ACOUSTIC CORRELATES OF FOCUS-STRESS IN HONG KONG CANTONESE[1]

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Abstract: In an experiment on focus-stress in Hong Kong Cantonese three male subjects were recorded saying a sentence in which all morphosyllables belonged to the Mid Level tone. Three treatments of the sentence were: (1) neutral with no focus-stress; (3) focus-stress on first word; (3) focus-stress on last word. Effects of the treatments on F0, intensity, and duration of the test words were compared. The most significant acoustic correlate of focus-stress was duration; F0 was marginal; intensity was not significant.

1. Introduction

One basic component of sentence intonation is stress whereby the speaker emphasizes one word or syllable of a word on which the speaker wishes to focus the addressee's attention. Focus-stress refers to stress given to a word in a sentence. Focus-stress contrasts with word-stress which refers to stress carried by one syllable in a polysyllabic word. Acoustic correlates of focus-stress and word-stress include fundamental frequency (F0), intensity, and duration. It has been hypothesized that different languages differentially exploit these acoustic parameters depending on their use for expressing lexical meaning. According to the *functional load*

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hypothesis, ". . . phonetic resources are available for signaling stress if and only if they are not used up in signaling lexical contrasts" (Siripong, Gandour, and Harper 1996:201). This claim has obvious implications for Asian tone languages in which F0 is primarily reserved for semantic contrasts. Man (1999) has found that duration in Cantonese increased for stressed syllables. Shen (1993) determined that stress in Mandarin can be perceived from both duration and intensity cues, but duration was more important. On the basis of findings by Man and Shen, we presume Cantonese also exploits duration to signal focus-stress.

Cantonese contrasts a particularly rich set of tones: six relatively long tones occur on open syllables and syllables closed by nasals *–m, -n, -ŋ*, and three much shorter tones occur on syllables closed by homorganic unreleased stops *-p, -t, -k*. Table 1 lists these phonemic tones as Tone 1, High Level; Tone 2, Mid-Low Falling; Tone 3, High Rising; Tone 4, Mid-Low Rising; Tone 5, Mid Level; Tone 6, Mid-Low Level; Tone 7, High Stopped; Tone 8, Mid Stopped; and Tone 9, Mid-Low Stopped. Table 1 displays Cantonese tone categories along with their Chao tone letters and lexical examples. The number of tones can be reduced to six if tone contours of the three short tones are regarded as similar to those of the corresponding long tones. Figure 1 displays the normalized F0 contours of the six long tones on live syllables for six male speakers.

Given that F0 is primarily reserved for producing the lexical tone contrasts, we would like to know which one of the acoustic parameters of F0, duration, and intensity is the most important for the Cantonese speaker to focus-stress one word within a sentence. To answer this question we conducted an experiment in which lexical tone was carefully controlled. Three male subjects who were born and raised in Hong Kong and between the ages of 20 and 21 produced a series of sentences in which every syllable belonged to the same Mid Level tone category. The Mid Level tone has a Chao tone letter of ˧33 on the 5-point scale, that is, the tone contour starts and

ends at about the same mid-point (cf. the contour of this tone in Figure 1). By controlling lexical tone, we reasoned that it should be possible to identify separately the contributions that F0 makes to lexical tone and focus-stress. If F0 is an important factor in focus-stress, then focus-stressed morphosyllables should clearly stand out from other non-focus-stressed morphosyllables in a sentence.

2. Experimental method

Three male subjects who were university students participated in this study. Each subject was asked a series of related questions by the research assistant and the subject's response was the sentence 阿霸要寄信去貝澳 *aːpaː jiːw kej sən həɥ puːjow* 'A-pa wants to send a letter to Puj-ow'. The subjects spoke into the AKG C451E microphone which was connected to the Panasonic SV3700 DAT tape-recorder (at 44.1 kHz samples/second) so that their utterances were recorded on tape. To determine the effect of focus-stress on F0, duration, and intensity, the test sentence was given three treatments on the basis of whether the first word *aːpaː* 'man's name' or the last word *puːjow* 'place name on Lantau Island' was focus-stressed. The first treatment elicited the subject's neutral style. The subjects were shown the Chinese sentence printed on one A-4-sized sheet of paper with all the Chinese characters printed in the same size font. The subjects were asked the question 阿霸要做乜嘢阿? *aːpaː jiːw tsó̍w* **mē̍t-jêː** *aː*? '*What* does A-pa want to do?' They responded by saying the sentence without any word focus-stressed. The subjects were requested to say the sentence in a relaxed, natural style a total of five times.

In the second treatment the subjects were asked the question 邊個要寄信去貝澳? **pīn-kɔː** *jiːw kej sən həɥ puːjow*? '*Who* wants to send a letter to Puj-ow?' for which the subject's response was the same sentence but this time he would naturally stress the first word of the sentence 阿霸 *aːpaː*. For this treatment the subject was presented with the

sentence printed on a second sheet of paper and to help him with the appropriate response the first word of the sentence 阿霸 *aː-paː* was printed in large, bold characters. The subjects were asked the question five times and were told to respond by answering with the sentence and stressing the first word.

For the third treatment the subjects were asked the question 阿霸要寄信去邊度呀? *aː-paː jiːw kej sən həɥ* **pīːn-tó̍w** *aʔ* '*Where* does A-pa want to send a letter?' for which the response was the same sentence but with the last word of the sentence 貝澳 *puːj-ow* carrying focus-stress. The subjects were presented with the third sheet of paper on which the Chinese sentence was printed with 貝澳 *puːj-ow* in large, bold characters. The subjects were asked the question five times and were told to respond with the sentence with the last word being stressed. Through this procedure each subject produced a recording that comprised 15 utterances: five without focus-stress; five with focus-stress on *aː-paː*, and five with focus-stress on *puːj-ow*.

With the Kay Elemetrics Computerized SpeechLab (CSL 4300B) system of hardware and software the tape-recorded utterances were edited into sound files (the recordings were digitized at a sampling rate of 10 kHz by means of a 16-bit analog-to-digital (A/D) converter using the CSL and then manually segmented into tokens for CSL analysis). The F0, duration, and intensity of every syllable in the tape-recorded utterances were measured. Figure 2 presents the CSL-generated waveforms of three utterances by subject LKC; waveform A at the top of the page is for the neutral utterance with no focus-stress; waveform B in the middle is for the utterance with focus-stress on *aː-paː*; and waveform C at the bottom is for the utterance with focus-stress on *puːj-ow*. By observing the increase in size of the waveforms from neutral to the focus-stress treatments, we can readily identify the focus-stressed syllables. Measurements of F0 and intensity were taken at six points across the length of the morphosyllable, at the 0%, 20%, 40%, 60%, 80%, and 100% points. F0 and

intensity values were measured in units of Hertz (Hz) and decibel (dB), respectively; duration was measured in milliseconds (ms.). The mean value of F0 and intensity for each morphosyllable was determined by averaging the measured values for the six percentage points. To facilitate comparisons the mean values of F0, duration, and intensity were averaged over the three subjects as one group. The numerical values of the acoustic variables that were produced by the measurements of individual subjects and the group means are listed in Table 2.

3. Declination effect

Before examining the results of the experiment, we first consider the phenomenon of the so-called declination effect, that is, the inherent tendency for F0 to fall from the beginning to the end of a declarative utterance. The declination effect can be clearly observed in the utterances of our Cantonese speakers. The upper part of Figure 3 presents the waveform of one token utterance when said without focus-stress by subject WGW. The lower part of the figure (labelled PITCH) displays the F0 pattern of each of the morphosyllables in the utterance. The series of F0 contours in the figure shows the declination effect: a steady decline in F0 occurs across the entire length of the utterance with the contours of the Mid Level tones at the end of the utterance being noticeably lower than those that at the beginning. In utterances without focus-stress and with focus-stress on the first word *a:-pa:* the declination effect was observed. In particular, F0 values on the morphosyllables *pu:j* and *ow* which occurred at the end of the utterances had lower mean F0 values than those on the morphosyllables *a:* and *pa:* which occurred at the beginning. The mean F0 values as averaged for the three subjects for the two types of utterances were as follows: No focus-stress: *a:* 129 Hz, *pa:* 121 Hz., vs. *pu:j* 112 Hz, *ow* 108 Hz; focus-stress on *a:-pa:*: *a:* 142 Hz, *pa:* 139 Hz , vs. *pu:j* 125 Hz, *ow* 119 Hz. However, focus-stress on *pu:j-ow* increased mean F0 on the first syllable: *a:* 129 Hz, *pa:*

127 Hz, vs. *pu:j* 132 Hz, *ow* 124 Hz.

4. Results

4.1 F0

From Table 2 we observe that mean F0 is relatively higher for the four morphosyllables *a:, pa:, pu:j, ow* when they are focus-stressed than when not focus-stressed: *a:* 142, 129 Hz; *pa:* 139, 121 Hz; *pu:j* 132, 125 Hz; *ow* 124, 108 Hz. However, given that these individual numbers represent the mean values of six points of the morphosyllables at which F0 was measured, they are less revealing than Figures 4 and 5 which display the mean F0 values at six points across the length of the individual syllables for the three subjects; we clearly see increases in F0 that occurred between Treatment 1 (no focus-stress) and Treatments 2 and 3 (with focus-stress). Whether or not the increase in F0 is significant is discussed below in the section on data analysis.

Inspection of Table 3 indicates that individual variation was associated with the use of F0 among the three subjects. In particular, Subject WKW had substantial increases in F0 when he focus-stressed the test words: between Treatments 1 and 2 there was an increase of 38 Hz on *a:* and 44 Hz for *pa:*; between Treatments 1 and 3 there was an increase of 48 Hz on *pu:j* and 38 Hz on *ow*. On the other hand, subjects LKC and WGW showed relatively small increases or even declines in F0 between the neutral and focu-stress treatments.

4.2 Intensity

From Table 2 we observe that mean intensity is lower for morphosyllables *a:* and *pa:* when said with focus-stress than without focus-stress: *a:* 65.59, 71.51 dB; *pa:* 71.24, 72.14 dB. Mean intensity is somewhat higher for morphosyllables *pu:j* and *ow* when said with focus-stress than without: *pu:j* 73.98, 71.37 dB; *ow* 70.92, 67.51 dB. Figures 6 and 7 display the mean intensity values for the three subjects at six points across

the four morphosyllables. Figure 6(a) shows intensity is actually lower for *a:* with focus-stress than without. Figure 6(b) indicates very little difference in intensity for the two treatments of *pa:*. Figures 7(a) and (b) show that intensity rose slightly toward the end of *pu:j* and beginning of *ow*.

4.3 Duration

The mean durations of both *pa:* and *ow* are longer than the first syllables of the two words in all three treatments: Treatment 1: *a:* 121 ms., *pa:* 183 ms., *pu:j* 166 ms., *ow* 226 ms.; Treatment 2: *a:* 80 ms., *pa:* 333 ms., *pu:j* 159 ms., *ow* 313 ms.; Treatment 3: *a:* 77 ms., *pa:* 108 ms., *pu:j* 242 ms., *ow* 402 ms. In comparing the duration data in Table 2, we see the marked effect of focus-stress on duration in the second syllables of the two names which show substantial lengthening. Figures 8 and 9 graphically present the relative increases in duration for the syllables in Treatments 2 and 3 in relation to Treatment 1: *pa:* 333 ms. vs. 183 ms. with an increase of 150 ms.; *ow* 402 ms vs. 226 ms. with an increase of 176 ms.

5. Discussion

Our analysis of the measurements of F0, duration, and intensity indicates that the three Cantonese-speaking subjects relied mainly on the duration to signal focus-stress on one word or phrase in their utterances. The duration of the focus-stressed word or phrase was up to twice as long as when it was not focus-stressed. One subject combined higher F0 with longer duration when focus-stressing a word, but every word in the sentence was produced with relatively higher F0 in order to preserve the lexical tone.

When the bisyllabic word was focus-stressed the first syllable was relatively shorter than the second; shortening the first syllable may facilitate lengthening the second one. Longer duration of the second syllables in the Cantonese names may result from an iambic-type stress pattern of unstressed syllable + stressed syllable (as in the English name Laverne [lə ˈvɜn]),

that is, *a:-pa:* and *pu:j-ow* may carry inherent word-stress on the second syllable and this affects the duration of both syllables. This phenomenon appears to be distinct and independent from the effect of focus-stress in sentences. The name *a:-pa:* is semantically analyzable in that a: is a vocative prefix. Both syllables have the same vowel *a:*, but as we see in all forms of the utterance the vowel of the first syllable is somewhat shorter than the second, and this is quite apart from the occurrence of focus-stress in the sentence. The second syllable receives greater stress than the first and the stress lengthens the second syllable. The word *pu:j-ow* is not semantically analyzable in the same way as the personal name. Both syllables of this word have diphthongs which are inherently longer than the monophthong *a:*.

Figure 1 shows that the Mid Level tone has a slight rise at the end. In examining Figure 3 which displays F0 across the length of the utterance when said with no focus-stress, we observe that some of the tone contours fall at the end and others rise slightly. The difference between the two figures may be due to the difference between the two recording tasks. Figure 1 was based on recordings of speakers reading a list of individual Chinese characters. Figure 3 is for a sentence the subject gave in answer to a question.

6. Data analysis with direct logistic regression

In order to interpret what the numerical data in Table 2 have revealed about the relative importance of F0, intensity, and duration for signaling focus-stress in Cantonese, the logistic regression method was used in the data analysis. This method allows one to predict a discrete outcome, such as group membership, from a set of variables that may be continuous, discrete, dichotomous, or a mixture of these. Logistic regression makes no assumptions about the distribution of the predictor variables; the predictors do not have to be normally distributed, linearly related, or have equal variance with each group. In this study the method has been used to evaluate how

a subject's responses to focus-stress affect the acoustic parameters of F0, intensity, and duration. In direct logistic regression all predictors are entered into the equation simultaneously and the contribution that is made by each predictor over and above that of the other predictors can be evaluated. In Table 4 below the values in the B column (column two) presents the output data that were generated from the input of the numerical data from Table 2 into the following logistic regression equation:

$$\hat{y}_i = \frac{e^{\beta_0+\beta_1 x_1+\beta_2 x_{21}+\beta_3 x_3}}{1+e^{\beta_0+\beta_1 x_1+\beta_2 x_{21}+\beta_3 x_3}}$$

In this equation dependent variable $\hat{y}_i$ is the outcome focus-stress of the test syllable. The logistic regression model includes a linear combination of the three predictors' variables and no interaction. Here β_0 is the constant term, β_1 is the regression coefficient of F0, β_2 is the regression coefficient of intensity, β_3 is the regression coefficient of duration, x_1 is the independent variable for F0, x_2 is the independent variable for intensity, and x_3 is the independent variable for duration.

The logistic regression model from computer output is:

$$P(stress) = \hat{y}_i = \frac{e^{-18.941+0.046x_1+0.14x_2+0.013x_3}}{1+e^{-18.941+0.046x_1+0.14x_2+0.013x_3}}$$

The logistic regression coefficients associated with each of the three independent variables and the constant term are listed in column B. The positive or negative values associated with the B-weights indicate the direction of the relationship. Focus-stress is coded 1 and non-focus-stress is coded 0. The Standard error column lists the standard errors for the predictors and the constant. In general, a test statistic is used to give values being tested for significance. When a variable has one degree of freedom, the Wald statistic is the square of the

result of dividing the B-values. The statistical significance of each predictor's coefficients is evaluated with the Wald test where the coefficient is divided by its standard error:

$$W_j = \frac{B_j}{SE_{Bj}}$$

In evaluating the P-values of the acoustic variables the α = 0.05 level of significance has been used. The smaller the P-value, the more significant is the variable's contribution to focus-stress. We observe that the P-value of the Wald statistics for duration is 0.013 and the constant is 0.026, and so these values indicate that these two coefficients are significant. On the other hand, since the P-value of the Wald statistics for F0 is 0.053, it has only marginal significance. The P-value of the Wald statistics for intensity is 0.212, a far bigger value than that of α, which means that intensity is insignificant for signaling focus-stress. Based on this evaluation of the sample results produced by the experiment, we conclude that duration is the most significant acoustic correlate of focus-stress in Cantonese. F0 is marginal, while intensity is non-significant.

7. Conclusions and limitations of this study

From this study of three subjects, we have drawn the following tentative conclusions: First, the declination effect occurs with declarative utterances in Cantonese. Second, Cantonese speakers rely mainly on duration to focus-stress a word in a sentence. This finding agrees with the study on Cantonese by Man (1999) who found that a stressed syllable has longer duration than an unstressed one. Third, intensity seems to be an insignificant cue for focus-stress in Cantonese, and this was also found to be the case for two other contour-tone languages of Mandarin (Shen 1993) and Thai (Siripong, Gandour, and Harper 1996). Fourth, given the observation of individual variation in the use of F0 among the subjects, it is possible that some speakers may make use of

higher F0 in combination with duration to signal focus-stress, but more observations of more subjects are needed for verification. Finally, whether or not *a:-pa:* and *pu:j-ow* carry focus-stress, the first syllables were observed to have relatively shorter durations than the second ones in all three treatments of the sentence. Although this inherent difference in duration was not investigated here, we suspect it may be related to the effect of word-stress, and that compensatory shortening of the first syllable may help the speaker lengthen the second syllable.

A major limitation of this study is the small number of subjects. More subjects would make the findings more reliable. Another limitation is using speech produced in the laboratory setting. Socalled "lab" speech cannot be considered genuinely natural, but it does provide the means to control, manipulate, and observe experimentally the speaker's speech production. Although the subjects' utterances may not sound 100% natural to a native speaker, still such utterances can give us insight into the acoustic and articulatory features of natural speech.

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Table 1. Tone categories and tone values of modern Hong Kong Cantonese.

	平聲 *phɛ̂ŋ-sɛ̄ŋ* 'Level Tone'	上聲 *sœ̂:ŋ-sɛ̄ŋ* 'Rising Tone'	去聲 *hɐq-sɛ̄ŋ* 'Going Tone'	入聲 *jɐ́p-sɛ̄ŋ* 'Entering Tone'
jɐ̄m 陰	High Level: 衣 *jī:* ˥55 'clothes' 1a	High Rising: 椅 *jí:* ˧25 'chair'	Mid Level: 意 *ji:* ˧33 'idea'	High Stopped: 益 *jɛ́k* ˥5 'benefit' 7
	(Guangzhou: High Falling: 醫 *jī:* ˥52 'to cure' 1b	3	5	Mid Stopped: 喫 *ja:k* ˧33 'eat' 8
jœ̀:ŋ 陽	Mid-Low Falling: 疑 *jî:* ˩21 'suspicious' 2	Mid-Low Rising 耳 *jî:* ˧23 'ear' 4	Mid-Low Level: 二 *jì:* ˧22 'two' 6	Mid-Low Stopped: 亦 *jɛ̀k* ˧2 'also' 9

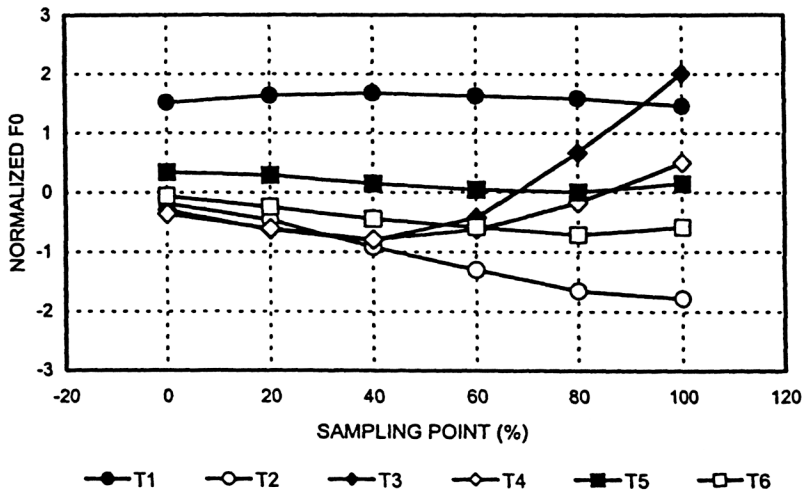


Figure 1. Mean z-score normalized F0 contours for the six long Cantonese tones on live syllables based on six male speakers (T1 = High Level, T2 = Mid-Low Falling, T3 = High Rising, T4 = Mid-Low Rising, T5 = Mid Level, T6 = Mid-Low Level).

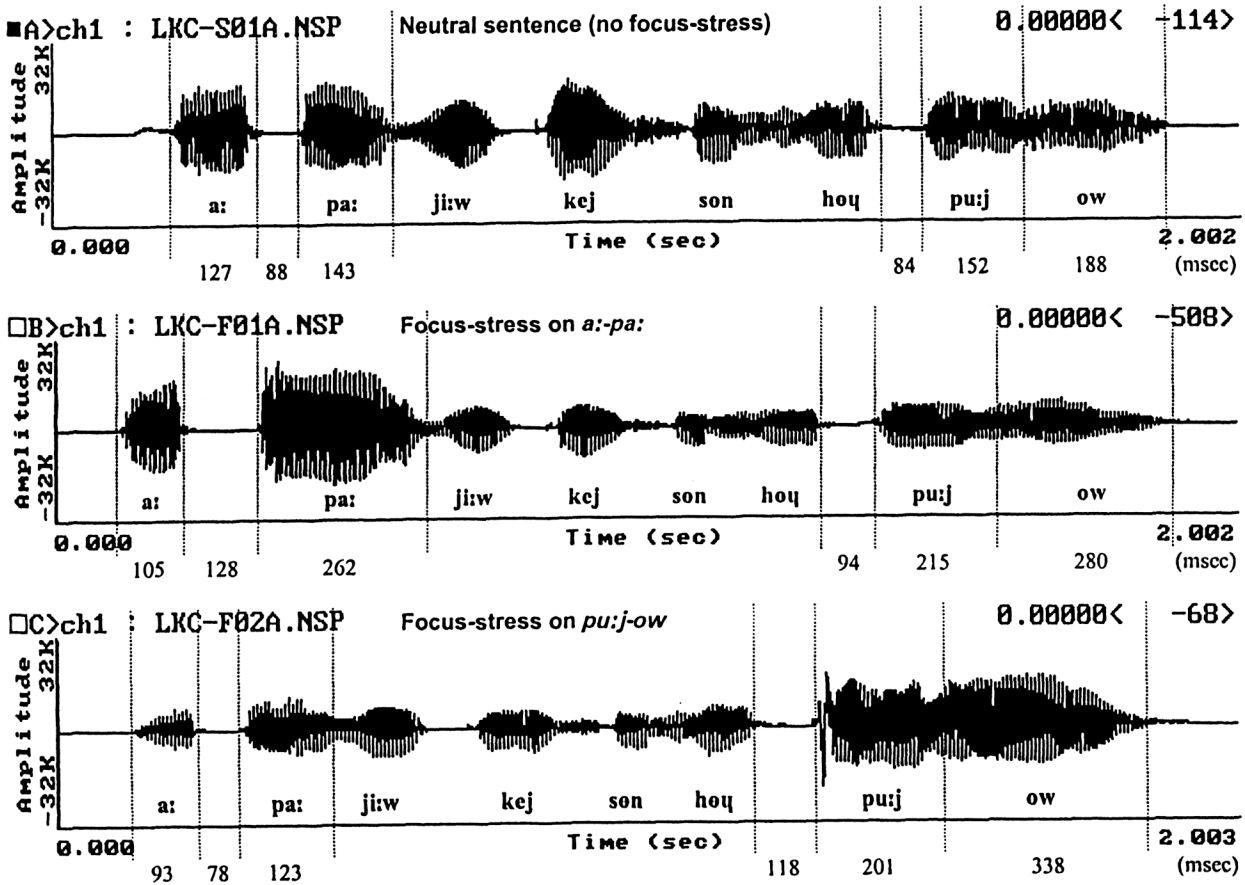
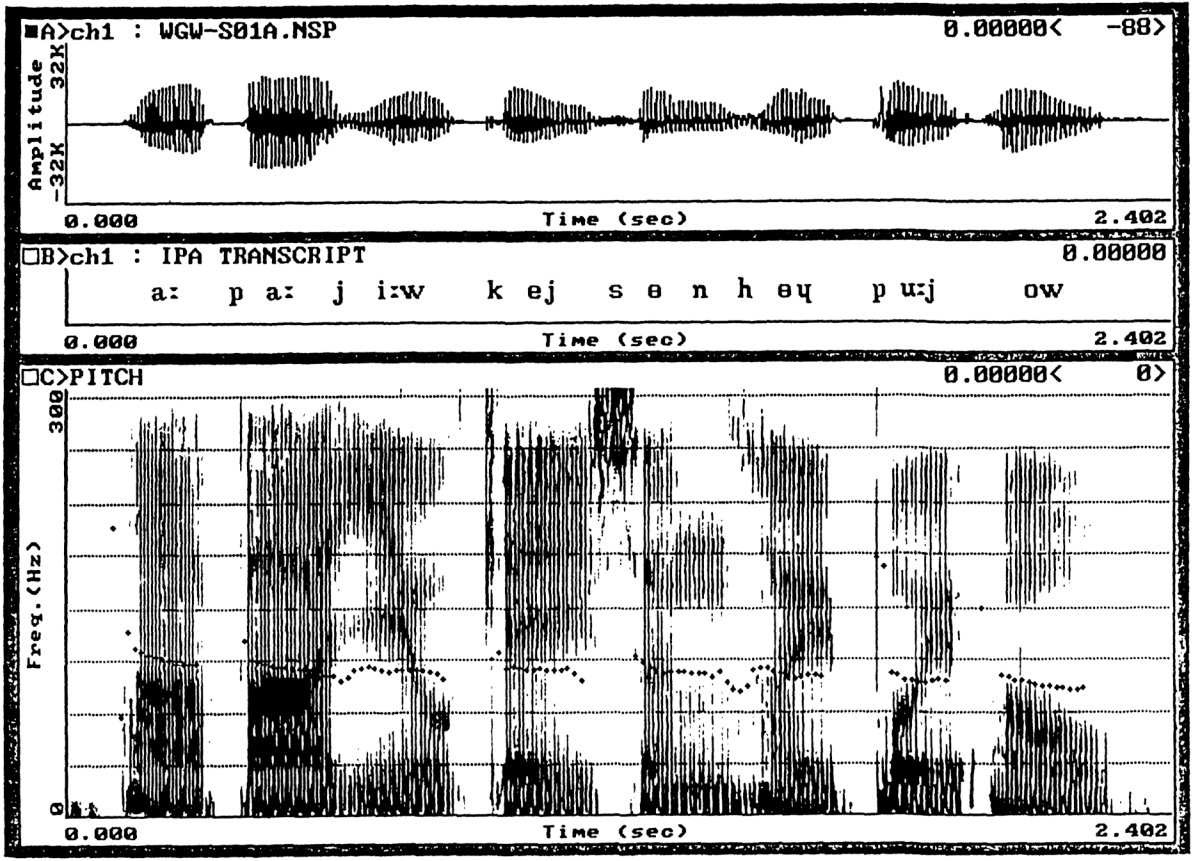


Figure 2. Comparison of durations of syllables in test sentence 阿霸要寄信去貝澳 *a:-pa: ji:w kej son hoɥ pu:j-ow* 'A-pa wants to send a letter to Puj-ow' without and with focus-stress for Subject LKC.



Realization of is clearly revealed in citation form of declarative utterance that comprises only Mid Level tones

Table 2. Comparison of F0, intensity, and duration for ***a:-pa:*** 'man's name' and ***pu:j-ow*** 'a place on Lantau Island' in three treatments of the same sentence 阿霸要寄信去貝澳 *a:-pa: ji:w kɐj sɐn hɐu pu:j-ow* 'A-pa wants to send a letter to Puj-ow'.

		a:			pa:			pu:j			ow		
		F0 (Hz)	*Intensity (dB)*	*Duration (ms)*	*F0 (Hz)*	*Intensity (dB)*	*Duration (ms)*	*F0 (Hz)*	*Intensity (dB)*	*Duration (ms)*	*F0 (Hz)*	*Intensity (dB)*	*Duration (ms)*
NEUTRAL FORM	LKC	156	72.71	119	150	74.10	147	145	72.41	154	138	68.66	183
	WKW	119	73.34	115	107	71.51	228	96	71.13	186	92	68.03	225
	WGW	113	68.49	130	105	70.81	174	96	70.56	158	94	65.84	270
	Mean	*129*	*71.51*	*121*	*121*	*72.14*	*183*	*112*	*71.37*	*166*	*108*	*67.51*	*226*
FOCUS-STRESS ON **a: pa:**	LKC	158	64.11	90	162	72.96	287	144	65.13	201	141	62.77	281
	WKW	157	65.08	88	151	70.76	332	132	63.87	159	120	61.96	335
	WGW	112	67.57	63	105	70.00	381	99	69.04	118	96	63.78	324
	Mean	*142*	*65.59*	*80*	*139*	*71.24*	*333*	*125*	*66.01*	*159*	*119*	*62.84*	*313*
FOCUS-STRESS ON **pu:j ow**	LKC	142	61.80	101	140	69.33	122	147	74.50	195	143	71.36	365
	WKW	137	63.72	66	138	70.78	117	144	73.86	239	130	72.14	411
	WGW	108	65.62	64	103	68.35	84	106	73.59	292	100	69.25	429
	Mean	*129*	*63.71*	*77*	*127*	*69.49*	*108*	*132*	*73.98*	*242*	*124*	*70.92*	*402*

Table 3. Comparison of changes in F0 for four morphosyllables in three treatments of test sentence by three subjects (* marks substantial increases in F0).

Morphosyllable:	Subject:	Treatment 1:	Treatment 2 and F0 difference between 1 & 2:	Treatment 3 and F0 difference between 1 & 3:
a:	LKC	156	158 2	142 -14
	WKW	119	157 *38	137 18
	WGW	113	112 -1	108 -5
	Mean	129	142 13	129 0
pa:	LKC	150	162 12	140 -10
	WKW	107	151 *44	138 *31
	WGW	105	105 0	103 -2
	Mean	121	139 18	127 6
pu:j	LKC	145	144 -1	147 2
	WKW	96	132 *36	144 *48
	WGW	96	99 3	106 10
	Mean	112	125 13	132 20
ow	LKC	138	141 3	143 5
	WKW	92	120 *28	130 *38
	WGW	94	96 2	100 6
	Mean	108	119 11	124 16

Table 4. Direct logistic regression analysis of F0, intensity, and duration variables.

Acoustic variables	B	Standard error	Wald	Degrees of freedom	P-value	Exp(B)
F0	0.046	0.024	3.747	1	0.053	1.047
Intensity	0.140	0.112	1.560	1	0.212	1.150
Duration	0.013	0.005	6.188	1	0.013	1.013
Constant	-18.941	8.490	4.977	1	0.026	0.000

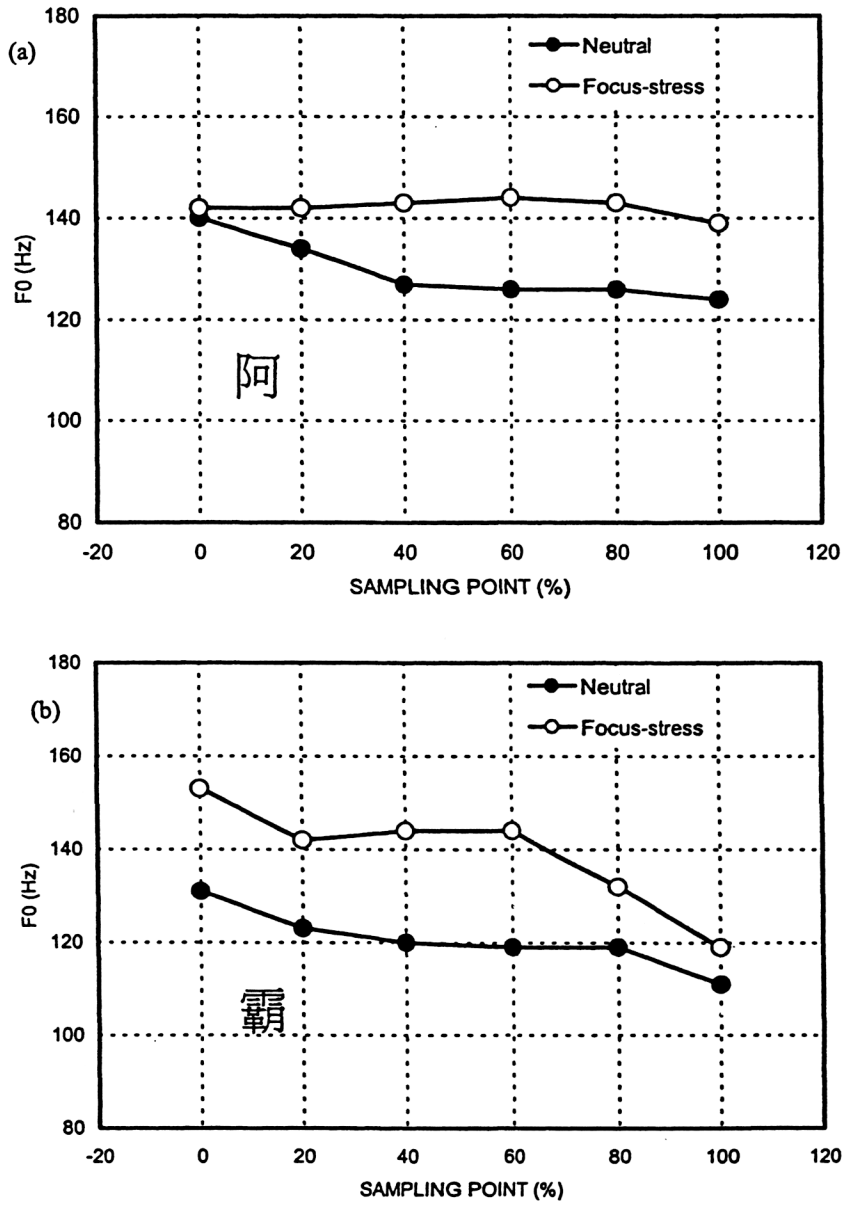


Figure 4. Comparison of mean F0 carried by syllables (a) *a* and (b) *pa* in *a-pa* 阿霸 '(man's name)' for three subjects LKC, WKW and WGW with and without focus-stress in sentence [阿霸]要寄信去貝澳 a:-pa: *ji:w kej sən həq pu:j ow* '*A-pa* wants to send a letter to Puj-ow'.

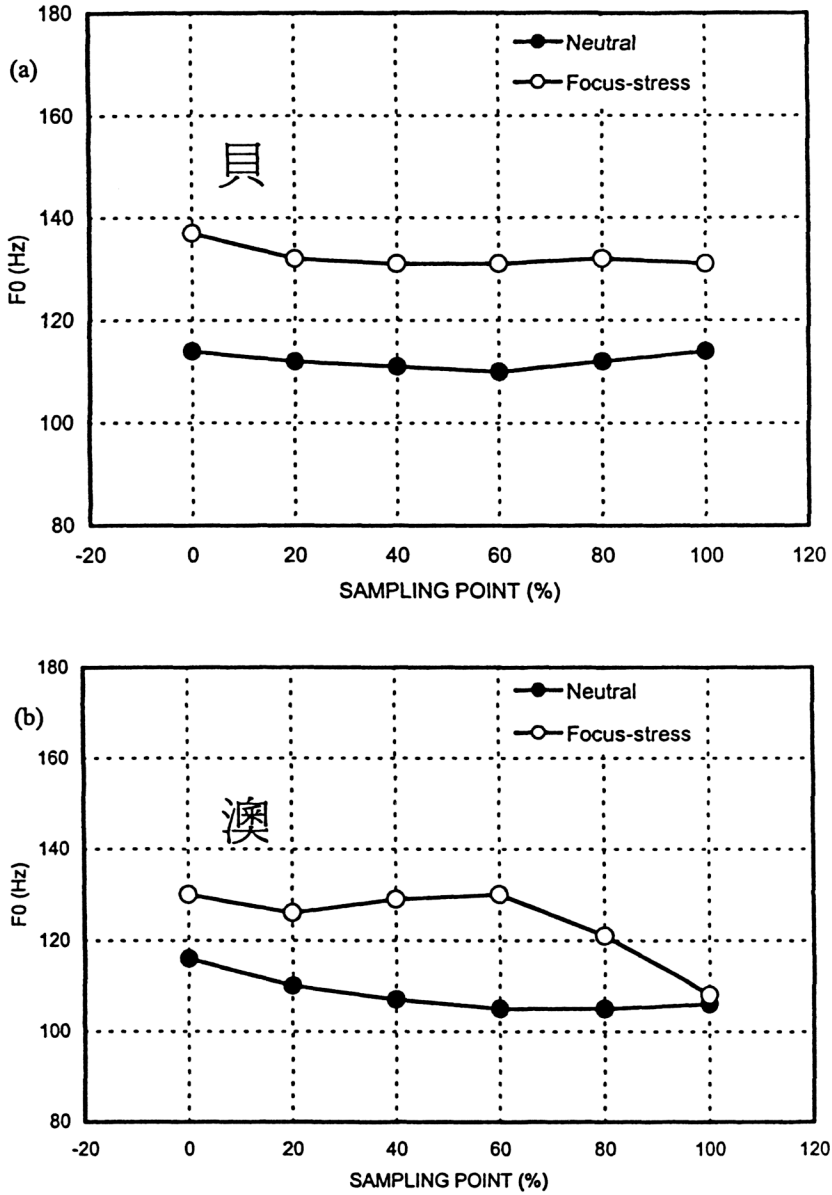


Figure 5. Comparison of mean F0 carried by syllables (a) ***puːj*** and (b) ***ow*** in ***puːj-ow*** 貝澳 'place name on Lantau Island' for three subjects LKC, WKW and WGW with and without focus-stress in sentence 阿霸要寄信去[貝澳] ***aː-paː jiːw kɐj sɐn hɐq*** **puːj ow** 'A-pa wants to send a letter to *Puj-ow*'.

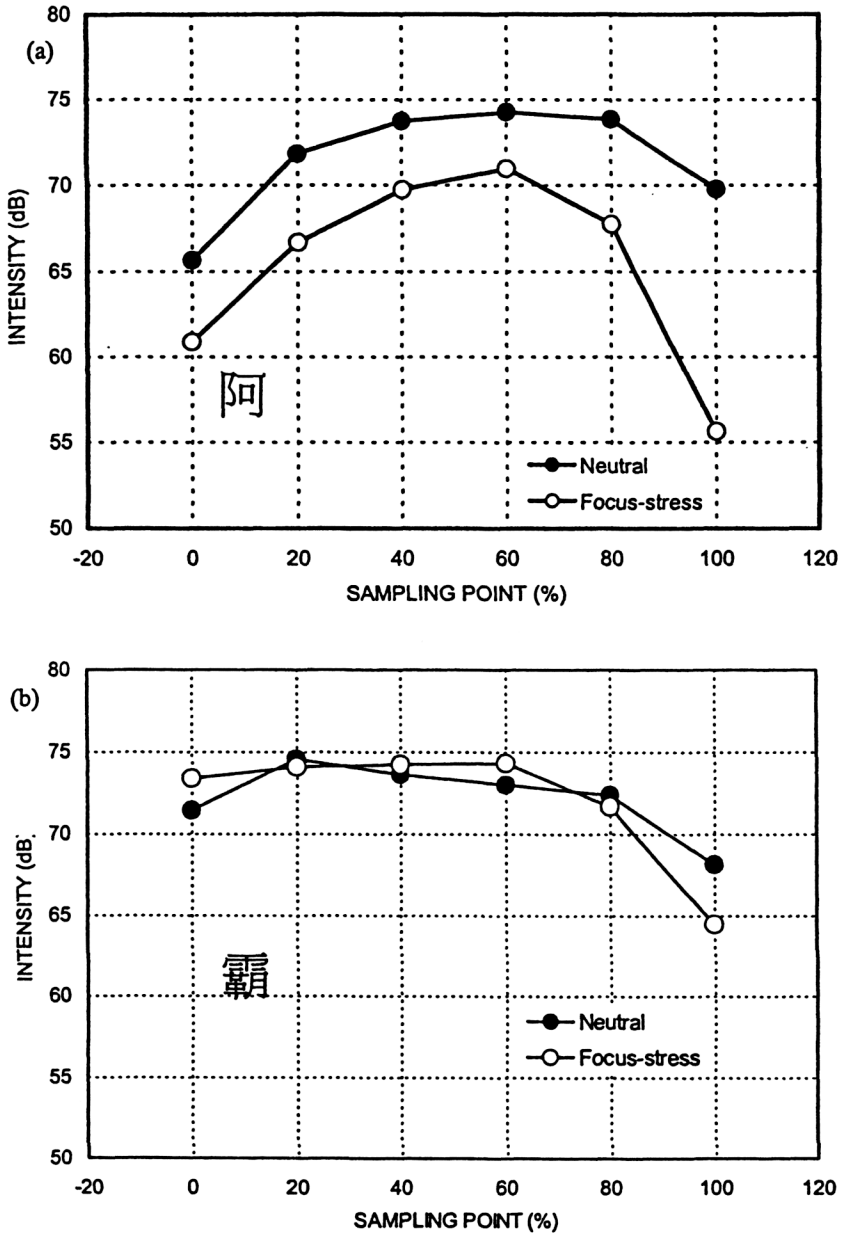


Figure 6. Comparison of mean intensities carried by syllables (a) *aː* and (b) *paː* in *aː-paː* 阿霸 '(man's name)' for three subjects LKC, WKW and WGW with and without focus-stress in sentence [阿霸]要寄信去貝澳 aː-paː *jiːw kej sɐn hɐq puːj-ow* '*A-pa* wants to send a letter to Puj-ow'.

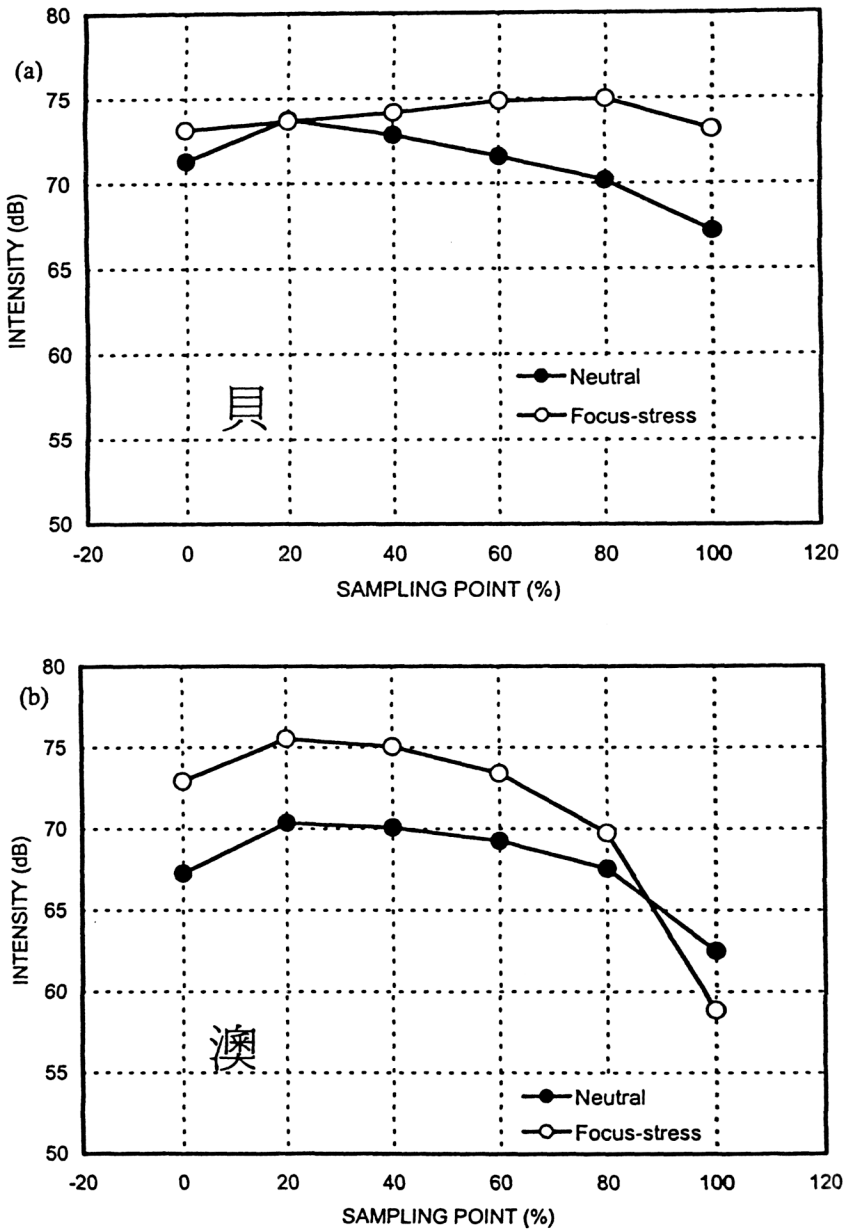


Figure 7. Comparison of mean intensities carried by syllables (a) ***puːj*** and (b) ***ow*** in ***puːj-ow*** 貝澳 'place name on Lantau Island' for three subjects LKC, WKW and WGW with and without focus-stress in sentence 阿霸要寄信去[貝澳] *aː-paː jiːw kɐj sɐn hɐq* puːj-ow 'A-pa wants to send a letter to *Puj-ow*'.

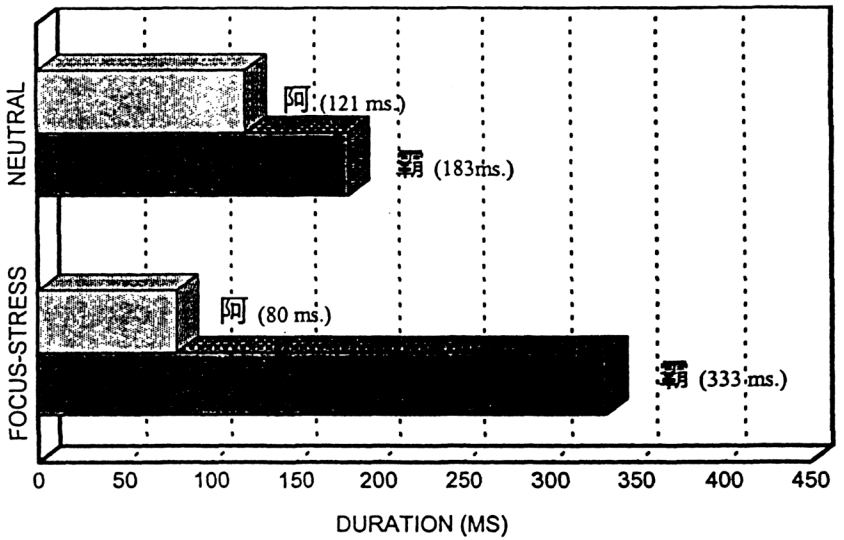


Figure 8. Comparison of durations in ms. (milliseconds) of *a:-pa:* 阿霸 'man's name' in sentences with and without focus-stress.

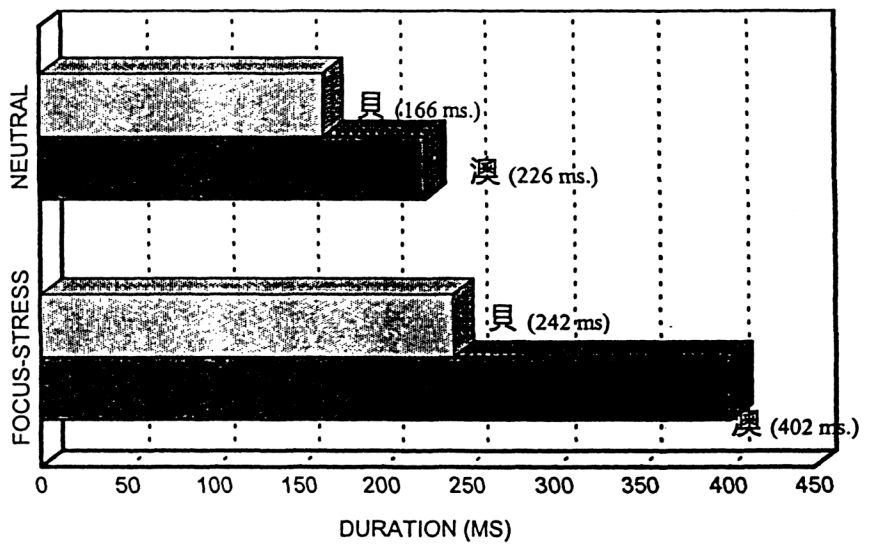


Figure 9. Comparison of durations in ms. (milliseconds) of *pu:j-ow* 貝澳 'place name on Lantau Island' in sentences with and without focus-stress.