elided leaving onset consonants as residues of ECS, which in turn block syllable mergers. This brings us back to an account for why the syllable count could persist to the chagrin of binarity requirement in prosodic word, and to produce the bizarre obstruent syllables mentioned in the paragraph above.

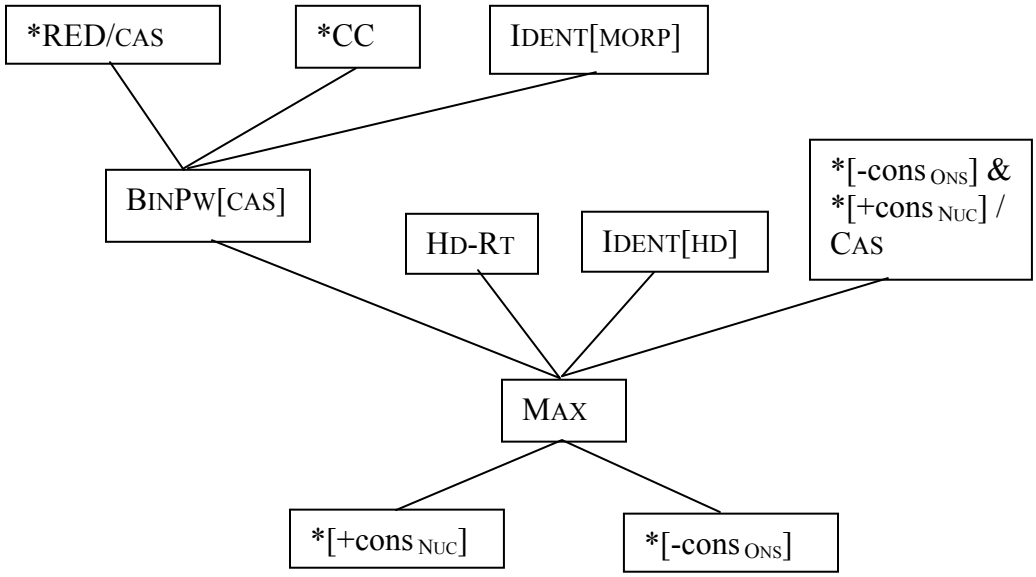
The patterns of MyCan ECS as discussed above can be accounted for with the help of the constraints in (2) and a ranking hierarchy like (3).

(2) List of constraints

BINPW[CAS]	Prosodic word must not have more than 2 feet in casual speech.
MAX	Segments in the output must correspond with segments in the input.
IDENT[MORP]	For every input morpheme there is a corresponding output morpheme.
HD-RT	The head of a prosodic word is the rightmost constituent.
IDENT[HD]	Elements of the head must have identical correspondence between the input and the output.
*[-cons $_{ONS}$]	Do not have [-cons] onsets.
*[+cons $_{NUC}$]	Do not have syllabic consonants.
*[-cons $_{ONS}$] & *[+cons	Do not have simultaneous violations of *[-cons$_{ONS}$]

$_{NUC}$] / CAS	and *[+cons$_{NUC}$] in casual speech.
*RED/CAS	Do not have reduplicants in the output in casual speech.
*CC	Do not allow consonant clusters within a syllable.

(3) Ranking hierarchy for MyCan ECS



The crucial ranking of BINPW[CAS] over MAX is responsible for why elision reduces trisyllabic strings to disyllabic ones. IDENT [MORP] ensures that ECS applies at WoEs rather than at particular syllables. IDENT [HD] together with HD-RT consequently sets the target of ECS to WoE-1.

Though IDENT[HD] and HD-RT would put WoE-1 as the default location of ECS, segmental characteristics and reduplication can set the relevant WoE elsewhere. For example in reduplication cases, only identical rimes that came about from reduplication

would be subject to ECS without regard to the default that WoE-1 is the locus of ECS. Moreover in these cases, the dominant IDENT[MORP] and *CC constraints would produce obstruent syllables.

The account developed here is not without limitations and a number of issues remain open for future research. Firstly, the trisyllabic ECS cases involving either reduplicants or a very specific set of consonant segments:[j, w, h, t, t^h, s, ts, ts^h, k] for onsets and [i, u, m, n, ŋ, t, k] for codas. However, the identification of why this set of segments as a class prone to ECS has remained elusive. There is, as yet, no coherent set of distinctive features to pick them out as a set. Equally difficult is the fact that the choice of ECS-prone segments is sensitive to the positions in the syllable structure.

Secondly in the study of 4-syllable input strings, it appears that there is no clear motivation why the casual speech prosodic requirement is violated with 3 syllables at the output instead of 2. This study has only managed to establish an account for their ECS patterns mostly related to the identification of WoE and the existence of obstruent syllables. ECS in longer strings remains to be systematically investigated.

Thirdly, an issue closely related to the MyCan ECS, but left untackled, is the effect of ECS on tones (MyCan, like all Chinese languages, is tonal). Future research might consider the interaction of ECS and tone assignment.

Finally, ECS is not unique to MyCan, but is found across languages, ranging from contraction in English and similar phenomena in other Chinese languages. This research has not ventured to provide a typological account for the kinds of ECS across languages, nor has it made any attempt at putting ECS in the context of possibly related phenomena like syncope, apocope, truncation and other such “elision” processes.

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Appendix 1: Speakers Information

(1) Informant 1

Age	: 27
Geographical location	: Kuala Lumpur
Education level	: Bachelor degree
Recording Venue	: Kuala Lumpur

(2) Informant 2

Age	: 27
Geographical location	: Seremban
Education level	: Bachelor degree
Recording Venue	: Phonetic lab in NUS, Singapore

(3) Informant 3

Age	: 26
Geographical location	: Seremban
Education level	: Diploma
Recording Venue	: Seremban

(4) Informant 4

Age	: 28
Geographical location	: Ipoh
Education level	: Bachelor degree
Recording Venue	: Ipoh

Appendix 2: List of input items

(I) Disyllabic inputs (12 entries)

唔晓 /m hiu/	唔肯 /m hɛ/	唔係 /m hai/	唔好 /m hou/
唔爱 /m ŋɔi/	十一 /sɐp jɐt/	知道 /tsi tou/	霹雳 /pik lik/
日日/jɐt jɐt/	欣欣 /jɐn jɐn/	啱啱/ŋam ŋam/	慢慢 /man man/

(II) Trisyllabic inputs (85 entries)

李显龙 /lei hin luŋ/	搞搞震 /kau kau tsɐn/	臭豆腐 /ts^{h}ou tou fu/
係唔係 /hai m hai/	阴阴笑 /jɐm jɐm siu/	收音机 /sau jɐm kei/
沙河粉/sa hɔ fɐn/	麻麻地 /ma ma tei/	呢一摆 /ni jɐt pai/
吴凯玲/m hɔi liŋ/	无端端 /mou tyn tyn/	大枝嘢 /tai ji jɛ/
好唔好/hou m hou/	面青青 /min ts^{h}ɛŋ ts^{h}ɛŋ/	洗衣粉 /sai ji fɐn/
唔开心/m hɔi sɐm/	嗰个人 /kɔ kɔ jɐn/	第二日 /tɐi ji jɐt/
张学友 /tsœŋ hɔk jɐu/	新东安 /sɐn tuŋ ŋon/	第二朝/tɐi ji jiu/
三十个/sam sɐp kɔ/	捉儿人 /tsuk ji jɐn/	生意佬 /saŋ ji lou/
二十三 /ji sɐp sam/	山神庙 /san sɐn miu/	爱尔兰 /ŋɔi ji lan/
八十六/pɐt sɐp luk/	啤酒樽 /pɛ tsɐu tsun/	一些嘢 /jɐt sɛ jɛ/
五十九/m sɐp kɐu/	林良实 /lɐm lœŋ sɐt/	你阿妈 /lei a ma/
十三姨/sɐp sam ji/	鱼圆粉 /y yn fɐn/	几多个 /kei tɔ kɔ/
冚唪呤/hɐm pɐŋ lɐŋ/	猪肠粉 /tsu ts^{h}œŋ fɐn/	毛阿敏 /mou a mɐn/
杂唪呤/tsɐp pɐŋ lɐŋ/	吴日言 /m jɐt jin/	蔡依琳 /ts^{h}ɔi ji lɐm/
角落头/kɔk lɔk t^{h}ɐu/	古巨基 /ku kɐu kei/	黄秋生 /wɔŋ ts^{h}au sɐŋ/
直笔甩 /tsik pɐt lɐt/	话唔埋 /wa m mai/	星加坡 /siŋ ka pɔ/
尖笔甩 /tsim pɐt lɐt/	林浩康 /lɐm hou hoŋ/	东海岸 /tuŋ hɔi ŋɔn/

山卡拉 /san ka la/	洗手间 /sai sɐu kan/	黄飞鸿 /wɔŋ fei huŋ/
膈肋底 /kak lak tɐi/	洗衫板 /sai sam pan/	电视机 /tin si kei/
菠萝盖 /pɔ lɔ kɔi/	寿星公 /sɐu siŋ kɔŋ/	諗唔到 /lɐm m tou/
一旧溜 /jɐt kɐu lɐu/	猫头鹰 /mau t^{h}ɐu jiŋ/	擦鞋仔 /ts^{h}at hai tsai/
吉兰丹 /kɐt lan tan/	事头婆 /si t^{h}ɐu pɔ/	唔该晒 /m kɔi sai/
黄景阳 /wɔŋ kiŋ jœŋ/	光头仔 /k^{w}ɔŋ t^{h}ɐu tsai/	周星驰 /tsau siŋ ts^{h}i/
黄映欣 /wɔŋ jiŋ jɐn/	膝头哥 /ts^{h}ɐt t^{h}ɐu kɔ/	白兰氏 /pak lan si/
团圆饭 /tyn yn fan/	鱼头米 /y t^{h}ɐu mɐi/	第五波 /tei m pɔ/
湿湿碎 /sɐp sɐp sui/	缩头龟 /suk t^{h}ɐu k^{w}ɐi/	四个人 /sei kɔ jɐn/
零零七 /liŋ liŋ ts^{h}ɐt/	嗰堂车 /kɔ t^{h}ɔŋ tsɛ/	你去死 /lei høy sei/
噉噉声 /la la sɛŋ/	两堂船 /lœŋ t^{h}ɔŋ søn/	
急急脚 /kɐp kɐp kœk/	电灯胆 /tin tɐŋ tam/	

(III) Four-syllable inputs (21 entries)

七七八八 /ts^{h}ɐt ts^{h}ɐt pɐt pɐt/	婆婆妈妈 /pɔ pɔ ma ma/	叽里咕噜 /ki li ku lu/
思思缩缩 /si si suk suk/	多多少少 /tɔ tɔ siu siu/	仆你嘅街 /puk lei kɔ kai/
蓉蓉烂烂 /jɔŋ jɔŋ lan lan/	大大话话 /tai tai wa wa/	上咗贼船 /sœŋ zɔ ts^{h}ak søn/
麻麻烦烦 /ma ma fan fan/	长长久久 /ts^{h}œŋ ts^{h}œŋ kɐu kɐu/	司徒咏宜 /si t^{h}ou wiŋ ji/
男男女女 /lam lam løy løy/	步步高升 /pou pou kou siŋ/	滴滴答答 /ti ti ta ta/
林林沉沉 /lɐm lɐm sɐm sɐm/	兵铃棒呤 /piŋ liŋ paŋ laŋ/	如意吉祥 /y ji kɐt ts^{h}œŋ/
窿窿罅罅 /luŋ luŋ la la/	普罗旺斯 /pou lou wɔŋ si/	马尔代夫 /mai ji tɔi fu/

Appendix 3: ECS Transcriptions

(A) Disyllabic strings

	Informant 1	Informant 2	Informant 3	Informant 4
唔晓 /m hiu/	[miu]	[miu]	[miu]	[miu]
唔肯 /m hɛŋ/	[mɛŋ]	[mɛŋ]	[mɛŋ]	[mɛŋ]
唔係 /m hai/	[mai]	[mai]	[mai]	[mai]
唔好 /m hou/	[mou]	[mou]	[mou]	[mou]
唔爱 /m ŋɔi/	[mɔi]	[mɔi]	[mɔi]	[mɔi]
十一 /sɐp jɐt/	[sɐt]	[sɐt]	[sɐt]	[sɐt]
日日 /jɐt jɐt/	[jɐt]	[jɐt]	[jɐt]	[jɐt]
欣欣 /jɐn jɐn/	[jɐn]	[jɐn]	[jɐn]	[jɐn]
啱啱 /ŋam ŋam/	[ŋam]	[ŋam]	[ŋam]	[ŋam]
知道 /tsi tou/	[tsou]	[tsou]	[tsou]	[tsou]
霹雳 /pik lik/	[p.lik]	[p.lik]	[p.lik]	[p.lik]
慢慢 /man man/	[man]	[man]	[man]	[man]

(B) Trisyllabic strings

	Informant 1	Informant 2	Informant 3	Informant 4
李显龙 /lei hin luŋ/	[lin.luŋ]	[lin.luŋ]	[lin.luŋ]	[lin.luŋ]
係唔係 /hai m hai/	[hai.mai]	[hai.mai]	[hai.mai]	[hai.mai]
沙河粉 /sa hɔ fɐn/	[saɔ.fɐn]	[saɔ.fɐn]	[saɔ.fɐn]	[saɔ.fɐn]
吴凯玲 /m hɔi liŋ/	[mɔi.liŋ]	[mɔi.liŋ]	[mɔi.liŋ]	[mɔi.liŋ]
好唔好 /hou m hou/	[hou.mou]	[hou.mou]	[hou.mou]	[hou.mou]
唔开心 /m hɔi sɐm/	[mɔi.sɐm]	[mɔi.sɐm]	[mɔi.sɐm]	[mɔi.sɐm]
张学友 /tsœŋ hɔk jɐu/	[tsɔk.jɐu]	[tsɔk.jɐu]	[tsɔk.jɐu]	[tsɔk.jɐu]
三十个 /sam sɐp kɔ/	[sɐ.kɔ]	[sɐ.kɔ]	[sɐ.kɔ]	[sɐ.kɔ]
二十三 /ji sɐp sam/	[jɐ.sam]	[jɐ.sam]	[jɐ.sam]	[jɐ.sam]
八十六 /pɐt sɐp luk/	[pɐ.luk]	[pɐ.luk]	[pɐ.luk]	[pɐ.luk]
五十九 /m sɐp kɐu/	[mɐ.kɐu]	[mɐ.kɐu]	[mɐ.kɐu]	[mɐ.kɐu]
十三姨 /sɐp sam ji/	[sɐm.ji]	[sɐm.ji]	[sɐm.ji]	[sɐm.ji]
冚唪呤 /hɐm pɐŋ lɐŋ/	[hɐm.p.lɐŋ]	[hɐm.p.lɐŋ]	[hɐm.p.lɐŋ]	[hɐm.p.lɐŋ]
杂唪呤 /tsɐp pɐŋ lɐŋ/	[tsɐp.p.lɐŋ]	[tsɐp.p.lɐŋ]	[tsɐp.p.lɐŋ]	[tsɐp.p.lɐŋ]
角落头 /kɔk lɔk t^hɐu/	[k.lɔk.t^hɐu]	[k.lɔk.t^hɐu]	[k.lɔk.t^hɐu]	[k.lɔk.t^hɐu]
直笔甩 /tsik pɐt lɐt/	[tsik.p.lɐt]	[tsik.p.lɐt]	[tsik.p.lɐt]	[tsik.p.lɐt]
尖笔甩 /tsim pɐt lɐt/	[tsim.p.lɐt]	[tsim.p.lɐt]	[tsim.p.lɐt]	[tsim.p.lɐt]
山卡拉 /san ka la/	[san.k.la]	[san.k.la]	[san.k.la]	[san.k.la]
膈肋底 /kak lak tɐi/	[k.lak.tɐi]	[k.lak.tɐi]	[k.lak.tɐi]	[k.lak.tɐi]
菠萝盖 /pɔ lɔ kɔi/	[p.lɔ.kɔi]	[p.lɔ.kɔi]	[p.lɔ.kɔi]	[p.lɔ.kɔi]
一旧溜 /jɐt kɐu lɐu/	[jɐt.k.lɐu]	[jɐt.k.lɐu]	[jɐt.k.lɐu]	[jɐt.k.lɐu]
吉兰丹 /kɐt lan tan/	[k.lan.tan]	[k.lan.tan]	[k.lan.tan]	
黄景阳 /wɔŋ kiŋ jœŋ/		[wɔŋ.k.jœŋ]	[wɔŋ.k.jœŋ]	[wɔŋ.k.jœŋ]
黄映欣 /wɔŋ jiŋ jɐn/		[wɔŋ.jɐn]	[wɔŋ.jɐn]	
团圆饭 /tyn yn fan/	[tyn.fan]	[tyn.fan]	[tyn.fan]	[tyn.fan]

	Informant 1	Informant 2	Informant 3	Informant 4
湿湿碎 /sɐp sɐp sui/	[sɐp.sui]	[sɐp.sui]	[sɐp.sui]	[sɐp.sui]
零零七 /liŋ liŋ tsʰɐt/	[liŋ.tsʰɐt]	[liŋ.tsʰɐt]	[liŋ.tsʰɐt]	[liŋ.tsʰɐt]
嗱嗱声 /la la sɛŋ/	[la.sɛŋ]	[la.sɛŋ]	[la.sɛŋ]	[la.sɛŋ]
急急脚 /kɐp kɐp kœk/	[kɐp.kœk]	[kɐp.kœk]	[kɐp.kœk]	[kɐp.kœk]
搞搞震 /kau kau tsɐn/	[kau.tsɐn]	[kau.tsɐn]	[kau.tsɐn]	[kau.tsɐn]
阴阴笑 /jɐm jɐm siu/	[jɐm.siu]	[jɐm.siu]	[jɐm.siu]	[jɐm.siu]
麻麻地 /ma ma tei/	[ma.tei]	[ma.tei]	[ma.tei]	[ma.tei]
无端端 /mou tyn tyn/	[mou.tyn]	[mou.tyn]	[mou.tyn]	[mou.tyn]
面青青 /min tsʰɛŋ tsʰɛŋ/	[min.tsʰɛŋ]	[min.tsʰɛŋ]	[min.tsʰɛŋ]	[min.tsʰɛŋ]
嗰个人 /kɔ kɔ jɐn/	[kɔ.jɐn]	[kɔ.jɐn]	[kɔ.jɐn]	[kɔ.jɐn]
新东安 /sɐn tuŋ ŋon/		[sɐn.ton]	[sɐn.ton]	
捉儿人 /tsuk ji jɐn/	[tsuk.jɐn]	[tsuk.jɐn]	[tsuk.jɐn]	[tsuk.jɐn]
山神庙 /san sɐn miu/	[san.miu]	[san.miu]	[san.miu]	[san.miu]
啤酒樽 /pɛ tsɐu tsun/	[pɛu.tsun]	[pɛu.tsun]	[pɛu.tsun]	[pɛu.tsun]
林良实 /lɐm lœŋ sɐt/		[lœŋ.sɐt]		
鱼圆粉 /y yn fɐn/	[yn.fɐn]	[yn.fɐn]	[yn.fɐn]	[yn.fɐn]
猪肠粉 /tsu tsʰœŋ fɐn/	[tsœŋ.fɐn]	[tsœŋ.fɐn]	[tsœŋ.fɐn]	[tsœŋ.fɐn]
吴日言 /m jɐt jin/		[jɐt.jin]	[jɐt.jin]	[jɐt.jin]
古巨基 /ku kɐu kei/	[kɐu.kei]	[kɐu.kei]	[kɐu.kei]	[kɐu.kei]
话唔埋 /wa m mai/	[wa.mai]	[wa.mai]	[wa.mai]	[wa.mai]
林浩康 /lɐm hou hoŋ/	[lɐm.hoŋ]	[lɐm.hoŋ]	[lɐm.hoŋ]	[lɐm.hoŋ]
洗手间 /sai sɐu kan/	[sɐu.kan]	[sɐu.kan]	[sɐu.kan]	[sɐu.kan]
洗衫板 /sai sam pan/	[sam.pan]	[sam.pan]	[sam.pan]	[sam.pan]
寿星公 /sɐu siŋ kɔŋ/	[siŋ.koŋ]	[siŋ.koŋ]	[siŋ.koŋ]	[siŋ.koŋ]
猫头鹰 /mau tʰɐu jiŋ/	[mau.jiŋ]	[mau.jiŋ]	[mau.jiŋ]	[mau.jiŋ]
事头婆 /si tʰɐu pɔ/	[sɐu.pɔ]	[sɐu.pɔ]	[sɐu.pɔ]	[sɐu.pɔ]
光头仔 /kʷɔŋ tʰɐu tsai/	[kɔŋ.tsai]	[kɔŋ.tsai]	[kɔŋ.tsai]	[kɔŋ.tsai]

	Informant 1	Informant 2	Informant 3	Informant 4
膝头哥 /tsʰɐt tʰɐu kɔ/	[tsʰɐu.kɔ]	[tsʰɐu.kɔ]	[tsʰɐu.kɔ]	[tsʰɐu.kɔ]
鱼头米 /y tʰɐu mɐi/	[jɐu.mɐi]	[jɐu.mɐi]	[jɐu.mɐi]	[jɐu.mɐi]
缩头龟 /suk tʰɐu kʷɐi/	[sɐu.kʷɐi]	[sɐu.kʷɐi]	[sɐu.kʷɐi]	[sɐu.kʷɐi]
嗰堂车 /kɔ tʰɔŋ tsɛ/	[kɔŋ.tsɛ]	[kɔŋ.tsɛ]	[kɔŋ.tsɛ]	[kɔŋ.tsɛ]
两堂船 /lœŋ tʰɔŋ søn/	[lœŋ.søn]	[lœŋ.søn]	[lœŋ.søn]	[lœŋ.søn]
电灯胆 /tin tɐŋ tam/	[tiɐŋ.tam]	[tiɐŋ.tam]	[tiɐŋ.tam]	[tiɐŋ.tam]
臭豆腐 /tsʰou tou fu/	[tsʰou.fu]	[tsʰou.fu]	[tsʰou.fu]	[tsʰou.fu]
收音机 /sau jɐm kei/	[sɐm.kei]	[sɐm.kei]	[sɐm.kei]	[sɐm.kei]
呢一摆 /ni jɐt pai/	[niɐ.pai]	[niɐ.pai]	[niɐ.pai]	[niɐ.pai]
大枝嘢 /tai ji jɛ/	[tai.jɛ]	[tai.jɛ]	[tai.jɛ]	[tai.jɛ]
洗衣粉 /sai ji fɐn/	[sai.fɐn]	[sai.fɐn]	[sai.fɐn]	[sai.fɐn]
第二日 /tɐi ji jɐt/	[tɐi.jɐt]	[tɐi.jɐt]	[tɐi.jɐt]	[tɐi.jɐt]
第二朝/tɐi ji jiu/	[tɐi.jiu]	[tɐi.jiu]	[tɐi.jiu]	[tɐi.jiu]
生意佬 /saŋ ji lou/	[saŋ.lou]	[saŋ.lou]	[saŋ.lou]	[saŋ.lou]
爱尔兰 /ŋɔi ji lan/	[ŋoi.lan]	[ŋoi.lan]	[ŋoi.lan]	[ŋoi.lan]
一些嘢 /jɐt sɛ jɛ/	[jɐt.siɛ]	[jɐt.siɛ]	[jɐt.siɛ]	[jɐt.siɛ]
你阿妈 /lei a ma/	[lea.ma]	[lea.ma]	[lea.ma]	[lea.ma]
几多个 /kei tɔ kɔ/	[keɔ.kɔ]	[keɔ.kɔ]	[keɔ.kɔ]	[keɔ.kɔ]
毛阿敏 /mou a mɐn/	[moa.mɐn]	[moa.mɐn]	[moa.mɐn]	[moa.mɐn]
蔡依琳 /tsʰɔi ji lɐm/	[tsʰɔi.lɐm]	[tsʰɔi.lɐm]	[tsʰɔi.lɐm]	[tsʰɔi.lɐm]
黄秋生 /wɔŋ tsʰau sɐŋ/		[wau.sɐŋ]	[wau.sɐŋ]	
星加坡 /siŋ ka pɔ/	[sia.pɔ]	[sia.pɔ]	[sia.pɔ]	[sia.pɔ]
东海岸 /tuŋ hɔi ŋɔn/	[tɔi.ŋɔn]	[tɔi.ŋɔn]	[tɔi.ŋɔn]	[tɔi.ŋɔn]
黄飞鸿 /wɔŋ fei huŋ/	[wɔŋ.fœŋ]	[wɔŋ.fœŋ]	[wɔŋ.fœŋ]	[wɔŋ.fœŋ]
电视机 /tin si kei/	[tin.kei]	[tin.kei]	[tin.kei]	[tin.kei]
諗唔到 /lɐm m tou/	[lɐm.tou]	[lɐm.tou]	[lɐm.tou]	[lɐm.tou]
擦鞋仔 /tsʰat hai tsai/	[tsʰai.tsai]	[tsʰai.tsai]	[tsʰai.tsai]	[tsʰai.tsai]

	Informant 1	Informant 2	Informant 3	Informant 4
唔该晒 /m kɔi sai/	[kɔi.sai]	[kɔi.sai]	[kɔi.sai]	[kɔi.sai]
周星驰 /tsau siŋ ts^{h}i/	[tsau.ts^{h}i]	[tsau.ts^{h}i]	[tsau.ts^{h}i]	[tsau.ts^{h}i]
白兰氏 /pak lan si/	[p.lan.si]	[p.lan.si]	[p.lan.si]	[p.lan.si]
第五波 /tei m pɔ/	[tɛm.pɔ]	[tɛm.pɔ]	[tɛm.pɔ]	[tɛm.pɔ]
四个人 /sei kɔ jɐn/	[sɛɔ.jɐn]	[sɛɔ.jɐn]	[sɛɔ.jɐn]	[sɛɔ.jɐn]
你去死 /lei høy sei/	[lei.sei]	[lei.sei]	[lei.sei]	[lei.sei]

(C) Four-syllable strings

	Informant 1	Informant 2	Informant 3	Informant 4
七七八八 /tsʰɐt tsʰɐt pɐt pɐt/	[tsʰɐt.pɐt.pɐt]	[tsʰɐt.pɐt.pɐt]	[tsʰɐt.pɐt.pɐt]	[tsʰɐt.pɐt.pɐt]
思思缩缩 /si si suk suk/	[si.suk.suk]	[si.suk.suk]	[si.suk.suk]	[si.suk.suk]
蓉蓉烂烂 /jɔŋ jɔŋ lan lan/	[jɔŋ.lan.lan]	[jɔŋ.lan.lan]	[jɔŋ.lan.lan]	[jɔŋ.lan.lan]
麻麻烦烦 /ma ma fan fan/	[ma.fan.fan]	[ma.fan.fan]	[ma.fan.fan]	[ma.fan.fan]
男男女女 /lam lam løy løy/	[lam.løy.løy]	[lam.løy.løy]	[lam.løy.løy]	[lam.løy.løy]
林林沉沉 /lɐm lɐm sɐm sɐm/	[lɐm.sɐm.sɐm]	[lɐm.sɐm.sɐm]	[lɐm.sɐm.sɐm]	[lɐm.sɐm.sɐm]
窿窿罅罅 /luŋ luŋ la la/	[luŋ.la.la]	[luŋ.la.la]	[luŋ.la.la]	[luŋ.la.la]
婆婆妈妈 /pɔ pɔ ma ma/	[pɔ.ma.ma]	[pɔ.ma.ma]	[pɔ.ma.ma]	[pɔ.ma.ma]
多多少少 /tɔ tɔ siu siu/	[tɔ.siu.siu]	[tɔ.siu.siu]	[tɔ.siu.siu]	[tɔ.siu.siu]
大大话话 /tai tai wa wa/	[tai.wa.wa]	[tai.wa.wa]	[tai.wa.wa]	[tai.wa.wa]
长长久久 /tsʰœŋ tsʰœŋ kɐu kɐu/	[tsʰœŋ.kɐu.kɐu]	[tsʰœŋ.kɐu.kɐu]	[tsʰœŋ.kɐu.kɐu]	[tsʰœŋ.kɐu.kɐu]
步步高升 /pou pou kou siŋ/	[pou.kou.siŋ]	[pou.kou.siŋ]	[pou.kou.siŋ]	[pou.kou.siŋ]
兵铃棒呤 /piŋ liŋ paŋ laŋ/	[p.liŋ.p.laŋ]	[p.liŋ.p.laŋ]	[p.liŋ.p.laŋ]	[p.liŋ.p.laŋ]
普罗旺斯 /pou lou wɔŋ si/	[p.lou.wɔŋ.si]	[p.lou.wɔŋ.si]	[p.lou.wɔŋ.si]	[p.lou.wɔŋ.si]
叽里咕噜 /ki li ku lu/	[k.li.k.lu]	[k.li.k.lu]	[k.li.k.lu]	[k.li.k.lu]
仆你嘅街 /puk lei kɔ kai/	[puk.leɔ.kai]	[puk.leɔ.kai]	[puk.leɔ.kai]	[puk.leɔ.kai]
上咗贼船 /sœŋ zɔ tsʰak søn/		[sœɔ .tsʰak.søn]		
司徒咏宜 /si tʰou wiŋ ji/	[sou.wiŋ.ji]	[sou.wiŋ.ji]	[sou.wiŋ.ji]	[sou.wiŋ.ji]
滴滴答答 /ti ti ta ta/	[ti.ta.ta]	[ti.ta.ta]	[ti.ta.ta]	[ti.ta.ta]
如意吉祥 /y ji kɐt tsʰœŋ/	[ji.kɐt.tsʰœŋ]	[ji.kɐt.tsʰœŋ]		
马尔代夫 /mai ji tɔi fu/	[mai.tɔi.fu]	[mai.tɔi.fu]	[mai.tɔi.fu]	[mai.tɔi.fu]