

Prosodic Analysis of the Interactional Particle *Ne* in Japanese Gendered Speech

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1. Introduction

Gendered speech in contemporary standard Japanese has been well-researched (e.g., Ide 1982; Okamoto 1995a; McGloin 1990; Reynolds 1985; Shibamoto 1985). Studies of Japanese gendered speech reveal that women and men differ in their use of interactional particles, pronouns, lexical items, and discourse styles. However, the literature is sparser on the subject of the prosodic characteristics that differentiate masculine and feminine speech in Japanese, and the prosodic studies that exist mainly concern themselves with fundamental frequency (F0) rather than duration. Ohara (1992; 2001), Loveday (1986) and others have investigated women's use of high F0 and its social meanings. High F0 is generally associated with the expression of politeness, cuteness, and other positive feminine images (Loveday 1982, 1986; Ohara 1993, in press). Ide and Yoshida (1999), McGloin (1990), and Reynolds (1985) have also associated rising intonation and wide pitch range with feminine speech. On the other hand, little research has focused on possible differences in duration patterns in masculine and feminine speech. To

begin to address this gap in research, the current paper investigates both F0 and duration characteristics of the interactional particle *ne* in gendered speech. In Section 2 we briefly summarize previous research on the gendered use of *ne*. Section 3 describes the methods we used to collect and analyze speech data for this study. Results are discussed in Section 4, and Section 5 presents our conclusions.

2. Gender-Neutrality and the Interactional Particle *Ne*

Researchers have established that the interactional particle *ne* is one of the most frequently used in Japanese (e.g., Cook 1988, 1992; Maynard 1997; Sreetharan 2004). *Ne* has been described as ‘gender-neutral’ (e.g., McGloin 1990; Ide and Yoshida 1999; Okamoto 1995b), meaning that unlike gender-exclusive particles such as *kashira* (feminine) and *zo* (masculine), *ne* is available to speakers of both genders. According to Ide and Yoshida, *ne* is neither gender “exclusive” nor gender “preferred” (1999: 465). The assumption implicit in such a description is that *ne* functions in the same way for both genders. However, some recent studies have shown that men and women use *ne* in different discourse contexts (e.g., Okamoto 1995; Sreetharan 2004). Sreetharan (2004:86) finds that NP+*ne* is moderately feminine, while VP/ADJ+*ne* is neutral. Cook (in press) and Shibamoto (1985) also find correlations between the use of certain lexical categories and gendered style. Utterances involving a nominal consistently sound more feminine than those involving a verbal. Thus, an utterance like *Hon ne* ‘It is a book *ne*’ is more feminine than an utterance like *Iku ne* ‘I will go *ne*.’

In the same way that gendered speech styles use different lexical categories in combination with *ne*, gendered speech styles may assign distinct prosodic characteristics to *ne*. This possibility has yet to be explored, and as such forms the focus of the present study.

To gain a better understanding of possible gendered effects on the prosody of *ne*, we elicited stereotypically gendered speech from native speakers. Our particular focus here is language *ideology* rather than language *practice* per se. Cameron & Kulick (2003) discuss the importance of both in the study of language and gender, defining ideology as “representations of social types and their ways of speaking... which circulate in a given society” (135), and practice as “what we observe when we investigate the behavior of real people in real situations” (135). To understand how people construct and perform identity through language practice, it is important to first be familiar with the ideological resources available to them, in terms of culturally agreed-upon stereotypes. In this study, we use *ne* as a tool with which to elucidate stereotypes about how Japanese men and women use prosody.

3. Speakers, Speech Materials, Methodology and Data Analysis

3.1. Speakers

Ten female and ten male native speakers of Japanese from the Kantoo area (Tokyo, Saitama, Western Chiba, and Eastern Kanagawa prefectures) participated in this study. All are considered by other native speakers to be monodialectal speakers of standard Japanese.¹ Participants' ages ranged between 23 and 35 for the female group, and 23 and 40 for the male group.

3.2. Speech materials

Speech materials were developed so as to be 'gender-neutral'; that is, so that they could be uttered in either a masculine or a feminine speech style. *Ne* was placed in both channeling and backchanneling contexts. For the former, *ne* was situated in utterance-initial, -medial and -final positions. In the backchanneling context, *ne* occurs only in final position. Voiced segments were used as far as possible, to facilitate pitch tracking. Sentences one through four were presented to participants in written form.

(1) Sentence-Initial Channeling

Participant: *Ne, Burugari-wa nan-no burando?*
ne Bulgari-NOM what-GEN brand
'Say, what brand is Bulgari?'

(2) Sentence-Medial Channeling

Participant: *Yuube ara moana-no mae-de ne, Yamada-san ni atta yo.*
last night Ala Moana-GEN front-LOC *ne*, Yamada-san DAT meet-PST yo
'Last night, I met Yamada-san in front of Ala Moana.'

(3) Sentence-Final Channeling

Participant: *Gondoo-san rabo-de yoku miru ne.*
Gondoo-san lab-LOC often see *ne*
'Gondoo-san is often seen in the lab.'

(4) Sentence-Final Backchanneling

Experimenter: *Mite, kono e sugoku riaru janai?*
look this picture very real COP NEG
'Look, doesn't this picture look real?'
Participant: *Un, honmono mitai da ne.*
yes real thing as if COP *ne*
'Yeah, that looks real.'

¹ In the rest of this paper, the term "Japanese" will refer to standard Japanese, or Kantoo dialect.

3.3. Methodology

Each participant was recorded in a separate session. Participants were instructed to read utterances in two conditions: 1) in an explicitly masculine style, as though auditioning for a masculine role in a theater production; 2) in an explicitly feminine style, as though auditioning for a feminine role in a theater production. Subjects practiced alone, and when comfortable, were recorded by the second author, in a sound-treated booth or quiet classroom. The order of sentences did not vary among subjects, nor did the order of speech styles. To control for possible effects of differences in intonational phrasing, speakers were rerecorded if they did not place an intonational phrase boundary (including pause) after *ne*, in each sentence.

3.4. Data Analysis

PitchWorks was used to digitize data at 11.025 kHz. For each sentence, a time-aligned waveform, pitch track and spectrogram were displayed. Duration, F0 maximum, and F0 minimum were measured for *ne* and for the sentence as a whole.

Figure 1 depicts speaker M1's utterance of sentence four, performed in a feminine style. Vertical arrows show the beginning and end of *ne*, as determined from the displays and the sound file. Figure 2 shows speaker M1's utterance of the same sentence, performed in a masculine style. Horizontal arrows show F0 minimum and maximum in *ne*.

3.5. Statistical Analysis

We submitted the data to two-factor, repeated-measures analysis of variance (ANOVA). Because inherent differences in F0 are expected between women and men, women were analyzed in one group, and men in another.

Two independent variables were investigated: *Gender Style* (role-played masculine style versus role-played feminine style), and *Sentential Position* (initial channeled, medial channeled, final channeled, and final backchanneled). Though interesting, sentential position is not the main focus here, and will be discussed in a future study.

Five dependent variables were analyzed: 1) duration of *ne* in milliseconds; 2) duration of *ne* as a proportion of overall sentence duration; 3) F0 range of *ne*, 4) F0 maximum of *ne*, and 5) F0 minimum of *ne*.

Figure 1: M1's feminine performance of sentence four, *Un, honmono mitai da ne.* (Arrows refer to duration endpoints of *ne.*)

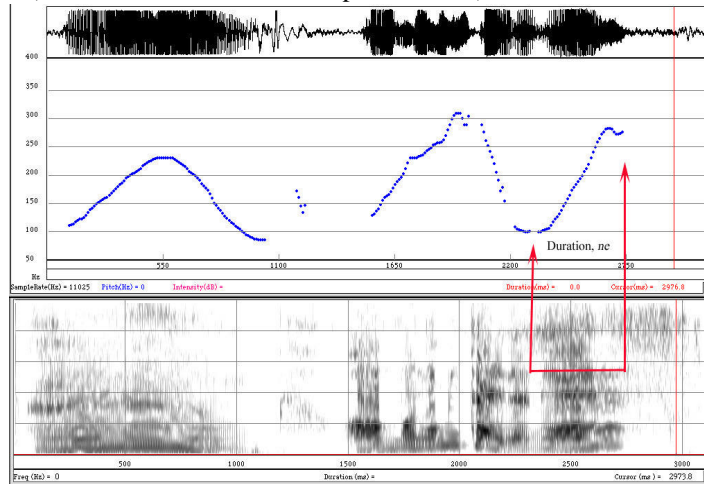
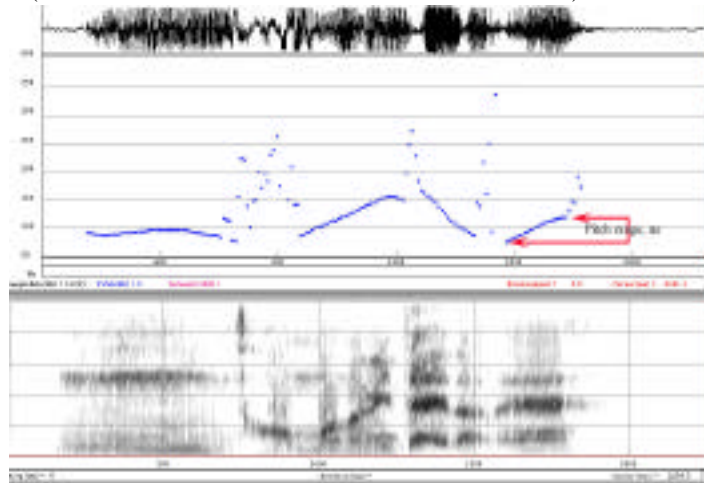


Figure 2: M1's masculine performance of sentence four, *Un, honmono mitai da ne.* (Arrows refer to F0 minimum and maximum in *ne.*)



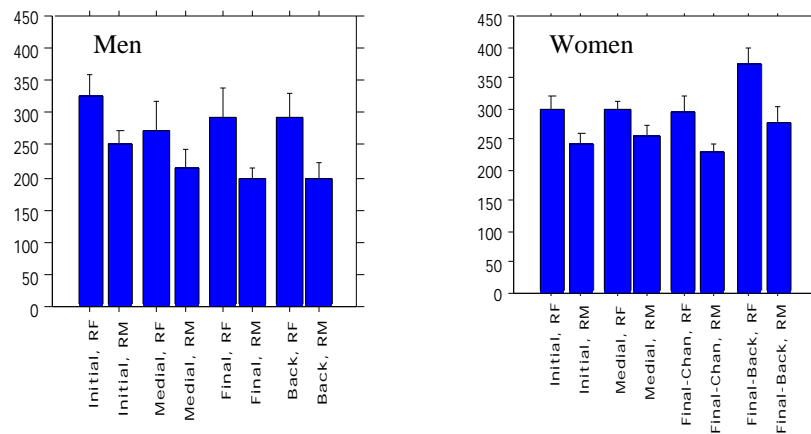
Though twenty speakers were recorded, data summarized here represent nine females and seven males. Two males declined to perform the feminine style; thus, the full data set was not available for them. Moreover, for one other male and one female, recording levels were often too low in amplitude at critical regions to permit reliable measurement of duration and/or F0.

4. Results and Discussion

4.1. Absolute and Relative Duration of *Ne*

Figure 3 shows results for mean duration of *ne*, in milliseconds. In this and the following summary figures, men's results are shown in the left-hand graph, while women's results are shown in the right-hand graph. In each graph, sentential position is arranged on the x-axis; the left-most pair of bars refers to sentence-initial position, the second pair to medial position, the third pair to final channeling position, and the fourth pair to final backchanneling position. Finally, for each sentential position, the bar on the left refers to the feminine style, while the bar on the right refers to the masculine style. Error bars reflect one standard deviation.

Figure 3: Absolute duration of *ne*, in milliseconds.



ANOVA showed a statistically significant main effect of *Gender Style* on the duration of *ne*, for both the male group ($F(1,6)=7.366$; $p=.0439$) and the female group ($F(1,8)=20.452$; $p=.0019$). In each paired comparison, *ne* in the feminine style was of greater duration than *ne* in the masculine style.

For the women's group, there was also a significant main effect of *Sentential Position* on the duration of *ne* ($F(3,24)=3.505$; $p=.0307$). In the final backchanneling position, women made *ne* particularly long when performing the feminine style.

There was no significant interaction effect of *Sentential Position* by *Gender Style*, for either group.

Figure 4: Duration of *ne*, as a proportion of sentence duration, in percent.

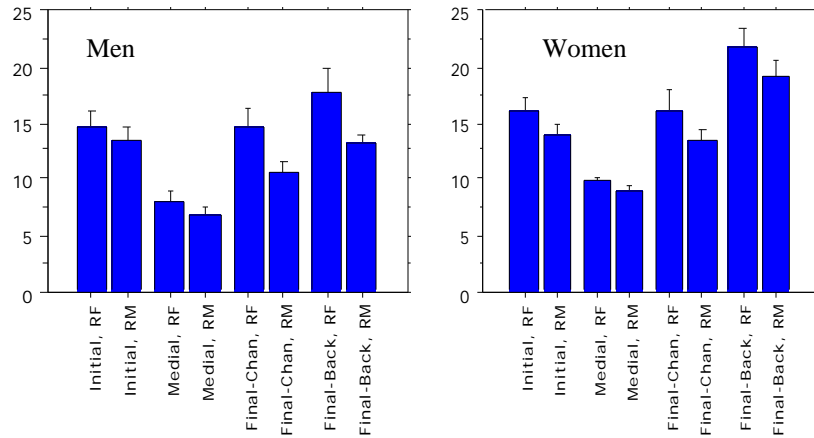


Figure 4 gives results for the relative proportion of *ne* as a percentage of the duration of the sentence. This measure was used in order to remove possible effects of differences in speech rate between or within speakers. ANOVA found a statistically significant main effect of *Gender Style* on proportion of *ne*, for both groups. (Men: $F(1,6)=8.340$; $p=.0278$. Women: $F(1,8)=8.391$; $p=.0200$.) For each RF vs. RM (role-played feminine vs. role-played masculine) pair, *ne* in the feminine style accounted for a greater proportion of the sentence than did *ne* in the masculine style.

There was also a statistically significant main effect of *Sentential Position* on proportion of *ne*, for both groups. (Men: $F(3,18)=22.725$; $p<.0001$. Women: $F(3,24)=33.128$; $p<.0001$.) In the male group, medial *ne* was shorter in duration than *ne* in other sentential positions. In the female group, medial *ne* was likewise shorter than elsewhere, and additionally, in final backchanneling position, *ne* was longer than elsewhere.

No significant interaction effect was found between *Sentential Position* and *Gender Style* on this measure, for either group.

4.2. F0 in *Ne*

Mean F0 ranges for *ne* as performed in feminine versus masculine styles are shown in Figure 5. We found a significant main effect of *Gender Style* on F0 range of *ne*, for both groups. (Men: $F(1, 6)= 6.798$; $p=.0403$. Women: $F(1,8)=7.155$; $p=.0282$.) For each RF vs. RM pair, the F0 range of *ne* was larger in the feminine style than in the masculine style. No significant main

effect of *Sentential Position*, or interaction effect of *Sentential Position* by *Gender Style*, were found for this measure.

Figure 5: Mean F0 ranges of *ne*.

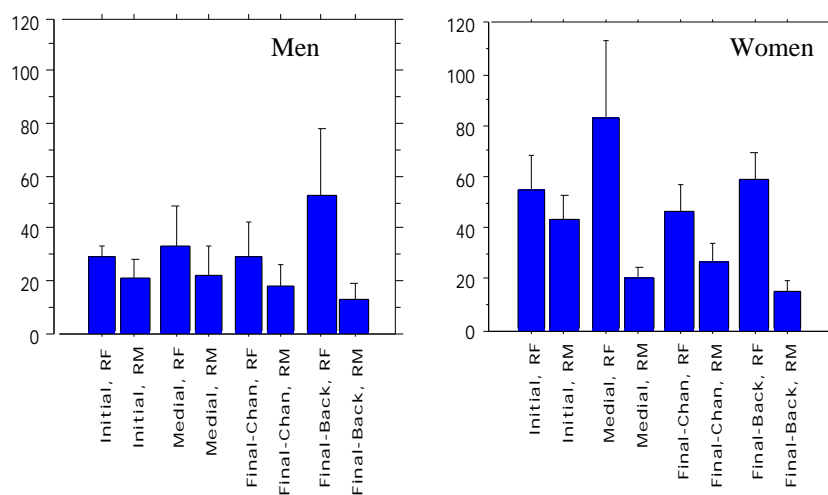


Figure 6 provides means and error bars for the dependent variable F0 maximum in *ne*. ANOVA found a statistically significant main effect of *Gender Style* on F0 maximum, for both men and women. (Men: $F(1, 5)=24.633$; $p=.0042$. Women: $F(1,8)=12.264$; $p=.0081$.) For each RF vs. RM pair, *ne* in the feminine style had a higher F0 maximum than did *ne* in the masculine style.

There was no main effect of *Sentential Position* on F0 maximum, for either group. However, there was a significant interaction effect, for the male group only, between *Sentential Position* and *Gender Style* ($F(3,15)=3.539$; $p=.0406$). For men, *ne* in the feminine style has a particularly high F0 maximum in the final backchanneling position.

Figure 6: Mean F0 maxima of *ne*.

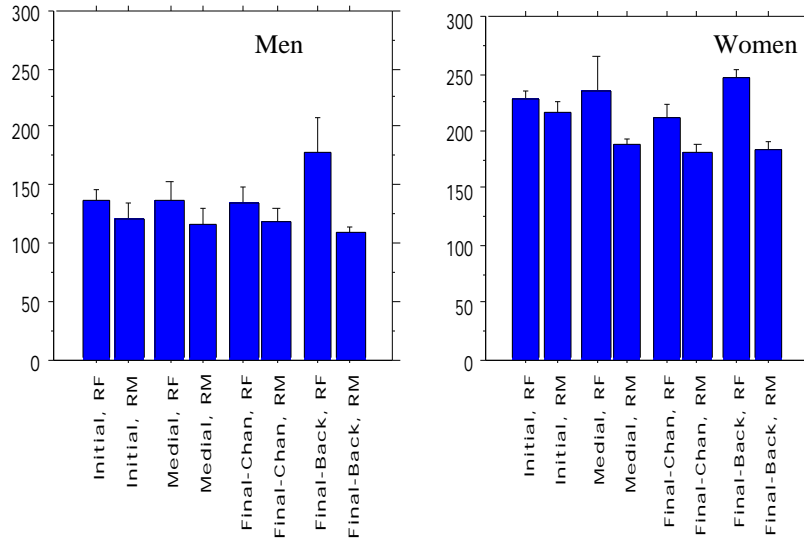
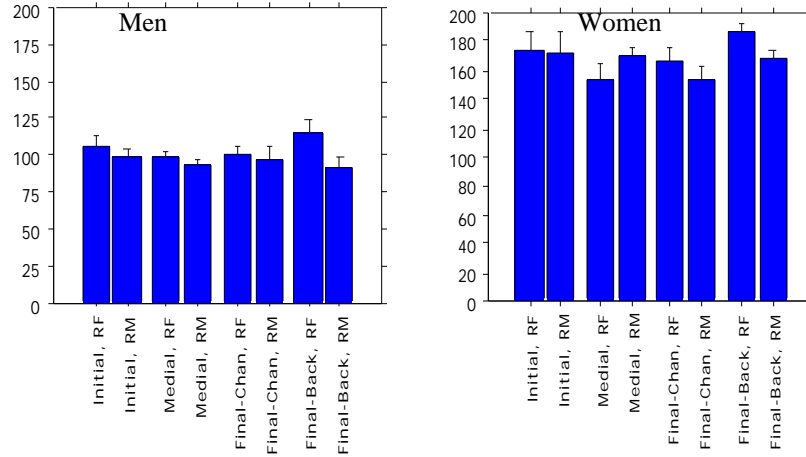


Figure 7 summarizes means and standard error for the dependent measure F0 minima in *ne*. ANOVA showed a statistically significant main effect of *Gender Style* on F0 minimum, but unlike any of the foregoing results, this was true of the male group only ($F(1, 5)= 18.356$; $p=.0078$). For male speakers, *ne* in the masculine style was implemented with a lower F0 minimum than in the feminine style. There was also a significant interaction effect of *Sentential Position* by *Gender Style* for men ($F(3,15)=8.302$; $p=.0017$): in the final backchanneling position, men showed a greater difference between RF and RM styles than in other positions.

Women did not use a systematic difference in minimum F0 to differentiate gender styles ($F(1,8)=.212$; $p=.6575$).

Figure 7: Mean F0 minima of *ne*.



4.3. Discussion

Loveday (1986), and Ohara (1992, 2000) investigated differences in Japanese men’s and women’s language *practice*, focusing on F0 range over sentence spans. They found that F0 plays an important role in gender differentiation. Our results extend these findings to language *ideology*—native speakers’ beliefs about stereotypical masculine and feminine speech. In this study we observe consistent differences between gender styles in the F0 characteristics of *ne*. We find that in the role-played feminine style, *ne* always has a higher F0 register and larger F0 range than in the masculine style. Women implement the F0 range difference by setting higher F0 ceilings in the feminine style, and lower ceilings in the masculine style, but do not use differences in the F0 floor to differentiate between the styles. Men use differences in both F0 ceiling and floor to indicate gender style differences; their implementation of the feminine style consistently has both higher F0 ceilings and higher F0 floors than the masculine style.

In addition, our findings show that gender stereotypes are also expressed via durational patterns. In these results, *ne* in the role-played feminine style always occupies a larger proportion of the utterance’s duration than *ne* in the role-played masculine style. The pragmatic role of *ne* as an emphatic marker may underlie this difference in gender styles. Increased duration and F0 range often correlate with increased emphasis. In turn, increased emphasis is commonly thought to index femininity in Japanese.

5. Conclusion

In this study, prosodic features of stereotypical Japanese feminine and masculine speech styles were examined, by focusing on the F0 and duration characteristics of the interactional particle *ne*. *Ne* is used in both feminine and masculine speech, and has been called ‘gender-neutral’ for this reason. However, *ne* is not gender-neutral in terms of its prosody; it exhibits significantly different F0 and duration attributes as a function of gender style. Native speakers of Japanese raise their F0 register, and expand both the F0 range and the duration of *ne* in the feminine style. Speakers correspondingly contract the F0 range and duration of *ne* in the masculine style. These findings corroborate claims made in the existing literature regarding the F0 characteristics of Japanese women’s language. In addition, these results empirically demonstrate that the relative duration of this interactional particle is also recruited as a linguistic resource in the performance of gender in Japanese.

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