

Facilitating and Blocking Conditions of Haplogy: A comparative study of Hong Kong Cantonese and Taiwan Mandarin

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Abstract

Haplogy is the elimination of one of the two consecutive identical sounds or syllables. Sinitic languages offer an interesting and challenging example in the study of haplogy. Since a syllable corresponds typically to a morpheme in Sinitic languages, hence haplogy typically eliminates a full morpheme. Thus haplogy in Sinitic languages have implications for the interaction of lexical forms, lexical semantics, morphology, and phonology. This paper proposes an innovative methodology to study this complex interface issue by comparing facilitating and blocking conditions for haplogy in Hong Kong Cantonese and Taiwan Mandarin. In the minimal context of two identical linguistic units, very little linguistic information can be examined to tease apart contrasting conditions for haplogy. By comparing two different ‘dialects’, the different conditions can be highlighted. Our study shows that tone sandhi has a stronger blocking effect in Hong Kong Cantonese, while frequency has stronger facilitating effect in Taiwan Mandarin. 45

(Chao 1968) argues that haplogy in Mandarin Chinese is motivated by rule of economy. Hence, although it is optional, haplogical forms are considered to be preferred over forms without haplogy. However, what led to the less-preferred full form to occur is rarely explicated.

It is important to note that a syllable typically corresponds to a morpheme in Sinitic languages, hence haplogy eliminates a full morpheme. However, the elimination of a morpheme has consequences in lexical form, lexical semantics, morphology, and phonology. In fact, it is observed that in Mandarin, haplogy can be observed in morpho-syntactic levels. For instance, for the two consecutive tā (3rd personal singular pronoun) in (1), Yip (1995) observed that haplogy is necessary if they have the same referent (1a), yet it will be blocked if they have different referents (1b). Although the obligatory haplogy should probably be described instead as a very strong tendency, Yip’s (1995) observation that a) haplogy can occur across phrasal boundaries and that certain (semantic) conditions can block haplogy still stands and exemplifies the complex interface issues underlining haplogy in Sinitic languages.

1 Introduction

Haplogy is the elimination of one of the two consecutive identical sounds or syllables, as such it is often considered as primarily a phonological operation. Haplogy is not uncommon across different languages although different languages differ slightly in the phonological process (Neeleman & Van, 2005; Stemberger, 1981; Szemerényi, Cardona & Szemerényi, 1970).

- (1)我_問_他_他_明天_來_不_來
- a. wǒ wèn tā míngtiān lái-bù-lái
‘I asked him_i if he_i will be coming tomorrow.’
- b. wǒ wèn tā tā míngtiān lái-bù-lái
‘I asked him_i if he_j will be coming tomorrow.’

Ke (2006) classifies haplology into three types: (i) necessary, (ii) optional, and (iii) impossible. (1a) and (1b) belong to the necessary and impossible types respectively, while (2) is a good example of optional haplology.

- (2)a. 台北_市_市長 táiběi_shì_shìzhǎng
 b. 台北_市長 táiběi_shìzhǎng
 ‘Taipei City Mayor’

This paper proposes an innovative methodology to study this complex interface issue by comparing facilitating and blocking conditions for haplology in Hong Kong Cantonese and Taiwan Mandarin. In the minimal context of two identical linguistic units, very little linguistic information can be examined to tease apart contrasting conditions for haplology. By comparing two different ‘dialects’, the different conditions can be highlighted. The results can offer a clearer picture of how morphology and phonology are integrated in a cognitive process.

In this paper, we focus on compound nouns. In Chinese compound nouns, haplology is optional. Haplology occurs only in the condition when neighbouring linguistic units have the same sound and meaning. Interesting, Cantonese speakers and Mandarin speakers prefer different ways to say compound nouns. The contrast can show the mechanisms of haplology in different language systems.

2 Literature Review

Ke (2006) argues haplology is the result of competition of different rules, hence it can be accounted for with rule ordering of optimality theory. In Chinese linguistics, the discussion of haplology centers on its level application and conditions (Si, 2005; Wu, 2016; Ke, 2006; Shi, 2009; Kuo, 2017; Liu, 2007). The consensus is that haplology has to meet two requirements: (i) juxtaposed lexemes must have the same sound; (ii) juxtaposed lexemes must have the same meaning. However, in reality haplology does not always happen when the requirements are met. Wong (2018) made a comprehensive study comparing haplology in Hong Kong Cantonese and Taiwan Mandarin. Our current paper is an extension of that study. In accordance with Wong (2018), the

blocking effects may come from (a) syllabicity, (b) tone sandhi, and (c) frequency.

Following Feng (2002), Pei (2009) treats disyllabic units as the “standard units” in Mandarin Chinese. Other combinations can be treated as variations from “standard units”. In other words, a disyllabic structure works best for Chinese words and haplology should maintain disyllabicity when possible. As shown in (3), native Mandarin speakers prefer (3)a over (3)b when they say 巴塞隆拿 Bāsàilóngnà ‘Barcelona’.

- (3) a. Bāsài_lóngnà
 b. Bāsàilóng_nà

It should be noted that disyllabic structures and haplology sometimes conflict. As shown in (4), from the perspective of the best syllable combinations, (4a) is better than (4)b. On the other hand, the repetition of *huā* is redundant, which violates haplology.

- (4) a. 菊花_花瓣
 júhuā_huābàn
 ‘the petals of chamomiles’
 b. 菊花瓣
 júhuā_bàn
 ‘the petals of chamomiles’

Tone sandhi also plays an important role in haplology (Chao 1968). Both Cantonese and Mandarin have tone sandhi. In Mandarin, two juxtaposed third tones trigger tone sandhi. However, when tone sandhi is triggered, the two consecutive third tone syllables no longer have the same sound as they differ in tone values, hence haplology is blocked by failing to meet the identity condition. In Cantonese, tone sandhi is not as systematic as that in Mandarin. In some cases, when two syllables have the same sound and meaning, tone sandhi would occur and then block haplology.

The role of frequency in facilitating haplology can be predicted by applying Chao’s (1968) principle of economy. The more frequent a sequence is, the more effort is saved by eliminating a duplicated unit. On the other hand, when frequency is low, the principle of economy does not have much to gain. On the contrary, haplology may cause confusing with unfamiliar low

frequency sequences. Hence the frequency account predicts that haplology is more likely to happen with compounds with higher frequency. This is confirmed by our initial observation.

3 Experiments

A survey of native speakers is conducted to find correlations between (a) syllabicity, (b) tone sandhi, and (c) frequency with haplology. We recruited native Cantonese speakers and Mandarin speakers in Hong Kong and fill in the questionnaire to report their preference in saying compound nouns in terms of haplology. All participants were volunteers and the whole survey is typically completed within 10 minutes.

At the beginning of the survey, we collected the information of the participants' language background and living areas for analysis. There were total 40 stimuli and 20 fillers. The survey has a Cantonese version and a Mandarin version. To avoid bias by cultural differences or background knowledge, we switched some region-specific stimuli words for the two versions.

Each questions pose a binary choice: with or without haplology. Every participant was asked to read out the two choices before they selected their answers. Among the 40 stimuli, 34 questions were designed to collect the speakers' preference in haplology. The other 6 questions were designed to test the speakers' acceptance of haplology. In the acceptance test, we have two types of questions. In the first type, we present compound nouns which tend to require spelling out the identical units. If participants choose to accept the form, it confirms that the dominance of the non-haplology form. The second type is opposite to the first type, which is used to test the dominance of haplology form.

4 Results and Discussion

We received 68 questionnaires in total: 33 copies from Taiwan Mandarin speakers, and 35 copies from Hong Kong Cantonese speakers. In the Taiwan Mandarin group, 17 are from female participants and 16 are from male participants. In the Hong Kong group, 17 are from female participants and 18 from male participants. Their ages range from 16 to 28. The participants from the Hong Kong group all have Cantonese as their first language. In the Taiwan group, the participants

have Mandarin as their most frequently used language. After we check the baseline questions, all questionnaires were confirmed to be valid.

4.1 Areal differences in Haplology

The results of the survey can be classified into four types.

(i) Taiwan Mandarin speakers and Hong Kong Cantonese speakers have near identical tendency.

(ii) Taiwan Mandarin speakers and Hong Kong Cantonese speakers have a similar tendency, but the difference is over 10%.

(iii) Taiwan Mandarin speakers tend to go through haplology, whereas Hong Kong Cantonese speakers tend not to.

(iv) Hong Kong Cantonese speakers tend to go through haplology, whereas Taiwan Mandarin speakers tend not to.

The detailed percentages for each stimuli word are shown in Table 1.

Question	不刪略 (%)		刪略 (%)	
	HK	TW	HK	TW
1. 田徑隊隊長 vs 田徑隊長	85.7	81.8	14.3	18.2
2. 教會會友 vs 教會友	85.7	90.9	14.3	9.1
3. 共產黨黨員 vs 共產黨員 [*國民黨]	57.1	60.6	42.9	39.4
4. 博物館館藏 vs 博物館藏	88.6	87.9	11.4	12.1
5. 玩具廠廠長 vs 玩具廠長	68.6	75.8	31.4	24.2
6. 奇異果果汁 vs 奇異果汁	11.4	18.2	88.6	81.8
7. 蘋果果汁 vs 蘋果汁	0	0	100	100
8. 中醫醫院 vs 中醫院	40	48.5	60	51.5
9. 芒果果汁 vs 芒果汁	0	0	100	100
10. 青蘋果果汁 vs 青蘋果汁	5.7	15.2	94.3	84.8
11. 牛肉肉碎 vs 牛肉碎 [*牛肉片]	14.3	6.1	85.7	93.9
12. 兆康站站長 vs 兆康站長 [*瀨溪站]	82.9	87.9	17.1	12.1
13. 熱情果果汁 vs 熱情果汁	62.9	54.5	37.1	45.5
14. 菊花花瓣 vs 菊花瓣	48.6	42.4	51.4	57.6

15. 鑽石山站站長 vs 鑽石山站長 [*新左營]	65.7	66.7	34.3	33.3
16. 香港語言學學會 vs 香港語言學會 [*台灣]	31.4	33.3	68.6	66.7
17. 伊斯蘭教教徒 vs 伊斯蘭教徒	8.6	15.2	91.4	84.8
18. 東區區議會 vs 東區議會 [*區公所]	88.6	84.8	11.4	15.2
19. 數學科科長 vs 數學科長	71.4	75.8	28.6	24.2
20. 中醫醫院院長 vs 中醫醫院長	11.4	15.2	5.7	3
中醫醫院院長 vs 中醫院長	62.9	54.5	20	27.3
21. 教育局局長 vs 教育局長	82.9	63.6	17.1	36.4
22. 學生會會長 vs 學生會長	85.7	54.5	14.3	45.4
23. 旺角站站長 vs 旺角站長 [*桃園]	65.7	51.5	34.3	48.5
24. 玫瑰花花瓣 vs 玫瑰花瓣	34.3	9.1	65.7	90.9
25. 中文系系主任 vs 中文系主任	11.4	42.4	88.6	57.6
26. 西貢區區議會 vs 西貢區議會 [*左營]	45.7	6.1	54.3	93.9
27. 鮑魚肉肉碎 vs 鮑魚肉碎	25.7	39.4	68.6	54.5
鮑魚肉碎 vs 鮑肉碎	5.7	0	0	6.1
28. 桂花魚魚頭 vs 桂花魚頭 [*虱目魚]	51.4	3	48.6	97
29. 台北市市長 vs 台北市長	65.7	36.4	34.3	63.6
30. 學生會會員證 vs 學生會員證 [*卡]	74.3	42.4	25.7	39.4
學生會會卡 vs 學生會卡	/	3	/	15.2
31. 眼鏡鏡框 vs 眼鏡框	2.9	60.6	97.1	39.4
32. 原子筆筆芯 vs 原子筆芯	45.7	69.7	54.3	30.3
33. 手錶錶帶 vs 手錶帶	37.1	81.8	62.9	18.2
34. 風扇扇葉 vs 風扇葉	20	57.6	80	42.4
總數:	17	18	17	16

Table 1: Areal differences in Haplology

Of the 34 pairs, 20 pairs belong to Type (i), 7 pairs to Type (ii), 3 pairs to Type (iii), and 4 pairs to Type (iv). In other words, 79.4% of the pairs have the near identical or similar tendencies, while only 20.6% have opposite tendencies. Overall, the phenomenon of haplology occurs in a similar way in Taiwan and in Hong Kong.

4.2 Acceptance of haplology

The results of the six stimuli questions for acceptance rate are shown in Table 2.

Question (接受度：正)	可以接受不刪略 (%)		不能接受不刪略 (%)	
	HK	TW	HK	TW
1. 佛教教徒	62.9	69.7	37.1	30.3
2. 蘋果果汁	28.6	72.7	71.4	27.3
3. 手機機殼	42.9	24.2	57.1	75.8
總數:	1	2	2	1
Question (接受度：反)	不能接受刪略 (%)		可以接受刪略 (%)	
	HK	TW	HK	TW
4. 綠茶葉	54.3	45.5	45.7	54.5
5. 醫院長	85.7	97	14.3	3
6. 化學院	14.3	39.4	85.7	60.6
總數:	2	1	1	2

Table 2: Acceptance of haplology

According to Table 2, 4 items show similar tendency of acceptance in Taiwan and Hong Kong,

while another one has ambivalent results (close to 50%). But there is one item with contradictory results. This involves the non-haplology form of 蘋果果汁 *píngguǒ guǒzhī/píng4gwo2 gwo2zap1* ‘apple juice’; where Taiwan speakers predominantly accepts the non-haplology form, while Hong Kong speakers predominantly reject it. The data shows again that overall all tendency of acceptance of haplology and non-haplology forms are similar, but there are specific lexical exceptions.

4.3 Blocking effects

We hypothesize that the difference in the speakers’ evaluation of (non-)haplology may come from the interaction of multiple blocking effects, that may be applied differently in different Sinitic languages. We look into more details of effect of facilitating/blocking conditions.

4.3.1 Tone Sandhi

The subset of stimuli words involving tone sandhi are shown in Table 3. Note that tone sandhi rules are different in Cantonese and in Mandarin, hence the tone sandhi stimuli compounds are different in the two surveys.

Type	Question	沒刪 (%)	有刪 (%)
變調 (HK)	教育局局長 vs 教育局長	82.9	17.1
	學生會會長 vs 學生會長	85.7	14.3
	眼鏡鏡框 vs 眼鏡框	2.9	97.1
	田徑隊隊長 vs 田徑隊長	85.7	14.3
	桂花魚魚頭 vs 桂花魚頭 [*虱目魚]	51.4	48.6
教會會友 vs 教會友	85.7	14.3	
變調 (TW)	共產黨黨員 vs 共產黨員 [*國民黨]	60.6	39.4
	原子筆筆芯 vs 原子筆芯	69.7	30.3
	博物館館藏 vs 博物館藏	87.9	12.1
	手錶錶帶 vs 手錶帶	81.8	18.2
	玩具廠廠長 vs 玩具廠長	75.8	24.2
	奇異果果汁 vs 奇異果汁	18.2	81.8
	蘋果果汁 vs 蘋果汁	0	100
	芒果果汁 vs 芒果汁	0	100
	青蘋果果汁 vs 青蘋果汁	15.2	84.8
	熱情果果汁 vs 熱情果汁	54.5	45.5

Table 3: Tone sandhi pairs

In our design, there are six pairs involving Cantonese tone sandhi, while there are also six pairs involving Taiwan Mandarin tone sandhi. In

addition, for Taiwan pair of x 果果汁 guo3_guo3 zhi1 ‘x fruit juice’, we also provided different compounds to test the frequency effect. Over, the results show that tone sandhi can block haplology as the two consecutive units will be realized with different values. This predicts correctly the behaviors of 5 out of 6 pairs in each language. However, the exception of 眼鏡框 ‘eyeglasses frame’ in Cantonese and the variations according to different compounds involving x 果果汁 guo3_guo3 in Mandarin suggests that frequency also play a role and may over-ride the blocking effect of tone sandhi. The Taiwan Mandarin examples especially suggest that highly frequent usage may favor haplology over blocking effect.

4.3.2 Syllabic Structure

Various studies, including Feng (2002) and Wang (2000) suggest that Mandarin Chinese favors disyllabic lexical units. Huang et al. (2002) also showed that based on type frequency, disyllabic words are the most frequent word types in Mandarin. Accordingly, quadrisyllabic compounds are considered to be favored over trisyllabic or pentasyllabic words. However, this rule of standard syllable units does not always hold, as shown in Table 4, where the favored realization (with or without haplology) according to syllabicity is highlighted.

Question	HK (%)		TW (%)	
	不刪略	刪略	不刪略	刪略
1. 風扇扇葉 vs 風扇葉	20	80	57.6	42.4
2. 菊花花瓣 vs 菊花瓣	48.6	51.4	42.4	57.6
3. 玫瑰花花瓣 vs 玫瑰花瓣	34.3	65.7	9.1	90.9
4. 台北市市長 vs 台北市長	65.7	34.3	36.4	63.6

5. 中醫醫院 vs 中醫院	40	60	48.5	51.5
6. 數學科科長 vs 數學科長	71.4	28.6	75.8	24.2
7. 東區區議會 vs 東區議會 [*區公所]	88.6	11.4	84.8	15.2
8. 中醫醫院院長 vs 中醫醫院長	11.4	5.7	15.2	3
中醫院院長 vs 中醫院長	62.9	20	54.5	27.3
9. 西貢區區議會 vs 西貢區議會 [*左營]	45.7	54.3	6.1	93.9
10. 中文系系主任 vs 中文系主任	11.4	88.6	42.4	57.6
11. 學生會會員證 vs 學生會員證 [*卡]	74.3	25.7	42.4	39.4
學生會會卡 vs 學生會卡	/	/	3	15.2
12. 香港語言學學會 vs 香港語言學會 [*台灣]	31.4	68.6	33.3	66.7
13. 伊斯蘭教教徒 vs 伊斯蘭教徒	8.6	91.4	15.2	84.8
14. 鑽石山站站長 vs 鑽石山站長 [*新左營]	65.7	34.3	66.7	33.3
15. 旺角站站長 vs 旺角站長 [*桃園]	65.7	34.3	51.5	48.5
16. 兆康站站長 vs 兆康站長 [*瀟溪站]	82.9	17.1	87.9	12.1
17. 牛肉肉碎 vs 牛肉碎 [*牛肉片]	14.3	85.7	6.1	93.9
18. 鸵鳥肉肉碎 vs 鸵鳥肉碎	25.7	68.6	39.4	54.5
鸵肉肉碎 vs 鸵肉碎	5.7	0	0	6.1
19. 教育局局長 vs 教育局長	82.9	17.1	63.6	36.4
20. 學生會會長 vs 學生會長	85.7	14.3	54.5	45.4
21. 眼鏡鏡框 vs 眼鏡框	2.9	97.1	60.6	39.4
22. 田徑隊隊長 vs 田徑隊長	85.7	14.3	81.8	18.2
23. 桂花魚魚頭 vs 桂花魚頭 [*虱目魚]	51.4	48.6	3	97
24. 教會會友 vs 教會友	85.7	14.3	90.9	9.1
25. 共產黨黨員 vs 共產黨員 [*國民黨]	57.1	42.9	60.6	39.4
26. 原子筆筆芯 vs 原子筆芯	45.7	54.3	69.7	30.3
27. 博物館館藏 vs 博物館藏	88.6	11.4	87.9	12.1
28. 手錶錶帶 vs 手錶帶	37.1	62.9	81.8	18.2
29. 玩具廠廠長 vs 玩具廠長	68.6	31.4	75.8	24.2
30. 奇異果果汁 vs 奇異果汁	11.4	88.6	18.2	81.8
31. 芒果果汁 vs 芒果汁	0	100	0	100
32. 蘋果果汁 vs 蘋果汁	0	100	0	100
33. 青蘋果果汁 vs 青蘋果汁	5.7	94.3	15.2	84.8
34. 熱情果果汁 vs 熱情果汁	62.9	37.1	54.5	45.5
符合韻律的選擇:		10/36	15/36	

Table 4: Syllable standard units as blocking effects

The result shows that syllabicity (esp. disyllabicity) successfully predicts only less than half of the haplology tendencies: 27.78% (10/36) for Cantonese and 41.67% (15/36) for Taiwan Mandarin. Its performance is not better either in terms of blocking or facilitating haplology. It seems that semantic condition is more important, and sanctions haplology regardless of syllabicity.

- (5) 中文系_系主任
 Zhōngwén_xì_xì_zhǔrèn
 Chinese_department_department_chair
 ‘the chair of Chinese department’

In Table 4, the phenomenon of semantics blocks haplology is more salient in Taiwan than in Hong Kong. The contrast between the two language groups is due to the characteristics of Cantonese. Cantonese has more independent morphemes, and it does not have the preference over disyllabic

words. Li et al. (2015) argued that Modern Cantonese still keeps a fair portion of monosyllabic words from Old Chinese and hence does not favor disyllabicity. This characteristic is thus applicable to other syntactic structures. As a result, the rule of standard syllable units does not have salient effects on haplology.

4.3.3 Frequency

To obtain comprehensive and comparable results for work frequency, the frequency of a compound is extracted from Google search hits in Taiwan and in Hong Kong. For each category such as fruits, stop names, and flowers, the items are listed from high frequency to low frequency in Table 5. Note that the for frequency here refer to the modifying noun before the identical consecutive units, as all compounds being compared share the same repeated units and the head noun.

搜尋的關鍵字 (比較項目)	搜尋結果 數量(HK)	HK (%)		搜尋結果 數量(TW)	TW (%)	
		沒刪	有刪		沒刪	有刪
蘋果 (蘋果果汁 vs 蘋果汁)	2,800,000	0	100	6,880,000	0	100
芒果 (芒果果汁 vs 芒果汁)	607,000	0	100	3,560,000	0	100
奇異果 (奇異果果汁 vs 奇異果汁)	124,000	11.4	88.6	1,080,000	18.2	81.8
青蘋果 (青蘋果果汁 vs 青蘋果汁)	69,300	5.7	94.3	566,000	15.2	84.8
熱情果 (熱情果果汁 vs 熱情果汁)	38,400	62.9	37.1	43,700	54.5	45.5
牛肉 (牛肉肉碎 vs 牛肉碎 [*肉片])	1,170,000	14.3	85.7	3,780,000	6.1	93.9
鸵鳥肉 (鸵鳥肉肉碎 vs 鸵鳥肉碎)	71,600	25.7	68.6	27,200	39.4	54.5
鮫肉 (鮫肉肉碎 vs 鮫肉碎)	83	5.7	0	769	0	6.1
旺角站 (旺角站站長 vs 旺角站長)	4,200,000	65.7	34.3	/	/	/
兆康站 (兆康站站長 vs 兆康站長)	398,000	82.9	17.1	/	/	/
桃園站 (桃園站站長 vs 桃園站長)	/	/	/	8,710,000	51.5	48.5
瀟溪站 (瀟溪站站長 vs 瀟溪站長)	/	/	/	21,500	87.9	12.1
菊花 (菊花花瓣 vs 菊花瓣)	413,000	48.6	51.4	1,230,000	42.4	57.6
玫瑰花 (玫瑰花瓣 vs 玫瑰花瓣)	322,000	34.3	65.7	1,170,000	9.1	90.9

Table 5: Frequency and haplology

The results show that when an item has a higher number of search hits, the item tends to go through haplology. For instance, in Hong Kong the search of ‘apple’ returns 2,800,000 hits, which seventy-three times over the number of ‘passion fruit’. Within the fruit category, ‘passion fruit’ is the only one less likely to undergo haplology. A similar contrast can also be observed in the comparison between ‘beef’ and ‘ostrich meat’. In general, the frequency of compounds correlate with their tendency for haplology. When a compound is used more frequently, it is more like that it goes through haplology. For a less frequent compound, haplology is less likely to happen.

5 The interaction of blocking and facilitating conditions

Our study above showed that facilitating and blocking conditions of haplology interact with each other and do not each condition does not work in isolation. In this section, we examine how each two conditions interact.

5.1 Tone sandhi and syllabicity

Both tone sandhi and syllabicity effects are shown in Table 6. Items highlighted are the direction predicted by disyllabicity condition

Type	Question	沒刪 (%)	有刪 (%)
(HK)	變調 教育局局長 vs 教育局長	82.9	17.1
	學生會會長 vs 學生會長	85.7	14.3
	眼鏡鏡框 vs 眼鏡框	2.9	97.1
	田徑隊隊長 vs 田徑隊長	85.7	14.3
	桂花魚魚頭 vs 桂花魚頭 [*虱目魚]	51.4	48.6
	教會會友 vs 教會友	85.7	14.3
(TW)	變調 共產黨黨員 vs 共產黨員 [*國民黨]	60.6	39.4
	原子筆筆芯 vs 原子筆芯	69.7	30.3
	博物館館藏 vs 博物館藏	87.9	12.1
	手錶錶帶 vs 手錶帶	81.8	18.2
	玩具廠廠長 vs 玩具廠長	75.8	24.2
	奇異果果汁 vs 奇異果汁	18.2	81.8
	蘋果果汁 vs 蘋果汁	0	100
	芒果果汁 vs 芒果汁	0	100
	青蘋果果汁 vs 青蘋果汁	15.2	84.8
	熱情果果汁 vs 熱情果汁	54.5	45.5

Table 6: T tone sandhi and Disyllabicity

Table 6 shows the blocking effect of tone sandhi in general makes correct predictions while disyllabicity does not. This is predicted by Li et al’s (2015) claim that this constraint does not apply in Cantonese.

Regarding Taiwan Mandarin, tone sandhi is also shown to block haplology. Moreover, tone sandhi outranks syllabicity predictions, as summarized in (6). We posit that this is because the tone sandhi blocking effect is based on the rule of identity, while disyllabicity is just a descriptive tendency.

- (6) Taiwan Mandarin blocking rules:
Tone sandhi > syllabicity

5.2 Syllabicity and Frequency

Our discussion in this section focuses on Taiwan Mandarin as Cantonese does not have the disyllabicity constraints and last section also showed the syllabicity does not have meaningful prediction for Cantonese. The pairs involve the two factors are shown in Table 7.

搜尋的關鍵字 (比較項目)	搜尋結果數量(TW)	TW (%)	
		沒刪	有刪
蘋果 (蘋果果汁 vs 蘋果汁)	6,880,000	0	100
芒果 (芒果果汁 vs 芒果汁)	3,560,000	0	100
奇異果 (奇異果果汁 vs 奇異果汁)	1,080,000	18.2	81.8
青蘋果 (青蘋果果汁 vs 青蘋果汁)	566,000	15.2	84.8
熱情果 (熱情果果汁 vs 熱情果汁)	43,700	54.5	45.5
牛肉 (牛肉肉碎 vs 牛肉碎 [*肉片])	3,780,000	6.1	93.9
鮑魚肉 (鮑魚肉肉碎 vs 鮑魚肉碎)	27,200	39.4	54.5
鮑肉 (鮑肉肉碎 vs 鮑肉碎)	769	0	6.1
菊花 (菊花花瓣 vs 菊花瓣)	1,230,000	42.4	57.6
玫瑰花 (玫瑰花花瓣 vs 玫瑰花瓣)	1,170,000	9.1	90.9

Table 7: Frequency and syllabicity

Note again that the frequency in the table refer to the frequency of the modifying noun in Google. Based on the examples of X 果果汁 *guǒ guǒzhī* ‘x juice’, frequently used compounds are likely to undergo haplology. In addition, the more frequent a compound is, the stronger the tendency is for haplology. The only compound that does not favor haplology is the one with lowest frequency and the prediction in fact is also inconsistent with the prediction of disyllabicity. In other words. The facilitating effect of frequency on haplology in Taiwan Mandarin is confirmed and cannot be contradicted by syllabicity effect.

5.3 Tone sandhi revisited

With the conclusion so far that frequency facilitates while tone sandhi blocks haplology, and syllabicity does not have clear effect, it is time for us to revisit the few exceptions to tone sandhi effect. The data were shown in Table 3 and repeated in Table 6 earlier.

There are two puzzling exceptions. First, 眼鏡框 ‘eyeglasses frame’ is the only exception in Cantonese that is not blocked by tone sandhi. Since 鏡框 ‘frame of glasses’ is not as frequent as the other compound heads, it is unlikely that

frequency effect will facilitate haplology, overcoming the blocking effect of tone sandhi. Second involves 熱情果果汁 ‘passion fruit juice’ in Taiwan Mandarin. It is an exception to an exception as it is the only non-haplology example in the series of compounds with 果汁 ‘fruit juice’, yet the blocking effect is still not strong as nearly half usages still involve haplology. The contrast between compounds with 果汁 ‘fruit juice’ and other compounds suggest that it is the high frequency of 果汁 ‘fruit juice’ that licensed the haplology over tone sandhi blocking effect. If so, then what enabled 熱情果果汁 ‘passion fruit juice’ to negate this facilitating effect?

A possible account involves the semantic transparency of the consecutive units. Wang et al. (2017) defines semantic transparency in terms of both a compound and the two characters forming a disyllabic compound. Borrowing this concept, in order to determine that the two consecutive units have same meaning for haplology, both of them must be semantically transparent. This is best exemplified with 蒙牛牛奶 *méngniú niúnnǎi* ‘Mengniu milk’ where 牛 in 蒙牛 is semantically non-transparent as part of a proper name and not a kind of cow/bull. Similarly, 熱情果 is also not highly transparent as it is not a fruit that is passionate. It is also not a typical fruit in that it contains all seeds and no pulp.

For the seeming preference of haplology 眼鏡框 ‘eyeglasses frame’, it may in fact involve the non-transparency of the second part of the compound 鏡框 ‘mirror frame’. As 鏡框 now has a specific non-transparent meaning, hence the repetition of the same character in 眼鏡鏡框 creates potential semantic incongruity and is avoided. This is similar the preference of 犀牛皮 犀牛皮 ‘rhinoceros hide’. This is because 牛皮 refers to cow-hide and rhinoceros is not a kind of cow.

6 Conclusion

By taking a comparative study of haplology in Chinese compound nouns in both HK Cantonese and Taiwan Mandarin, this paper look at different facilitating and blocking conditions. We confirm the facilitating effects of frequency and the

blocking effect of tone sandhi. However, we found no clear effect for disyllabicity contrary to claims in earlier literature. When exploring the interaction of these conditions, we also proposed that semantic transparency of the compound vis-à-vis the repeated character plays a central role in haplology.

Our study shows that haplology is more than a kind of “habit” or dictated only by principle of economy. In fact, haplology is the result of complex interaction of factors from lexical semantic, morphological, and phonological levels.

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