

# Utterance final position and projection of femininity in Japanese

*Mie Hiramoto*

## Abstract

*Japanese female speakers' frequent use of suprasegmental features such as higher pitch, longer duration, rising intonation and wider pitch ranges compared to male speakers, are often recognized as key prosodic cues of Japanese women's language (JWL). Although many existing studies on JWL focus on the use of gender-related pragmatic features such as sentence final particles (SFP), most of these do not take detailed prosodic information into account in their analysis. This study suggests that speakers can manipulate utterance-final prosody, to project femininity and that it is an especially effective technique given the salience of the utterance-final position when marking pragmatic information in Japanese. The data indicates that this position is a focal point of JWL prosody regardless of the gender neutrality of SFPs, or even the absence of SFPs altogether.*

KEYWORDS: JAPANESE WOMEN'S LANGUAGE; LANGUAGE IDEOLOGY; SOCIOPHONETICS; PROSODY

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## Affiliation

National University of Singapore.  
email: ellmh@nus.edu.sg

## Introduction

Prosodic differences between male and female speech styles have been reported in a number of different languages (e.g., Loveday 1986; Ohara 1992, 1993, 1999; van Bezooijen 1995). Women's voice pitch is naturally higher than that of men for physiological reasons; however, it is questionable whether the large difference in pitch is categorically due to physiological differences.<sup>1</sup> Such differences are most commonly recognized by interactants through voice pitch or fundamental frequency (F0).<sup>2</sup> This article proposes to examine social stereotypes concerning Japanese women's language (JWL) and its idealized prosody by measuring overall pitch, duration, and final raising of pitch of sentence final syllables in explicitly stylized feminine or masculine speech. This study particularly focuses on prosodic values of sentence final syllables, including sentences that end with and without pragmatic particles and aims to relate this to a projection of gender in speech. The goal is to compare the prosodic differences of the specific syllables in utterance-final positions in order to investigate the use of JWL with or without pragmatic particles. Thus, the current study investigates linguistic ideologies associated with specific features of women's and men's prosody through analysis of data based on stereotypical JWL features related to the intonation of utterance-final positions (Inoue 2006; Okamoto and Shibamoto Smith 2004).

In her research on gender differences in prosody, Ohara (1999) reports that phoneticians who have studied European languages and American English seem to be in agreement that the average speaking pitch is about 220Hz for women and about 120Hz for men (Cooper and Sorensen 1981; Cruttenden 1986; Fitch and Holbrook 1970; Hollien and Jackson 1973; Nittrouer, McGowan, Milenkovic and Beehler 1990; Snidecor 1943), while for children it is about 265Hz (Cruttenden 1986, Fry 1979). According to Ohara (1999), one of the most traditional explanations for this difference in pitch is the difference in the male and female articulatory organs. For example, this point of view is stated in one of the earlier pieces of research on variations in voice pitch by Laver and Trudgill (1979):

A tall well-built man will tend to have a long vocal tract and large vocal folds. His voice quality will reflect the length of his vocal tract by having correspondingly low ranges of formant frequencies, and his voice dynamic features will indicate the dimensions and mass of vocal cords by a corresponding low range of fundamental frequency. (Laver and Trudgill 1979:7–8)

This position also claims to explain female voice quality. Females generally have smaller speech organs than males; thus, females tend to produce a higher pitch due to their shorter vocal tract and shorter, thinner vocal folds. It has been reported that in the anterior-posterior dimension, the male adult larynx

is approximately 50 percent larger than the female adult larynx (Kahane 1978; Negus 1949; Ohala 1984), giving the male longer vocal folds and therefore a lower pitch than the female (Ohala 1984:11). Ohala (1984:12) adds that the male larynx sits lower in the throat than the female larynx, making the male vocal tract approximately 15 to 20 percent longer, and causing the male voice to have lower resonances. However, Ohala (1984:11) notes something regarding the male and female pitch difference beyond the scope of anatomical explanations that is very relevant to the current study.

There is some evidence, however, that the difference in male and female formants is greater than what could be explained solely by anatomical differences and that some of the observed differences may be learned [Fant, 1975; Sachs, 1975; Kahn, 1975]. This suggests that speakers are aware of the sex-determined differences in speech and that they may choose to emphasize their masculinity or femininity by producing speech which exaggerates these differences (Ohala 1984:11).

As Ohala (1984) states, scholars studying pitch variation in relation to gender have pointed out that physical and emotional state, age, and the structure of the language under investigation are also possible causes of differences in fundamental frequencies, in addition to the anatomical reasons mentioned above. Although early studies of gender-specific prosodic differences concentrated on Indo-European languages, after Lakoff's (1975) groundbreaking work on language and gender, scholars have begun taking different approaches in order to explain gendered speech in different languages. Since then, Japanese has become a stereotypical example of a language with strong gender distinctions, due to the stark contrast between male and female linguistic forms and features such as pragmatic particles,<sup>3</sup> personal pronouns, and prosody which have garnered much attention in the field of language and gender. In the study of JWL, these are the features that have traditionally drawn the attention of researchers, and I will consider these features to be the main focus of traditional linguistic analysis of Japanese gendered speech styles. By challenging some of the preconceptions about the understanding of gendered pragmatic particles, this study attempts to add evidence concerning the use of the stereotypical features of utterance-final prosody associated with Japanese gendered speech. While many researchers focus on data based on naturally occurring speech (language practice), this study focuses on scripted speech (idealized language).

### Gendered speech in Japanese

It is well known that the Japanese language has strong gender distinctions, and there have been a number of studies conducted by scholars on JWL since the early 1980s. Ideologically, use of JWL evokes an image of the urban, sophisti-

cated, educated, and non-working class woman. Traditional linguistic analysis of JWL is conventionally based on Standard Japanese.<sup>4</sup> These studies have attempted to identify linguistic features frequently used by Japanese women; e.g., sentence final particles (SPFs), personal pronouns (especially forms such as *atashi* and *anata* that translate as 'I' and 'you' in English), word usage, as well as extremely high-pitched voice (e.g., Ide 1982; McGloin 1990; Ohara 1997; Okamoto 1995; Reynolds 1985; Shibamoto 1985). Shibamoto (1987a:30) reports that many of the phonological and lexical characteristics of JWL have been interpreted as 'conservative, soft, emotional, polite, and pure' according to traditional commentators on the Japanese language (e.g., *Gengo Seikatsu* 1957, 1973; Jordan 1974; Kindaichi 1957; Mashimo 1969). Common use of these features by Japanese women has led some researchers to claim that these linguistic markers are the exclusive property of Japanese women. A high-pitched voice, for instance, has been claimed as one of the most exclusively female expressions in the Japanese language (Endo 1995:37).

From the point of view of linguistic ideology, JWL has traditionally been associated with middle-class educated women. This ideology implies that JWL is a 'womanly' language, and that speakers of JWL are ideal women. It needs to be pointed out that JWL is a cultural/ideological construct of 'how women should speak' rather than 'how real Japanese women speak'. Inoue (2003:315) rightly reports a dilemma in JWL between language ideology and language practice:

Who most commonly speaks the most authentic women's language? The answer is paradoxical: one 'hears' Japanese women's language not so much from living bodies of Japanese women, as from imaginary voices. These voices, attributed to various alterities, are metalinguistically represented through several intertextual practices such as reported speech and quotation. The most common sites of these reports and quotations of women's language are female characters in novel, movies, TV shows, drama scripts, animation, and computer games.

She also mentions that foreign characters in Japanese translation, e.g., Scarlett O'Hara from *Gone with the Wind*, speak the most 'authentic' JWL (Inoue 2003:316; also see Hiramoto 2009; Inoue 2006:7). The current study's interest is to investigate this projection of an ideological construct underpinning gendered speech styles in Japanese. This point is crucial for the theoretical and methodological implications of this study and will be discussed further in the section on language ideology and JWL below.

Some sociolinguistic studies have suggested a connection between gender pitch differences and cultural norms, especially in Japanese (e.g., Anderson, Hiramoto, and Wong 2007; Eda 2001; Ohara 1992, 1993, 1999). Of the existing works on JWL prosody, some are particularly relevant to the current discussion of how prosody is viewed in the ideological construction of gendered identities. One

example can be seen in Loveday (1986) who compared the use of pitch by male and female speakers of Japanese and British English. Japanese speakers uttered short sentences in both Japanese and English, and British English speakers uttered the same sentences in English only. When speaking English sentences, both sets of male and female speakers produced the same pitch ranges. In addition, Japanese males produced the same ranges when speaking Japanese sentences as when speaking in English. However, Japanese females used extremely high-pitched voices when producing Japanese sentences. Loveday (1986) concludes that the Japanese female use of a high-pitched voice is motivated by sociocultural causes. More recently, Ohara (1992: 1997) has shown further evidence of the use of high-pitched voice in JWL. In some of her studies, Ohara compared pitch levels of Japanese and American English speakers. She found that Japanese women consistently produced higher fundamental frequency levels when speaking in Japanese than when speaking in English, while Japanese men did not vary their pitch levels across languages (Ohara 1992, 1997, 1999). Similar to Loveday's (1986) findings, the results of Ohara's laboratory phonetics studies suggest that differences in pitch levels between Japanese males and females can be best explained by sociocultural factors (Ohara 1992, 1997, 1999). Through perception tests designed to judge Japanese natives' sociocultural impressions of people's voices, Ohara (1993, 1997) adds further evidence that Japanese speakers, both male and female, generally prefer the female use of a high-pitched voice over a low-pitched one. In Ohara's perception test (1997), woman's utterances that were acoustically manipulated to have higher pitch were perceived to have sociocultural values such as 'cuteness', 'softness', 'kindness', 'quietness', 'high class' or 'beauty', whereas the same recordings that were acoustically manipulated to play at a lower pitch were perceived to have values such as 'un-cuteness', 'coarseness', 'rudeness', 'loquaciousness', 'low class' or 'ugliness'. All in all, Ohara's research subjects shared common perceptions of the social meanings attached to high-pitched voices in Japanese women. In another cross-linguistic perception study of Japanese and Dutch speakers, van Bezooijen (1995) reports that Japanese speakers prefer the female use of a high-pitched voice whereas Dutch speakers prefer a comparatively low pitch. These studies support the notion that the use of JWL evokes specific ideological images of stereotypical femininity. My use of the term stereotypical features, when concerned with JWL prosody, refers to the preference prevalent among Standard Japanese speakers which associate a higher pitched voice with an idealized femininity.

In the light of previous research findings on high pitch in JWL, I believe it is fair to conclude that differences between male and female pitch in Japanese are motivated by cultural constraints rather than other factors, such as the size of speech organs. In Ohara's (2004:224) words, these constraints are 'centered on expectations about femininity in Japanese society; one way Japanese women are expected to exert a feminine persona is through the use of a high-pitched voice'.

## Gendered sentence final particles

As mentioned earlier, there are certain features that are strongly associated with male and female language in Japanese, especially the use of distinct SFPs<sup>5</sup> (sentence final particles), personal pronouns, lexical items, and pitch. Since the current study concerns the functions and pragmatics of SFPs and their locations in an intonational phrase, the social functions of SFPs will be first explained.

Bolinger and Sear (1981:110) explain discourse (or pragmatic) markers as ‘audible gestures’ that convey paralinguistic meanings; Japanese SFPs fall into this category of audible gestures. In her introductory textbook on Japanese linguistics, Tsujimura (2002) introduces SFPs as markers that express the speaker’s non-propositional modal attitude in casual conversation. Also known as discourse particles, interactional particles, phatic markers, or affective particles, SFPs facilitate the conveyance of the speaker’s various emotional states/attitudes in discourse. Japanese SFPs are also said to be potential stereotyping sites – in particular, gender stereotyping sites. Researchers studying JWL have traditionally separated gender-exclusive and gender-neutral particles (e.g., Ide and Yoshida 1999; McGloin 1990; Okamoto 1995; SturtzSreetharan 2004). According to this view, in today’s standard Japanese, particles like *wa* or *kashira* (feminine) and *ze* or *zo* (masculine) are gender-exclusive, while gender-neutral particles like *ne* or *yo* are available to speakers of both sexes.<sup>6</sup> Although *ne* and *yo* have conventionally been described as ‘gender-neutral’ (e.g., Ide 1982; McGloin 1990; Shibamoto 1985, 1987a), some recent studies have attempted to investigate the use of *ne* more micro-analytically (e.g., Okamoto 1995; SturtzSreetharan 2004) in order to fine-tune the current understanding of its particular use by men and women. For example, SturtzSreetharan (2004) suggests that *ne* alone is gender neutral but when combined with other forms as in ‘*da yo ne*’ or ‘verb/adjective + *no yo ne*’, *ne* carries gender implications such as moderately masculine or moderately feminine. The use of *ne*, also results in a noticeable gender neutralization or a diminution of the use of more strongly feminine particles (e.g., *kashira* and rising intonation *wa*) in casual speech. Women in younger generations use fewer feminine linguistic features in modern Japanese (e.g., Miyazaki 2004; Okamoto 1995; Reynolds 1985). Furthermore, Okamoto (1995) found that young university students hardly used the conventional SFPs associated with JWL in her data. Therefore, it is reasonable to consider that traditionally neutral particles, i.e., *ne*, may be becoming more popular than the traditionally strong feminine particles among the younger generation.

In a previous study, some colleagues and I examined the use of suprasegmental features in Japanese masculine and feminine speech styles (Anderson, Hiramoto, and Wong 2007). Focusing especially on prosodic differences in the use of *ne* by male and female Japanese speakers, we phonetically analyzed

different prosodic qualities of *ne* in the context of gender stereotyping. The findings showed that while it can be used in both masculine and feminine speech styles, *ne* is not used in a gender neutral way in terms of its prosody. That is, both male and female speakers used a high-pitched voice, wider pitch range, and longer duration when asked to speak in a feminine speech style. These findings regarding suprasegmental features used with *ne* conform to the claims made in the existing literature on the prosodic characteristics of JWL. Thus, although *ne* may be considered a gender-neutral particle in writing, it is often not gender neutral when used in spoken language; *ne* shows JWL's prosodic features when used in a feminine speech style.

### Utterance final position and gender

Okamoto (1995:301–302) classifies SFPs according to gender and states that ‘*wa* (with rising intonation) for mild emphasis or its variants (*wa ne*, *wa yo*, *wa yo ne*)’ are strongly feminine and ‘*ze* and *zo* for assertion’ are strongly masculine. While there are gender exclusive SFPs in Japanese, there are also SFPs that are in essence gender-neutral, such as *ne* or *yo*, which are very commonly used by both men and women. The following examples demonstrate different classifications of SFPs (data given in (a) and (b) are from Okamoto 1995:301–302).

- a. An example of gender-exclusive speech (masculine)

*Iku ze.*  
go **Strongly masculine SFP**  
‘I’m going, I tell you.’

- b. An example of gender-exclusive speech (feminine)

*Iku wa.*  
go **Female SFP**  
‘I’m going.’

- c. An example of gender-neutral style speech (neutral)

*Iku ne.*  
go **Neutral SFP**  
‘I’m going.’

All things being equal, the examples above indicate to the hearer a casual colloquial speech style. Japanese social expectations usually assign male gender to a speaker who utters (a) and female gender to a speaker who utters (b), due to social constraints regarding gender-exclusive particles. When uttered without any emphatic prosody, however, social norms do not dictate that (c) be exclusively male or female. In other words, a speaker who utters (c) in a plain manner can be either male or female without social constraints regarding gender-stereotyping.



An important point here is that a gender-neutral particle such as *ne* can be gendered by the use of prosody in Japanese. When uttered with suprasegmental features used in JWL (i.e., a high-pitched voice and longer duration) (c) can be a feminine form, as much as it can be a gender-neutral form when uttered without JWL's prosody. Although (a) and (b) can be gendered by manipulating prosody, the result is less likely to be socially acceptable than (c). For example, if a person (either male or female) utters (a) with JWL prosody in everyday conversation, the utterance will seem strange due to a mismatch between the SFP and JWL prosody. However, regardless of social acceptability issues, a locus of prosodic gender projection takes place in SFPs, or utterance final positions, for all three sentences. In their study on the relationship between sentence final pitch (or fundamental frequency) and politeness in Japanese, Ofuku, McKeown, Waterman, and Roach (2000:203) emphasize the pragmatic importance of sentence final intonation because it 'is clearly important for expressing the speaker's state, since particles signaling the speaker's attitudinal meanings are generally located at the end of a sentence'. Sentence final intonation is also important grammatically in that it 'is mainly realized by the final F0 movement, is related to the meanings/functions of an utterance and in some cases it plays a key role in defining the main function of the utterance (e.g., 'question' versus 'statement')' (Ofuku et al. 2000:204). Ishi (2005:481) also mentions this point:

The prosody of phrase finals in Japanese utterances carries both linguistic and paralinguistic information. For example, it carries grammatical information such as modality (declarative vs. interrogative), focus, punctuation of phrase boundaries, and continuity of the sentence. It also carries important paralinguistic information such as manner and attitude of the speaker.

Regarding prosodic gender differences in SFPs, previous studies have identified rising intonation on some SFPs as a prosodic characteristic of JWL. That is, the use of rising or falling intonation with these SFPs marks femininity and masculinity respectively. For example, SturtzSreetharan (2004:86) states that a rising intonation on the particle *wa* marks strong femininity. On the other hand, a falling intonation is said to mark gender neutrality or a regional dialect. According to Ide and Yoshida (1999:465), the same gender distinction is made through the use of intonation on another interactional particle, *na*. Kitagawa (1977:289) explains that rising intonation, which serves to soften a statement, is a crucial element in the performance of femininity in Japanese. Taking projection of gender and intonation phrase boundaries into consideration, perhaps it is not the SFP *per se* that triggers prosodic gender projections, but rather the sentence final position itself that functions as a locus of femininity projection in Japanese. In this research, the target of study was sentence-final



syllables, including sentences that end with and without SFPs (in sentences that were designed to be gender neutral in writing). The goal was to compare the prosodic differences of the selected syllables at utterance final positions in order to investigate the use of JWL with or without SFPs. Before going into a discussion of the current study, the question of language ideology and JWL deserves further explanation. As pointed out by McConnell-Ginet (1983) in her analysis of prosodic gender differences in English sentences, degree of duration can influence the pitch range; that is, physiologically, a longer duration can leave more room for F0 to vary.<sup>7</sup> As mentioned earlier, several previous studies have noted that rising intonation at utterance final position is a characteristic of JWL (SturtzSreetharan 2004; Ide and Yoshida 1999; Kitagawa 1977). In English, the use of tag questions, which typically end with rising intonation, has been pointed out as one of the prominent characteristics of stereotypical women's language (Lakoff 1975). Unfortunately, Lakoff's findings have been considered controversial due to their various limitations in relation to data, but her principles are very insightful (Coates and Cameron 1988). From an acoustic point of view, Ohala (1984) reports interesting cross-linguistic manipulation of high pitch. He finds that there are universal tendencies for high pitch to mark interrogatives and the expression of affection (Ohala 1984:2). These ideas are supported by Brazil (1997), who writes that tone choice (e.g., rising and falling intonation differences) functions socially/phatically to mark 'togetherness' or 'separateness'. The fact that the nature of interrogatives is uncertain to begin with makes the use of rising intonation, if it signals uncertainty, seem appropriate for this sentence type. However, a more general use of rising intonation may be the signaling of the ideology of femininity in the Japanese language.

### Language ideology and JWL

In order to gain a better understanding of the possible gendered effects on utterance final prosody, I elicited stereotypically masculine and feminine speech from native speakers of Standard Japanese via production tests conducted in a laboratory setting. In other words, the data used for this study are designed to elicit each speaker's ideology of how men and women should sound in Japanese sentences. Therefore, it is also important to remember that my particular focus here is language *ideology* rather than language *practice*. In their study of language and gender, Cameron and Kulick (2003) discuss the importance of both the ideology and practice of language use. According to them, language ideology is defined as 'the representations of social types and their ways of speaking and writing which circulate in a given society' whereas language practice is defined as 'what we observe when we investigate the behavior of real

people in real situations' (Cameron and Kulick 2003:135). In the case of JWL, Shibamoto (1987a) compares the use of linguistic features based on stereotyping, which overlap with the features focused on in this study, with comparable data gathered from naturalistic conversation and videotapes of *hōmu drama* or soap-opera type dramas from Japanese television. Shibamoto (1987a) finds statistically significant differences in the use of stereotypical features between the two types of data. The findings support the hypothesis that the TV dramas exploit the language ideology that, in their speech, men are expected to be 'more manly' and women 'more womanly' than they are or need be in real life (Shibamoto 1987a:40).

As pointed out by many researchers (e.g., Inoue 2006; Nakamura 2006; Okamoto 1995; Reynolds 1985), JWL is an ideological construct (or a culturally shared notion or folk-linguistic construct) in general society (e.g., Okamoto and Shibamoto Smith 2004). In other words, JWL is something that exists in people's minds regardless of real language practice. For example, Inoue (1994:322) points out a mismatch between ideology and practice regarding JWL, stating that 'both tremendous social and contextual diversity of language use' exist in real language practice. Inoue's point is that there is actually no empirically attested single set of speech patterns that are representative of all Japanese women. She further suggests that the idea of JWL may be misleading when trying to understand the linguistic diversity demonstrated by Japanese women, since JWL is merely one particular account of how they speak (see also Inoue 2006). This observation, which captures the distinction made by Cameron and Kulick between ideology and practice, becomes extremely relevant to the research methodology of this particular study, when we are dealing with laboratory-controlled data. In elicited speech, speakers may access ideological constructs differently than they do in natural speech.

Speech styles used by imaginary characters in *hōmu drama*, or characters like Scarlett O'Hara in the Japanese translation of *Gone with the Wind* (cf., Inoue 2003, 2006; Shibamoto 1987a) hardly represent realistic language use. In other words, such hyper-gendered, or *wazatorashii* 'over the top', JWL is not used by ordinary Japanese women in everyday communication. However, scripted speech, engendered with certain linguistic expectations, is familiar to speakers and is thus easily mapped onto different types of stereotypical and exaggerated speech styles, examples of which abound in TV programs or in the Japanese dubbing of foreign dialogue. Such speech styles do not represent real language used by Japanese women. Data collected based on participants' reading of scripted speech should reflect the underlying language ideology of gendered speech styles. For this reason, data collection for this study took place in a laboratory setting based on a scripted role-play.

## Participants data and methodology

### Participants

The analysis focuses on the intonation of utterance final positions in gender-neutral sentences. Thus, a production test based on scripted speech is appropriate for the purpose of the study. In addition, in order to measure differences in F<sub>0</sub>, target syllables as well as their environments needed to be voiced segments. Scripted speech controlled such technical issues.

A production test was conducted at a phonetics laboratory. Ten female and ten male native Japanese speakers from the Kantô area (Tôkyô, Saitama, Western Chiba, and Eastern Kanagawa prefectures) participated in the production test.<sup>8</sup> At the time of recording, all participants were students in Hawai'i but everyone's place of longest residence had been Kantô area. Participants' ages ranged from 23 to 35 years in the female group, and from 23 to 40 years in the male group. Out of the 20 participants, data could not be used from four subjects. Two of the male speakers refused to role-play the feminine style,<sup>9</sup> and the recording level was too low to allow acoustic data analysis for two other speakers (one male and one female). Therefore, the data analyzed in this study represents seven male and nine female speakers.

### Methodology

Some of the previous analysis on Japanese gendered speech styles is controlled for speakers' sociocultural factors, i.e., age, social position, region of origin, etc. (e.g., Okamoto 1995; SturtzSreetharan 2004). However, others did not analyze their subjects' (complex) individuality beyond gender, which might have influenced their data analysis. For example, scalar models to indicate masculine and feminine dichotomies presented in earlier SFP studies presume stereotypical usages of SFPs provided that they are employed in prototypical Standard Japanese conversations (e.g., Ide and Yoshida 1999; McGloin 1990). In order to account for any distinctive linguistic behavior of the speakers, their multilayered background needs to be acknowledged when studying Japanese gendered speech styles. In short, linguistic analysis of JWL should not only be centered on categories such as Japanese and female (see Shibamoto 1987b:257). The use of scripted speech with a focus on the ideological construction of gender specific features, such as the utterance final prosody, is an attempt to investigate the speakers' language ideologies.

Participants were instructed to read the scripts in three ways: (1) the way they would say the scripted sentences in everyday conversation; (2) in an explicitly masculine style, as though auditioning for a masculine role in a play; and (3)

in an explicitly feminine style, as though auditioning for a feminine role in a play.<sup>10</sup> Unlike common production tests in a laboratory setting, the order of the conditions were not randomized in this study, since participants, especially men, responded to this particular sequence more positively in a pilot study. Prior to recording, subjects practiced each way of speaking on their own, and when comfortable, the author joined them in a sound-proof booth or quiet classroom for recording. In order to control possible side effects of differences in intonational phrasing, participants were instructed to place an intonational phrase boundary after a comma in each script. An acoustic measurement program, PitchWorks, was used to digitize data at 11.025kHz. For each sentence, a time-aligned waveform, pitch track, and spectrogram were displayed for measurements of duration, F0 maximum, F0 minimum, and utterance final raising of the utterance final syllables. Recall that one of the stereotypical prosodic features of JWL is final raising; in this study, F0 raising at the end of sentences was recorded if there was more than a 50Hz rise.

## Data

Speech materials were developed in order to be gender-neutral in content. Sentences were scripted to represent casual situations and could be uttered in either a feminine or a masculine speech style. The SFP *ne* was placed in both channeling and backchanneling contexts.<sup>11</sup> Channeling signals the speaker's intention to initiate a phatic connection with a listener while backchanneling conveys a reciprocal message from the listener to the speaker that the phatic bonding is accepted. Since channeling and backchanneling are often considered to carry similar yet different pragmatic functions in Japanese, the SFPs for this study were separated in this manner. In other words, they function as pragmatic markers that assure a speaker of the hearer's engagement in conversation. Everything being equal, channeling is usually signaled from a speaker to a hearer to convey a pragmatic message such as 'I am talking to you,' while backchanneling is from a hearer to a speaker, indicating that 'I am listening to you.' In the channeling contexts, *ne* was placed in utterance-initial, -medial, and -final positions. In the backchanneling contexts, *ne* occurred only in utterance-final position. Some sentences included the ending form *dayo* (copula + SFP), which is generally considered to be more masculine than neutral. Regarding this specific form, Okamoto (1995:302) explains that 'the auxiliary verb *da* alone for declaration (or its variants *da ne*, *da yo*, or *da yo ne*)' is moderately masculine. To make sure the scripts were not perceived as gender-biased by participants, the author confirmed and was assured by the subjects that these sentences sounded neutral in an everyday context at the time of data collection. The relatively young ages of the subjects, or the casual register used by them, might have influenced the impression of *dayo* as neutral in this study. To facilitate pitch tracking, voiced segments

were used as much as possible in the scripts and sentences were randomly selected for phonetic measurements from among all the sentences; these sentences are shown as 1 through 10 below. All sentences are gender neutral.

1. *Ê, taihen da ne.*  
 EXC a big deal COP SFP  
 ‘Wow, that’s troublesome, isn’t it?’
2. *Âa, mottainai ne.*  
 IP wasteful SFP  
 ‘Oh, that’s a waste, isn’t it?’
3. *Yûbe-no êga, akademî-mono da ne.*  
 last night-GEN movie academy-worthy COP SFP  
 ‘The movie last night was worthy of an Academy award, wasn’t it?’
4. *Nê, bideo demo miru?*  
 SFP video how about watch  
 ‘Hey, should we watch a video?’
5. *Nê, burugari-wa nanno burando?*  
 SFP Bulgari-TOP what brand  
 ‘Hey, what brand is Bulgari?’ (Bulgari = Italian jewelry brand)
6. *Yûbe ara moana-no mae-de ne Yamada-san-ni atta yo.*  
 last night Ala Moana-GEN front-LOC IP Yamada-san-DAT see-past SFP  
 ‘Last night, I met Yamada in front of Ala Moana.’
7. *Yawara ja-nai yo Yawara-chan da yo.*  
 Yawara COP-NEG SFP Yawara-chan COP SFP  
 ‘It’s not Yawara, it’s Yawara-chan.’
8. *Â, sore nara yûbe yomiuri-de yonda yo.*  
 Ah it as for last night yomiuri-LOC read-past SFP  
 ‘Ah, I read it on Yomiuri last night.’
9. *Ê, mada naora-nai no, mô unzari-da yo.*  
 EXC still repair-NEG SFP already fed-up SFP  
 ‘Oh, no, it hasn’t been repaired yet? I’m so fed up with this.’
10. *Yumi nara gâbera yori bara-ga niau yo.*  
 Yumi as for gerbera daisy than rose-NOM suite SFP  
 ‘Roses suit Yumi better than Gerbera daisies.’

(SFP = sentence final particle, EXC = exclamation, TOP = topic marker, COP = copula, LOC = locative marker, NOM = nominative marker, GEN = genitive marker, DAT = dative marker, NEG = negation marker)

The two SFPs *ne* and *yo* in the sentences also have elongated forms, *nê* and *yô*. The elongated forms, especially in a casual context with a certain intonation, are stereotypically associated with younger females' speech. Likewise, the syllable endings without SFPs (*ru* in sentence 4 and *do* in sentence 5), sound like young female speakers' speech when elongated in a casual register with the same intonation.

The final segments in the ten sentences above were categorized into six different groups for acoustic analysis: (A) Sentence 1 and 2 (SFP *ne* with backchanneling function); (B) Sentence 3 (SFP *ne* with channeling function); (C) Sentence 4 (non-SFP *ru*); (D) Sentence 5 (non-SFP *do*); (E) Sentence 6, 7, and 8 (SFP *yo* with backchanneling function); and (F) Sentence 9 and 10 (SFP *yo* with channeling function). Backchanneling sentences were recorded, when I initiated a channeling sentence in a role play and participants responded with their scripts. All sentences with SFPs (Groups A, B, E, and F) are declaratives while sentences without SFPs (Groups C and D) are interrogatives. There is a non-traditional tendency among women and younger speakers to employ rising intonation at utterance final positions, which is known as *hangimon* 'half-interrogatives' (see Yonekawa 1997), which is pragmatically similar to uptalk popularized by Valley Girls in the US (e.g., Blyth Jr., Recktenwald, and Wang 1990). However, the canonical intonation of Standard Japanese for declarative sentences is falling and the data were recorded in SJ. Thus, utterance final raising is only expected in the interrogative sentences.

## Findings/results

In this section I present and analyze the data collected from the production test, in order to address the question of whether both male and female Japanese speakers have the same method of reinforcing the stereotypical features of JWL in the gender-neutral sentence in utterance final positions. Within the two groups, the comparative results from the measurements are presented across the three different speech styles: (1) natural (NS), (2) role-played masculine (RM), and (3) role-played feminine (RF). The findings and results will be presented in the order of F0 points and ranges, duration, and utterance final raising.

### F0<sup>12</sup> points and ranges

The findings from the highest F0 points show that the female group's highest F0 was much higher than the male group, supporting the evidence from the previous research discussed above. Table 1 shows the results of the F0 measurements (the highest and lowest points, and the range) at both sentence and particle

levels for the RM and RF speech styles. Throughout the paper, the abbreviations used in the tables are: UFS = utterance final segments; BC = backchanneling, Ch = channeling; Int = interrogative; Hi = highest; Lo = lowest, RM = role-played masculine, RF = role-played feminine. Also, groups in the tables represent: (A) Sentence 1 and 2 (SFP *ne* with backchanneling); (B) Sentence 3 (SFP *ne* with channeling); (C) Sentence 4 (non-SFP *ru*); (D) Sentence 5 (non-SFP *do*); (E) Sentence 6, 7, and 8 (SFP *yo* with backchanneling); and (F) Sentence 9 and 10 (SFP *yo* with channeling).

**Table 1: Averaged F0 measurements for the six sentence groups**

UFS	Measurement (Hz)	Males (n=7)		Females (n=9)	
		RM	RF	RM	RF
A <i>ne</i> (SFP, BC)	Hi F0	141	217	247	321
	Lo F0	109	174	191	235
	F0 Range	32	43	56	86
B <i>ne</i> (SFP, Ch)	Hi F0	161	190	243	267
	Lo F0	121	149	229	247
	F0 Range	40	41	13	20
C <i>ru</i> (Non-SFP, Int)	Hi F0	146	192	220	280
	Lo F0	104	105	169	176
	F0 Range	42	87	51	104
D <i>do</i> (Non-SFP, Int)	Hi F0	145	174	219	328
	Lo F0	96	91	160	169
	F0 Range	49	83	59	159
E <i>yo</i> (SFP, BC)	Hi F0	126	190	185	253
	Lo F0	101	110	153	166
	F0 Range	25	79	32	88
F <i>yo</i> (SFP, Ch)	Hi F0	116	173	180	204
	Lo F0	95	101	151	159
	F0 Range	21	72	29	45

For the purposes of this article, the level of statistical significance is set at  $p = 0.05$ . In the data, both male and female groups set a higher F0 ceiling in their RF style than in their RM style at the sentence final positions (for the male group,  $SD = 18.283$ ,  $p < 0.001$ ; for the female group,  $SD = 32.412$ ,  $p < 0.006$ ). Differences between the RM and RF styles within each group are statistically significant (as shown in Table 3 below).



For the lowest F0, both groups set a lower F0 ceiling in RM than in RF (for the male group,  $SD = 25.882$ ,  $p < 0.162$ : for the female group,  $SD = 32.102$ ,  $p < 0.009$ ). The differences between RM and RF, however, were only statistically significant in the female group. Nonetheless, when comparing differences between the RM and RF styles of the male and female groups, the difference between the highest F0 points is significantly larger than the difference between the lowest F0 points ( $0.001 < p < 0.009$ ). This suggests that the participants role played the feminine style with extremely high pitch while not controlling their low F0s so much.

The differences between the highest F0 in RM and RF styles in male and female speakers in terms of final segment categories are shown in Table 2.

**Table 2: Statistical significance of the F0 ranges between RM and RF styles for the six sentence groups**

Group	UFS	Males (n=7)		Females (n=9)	
		Diff. btwn RM & RF		Diff. btwn RM & RF	
		SD	<i>p</i>	SD	<i>p</i>
A	<b>ne</b> (SFP, BC)	111.712	0.207	79.428	0.000
B	<b>ne</b> (SFP, Ch)	121.588	0.186	31.588	0.003
C	<b>ru</b> (Non-SFP, Int)	59.619	0.020	55.869	0.020
D	<b>do</b> (Non-SFP, Int)	60.094	0.025	71.235	0.037
E	<b>yo</b> (SFP, BC)	76.224	0.002	112.775	0.012
F	<b>yo</b> (SFP, Ch)	77.247	0.014	68.817	0.003

Only the SFP channeling and backchanneling categories (A and B) do not show statistical significance between highest pitch use in RM and RF.

**Table 3: Highest F0 values for the six sentence groups**

Group	UFS	Males and Females (n = 16)	
		SD	<i>P</i>
A	<b>ne</b> (SFP, BC)	1.414	0.008
B	<b>ne</b> (SFP, Ch)	3.536	0.060
C	<b>ru</b> (Non- SFP, Int)	9.899	0.840
D	<b>do</b> (Non-SFP, Int)	56.590	0.334
E	<b>yo</b> (SFP, BC)	2.828	0.019
F	<b>yo</b> (SFP, Ch)	23.335	0.246

As for the ranges of F0 (as presented in Table 1), the results indicate that they are notably wider in RF than in RM in most cases. The readings show that both

male and female speakers had statistically significant differences in pitch range between RM and RF for the two non-SFP segments, as seen for C and D in Table 3. The results indicate that utterance final segments have a wider pitch range regardless of the existence of SFPs.

**Duration**

Another important aspect of my analysis concerns the duration of the utterance final segments in the data. McConnell-Ginet (1983) has shown that duration functions as a marker of femininity by comparing the short greeting phrase ‘hello’ in English spoken by male or female native English speakers. She reports that the duration of the word for the women in her study was generally longer than the men. Similarly, Nagahara (2000) also suggests that longer duration may be one of the features of JWL, a property which may certainly be true for utterance final segments in the data collected for this study. Table 4 illustrates the distributions of the average duration of the ten sentences recorded from the male and female groups in the three different styles. The utterance final segment duration is also presented as a percentage of overall sentence duration.

**Table 4: Mean duration for the six sentence groups at the utterance final segment**

	Utterance Final Segment	Duration (ms)	Males (n=7)		Females (n=9)	
			RM	RF	RM	RF
A	<i>ne</i> (SFP, BC)	Sentence	1411.77	1570.40	1165.24	1483.70
		Segment	161.53	219.24	235.77	360.92
		Ratio (%)	16.0	17.3	18.5	22.1
B	<i>ne</i> (SFP, Ch)	Sentence	2057.19	2097.74	1690.51	1889.77
		Segment	125.87	194.49	138.28	179.07
		Ratio (%)	6.2	8.9	7.4	8.6
C	<i>ru</i> (Non-SFP, Int)	Sentence	1307.60	1525.07	1032.29	1229.69
		Segment	156.11	227.34	169.99	218.65
		Ratio (%)	12.6	15.1	15.2	16.4
D	<i>do</i> (Non-SFP, Int)	Sentence	1936.20	2256.53	1476.02	1667.48
		Segment	135.11	202.30	149.94	203.39
		Ratio (%)	7.0	9.2	9.3	11.2
E	<i>yo</i> (SFP, BC)	Sentence	2765.52	3082.48	2123.76	2540.03
		Segment	135.83	270.99	132.13	249.81
		Ratio (%)	4.7	8.8	5.6	8.1
F	<i>yo</i> (SFP, Ch)	Sentence	2438.00	2641.91	2008.31	2206.45
		Segment	106.08	206.73	88.93	174.84
		Ratio (%)	4.6	7.9	4.2	7.4

**Table 5: Mean duration and corresponding T-test significance for RM and RF of the utterance final segments**

Sentence Part Speech Style			Males (n=7)			Females (n=9)			
			Duration	SD	<i>p</i>	Duration	SD	<i>p</i>	
A	Sentence # 1 & 2	RM	1411.8	220.21	0.105	1165.2	211.15	0.001	
		RF	1570.4			1483.7			
	Final Segment BC <i>ne</i>	RM	161.5	111.71	0.207	235.8	95.76	0.002	
		RF	219.2			360.9			
	Difference	Ratio (%)	RM	16.0	0.51	0.513	18.5	0.45	0.260
			RF	17.3			22.1		
B	Sentence # 3	RM	2057.2	308.77	0.740	1690.5	185.60	0.007	
		RF	2097.7			1889.7			
	Final Segment Ch <i>ne</i>	RM	125.9	121.58	0.186	138.3	31.58	0.003	
		RF	194.5			179.1			
	Difference	Ratio (%)	RM	6.2	0.04	0.160	7.4	0.19	0.070
			RF	8.9			8.6		
C	Sentence # 4	RM	1307.6	170.85	0.015	1032.3	267.62	0.039	
		RF	1525.1			1229.7			
	Final Segment Non-SFP <i>ru</i>	RM	156.1	59.61	0.020	170.0	55.86	0.020	
		RF	227.3			218.7			
	Difference	Ratio (%)	RM	12.6	0.03	0.127	15.2	0.04	0.367
			RF	15.1			16.4		
D	Sentence # 5	RM	1936.2	383.31	0.086	1476.0	190.18	0.505	
		RF	2256.5			1667.5			
	Final Segment Non-SFP <i>do</i>	RM	135.1	60.09	0.025	149.9	71.23	0.037	
		RF	202.3			203.4			
	Difference	Ratio (%)	RM	7.0	0.02	0.085	9.3	0.03	0.130
			RF	9.2			11.2		
E	Sentence # 6, 7 & 8	RM	2765.5	591.48	0.051	2123.8	593.41	0.118	
		RF	3082.5			2540.0			
	Final Segment BC <i>yo</i>	RM	135.8	76.22	0.002	132.1	112.77	0.012	
		RF	271.0			249.8			
	Difference	Ratio (%)	RM	4.7	***	0.001	5.6	***	0.013
			RF	8.8			8.1		
F	Sentence # 9 & 10	RM	2438.0	***	0.290	2008.3	***	0.073	
		RF	2641.9			2206.5			
	Final Segment Ch <i>yo</i>	RM	106.1	77.24	0.014	88.9	68.81	0.003	
		RF	206.7			174.8			
	Difference	Ratio (%)	RM	4.6	***	0.002	4.2	***	0.002
			RF	7.9			7.4		

The results show that the speakers in both groups, when role-playing femininity, used longer duration as a linguistic resource at all utterance final positions regardless of the presence of SFPs. Table 5 shows the results of a T-test between RM and RF for the sentence and utterance final segment durations. The table also shows utterance final segment duration as a percentage of overall sentence duration.

Generally speaking, between the male and female groups, the female group used longer durations than the male group. Nonetheless, the differences between RM and RF for duration measurements of the utterance final segments are statistically significant for both groups, except for the two instances of SFP *ne* in the male group. In other words, female speakers elongated the non-SFP utterance final segments, *ru* and *do*, as significantly as *ne* and *yo* when performing feminine gender. The male speakers elongated *ru* and *do* as significantly as *yo* when performing feminine gender. If a long duration is a prosodic characteristic of JWJL, the use of sentence final segments, with or without SFPs, suggests that this is characteristic of a feminine style in the data used for this study.

**Utterance final raising**

As mentioned earlier, a general use of rising intonation may be to signal the ideology of femininity in the Japanese language. Table 6 shows the use of F0 final raising by male and female speakers in the ten sentences. All instances of pitch differences with more than a 50Hz rise or fall were quantified. Each sentence which ended with an utterance final raising was given 1 point, each sentence that ended with a final fall was given -1 point, and sentences that did not show F0 differences of at least 50Hz were given 0 points. The table shows both total scores and the relative percentage of occurrences of utterance final raising.

**Table 6: Final raising of the ten sentences by the male and female groups**

Sentence	Males (n = 7)				Females (n = 9)			
	RM		RF		RM		RF	
	Total	(%)	Total	(%)	Total	(%)	Total	(%)
A	2	14.2	9	64.3	-6	-33.4	1	5.6
B	1	14.3	2	28.6	1	11.1	2	22.2
C	0	0.0	5	71.4	3	33.3	9	100.0
D	3	42.9	5	71.4	5	55.6	9	100.0
E	5	23.8	7	33.3	-10	37.0	6	22.2
F	-5	-64.3	1	-7.2	-2	-11.1	-9	-50.0

Interestingly, except for Group F (the channeling function of SFP *yo*) in the female group, RF showed more positive scores than RM in both male and female groups. Even in the interrogative sentences (C and D) it seems as though the speakers avoided the final raising in RM style. Provided that raising intonation is a part of JWL prosody, it is understandable that the speakers preferred not to raise the sentence final syllable in the RM style. In other words, it seems unsurprising for the speakers to choose the opposite (falling) intonation from RF style when performing the male gender role. Ohala (1984) notes that low and/or falling pitch signals social meanings such as threat, intention to prevail in a contest, dominance, or self-sufficiency. This suggests that falling and rising intonation may mark gender stereotypes in the language ideology found in performed speech styles. That is, speakers may try to convey the masculine style with falling pitch to indicate assertiveness, while using rising pitch to access a social meaning of uncertainty to convey the feminine style. Coming back to the overall findings of the study, all things being equal, the total scores suggest that both male and female speakers relied on final raising as a resource of JWL in the ten sentences observed here. Moreover, this finding is strongly reflected in the sentences that do not end with SFPs, suggesting once again that Japanese femininity is projected in utterance final positions whether SFPs are used or not.

### General remarks

In this study, by asking female and male Japanese speakers to perform sentences in an assumed feminine role and in an assumed masculine role, I have been able to decouple gender-specific production characteristics and collect data related to the ideological qualities of JWL. The analysis indicates that two characteristics of the representation of JWL are a generally higher pitch and wider F0 range. This result is consistent with the findings of Loveday (1986) and Ohara (1992, 1997, 1999). While these characteristics may still be due in part to a combination of gender-specific anatomical differences and sociocultural factors, I have shown that they are reproduced by male speakers when performing a feminine role, and thus are stereotypical features of JWL. The fact that duration, a feature that would not be affected by anatomical differences, is also apparently used to express femininity in JWL supports the idea that sociocultural influences are at work.

More interestingly, while SFPs may convey some paralinguistic information on a morphological level, as suggested by Bolinger and Sear (1981), the results show that this information can be adapted by prosody in utterance final positions. These findings reinforce the statements of Kitagawa

(1977:289), Ide and Yoshida (1999:465) and SturtzSreetharan (2004) that rising intonation at utterance-final position is one of the characteristics of JWL. This study further shows, however, that the complete absence of SFPs does not seem to affect the function of suprasegmental features at utterance-final position in expressing this information. In particular, the data indicates that a higher pitch, wider pitch range, and longer duration are used to project JWL. This conclusion supports and extends my previous findings with colleagues (Anderson et al. 2007).

## Conclusion

In this study, the use of suprasegmental features in JWL at an utterance-final position was examined. The results indicate that both male and female groups used the following linguistic resources significantly differently when performing the feminine gender at sentence final positions with or without SFPs: (1) higher F<sub>0</sub>s for the highest and lowest F<sub>0</sub> points, (2) wider F<sub>0</sub> range, (3) longer duration, and (4) F<sub>0</sub> raising. These findings confirm claims made in the existing literature regarding the prosodic characteristics of Japanese women's language. Therefore, it is fair to conclude that utterance final positions were used by the speakers in this study to project femininity in Japanese.

As mentioned earlier, Ohala (1984) reports that the use of low pitch (cross-linguistically) conveys social meanings such as 'threat, intention to prevail in a contest, dominance, or self-sufficiency', while high pitch signals 'non-threat, submission, appeasement, or desirous of goodwill and cooperation of receiver'. Although Japanese was not included as one of the languages in Ohala's (1984) cross-linguistic inventory, it seems that the manipulation of high pitch (and rising intonation) in JWL can be explained with reference to his research. Ohala (1984:1) also notes that these social interpretations of differences in pitch qualities are secondary meanings of 'frequency code'. He explains:

The sound-meaning correlations found in these cases [where cross-linguistic consistency is associated with the use of high pitch, e.g., rising intonation of interrogatives and indication of affects] adhere to the 'frequency code', which also governs the vocalizations of other species, namely, where high F<sub>0</sub> signifies (broadly) smallness, nonthreatening attitudes, desirous of the goodwill of the receiver, etc., and low F<sub>0</sub> conveys largeness, threat, self-confidence and self-sufficiency. (Ohala 1984:14)

In traditional Japanese culture, smallness has been an important element of the aesthetic standards for women. Conventionally, an ideal Japanese woman

is supposed to be petite and also to speak with a small high pitched voice. In the ideology of JWL, prosodic features such as the use of high pitch and rising intonation may be well supported by Ohala's explanation of 'frequency code'. Japanese speakers interpret prosodic cues, such as high pitch or elongation of high pitch, as markers of femininity. The gender-exclusive or gender-neutral nature of SFPs alone is not sufficient for marking gender in Japanese; thus, the speakers must use other means to project femininity at a salient position in an utterance, namely utterance final position, when highlighting then gendered aspects of their speech in speech.

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### About the author

Mie Hiramoto is Assistant Professor of English Language and Literature at the National University of Singapore.

### Notes

- 1 Voice pitch may be manipulated to add social meaning to utterances, e.g., Japanese women may use unnaturally high pitch when adding politeness to their speech.
- 2 One of the properties investigated in acoustic phonetics. The pitch of a sound with a periodic wave form (a sound produced by the movement of the vocal folds = a voiced sound) is determined by its rate of repeated cycles of air pressure, also known as fundamental frequency (F0). The number of cycles per second is termed Hertz (Hz), the standard term for unit frequency.
- 3 Japanese speakers make use of various pragmatic particles, especially in spoken language, to express a wide range of attitudinal or emotional functions such as masculinity, femininity, politeness, agreement, confirmation, etc.



- 4 The term 'Japanese' will refer to Standard Japanese, or Kantô dialect, unless otherwise specified.
- 5 SFPs like *ze* and *zo* are considered to be masculine while *kashira* and *nanoyo* are recognized as feminine; other SFPs, such as *ne* and *yo* are gender neutral (see a brief comprehensive summary in Abe 2004: 217).
- 6 There is no equivalent lexical English translations for the SFPs. The differences between masculine and feminine forms would rather correspond to a variation in the overall tone of the utterance: *Kyô wa atsui ze*, 'Man, it's hot' (masculine) and *Kyô wa atsui wa*, 'Goodness, it's hot' (feminine).
- 7 The findings of the duration measurements will be discussed further in the following section.
- 8 None of the participants had any history of speech or auditory disorders, nor did they show any symptoms of other medical conditions that would affect speech production at the time of the experiment.
- 9 Two participants, one aged in his early 20s and the other aged in his mid 30s, mentioned that they could not speak like women because it was *kimochi warui* 'too uncomfortable' and *haji* 'shameful'. These refusals took place independently at different times; the participants did not know each other.
- 10 As it is not uncommon to have all-female or all-male theater groups in Japan (e.g., Takarazuka for women and kabuki for men), the participants generally did not hesitate to play female roles.
- 11 Both channeling and backchanneling cues are short utterances or paralinguistic behaviors, such as nodding, that function to maintain the flow of conversation.
- 12 Pitch or fundamental frequency.

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