

An acoustic study on the paralinguistic prosody in the politeness talk in Taiwan Mandarin

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Abstract

The relationship between the interlocutors is known, in Sociolinguistics and Pragmatics, to be influential on speakers' tone of voice. This study examined this phenomenon from acoustical aspects by measuring the duration and pitch of the dialogues made by pairs of talkers. Shorter word duration is found between strangers' dialogues and lower pitch register is found in female talkers' speech to males. The findings indicate that the prosody of talkers indeed varies with their familiarity with hearers and also with hearers' gender.

Introduction

Speakers' speech styles in conversations have been found, in order to be considered polite, to be adjusted to the relationship between the speaker and the hearer, and the influential factors are hearers' gender, the power relationship, and familiarity between the interlocutors (Brown & Levinson, 1987; Holmes, 2001). The present study, using familiarity and hearers' gender as factors (Ofuka, McKeown, Waterman, & Roach, 2000), aims to find out their effects on the duration and pitch of young females' speeches in Taiwan Mandarin.

Method

The current study used the Word Card Display game, which is a slightly varied version of the Shape Display Task (Fon, 2006). Modifications were made to obtain a better control for data elicitation.

Participants

16 female talkers participated in the study. Half of the talkers had partners of the same gender, and half had partners of different gender. Each of the talkers participated twice, once with their good friends, and once with strangers matched by the first author. In total, there were 12 dialogues collected, four of which were of the same gender, and eight of which were of different genders.

Equipment

In the Word Card Display Game, three kinds of equipment were needed: a display board with a 2 x 3 grid, twelve word cards, and a game pocket with the twelve word cards in it. Each word card contained a Chinese character. The characters were chosen so that they were all in Tone 4, which is a high-falling tone.

Two head-mounted microphones (SONY MRD 7520), and a recorder (BurnIt CDR830) were used for recording.

Stimuli

The 12 word card characters contained 6 pairs of homophones: *mi*⁴ ‘honey’ and ‘secret’, *la*⁴ ‘spicy’ and ‘cured food’, *qi*⁴ ‘container’ and ‘air’, *dian*⁴ ‘electricity’ and ‘shop’, *mao*⁴ ‘exuberant’ and ‘hat’, and *wu*⁴ ‘thing’ and ‘mist’.

Procedure

The main goal for the talkers and their participants was to complete the task by making the word card display on their display boards look exactly the same. Detailed procedure can be referred to Fon (2006).

Measurement

The concerned prosodic cues in the present study are duration and pitch. For duration, the lengths of the stimuli characters were measured. The stimuli characters would be spoken by the participants when they tell their partners what character on the word card they got. For example, when *mi*⁴ was picked, they would say it was *fong*¹*mi*⁴*de*⁰*mi*⁴ ‘the *mi*⁴ as in honey’, in which way the *mi*⁴ would not be mistaken as other homophones by the hearers. As shown in the example, the target character would appear in two positions in the phrases, one is at the beginning or middle position (presented as “W1” hence), and the other at the final position (presented as “W2” hence).

For pitch, the pitch ranges and registers of the phrases which contained the stimuli characters were measured. Therefore, the phrases which have the pattern as *fong*¹*mi*⁴*de*⁰*mi*⁴ were our targets. The phrasal pitch ranges were obtained by computing the range between the peak pitch in W1 and the valley pitch in W2, and the registers that were occupied by these pitch ranges were also analyzed by observation.

Results

Duration

Figure 1 shows the duration of W1 and W2. It appears that the durations of W2 are longer in dialogues between familiar speakers, and the effect of familiarity on W2 duration is significant in the 2-way ANOVA test ($F(1, 134) = 3.657, p < 0.05$). That the final lengthening (W2 duration – W1 duration) is longer in familiars' dialogues can also be observed ($F(1, 134) = 3.179, p = 0.077$). Though it fails to reach significance at present, it should be a worth observing trend in the future study. The result suggests that duration manipulation is made according to the different degrees of familiarity between interlocutors.

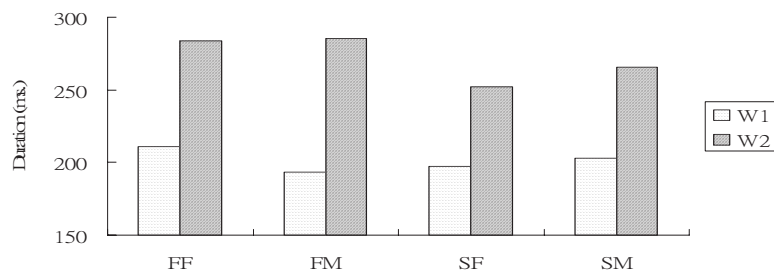


Figure 1. Word duration of W1 and W2. (FF = with a familiar female; FM = with a familiar male; SF = with a strange female; SM = with a strange male).

Phrasal pitch range and pitch register

The phrasal pitch ranges were obtained by computing the range between the W1 peak pitches and W2 valley pitches. Figure 2 shows that neither familiarity nor hearers' gender has effect on the pitch ranges. However, as can be seen in Figure 2, when speakers are talking to male hearers, both the W1 peak and W2 valley fall to a lower register than those used to female hearers. The statistic analysis shows that this effect of hearers' gender on pitch register is significant (2-way ANOVA, W1: $F(1, 134) = 17.080, p < 0.05$; W2: $F(1, 134) = 7.733, p < 0.05$), which suggests that the female talkers would accommodate their male hearers by lowering their own pitch registers.

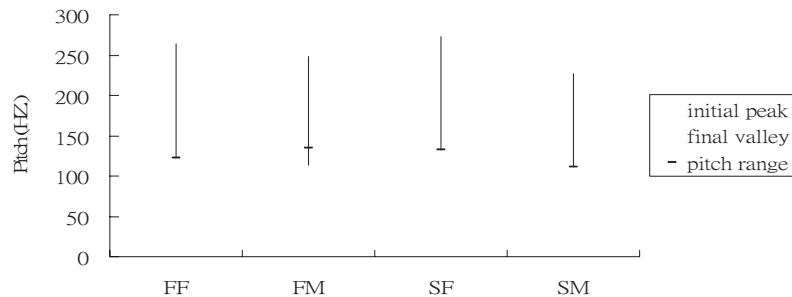


Figure 2. The average initial peak pitch and final valley pitch of the target phrases. The top-end and the bottom-end on each vertical line represent the initial peak and the final valley respectively. (Abbreviations have the same meanings as those in Fig 1.)

Conclusions

This paper presents a study on the effect of social relationship between the interlocutors on their speech prosody. The results show that, for young female speakers in Taiwan, when they talk to strangers, their phrasal final length is shorter, and when they talk to the opposite gender, which is male in this study, their pitch registers are lower. These findings suggest that (1) the phrasal final length is manipulated by female talkers according to their familiarity with hearers, and (2) the pitch register is adjusted to accommodate to the hearers' pitch registers. Therefore, the effect of social relationship between the interlocutors on their speech prosody is demonstrated.

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