

# Realization of Narrow Focus in Hong Kong English declaratives—a Pilot Study

Holly Sze Ho Fung, Peggy Pik Ki Mok

Department of Linguistics and Modern Languages, The Chinese University of Hong Kong

hollyfung@cuhk.edu.hk, peggymok@cuhk.edu.hk

## Abstract

Narrow focus, i.e., focus on one word, is realized differently in native English and Cantonese. While it is signaled primarily by on-focus F0 changes such as F0 range expansion in English, it is marked essentially by lengthening of duration in Cantonese. Another difference is the pitch of the post-focus elements. While native English demonstrates post-focus F0 compression, Cantonese shows no significant post-focus pitch change. To investigate how narrow focus is realized in Hong Kong English (HKE), an emergent variety of English spoken by native speakers of Cantonese in Hong Kong, a controlled production experiment was conducted with 8 HKE speakers. Results showed that while the HKE speakers did realize foci with significant on-focus F0 range expansion, they exhibited no post-focus compression.

**Index Terms:** Hong Kong English, focus, post-focus compression

## 1. Introduction

Focus, as defined by Crystal [1], is information that is “at the center of their [speakers’] communicative interest”. It can be classified as narrow or broad depending on its scope. First introduced by Ladd [2], the term “narrow focus” was defined as focus on “a particular constituent or a small set of constituents”, and “broad focus” as that on an entire utterance, or any constituent larger than that of a narrow focus [3].

Early acoustic studies of focus realization in English found that narrow focus is signaled by multiple prosodic cues including raised F0 peak and mean F0, expanded F0 range, lengthened duration and increased intensity [4][5]. More recent studies, while confirming these findings, suggested a broader temporal domain of focus prosody. Instead of being solely signaled by on-focus cues, narrow focus was also found to be marked by post-focus F0 lowering and F0 range suppression, which were also referred to as post-focus compression (PFC) [6][7].

Similar to native English, narrow focus was found to be signaled by multiple cues in Cantonese including an increase in duration and intensity [8][9][10] as well as pre-focal pause insertion [8]. As for whether F0 is an acoustic correlate of Cantonese narrow focus, opinions diverged. On the one hand, Man [6] found significant F0 range expansion that was local to the focused syllable. Gu and Lee [8] found both F0 heightening and expansion in a broader scope spanning from the syllable before the sentence-medial focus to the end of the utterance, with the heightening effect more prominent on high-tone target. On the other hand, in a more recent study by Wu and Xu [10], which is more reliable regarding the larger sample size and the method of focus elicitation used, no significant on-focus or post-focus F0 variations was found.

While pitch is surely an important acoustic correlate of focus in native English, its role in focus-marking is in doubt in

Cantonese. Regarding such difference, a legitimate question to ask about Hong Kong English (HKE), a non-native variety of English that emerges from the interaction between the two languages, is whether pitch is an acoustic correlate of focus in it. To answer this question, and to assess the role of transfer from Cantonese to HKE, a controlled production experiment was conducted.

## 2. Method

### 2.1. Materials

10 English and 6 Cantonese declarative sentences were used in the experiment. All the 10 English sentences (see Table 1) contain the carrier frame *\_\_ gave a \_\_ to \_\_*, in which the empty slots were filled by different keywords. The keywords, all sonorants for continuous F0 contours, were controlled for their number of syllables and stress pattern. Half of them were monosyllabic and the other half disyllabic, all stressed on the first syllable.

Table 1. List of English sentences (keywords underlined)

Monosyllabic keywords	
1.	<u>Ann</u> gave a <u>mole</u> to <u>Wayne</u> .
2.	<u>Lee</u> gave a <u>ring</u> to <u>Wong</u> .
3.	<u>May</u> gave a <u>ram</u> to <u>Lynn</u> .
4.	<u>Ron</u> gave a <u>wheel</u> to <u>Ray</u> .
5.	<u>We</u> gave a <u>yam</u> to <u>Nell</u> .
Disyllabic keywords	
6.	<u>Alan</u> gave a <u>lemon</u> to <u>Laura</u> .
7.	<u>Larry</u> gave a <u>melon</u> to <u>Luna</u> .
8.	<u>Mary</u> gave a <u>lolly</u> to <u>Annie</u> .
9.	<u>Mummy</u> gave a <u>warning</u> to <u>Molly</u> .
10.	<u>Willy</u> gave a <u>ruler</u> to <u>Emma</u> .

Similarly, the Cantonese sentences also contained keywords in the sentence-initial, medial and final positions. In addition, to examine the effects of focus on different lexical tones (see Table 2), each of the sentences contained keywords of one of the six lexical tones in Cantonese. Table 3 is a list of the Cantonese sentences used.

Table 2. Summary of Cantonese lexical tones

	T1	T2	T3	T4	T5	T6
Tone shape	high level	high rising	mid level	low falling	low rising	low level
Tone code	55	25	33	21	23	22

Table 3. List of Cantonese sentences (keywords underlined)

Tones	Sentence in <i>Jyutping</i> with English translation
T1	<u>maau1 mi1</u> <u>maai5 zo2</u> <u>juun1 joeng1</u> <u>sung3 bei2</u> <u>wu1 aai1</u> . 貓咪買咗鴛鴦送畀烏鴉。 'The cat bought tea coffee for the raven.'
T2	<u>waa2 min2</u> <u>gin3 dou2</u> <u>juun2 juun2</u> <u>sik1 jin2</u> <u>jiu2</u> <u>neoi2</u> . 畫面見到婉婉飾演妖女。 'It is shown on the screen that Jyunjyun plays a banshee.'
T3	<u>aa3 jin3</u> <u>keoi5 ge3</u> <u>ngoi3 hou3</u> <u>ling6 jan4</u> <u>jim3 wu3</u> . 阿燕佢嘅愛好令人厭惡。 'Aajin's interest is disturbing.'
T4	<u>maa4 maa4</u> <u>fan1 fu3</u> <u>jung4 jan4</u> <u>heoi3 maai5</u> <u>jau4</u> <u>jim4</u> . 嫲嫲吩咐傭人去買油鹽。 'Granny asked the maid to buy oil and salt.'
T5	<u>lou5 ng5</u> <u>deoi5 doi6</u> <u>mei5 neoi5</u> <u>fei1 soeng4</u> <u>jau5</u> <u>lai5</u> . 老五對待美女非常有禮。 'Loug is very polite to beauties.'
T6	<u>wu6 wai6</u> <u>ting3</u> <u>cung4</u> <u>ming6</u> <u>ling6</u> <u>zeon1</u> <u>hang4</u> <u>jam6 mou6</u> . 護衛聽從命令進行任務。 'The guard went for a mission on command.'

To compare the F0 and duration of focused and non-focused keywords, each of these 16 sentences were produced in four conditions, one with neutral focus (i.e., no focus) and the other three with focus in the sentence-initial, medial and final positions. To elicit these focus conditions, two sets of stimuli were prepared. The set for eliciting neutral focus contained the 16 sentences in plain font, and the other for eliciting narrow focus consisted of 48 sentences (16 sentences x 3 focus positions) with focused keywords in different positions highlighted in bold.

The reason for choosing this method over the more commonly adopted one using prompt questions was that although the latter was successful with native speakers of English in some previous studies [4][5][12][13][6][7], it did not work for the HKE speakers in our earlier pilot test. The pilot speakers (whose data are not presented here) did not realize any focus on the pieces of information being asked for, i.e., their answers were the same as those with neutral focus. Moreover, the speakers also reported that they found the prompt questions rather irritating. As a result, in this study, narrow focus was elicited instead by highlighting the keywords in bold and directly asking the speakers to emphasize them, conveying them as the most important information in the sentences, but no instruction was given to them on how they should emphasize them phonetically. Thus, the focus realized by them was particularly emphatic.

In addition, 12 practice sentences similar to the focus-eliciting stimuli were prepared to familiarize the speakers with producing narrow focus in various positions.

## 2.2. Speakers

3 male and 5 female native Cantonese speakers aged between 22 and 24, who acquired English as their second language, were recruited as subjects. All were undergraduates of local universities who received pre-tertiary education at local primary and secondary schools, where they were exposed to

native English for 3 to 6 years from their native-speaking English teachers. Two of them have been to an English-speaking country before, one to the US for four days and the other to Australia and New Zealand for two weeks and six months respectively. As for their oral English proficiency, five attained grade C in the oral paper of Use of English (UE) in the Hong Kong Advanced Level Examination (HKALE). Among the rest, two received grade D and one grade E.

In addition to the HKE speakers, two native American English (AmE)-speaking exchange students from New York, aged 20 and 21, were recruited as control subjects. Only two control subjects were used because the patterns of narrow focus in English were already well established in the literature.

## 2.3. Procedures

The experiment for the HKE speakers was divided into two sessions. In the first session, the speakers were shown and recorded reading the sentences without focus. They were reminded to avoid placing emphasis on particular words in order to elicit neutral focus successfully. The sentences were arranged randomly into three blocks, the first with the Cantonese test sentences and the other two with the English sentences with monosyllabic and disyllabic keywords respectively. Each sentence was recorded twice.

The second part of the experiment began with a training session, in which the speakers were asked to read the practice sentences with foci in different sentence positions after they were told that the words in bold were the most important pieces of information to be emphasized. After becoming familiar with the procedure, they were then recorded reading the Cantonese and English test sentences with narrow foci, which were arranged into two and four blocks respectively. Each block was read in two repetitions.

As for the American English speakers, the experiment procedures were basically the same, except that they were not asked to read the Cantonese stimuli.

## 2.4. Data Analysis

Extraction of utterances and labeling of individual syllables of the keywords were done using Praat. For the disyllabic keywords in English with the CVCV(C) structure, syllables were segmented between the first vowel and the second consonant, i.e., CV/CV(C). For example, the keyword *lemon* was segmented as "le/mon", rather than "lem/on".

Each labeled syllable was then measured for its: 1) F0 range and 2) mean F0, which were calculated from F0 values obtained from 10 equal-distant points along the pitch contour of the target syllable.

## 3. Results

### 3.1.1. American English

Figures 1 and 2 show the mean F0 ranges and mean F0s of the disyllabic keywords produced by the two AmE speakers. (Given the admittedly small sample size, no statistical analysis was performed on the AmE data.) The abbreviation *s* stands for the stressed syllable and *us* for the unstressed syllable of a keyword. As expected, on-focus F0 range expansion occurred regardless of sentence position in AmE. On-focus F0 heightening, although insubstantial, was also observed consistently in all sentence positions. The data also confirmed the presence of post-focus compression (PFC) in native English, since both mean F0s and F0 ranges of keywords were found to decrease in the post-focus condition. (Data of the

monosyllabic keywords, which show the same pitch pattern as the disyllabic ones, are excluded here owing to page limit. Details of them are available upon request.)

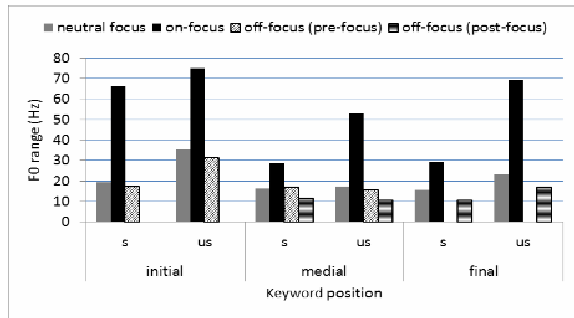


Figure 1: Mean F0 ranges of English disyllabic keywords produced by AmE speakers

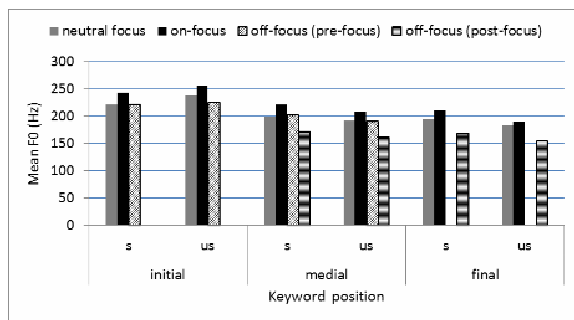


Figure 2: Mean F0s of English disyllabic keywords produced by AmE speakers

### 3.1.2. Cantonese

Among the data of all the six lexical tones collected, only those of T1, T3 and T6 were analyzed. The reason was that since we wanted to compare the Cantonese and the HKE data to evaluate the influence from the former on the latter (if any), and that HKE was suggested to be tonal with H, M and L tones [14][15][16], analysis of the three level tones in Cantonese would best suit the purpose.

One general observation of the Cantonese data is that there are some insubstantial increases in mean F0 of the keywords in focus. As an example, Figure 3 shows the mean F0 of the T1 keywords produced by the female speakers. In a two-way ANOVA test, focus (neutral versus on-focus) was found to have significant main effect on mean F0 of the keywords of T3 ( $p=0.018$ ) and T6 ( $p=0.011$ ) produced by the female speakers, and those of T1 ( $p=0.027$ ) and T6 ( $p=0.021$ ) produced by the male speakers. The results suggest that the speakers demonstrated some on-focus F0 heightening, but not in a consistent manner.

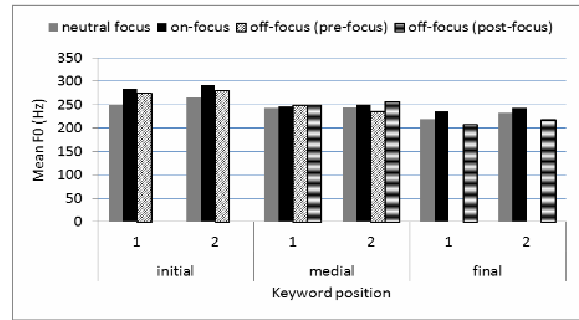


Figure 3: Mean F0s of T1 keywords produced by female HKE speakers (abbreviations: 1—1st syllable; 2—2nd syllable of the disyllabic target)

As for F0 range, on-focus expansion of it was found only sporadically. In addition to the result that focus had a significant main effect on F0 range only in the T1 foci produced by the female speakers ( $p=0.04$ ), no strong evidence was found to support that F0 range expansion is a cue to Cantonese focus.

Neither was PFC found in the data. No significant effect of focus was found on either mean F0 or F0 range of post-focus keywords. The result confirmed Wu and Xu's [10] suggestion that PFC does not exist in Cantonese.

### 3.1.3. HKE

The mean F0 range of the English monosyllabic foci produced by the HKE speakers displayed in Figure 4 and Figure 5 show that for both gender groups, a keyword was produced with remarkably larger F0 range in the on-focus condition than in the neutral focus condition regardless of its position. In a two-way ANOVA assessing two main effects, namely focus (neutral focus and on-focus) and word position (initial, medial and final), focus was found to have significant effect on F0 range in monosyllabic keywords produced by both male ( $p=0.009$ ) and female speakers ( $p=0.025$ ), suggesting that the expansion of F0 range was focus-induced.

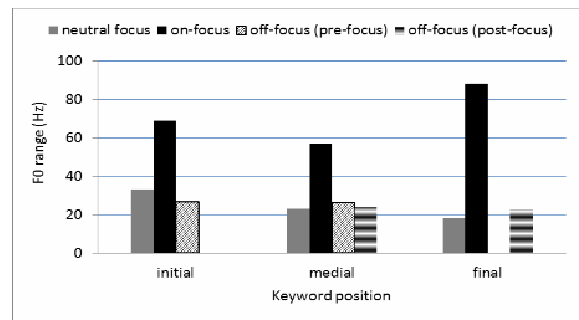


Figure 4: Mean F0s of English monosyllabic keywords produced by male HKE speakers

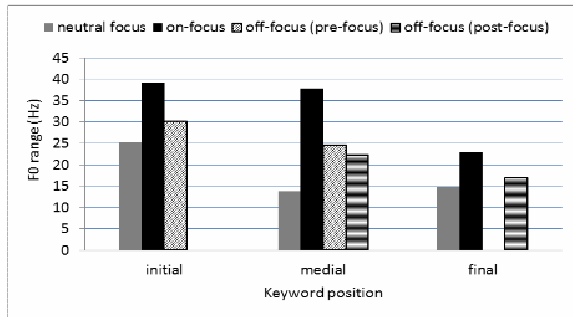


Figure 5: Mean F0s of English monosyllabic keywords produced by female HKE speakers

Substantial on-focus F0 range expansion was also found in the disyllabic foci, as shown below in Figure 6 and 7. In a three-way ANOVA analysis with the focus (neutral focus and on-focus), lexical stress (stressed and unstressed) and word position (initial, medial and final) as the factors, focus was again found to have a significant effect on F0 range of keywords produced by both male ( $p=0.009$ ) and female ( $p=0.000$ ) speakers. The results suggest that F0 range expansion is a cue to narrow focus in HKE.

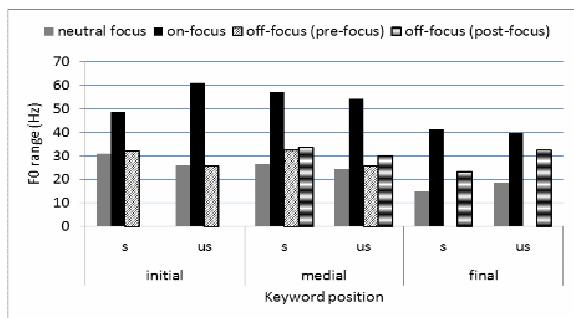


Figure 6: Mean F0 ranges of English disyllabic keywords produced by male HKE speakers

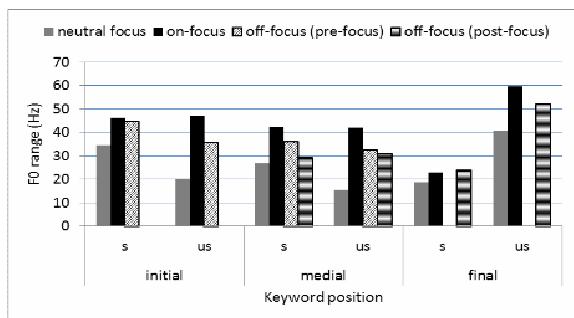


Figure 7: Mean F0 ranges of English disyllabic keywords produced by female HKE speakers

On the other hand, only random mean F0 heightening was found. A two-way ANOVA test found that focus had no significant effect on the rises. Therefore, mean F0 is unlikely an on-focus cue to narrow focus in HKE. The random increases of F0 might simply be the by-product of F0 range expansion.

Same as in Cantonese, no post-focus F0 lowering or F0 range suppression was found in HKE. In fact, noticeable expansion of F0 range was found in off-focus keywords, both pre-focus and post-focus ones, as shown above in Figures 6

and 7, meaning that the speakers actually had global F0 range expansion for the entire utterance with narrow focus. One possible reason for the finding is that since the subjects were asked explicitly to produce focus, they might as a result have spoken with a more exaggerated register which rendered more rise and fall in the pitch contour. Further tests are needed to verify this.

## 4. Discussion

Based on the results in Section 3.1.3, pitch does seem to be an acoustic correlate to narrow focus in HKE. Despite the absence of consistent on-focus F0 heightening and PFC, substantial on-focus F0 range expansion in both monosyllabic and disyllabic keywords located in all sentence positions suggests that HKE speakers do signal narrow focus with manipulation of pitch.

The absence of PFC in the HKE data can be attributed to cross-linguistic influence from Cantonese. As mentioned in Section 3.1.3, none of the HKE speakers exhibited PFC in Cantonese. If there were no influence from Cantonese, we would expect them to demonstrate PFC in their English like the two AmE speakers did. In fact, the absence of PFC in HKE is not at all surprising. Similar to HKE, English spoken by native speakers of Taiwan Mandarin, another language spoken without the post-focal feature, was found not to have it either [17]. Its absence in HKE may provide an additional piece of evidence for that PFC in L2 English is susceptible to transfer from L1.

On the other hand, the presence of on-focus F0 range expansion in HKE cannot be explained simply by transfer from Cantonese. As mentioned, on-focus F0 range expansion occurred only sporadically and insubstantially in Cantonese. This seems to suggest that HKE speakers have two distinct intonation patterns for focus marking in Cantonese and HKE.

Based on our preliminary findings, focus intonation of HKE was found to be a “hybrid” of that of its parent languages: native English and Cantonese. While it shows on-focus F0 range expansion like native English does, it exhibits no PFC, similar to Cantonese. In other words, pitch is an acoustic correlate of narrow focus in HKE, although it is limited to the local domain, i.e., the word in focus. It has to be emphasized, though, that the conclusions are drawn from results obtained by a non-canonical way of focus elicitation involving the use of text in bold and explicit instruction to produce a focus instead of the more common one using prompt questions. Further studies employing various focus elicitation methods are needed to corroborate the results here.

## 5. References

- [1] D. Crystal, *A Dictionary of Linguistics and Phonetics*. Oxford, UK: Blackwell Publishing Ltd., 2008.
- [2] D. R. Ladd, *The structure of intonational meaning: evidence from English*. Bloomington: Indiana University Press, 1980, p. 239.
- [3] D. R. Ladd, *Intonational phonology*, vol. 79. Cambridge: New York: Cambridge University Press, 1996, p. 334.
- [4] S. J. Eady and W. E. Cooper, “Speech intonation and focus location in matched statements and questions,” *Journal of Acoustic Society of America*, vol. 80, pp. 402–415, 1986.
- [5] S. J. Eady, W. E. Cooper, G. V. Klouda, P. R. Muller, and D. W. Lotts, “Acoustical Characteristics of Sentential Focus: Narrow v.s. Broad and Single v.s. Dual Focus Environments,” *Language and Speech*, vol. 29, no. 3, pp. 233–251, 1986.

- [6] Y. Xu, C. Xu, and X. Sun, "On the temporal domain of focus," in *Proceedings of International Conference on Speech Prosody 2004*, 2004, pp. 1–4.
- [7] Y. Xu and C. X. Xu, "Phonetic Realization of Focus in English Declarative Intonation," *Journal of Phonetics*, vol. 33, pp. 159–197, 2005.
- [8] W. Gu, K. Hirose, and H. Fujisaki, "The effect of paralinguistic emphasis on F0 contours of Cantonese Speech," in *Proceedings of International Conference on Speech Prosody 2006*, 2006.
- [9] W. Gu and T. Lee, "Effects of tonal context and focus on Cantonese F0" in *Proceedings of 16th International Congress of Phonetic Sciences*, 2007, pp. 1033–1036
- [10] W. Wu and Y. Xu, "Prosodic focus in Hong Kong Cantonese without post-focus compression," In *Proceedings of International Conference on Speech Prosody 2010*, pp. 1–4, 2010.
- [11] V. Man, "Focus effects on Cantonese tones: An acoustic study," In *Proceedings of International Conference on Speech Prosody 2002*, pp. 2–5
- [12] S. Hoskins, "The Prosody of Broad and Narrow Focus in English: Two Experiments," in *Proceedings of the 5th European Conference on Speech Communication and Technology*, 1997, vol. Rhodes, Gr, pp. 791–794.
- [13] S. Jannedy, "Acquisition of narrow focus prosody," *Proceedings of the GALA '97 conference: Language Acquisition, Knowledge Representation & Processing*, 1997.
- [14] W. H. Y. Cheung, "Span of high tones in Hong Kong English," *Hong Kong Baptist University Papers in Applied Language Studies*, vol. 12, pp. 19–46, 2008.
- [15] L.-H. Wee, "Phonological patterns in the Englishes of Singapore and Hong Kong," *World Englishes*, vol. 27, no. 3–4, pp. 480–501, Oct. 2008.
- [16] S. S. Y. Yiu, "Intonation of English spoken in Hong Kong," Hong Kong Baptist University, 2010, 2010.
- [17] T. Visceglia, C. Y. Tseng, C. Y. Su, and C. F. Huang, "Realization of English narrow focus by L1 English and L1 Taiwan Mandarin Speakers," in *Proceedings of the 17th International Congress of Phonetic Sciences (ICPhS XVII)*, 2011, vol. Hong Kong, pp. 2074–2077.