

# Tonal Variation of Kagoshima Japanese and Its Relevant Factors

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## 1 Introduction

This study investigates the tonal variation of Kagoshima Japanese (KJ) by considering generational difference and correlations with social factors in tone production and discusses how this variation represents an ongoing linguistic change in the accentuation system that ensures tonal salience of words.

According to Hayata (1999), whereas Standard Japanese (SJ) and Tokyo metropolitan Japanese (TJ) are classified as “word accent” (or pitch-accent) dialects, KJ uses “word tone” to select the tonal contour of words. There are two types of tone in KJ, Type A ([...]HL) and Type B ([...]LH), and these types produce a sharp discrepancy in auditory image between traditional KJ and SJ. However, according to some researchers such as Kubozono (2006, 2007), to resolve this discrepancy, young speakers of KJ tend to realize the word tone with the same accentuation type (i.e., with or without a pitch fall) as SJ or TJ. For example, the tone alignment of *namida*, or ‘tear drop,’ is LLH in traditional KJ, which sharply contrasts with that of the word in SJ, that is, HLL. However, some young people prefer the innovative tone LHL, which has the same accentuation (i.e., with a pitch fall) as SJ. Kubozono (2007) speculates that this tonal change is the result of dialect contact between KJ and SJ or TJ, possibly through mass media broadcasts.

The influence of mass media (especially television) has been one of the controversial topics of variationist sociolinguistics (Stuart-Smith and Ota 2014). The idea shared by ordinary people is that television makes people sound the same (Chambers 1998) or that television weakens regional dialects (Ota and Takano 2014). However, there are few instances of research that have tackled this issue. In fact, in the case of Japanese dialects, only a few studies, such as Mase (1981, 1996), have considered a relation between the standardization of regional varieties and mass media broadcasting. In English sociolinguistics, Stuart-Smith et al. (2013) provided statistical evidence of the impact of television on the language variation and change in Glasgow, but no other study has followed it yet.

In this paper, following the Glasgow study, I will argue that the influence of media could be one of the relevant factors contributing to phonological change in a regional variety of Japanese. To address this issue, I explore the relation between speakers’ social features and preference for innovative accentuation by examining the results of production tasks, such as reading words and sentences and performing roles in scripted conversations. Finally, I suggest the possibility that the accentuation of young KJ speakers is shifting toward a hybrid system like Kansai Japanese.

## 2 Background of the Research

**2.1 Process of the language change taking place in Kagoshima Japanese** Before going into the details of the research, I will present some theoretical background for this investigation. First, I will illustrate a presumed process of the language change that KJ has been undergoing over the past several decades.

Regional dialects are most likely to be affected by contact with other dialects, unless there are linguistic reasons behind the change (Trudgill 1986). Figure 1 depicts the following stages in the process of changes that have occurred in KJ since the 1940s, particularly after 1945:

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- (1) Replacement of dialectal forms of KJ with those of SJ, and emergence of the interdialect (neo-dialect) (A)
- (2) Spread of the neo-dialect as a vernacular (B)
- (3) Move toward a de-dialectization (C)

As shown in Figure 1, it is highly likely that the dialect spoken in Kagoshima City (and its surrounding areas) for the past several decades was formed by extra-linguistic factors, that is, dialect contact with other varieties, particularly SJ or TJ, rather than intra-linguistic ones. During and after the war, SJ was almost exclusively used in school education.<sup>1</sup> Traditional KJ features were gradually eliminated from the vernacular of children due to the stigmatization of traditional dialects by the language ideology. In addition, the population of Kagoshima City increased from approximately 370,000 in 1965 by 1.5 times to nearly 550,000 in 2003. This situation, along with the urbanization of this area caused by short- and long-term migration from inside and outside the region, significantly promoted dialect contact.<sup>2</sup>

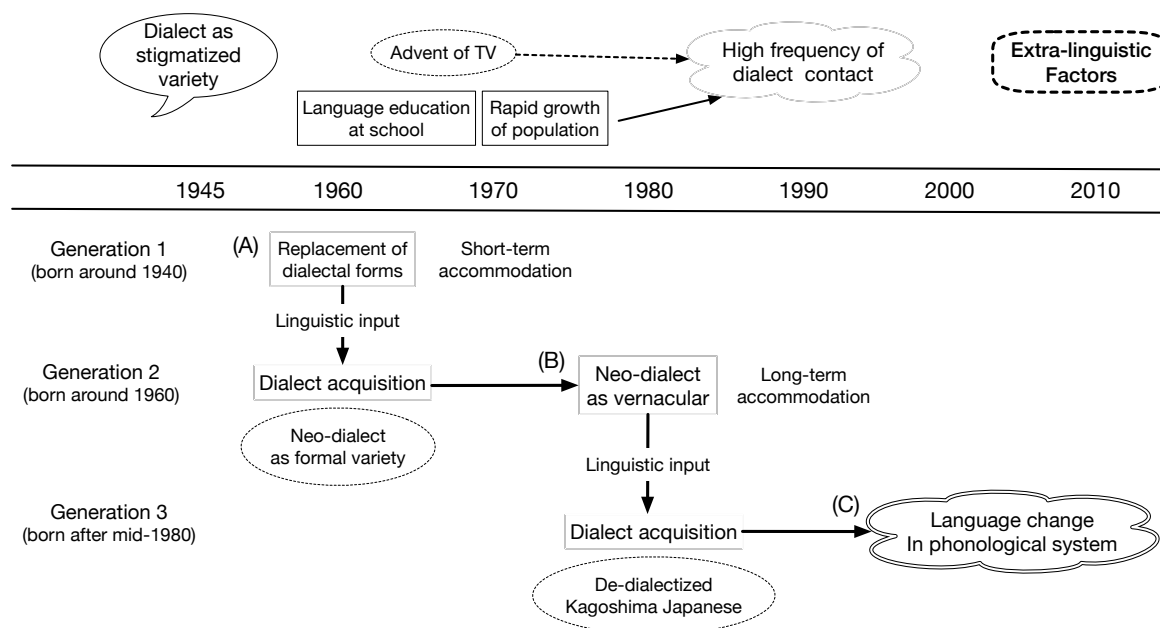


Figure 1. Process of language change in Kagoshima City (Ota 2009: 33)

Under these linguistic and social conditions, children marked “middle aged” in Figure 2 grew up and acquired “Neo-dialect,” an interdialect that was created through dialect contact with SJ (Sanada 1996), as their first variety. Even before the establishment of Neo-dialect as a linguistic system, local people noticed that they sporadically used the early version of this interdialect, called “Karaimo Futuugo” (Sweet Potato Standard) (Ota 2001)<sup>3</sup>, which emerged as a result of the speakers’ short-term accommodations of other varieties (Stage 2 in Figure 2). Due to the subsequent increase in dialect contact in Stage 3, it gradually became systematized, similar to pidgin’s development into creole. At present, young people speak the more de-dialectized version of Neo-dialect as their first variety; however, some speakers use this de-dialectized version only in domestic situations with family members, and their daily speech is gradually losing its regional nature.

Television programs are often considered the most powerful cause of standardization or de-dialectalization of regional dialects (Ota and Takano 2014). However, regarding the extent of television’s influence on a region’s linguistic system, many studies on language change, particularly those based in Anglophone communities (Chambers 1998, Labov 2001, Trudgill 1986), have presented negative opinions. Further, only a few researchers,

<sup>1</sup> Sibata (1959: 118-131) mentions an anecdote on SJ education based on his observations during the mid-1950s at a primary school in Yamagawa-cho, a rural town in Kagoshima.

<sup>2</sup> Some earlier studies, such as those by Ota (2002), Takemura (2010), and Ota (2012), discussed the possibility that dialect contact within a family affects children’s language acquisition.

<sup>3</sup> Sweet potato is one of the main products of this region. This early version was self-depreciatingly called Sweet Potato Standard because the speakers of this dialect retained many local features in their speech, despite attempting to sound like speakers of Standard Japanese.

such as Stuart-Smith et al. (2013), oppose these opinions.

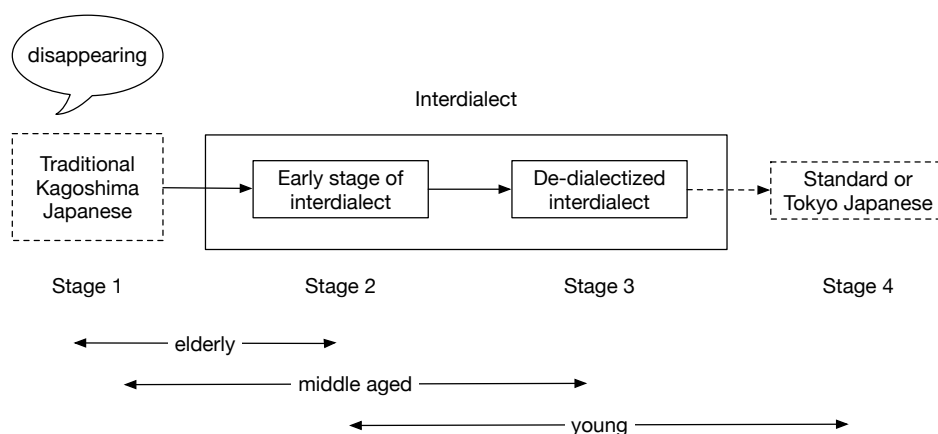


Figure 2. Change in language in Kagoshima City (Stuart-Smith and Ota 2014: 142)

In the southernmost part of Kyushu, despite the infrequent occurrence of face-to-face dialect contact due to its remote geographical location and poor public transportation facilities, the speech of the younger generation is rapidly becoming standardized and de-dialectized. Hence, it is reasonable to speculate that language change may be caused by many factors other than school-based education and direct contact with other dialect speakers. This study strengthens the argument made by the results of our previous studies (Ota 2014, Ota and Takano 2014, Ota, Utsugi and Nikaido 2016, Takano and Ota 2017, etc.) regarding the existence of a relationship between media and tonal variation, and presents results to support the assumption that television (or mass media) is one of the factors influencing language change, as revealed by Stuart-Smith et al. (2013) in Glasgow.

**2.2 Differences in Accentuation between KJ and SJ** As mentioned earlier, over the past few decades, KJ has lost almost all its dialectal features in terms of vocabulary and grammar and become very similar to SJ (or TJ). However, regarding word tone (or accent), the traditional two-tone system (*nikei akusento*) continues to exist. Within the theoretical framework of the Japanese language’s pitch-accent system, the tone alignment of KJ can be considered a manifestation of the “lexical accent.” However, some researchers such as Hayata (1999) and Matsuura (2014) consider it a “word tone” (Table 1). This is because, although “the presence/absence of a pitch fall” and “its position” are crucial factors that determine the H/L tone alignment of SJ, one of the two tone patterns [...]HL or [...]LH is applied to align tone elements in a phonological word in KJ.

In KJ, content words, such as nouns, verbs, and adjectives, and some particles form an independent phonological domain to construct a tone alignment. It is realized as either Type A, which has the high tone on the penultimate syllable and the low tone on the final syllable ([...]HL), or Type B, which has the high tone on the final syllable ([...] LH) without any pitch fall. These tones are categorized as ‘accented’ (i.e., with a pitch fall) or ‘unaccented’ (i.e., flat or without a pitch fall) in SJ’s word accent system.

Table 1. Typology of the tone structure in Japanese dialects (Matsuura 2014:168)

	Pitch Accent	Absence of Pitch Accent
Tone Pattern	Kyoto Osaka	Nagasaki Kagoshima
Absence of Tone Pattern	Tokyo Iwate	Kobayashi Kumamoto

Table 2 depicts the correspondence in pitch allocation between SJ and KJ and reveals a salient contrast in tonal patterns between SJ and traditional KJ. For example, the pitch patterns of *momiji*, ‘autumn leaves,’ are ‘accented’ in SJ but ‘unaccented’ in traditional KJ. The case of *kaede*, ‘maple,’ is also contrastive, although their pitch patterns are completely opposite to the case of *momiji*. However, younger speakers tend to choose innovative tones with the same accentual patterns as SJ, rather than the traditional tones listed by Hirayama (1960).

Table 2. Correspondence of tone structures between Standard Japanese and Kagoshima Japanese (Based on Kubozono 2006)

		Standard Japanese	Kagoshima Japanese (Traditional)	Kagoshima Japanese (Innovative)
<i>momiji</i>	(Tone)	HLL	LLH (Type B)	LHL (Type A)
‘autumn leaves’	(Accent)	accented	unaccented (or flat)	accented
<i>kaede</i>	(Tone)	LHH	LHL (Type A)	LLH (Type B)
‘maple’	(Accent)	unaccented (or flat)	accented	unaccented (or flat)

In the remainder of this paper, I report the generational difference in tone selection for several tasks collected from a sample comprising 10 elderly and 20 young KJ speakers. Subsequently, I discuss how the young people’s social characteristics are related to tone selection and suggests that the allocation of pitch shifts from the tone-based system to the pitch-accent system.

### 3 Materials and Methods

In order to catch how a linguistic variation is being embedded in the social structure and what factors are involved in it, quantitative analysis is the standard format of research in variationist sociolinguistics. I carried out statistical analyses to examine how tonal variation is correlated with speakers’ social characteristics. In the following subsections, I provide information on target words and speakers for the quantitative analyses. In Section 4, I discuss the research results on tone realization and, in Section 5, I clarify how tonal innovation is being incorporated by the younger generation in their speech.

**3.1 Source of Language Data** The language data for the study were obtained from a survey on phonetic variations in multiple accentual phrase (MAP) conducted in Sapporo, Fukuoka, Kagoshima, and Tokyo during 2010–2012 (Stuart-Smith and Ota 2014). The objective of this survey was to investigate the declination of pitch range in MAP. In this survey, some tasks were also set to observe to what extent the young speakers maintained the traditional accentuation. The tokens were collected in the tasks of reading the words presented in a list and on Microsoft PowerPoint slides, reading sentences, and conducting scripted conversations.

#### 3.2 Words for Variation Analysis

**3.2.1 Words Included in the Reading Word Task** To perform the task of reading words in a list and on slides, the tone realizations of 34 words were collected. The group of words consisted of 25 words that were selected such that 5 words were chosen from each of the five categories of the traditionally classified vocabulary listed in *Kokugogaku Daijiten, Dictionary of Japanese Linguistics* (Tokyodo 1980), and 9 words (*Aomori*, *Nagano*, souvenirs, bars, etc.) employed in the MAP research. Among them, 33 words were analyzed; one word was excluded from the analysis since it was not included in other tasks. In the reading word task, all the words were presented with the subject case marker ‘-ga.’ The speakers were asked to read in both KJ and SJ styles. The words were read in two modes (in the list and on the slides) and in two styles (KJ and SJ) by 30 speakers, which resulted in a total of 3960 tokens (Table 3).

**3.2.2 Words Included in the Reading Sentence Task and in Scripted Conversations** For the reading sentence and scripted conversation tasks, three or four syllabic words with high sonority, such as *Aomori*; *Nagano*; *omiyage*, or ‘souvenirs’; and *nomiya*, or ‘bars,’ were selected since the tasks were originally intended to obtain the clear pitch curve of MAP. In the sentence reading task, speakers were asked to read sentences with target words in a consecutive position of MAP. This task included 16 sentences, each of which had three or four syllabic words with either the genitive case-marker ‘-no’ or the locative case-marker ‘-de.’ An example is *Aomori no/de omiyage o takusan moratta*, or ‘I received a lot of souvenirs from/in Aomori.’ The sentences were recorded in KJ and SJ styles, and the speakers were asked to perform as naturally as possible.

In scripted conversations, the scripts with MAPs comprising three or four syllabic words were recorded in the genitive construction alone. Subsequently, the speakers were asked to perform the roles specified in the scripts as naturally as possible in KJ and SJ styles. Since all the speakers were locals, the KJ style was performed by the speakers themselves, whereas the SJ style required the participation of the researcher who was not a KJ speaker.<sup>4</sup>The number of words recorded was 8 per script (4 × 2 styles). Hence, for the reading word and reading

<sup>4</sup> In the research on young people, the scripted conversation was performed between friends, whereas the young female researcher (in her late twenties at the time of conducting this research) who is a KJ speaker played the partner role for the elderly people.

sentence tasks, we collected 48 (24 in one style) MAPs per speaker (Ota, 2016). Further, as depicted in Table 4, the total number of MAPs was 1440. However, since a MAP consists of 2 words, the total number of words was 2880.

Table 3. Number of tokens in the reading word task

Tasks	Sum (1 Speaker)	Sum (30 Speakers)
In Slides	33	990
In List	33	990
Sum	1980 (in each style)	
	3960 (in two styles)	

Table 4. Number of MAPs in the reading sentence task and scripted conversation

Task	Number of 3 Syllabic Words	Number of 4 Syllabic Words	Sum (1 Speaker)	Sum (30 Speakers)
Reading Sentence	8	8	16	480
Scripted Conversation	4	4	8	240
Sum	720 (in each style)		1440 (in two styles)	

### 3.3 Speakers' Data

**3.3.1 Generation, Gender, and Hometown** As depicted in Table 5, the participants were 20 (10 male and 10 female) speakers in their early 20s who had grown up in Kagoshima City and its surrounding area (Satsuma Region) and 10 (5 male and 5 female) elderly speakers, who formed the control group. The elderly speakers were born between 1933 and 1955, and the young between 1987 and 1992. Further, eight (four male and four female) young speakers who had lived in Kagoshima City since their primary school enrolment were categorized as "city raised," whereas the others (six male and six female speakers) were "other area raised." All the speakers had parents who were indigenous KJ speakers; an exception was a female speaker whose parents were from northern Kyushu area (Fukuoka Prefecture). In addition, two speakers had parents who were from Osumi Region, the other half of Kagoshima Prefecture. The regional variety of this region is slightly different from that of Satsuma Region. However, it is unlikely that the parents' dialect influenced their speech, since the research results revealed no particular differences.

Table 5. Number of participants by generation, gender, and residential history

Residential history	Young		Elderly	
	male	female	male	female
City raised	4	4	5	5
Other area raised	6	6		
Sum	20		10	

**3.3.2 Social Characteristics** A questionnaire survey was conducted to examine the relationship between the choice of tones and speaker's social characteristics. The survey included information on not only social attributes, such as gender and residential history, but also the density of social networks, dialect contact, social activities such as part-time employment and college club activities, personality, and media practice

(television viewing hours, childhood habit of watching anime, current preference of programs, etc.). These were included as extralinguistic factors in the statistical analysis described in Section 5.3.<sup>5</sup>

## 4 Results

**4.1 Generational Difference in Tone Choice in the Reading Word Task** Table 6 depicts the percentages of tones of two syllabic words produced in KJ and SJ styles. As expected, the traditional tones that are identical with the ones listed by Hirayama (1960) occur much more frequently among the older generation (91.5% and 74.0% for Types A and B, respectively), whereas the innovative tones with the same accentual patterns (i.e., accented/unaccented) as SJ are more prevalent in the speech of the younger generation (23.8% and 34.7% Types A and B, respectively). The overall proportion of the tones reveals that Type A is better maintained than Type B. A similar tendency was observed for three and four syllabic words, as well. On adding the ratios of the three and four syllabic words presented in both the word list and slides, we find that the production rates of traditional tones are 75% and 47.5% in the older and younger generations, respectively. As for the innovative tones, the rates of the ACC (or the innovative Type A) are 1.9% and 16.9% in the older and younger generations, respectively, whereas those of the UNACC (or the innovative Type B) are 0% and 11.6% (Table 7).<sup>6</sup>

Table 6. Results of the reading word task in KJ style (2 syllabic word + case-marker)

Traditional Tones in Hirayama (1960)	Produced Tone	Elderly (%)	Young (%)
Type A: [...] HL <i>mizu-ga</i> 'water + case-marker'	LH-L (traditional)	91.5	69.8
	LL-H (innovative)	2.0	23.8
Type B: [...] LH <i>umi-ga</i> 'sea + case-marker'	LL-H (traditional)	74.0	53.7
	LH-L (innovative)	16.7	34.7

Table 7. Results of the reading word task in KJ style (3/4 syllabic word + case-marker)  
(The modified version of Table 6 in Ota et al., (2017))

Tones for 8 words in KJ			
Tones/Groups	Traditional KJ	Innovative KJ (ACC)	Innovative KJ (UNACC)
Elderly	120	3	0
N=160	75.0%	1.9%	0%
Young	152	54	37
N=320	47.5%	16.9%	11.6%

Regarding the results pertaining to SJ style (Table 8), the ratios of identical tones with SJ are 40.5 to 61.0% in the older generation and 67.5 to 87.0% in the younger generation. As expected, the younger generation produced more identical tones. In addition, regarding the production of LH-H and HL-L as “nonidentical” tones, the young speakers produced only 6.0% and 9.0% of LH-H and HL-L, respectively, whereas their older counterparts produced 15.3% and 31.0%, respectively. Figure 3 depicts the frequencies of the nonidentical and traditional dialectal tones for each elderly speaker. The total number of tokens of each speaker is 50 (25 in slides and 25 in the list). Despite individual differences, the tones seem to be produced under a strong influence of traditional tone patterns. Probably, male speakers are more affected by the traditional tone system. On the other hand, female speakers, despite their efforts to maintain their speech as close to SJ as possible, tend to produce “false” tones that are neither SJ nor KJ. For example, the elderly female speaker, kef05, produced only HL-L as a false tone. This often happens when local people need to speak *hyoojungo*, or “the standard variety,” presumably

<sup>5</sup> The Glasgow Media Project at Glasgow University is appreciated for its cooperation in constructing the questionnaire.

<sup>6</sup> The tone pattern for the second class in KJ is LH-L, which is identical to the SJ tone pattern. However, this had little effect on the overall result.

because KJ lacks this “initial-high” tone pattern and, hence, it sounds “typically standard” to these people. Since local people with an excellent command of SJ rarely use this pattern in a false manner, the improper use of HLL[...] can indicate unstable SJ competence.

Table 8. Results of the reading word task in SJ style (2 syllabic word + case-marker)

Produced Tone Alignment	Elderly		Young	
	Identical (%)	Nonidentical (%)	Identical (%)	Nonidentical (%)
LH-H <i>mizu-ga</i> ‘water + case-marker’	43.0	15.3	67.5	6.0
LH-L <i>uta-ga</i> ‘song + case-marker’	40.5	23.7	82.0	13.8
HL-L <i>umi-ga</i> ‘sea + case-marker’	61.0	31.0	87.0	9.0

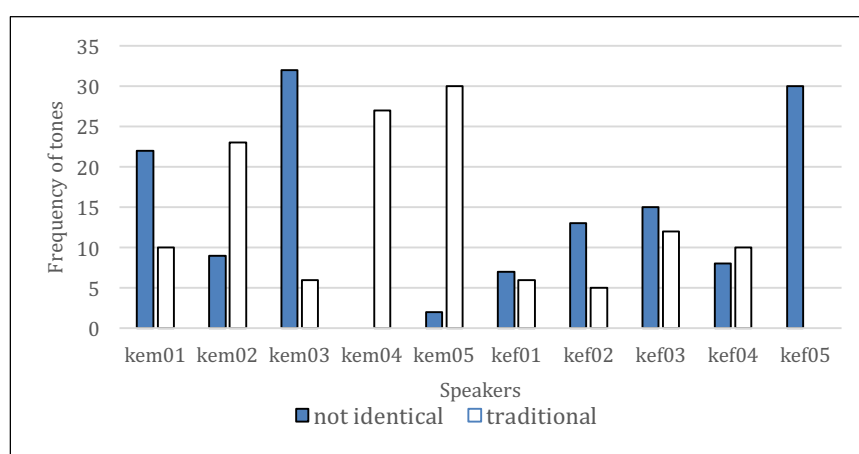


Figure 3. Frequency of the nonidentical (with SJ) tones and traditional KJ tones in elderly speakers' SJ style; kem indicates male and kef indicates female speakers

Figure 4 depicts the result of reading three or four syllabic words. Whereas traditional tones are well maintained (at approximately 50%) among the younger generation, innovative tones are rarely observed in their elderly counterparts. In addition, Ota et al. (2017) showed that the proportions of identical in SJ style was 38.2% in the elderly people but contrastively 86.9% in the younger generation. Further, the elderly people produced the nonidentical tones. Finally, certain types of tone alignment, such as LHLL-L for four syllabic words, were observed with some frequencies, which sounds as an SJ tone to them, similar to the case of kef05.

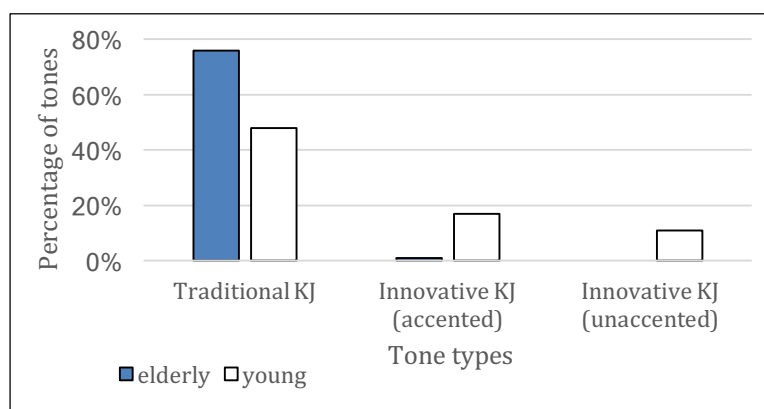


Figure 4. Results of the reading word task (three or four syllabic words) in KJ style

**4.2 Results of the Reading Sentence and Scripted Conversation Tasks** Figure 5 depicts the results of the reading sentence and scripted conversation tasks: The ratios of MAP produced with at least one innovative

tone in KJ style are shown on the left of the figure, and the ratios of tones in SJ style are shown on the right. They exhibit considerable differences in that the innovative tones produced in these tasks are much more frequent than in the reading word task (Figure 2) for both generations. The results of word reading can be considered the evidence of speakers' knowledge on the tone type of each word in the lexicon; however, as suggested by Figure 5, interactive tone production seems more variable than simply recalling the tone patterns of words, particularly among young people. In other words, many factors other than lexical information are strongly involved in tone production in language practice. Further, in SJ style, the younger generation tends to produce the same tone patterns (accented or unaccented) as SJ with a slightly higher preference for the accented tone than the unaccented (or flat) tone.

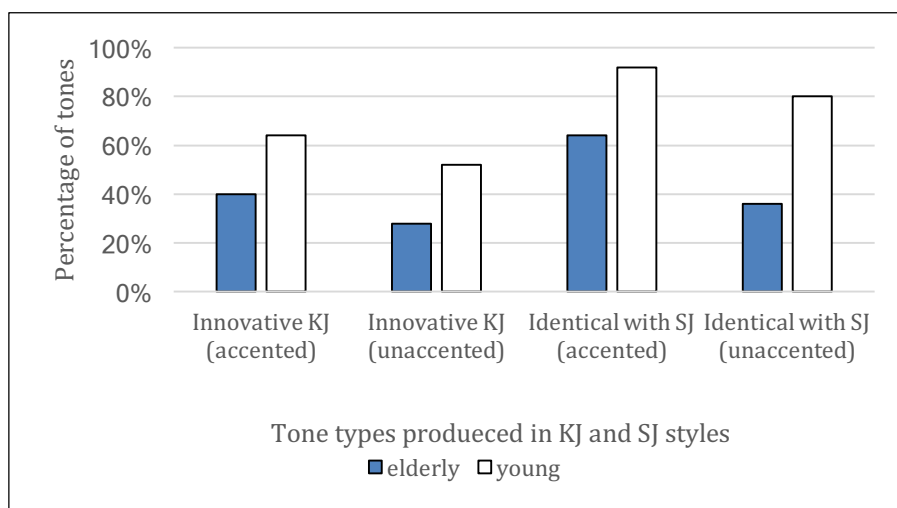


Figure 5. Ratios of the innovative tones in KJ style and the identical tones in SJ style in the reading sentence and scripted conversation tasks

**4.3 Factors Affecting Tonal Variation in the Reading Sentence and Scripted Conversation Tasks** To understand how tonal variation is conditioned to determine tone type, logistic regression analyses were carried out with the occurrence of the same accentuation as SJ as the dependent variable. Two statistical analyses were performed, since there are two types of innovative tones with the same accentuation as SJ: accented and unaccented (or flat). Henceforth, the accented and unaccented innovative tones are referred to as ACC and UNACC, respectively.

In the analyses, the independent variables were two linguistic factors (syntactic structures of MAP and the number of syllables) and extralinguistic factors on speakers' social characteristics collected through the questionnaire survey. For these factors, cross-tabulations and correlation analyses were conducted before performing the regression analyses to exclude the variables that are irrelevant to the tonal variation (Ota 2016). Finally, the following 10 variables were included in the analyses. In the following list, the variables within Viewing current programs were synthesized by principal component analysis and those having an asterisk are categorical, whereas the others are quantitative:

[Linguistic factor]

Number of syllables in the target words\*

[Extralinguistic factors]

Style (reading sentences or scripted conversations)\*

Gender (male or female)\*

Residential history (Kagoshima City or its surrounding areas)\*

Density of social networks

Frequency of successful tokens of SJ in the reading word style

[Media practice]

Watching anime in childhood

Viewing current programs: Information programs, Entertainment programs, Pop culture programs

Table 9 depicts the results of the regression analyses. Exp(B) denotes the odds ratio. A ratio higher than 1 is interpreted as a factor that promotes the innovative tone (Nambu 2007, Sano 2010). Hence, it indicates that the probability of the innovation type is high when the ratio is larger than 1, whereas the probability is low when the



value is lower than 1. Further, the only factor promoting the ACC tone, except for the number of syllables, is Watching information programs.<sup>3</sup> On the other hand, the factors disfavoring the ACC tone are Gender (female) and Watching anime in childhood. Moreover, the factors promoting the selection of the UNACC tone are Residential history (Kagoshima City), Style (scripted conversation), Density of social networks, Watching anime in childhood, Watching pop culture programs, and Frequency of successful tokens of SJ. No constraining factor was found for this tone.

Table 9. Results of logistic regression analyses (N = 480 for each analysis)

Independent Variables	Tokens = 313/480 Nagelkerke R <sup>2</sup> = .256		Tokens = 243/480 Nagelkerke R <sup>2</sup> = .294	
	ACC		UNACC	
	Exp(B)	Sig.	Exp(B)	Sig.
Gender (female)	0.221	0.000	0.947	0.836
Residential History (Kagoshima City)	0.580	0.060	2.876	0.000
Style (Scripted Conversation)	0.684	0.091	1.572	0.042
Number of Syllables (4)	3.464	0.000	5.223	0.000
Density of the Social Network	1.005	0.828	1.072	0.006
Watching Anime in Childhood Information Programs	0.964	0.004	1.043	0.000
Entertainment Programs	1.507	0.000	0.835	0.098
Pop Culture Programs	1.152	0.243	0.897	0.327
Frequency of Successful Tokens of SJ	0.733	0.004	1.398	0.002
	0.997	0.843	1.072	0.000

## 5 Discussion

According to Kubozono (2006, 2007), following long-term accommodation to SJ, people in Kagoshima have come to select tones that are identical in the presence or absence of a pitch fall. Moreover, their basic mechanism of forming a phonological contrast in tone alignment is word-tone, rather than pitch-accent (Hayata 1999). However, the factors relevant to tone production depicted in Table 7 suggest that the speakers' preference of the ACC and UNACC tones implies two directions of tonal change (Ota, Nikaido, and Utsugi 2016). The ACC tone seems to be preferred over the UNACC because the accented tone sounds "standard," as mentioned in Section 4.1. On the other hand, the UNACC tone seems to imply TJ's colloquialism picked up through media practice, probably because it is the variety used in many pop culture or youth culture media. In other words, the ACC innovative tone may have a social meaning associated with SJ's normativity or "standard-ness"; however, on the other hand, the social meaning of the UNACC innovative tone may be the "dailiness" or "everydayness" of SJ (or TJ) shown in the media.

Furthermore, the UNACC innovative tone seems to be related to the competence of SJ. Figure 6 reveals the correlations in producing between the correct tone alignment in SJ style (horizontal axis) and the UNACC innovative tone in KJ style (vertical axis). The positive correlations are observed in both the frequencies among the younger generation, and the female speakers have a higher and more focused tendency compared to their male counterparts. On the other hand, there is no correlation among the elderly people. If the production of the correct tone alignment in SJ style is a reflection of the speaker's SJ competence, the number of correct SJ tones does not affect the realization of the UNACC tone for elderly speakers, whereas a positive correlation is observed among young people (particularly young women). This is not observed for the ACC innovation; rather, there is a slight negative correlation. The traditional Type B (flat tone) tends to be less preferred than the traditional Type A (Ota 2012), whereas the innovative Type B (the UNACC tone) appears to be preferred by the young highly competent speakers of SJ.

Further, Sibata (1995) argues that the recent phenomenon of spreading the flat pitch accent observed in TJ is considered a trend of accentual change toward a "less salient" pitch movement. This flatness conveys images such as "new," "youthful," and "urban" (Takano and Ota 2017). As a result of watching programs on pop culture or youth culture on the media, the speakers using the innovative UNACC tone may find the aforementioned social meanings attractive.

In addition, as shown in Table 7, the two social variables viewing pop culture programs and viewing anime in childhood are factors promoting the UNACC tone (Ota 2016, Ota, Nikaido and Utsugi 2016). Figure 7 depicts the relationship between viewing pop culture programs and the output tones in the tasks of reading sentences and

<sup>3</sup> Regarding the number of syllables, four syllables show a strong effect because two words with the identical tone with SJ are included.

scripted conversations. The vertical and horizontal axes show the frequencies of the UNACC and ACC tones, respectively. Figure 7 reveals a negative correlation between the production of these two tones. The upper left side of this figure depicts speakers who frequently produce the UNACC tone. Moreover, many of their scores of viewing pop culture programs are 3 or more, which indicates their considerable interest in pop culture. Through television programs, the Internet, and other media, local young people became aware that the flat tone produced by the young people in the Tokyo metropolitan area had indexical meanings such as “urban” or “cool,” which resulted in the creation of a new language ideology that could affect KJ’s phonology.

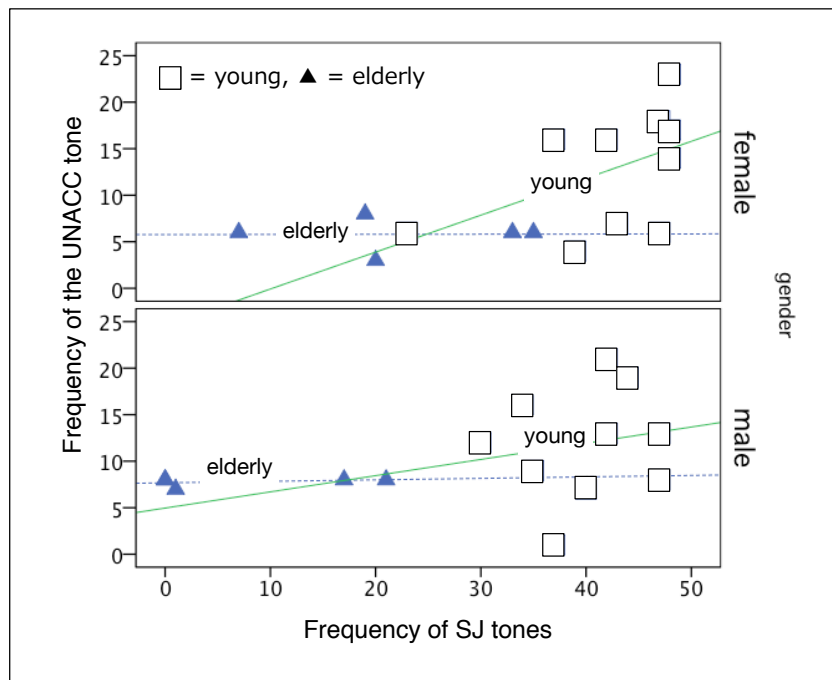


Figure 6. Correlation between SJ tones in SJ style and the UNACC tone in KJ style in the reading sentence task and scripted conversation

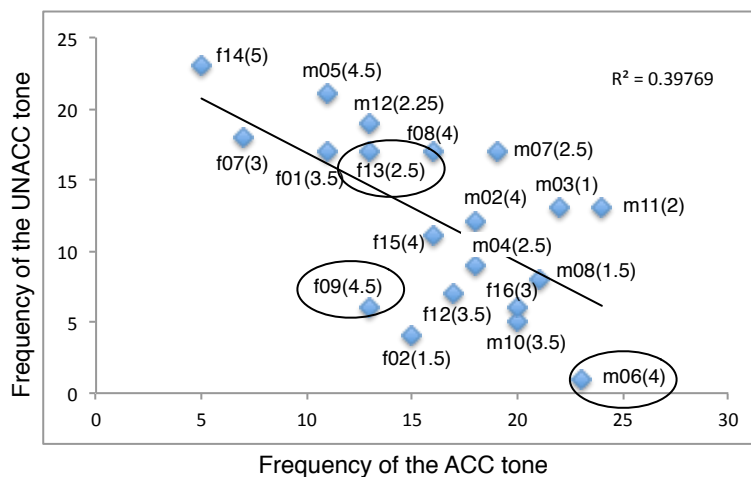


Figure 7. Correlation between the frequencies of the ACC and UNACC tones; the scores of viewing pop culture programs are provided inside parentheses (highest 5, lowest 1) (Ota, Kose, and Nikaido 2017)

However, viewing pop culture programs does not necessarily foster a preference for this urban tone. For example, the male speaker, m06, plotted with a circle in the lower right has a high viewing score of 4; however, he produces the UNACC tone very slightly. This may be caused by the local people’s attitude toward the presence of a pitch fall in tone formation (cf., Section 4.1). In SJ, the tone structure consists of the H tone as a base tone, and the salience of the pitch contour of words is marked by the presence or absence of pitch fall. On the other

hand, KJ is an L-tone base variety that realizes its phonological salience with a pitch-rise on a penultimate ([...]HL) or final syllable ([...]LH). Whereas the presence of pitch fall is closely associated with the standard-ness of tones (see Section 4.1), maintaining a high-pitch (with no pitch fall) can index the negative meaning of their dialect and region, such as “rural,” “unsophisticated,” “vulgar,” etc. Therefore, people who frequently produce the ACC tone prefers this tone due to its standard-ness.

Conversely, some young people such as the female speaker, f13, have a high frequency of the UNACC tone but low scores for viewing pop culture programs. Although she was not interested in pop culture programs, f13 was a dedicated reader of fashion magazines. In other words, her interest in youth culture was probably the reason for her frequent use of the UNACC (or flat) tone. This is contrary to the case of the speaker m06; however, it indicates that the indexical meaning of the innovative tone (in this case, “urban”, “cool”, etc.) is more influential than media practice. Furthermore, there is another type of speaker who does not prefer either of the innovative tones. The female speaker, f09, achieved a high viewing score (4.5); however, she does not seem to join either of the directions of the tonal variation shown in Figure 7. She had a strong preference for localness, and her attitude toward the local culture and language is very similar to that of the older generation. Therefore, these cases demonstrate that the ideology associated with language and culture deeply affects the current situation of tonal variations in KJ.

Finally, I propose the possibility of occurrence of a phonological change in accentuation, or the formation of pitch salience, in KJ. In traditional KJ, the phonological salience of tone structure is formed by the selection of either Type A or Type B tone. To form a tone alignment, elderly people are heavily dependent on the “molds” of the tone structure, rather than the presence/absence of pitch fall. This is inferrable from the fact that they frequently produce the same patterns of “wrong” tones, which are neither SJ nor KJ, as mentioned in Section 4.1. On the other hand, the results of the young speakers’ tone production in Section 4 enable us to surmise that the pitch-accent type of accentuation seems to affect word tone formation. Shirose (2007) indicated that 7-year-old children raised in Kagoshima City could judge the appropriateness of word accent (or tone alignment) of SJ, although they could not do the same for KJ. The young speakers who participated in this study demonstrated very high SJ competence in producing correct SJ tones, as shown in Table 8. These results clarify that the tone formation of young people is shifting from the word tone system to the dual component system, similar to Kansai Japanese, that is, tone and pitch-accent.

## 6 Conclusion

By analyzing the data collected from 10 elderly and 20 young speakers, we obtained the following findings. First, although the elderly speakers firmly maintain traditional tonal patterns, they frequently produce wrong tones in SJ style by mistakenly utilizing SJ tone patterns that sound typically SJ to them. Therefore, their tone production significantly depends on word tone, rather than pitch-accent. Contrarily, many young speakers are highly competent bi-dialectals and can produce SJ tones with correct pitch-accents.

Second, the social meaning associated with SJ accentuation is a factor that promotes innovative tones. Due to its auditory resemblance to the SJ flat tone, young people with a strong preference for the youth culture or pop culture in the Tokyo metropolitan area are the leading innovators of KJ accentuation. The statistical analyses confirmed that the preference shown by young people to this tone is closely related to their media practice. In addition, the information on each speaker’s social practice suggests that individual differences in tone production can be attributed to the local community’s ideologies regarding its regional variety and culture. From these findings, I suggest that the accentuation of young KJ speakers is shifting toward a hybrid system that employs both tone and pitch-accent, similar to Kansai Japanese. Hypothetically, the tone formation system prevalent among young KJ speakers is as follows (“Innovative” in Table 10):

Table 10. Change occurring in the tone formation system of KJ

Innovative			Traditional	
Base tone	L-tone		Base tone	L-tone
Accentuation	presence/absence of pitch fall	←	Accentuation	tone pattern

However, currently, this system is merely a speculation and requires further verification.

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