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# Accentual Change in Hokkaido Japanese

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**Abstract:** This paper will report and analyze ongoing changes in the accentual system of Hokkaido Japanese (HJ), a regional variety spoken on the northernmost islands of the Japanese archipelago, originating in relatively recent settlement from mainland Japan. In recent years, as in almost all regions of Japan, HJ has undergone dialect levelling towards standard (Tokyo) Japanese (TJ). Although the accentual system of HJ, in terms of the possible number of contrastive accent patterns and the prosodic characteristics that define them, is largely identical to that of TJ, traditional HJ differs significantly from TJ in which lexical items are realised with which accent pattern.

Adopting an analysis using Kindaichi's word-accent classes (Kindaichi, 1973; 1975), this paper will examine accent class correspondences in bimoraic native nouns, based on a survey of 24 native speakers of HJ from four different areas across the island. The results of this survey illustrate a clear pattern of age-stratified variation in accent class correspondences that are shown to be consistent with a broader dialect levelling trend towards TJ. However, the pace of this process does not appear consistent across all survey sites, suggesting possible implications for media-driven models of dialect levelling in Japan.

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## 1. Introduction

This paper will report and analyze ongoing changes in the accentual system of Hokkaido Japanese, specifically the correspondences between the word-accent classes proposed by Kindaichi (1973; 1975) and the lexically distinctive accentual patterns permitted in HJ.

In section 2, we present the historical background of HJ and give an outline of its basic word-accentual system. We will also discuss Kindaichi's word-accent classes and present previous research on how these are realised in bimoraic native nouns in HJ. In section 3, we will give information regarding the format of the current survey, the results and implications of which are discussed in section 4. Finally, in section 5, we will briefly address the social background of the changes identified in section 4, and discuss avenues for further research.

## 2. Background

Although present-day Hokkaido has been inhabited by the Ainu people since before recorded history, the first Japanese settlement on the island can be dated to the early Kamakura period (Hokkaido Shimbun Joho Kenkyujo, 1997). Subsequently, during the Muromachi and Sengoku periods, Japanese settlers, mainly from the northern Tohoku region, began to spread out from their initial base on the tip of the Oshima peninsula to cover most of the coastal areas in the southern part of the island. (Ono, 1997). The Hokkaido interior, meanwhile, remained largely untouched by Japanese settlement until the Meiji Restoration in the mid 18<sup>th</sup> century, following which the national government promoted large scale colonization of the area, with settlers arriving from every region in Japan.

The contrasting settlement patterns between the coastal and inland regions are reflected in the varieties of Japanese spoken there, respectively referred to in Japanese dialectology as *kaigan hogen* “coastal dialect” and *nairiku hogen* “inland dialect”. Although both show heavy influence from the dialects of the Tohoku region, and share a great number of characteristics in common, the influence of Tohoku varieties is particularly strong in coastal dialect. The inland dialect, meanwhile, which was formed as a regional lingua franca by settlers speaking many different varieties from all over Japan, shares more characteristics with standard (Tokyo) Japanese<sup>1</sup> (Ono, 1997).

### 2.1. The Accentual System of Hokkaido Japanese

The split between inland and coastal varieties is reflected in their respective lexical, morphological and (segmental) phonological properties, and, as detailed in Dallyn (2016), the tonal realizations of some words at the phonetic level. However, in this paper, we will examine only those prosodic characteristics that are phonologically distinctive.

According to Hirayama (1957) and Kindaichi (1977), the distinctive prosodic characteristics of both coastal and inland varieties of HJ can be classified as “Tokyo-type”. Hence, as with the other Tokyo-type varieties, they possess lexical accent by which segmentally identical words can be distinguished from one another<sup>2</sup>. Using the classification developed in Uwano (1989), this system, as realized in nouns, can be described as a multi-pattern accent system without tonal registers. In other words, the only phonologically distinctive tonal property is the presence and location of a prosodic unit (the *akusento-kaku*, “accent kernel” (Hattori, 1954)), which brings about a specific pitch movement and may appear on any mora of the word<sup>3</sup>. Words without an *akusento-kaku* are also permitted. Consequently, as in TJ, the number of possible accentual patterns for a given word is  $n + 1$ , where  $n$  is the number of mora in the word<sup>4</sup>. This system is represented in Table 1<sup>5</sup>

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1 The terms “standard Japanese”, “common Japanese”, “Tokyo Japanese” are not strictly interchangeable, but can be considered to refer to the same variety here.

2 This contrasts with non-accent (Sendai, Fukushima, etc.) or one-pattern accent (Miyakonojo) systems, in which prosodic lexical contrasts are not possible.

3 Excepting ‘special mora’ (tokushū mora), i.e. the moraic nasal, the first part of a geminate consonant, and the second part of a long vowel or vowel sequence.

4 This is in contrast to systems such as Kagoshima Japanese (Kubozono, 2007) or Ikema Ryukyuan (Igarashi et al, 2011), in which there are a fixed number of licit tonal patterns regardless of word length.

5 “○” represents an arbitrary mora, and “⌋” the location of the *akusento-kaku*. Words without an *akusento-kaku* are

**Table 1. The Accentual System of Hokkaido Japanese**

1 Mora	2 Mora	3 Mora	4 Mora
○ =	○○ =	○○○ =	○○○○ =
○↑	○↑○	○↑○○	○↑○○○
	○○↑	○○↑○	○○↑○○
		○○○↑	○○○↑○
			○○○○↑

Although the nature of the pitch movement brought about the akusento-kaku (Uwano 2012) varies among Tokyo-type systems, according to Hirayama and (1957) Haga (1961), the lexically distinctive pitch movement in HJ, as in Tokyo Japanese, is a fall from the mora bearing the akusento-kaku to the next. These fundamental properties of the HJ accent system are diachronically stable. However, as we will demonstrate below, the correspondences between specific lexical items and the possible accent patterns in Table 1 show a great deal of variation.

### 2.2. Kindaichi’s Word-Accent Classes

Kindaichi, (1973, 1975), proposes a classification of the Japanese lexicon based largely on word-accent correspondences in the Ruiju-Myogishō, a 12th-century dictionary describing the pronunciation of late Heian Japanese, from which subsequent varieties are held to have developed.

For native (ie, non-loan) nouns, monomoraic words have three classes, bimoraic words five classes, and trimoraic words seven classes. When accent change occurs in a word of a particular accent class, all members of the class are said to change in the same direction. Hence class splits notwithstanding, clear correspondences between accent classes can be observed from the Heian Japanese of the Ruiju-Myogishō to modern Japanese varieties, as well as between modern varieties, as illustrated by the bimoraic nouns (with following particle) in table 2. As the table shows, the classes that are high-initial in the Ruiju Myogishō (I, II) correspond to a single accent pattern in modern Oita Japanese and Kagoshima Japanese, while those which are low-initial (III, IV, V) correspond to two patterns (both featuring a pitch fall) in Oita, and to a single pattern in Kagoshima.

**Table 2: Accent Correspondences between Heian Japanese, Oita and Kagoshima**

Accent Class	Ruiju Myogishō	Oita	Kagoshima
I	HH-H	LH-H	LH-L
II	HL-L		
III	LL-H	LH-L	LL-H
IV	LH-H	HL-L	
V	LH-L		

(Adapted from Kibe, 2008)

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marked with =. Further references to “accented” and “accentless” refer specifically to the presence or absence of the *akusento-kaku*.

**Table 4: Accent Class correspondence in HJ (2 mora nouns)**

Region \ Accent	①		②	
Tokyo	I	IV V	II III	
Inland / Coastal ( <i>Hirayama, 1957</i> ) ( <i>Haga, 1961</i> )	I	II	IV (close) V (close)	III IV (open) V (open)
Sapporo (Inland) ( <i>Ozaki, 1984</i> )	I	II	IV (close) V (close)	III IV (open) V (open)
Hakodate (Coastal) ( <i>Ono, 1993</i> )	I	II	IV (close) V (close)	III IV (open) V (open)
Obira (Coastal) ( <i>Ono, 1993</i> )	I	II (close)	IV (close) V (close)	II (open) III IV (open) V (open)
Sapporo, Asahikawa, Obihiro ( <i>Ono, 1993</i> )	I		IV (close) V (close)	II III IV (open) V (open)
Obihiro (Inland) ( <i>Takemoto, 2010</i> )	I		IV V	II III

### 2.3. Accent Class Correspondences in Hokkaido Japanese

Previous surveys of HJ have provided a comprehensive picture of the accent class correspondences found in “traditional” HJ. Hirayama (1957) and Haga (1961) give the following schema for both coastal and inland varieties: class I and II are ①<sup>6</sup>, and class III is ②. The realisation of word in class IV and V, meanwhile, are dependent on the type of vowel found in V2 position. Open vowels (/a/, /o/, /e/) give ②, while close vowels (/i/, /u/) give ①.

However, as shown in Table 4, more recent studies describe a variety of accent correspondence systems. As of Ono’s (1993) survey, Hakodate retains the system described in older studies in its entirety. However, in Obira (on the northern Japan Sea coast), class II words with open vowels in V2 are realised as ②. Meanwhile, in the inland cities of Sapporo, Asahikawa and Obihiro, class II nouns are entirely realised as ② regardless of the quality of V2. Finally, Takemoto (2010) reports accent class correspondences in Obihiro largely identical to those in TJ, the vowel-based split in classes IV and V being retained by only a few older speakers.

## 3. Methods and Materials

### 3.1. Data Collection

The data used in this survey comes mainly from word list readings, conducted with 24 informants (8 men, 16 women) between June 2013 and June 2014 in Sapporo (Central Hokkaido), Abashiri (Eastern Hokkaido), Nanae (Southern Hokkaido) and Obira (Northern Hokkaido). The interviews were conducted variously in the subjects’ homes, workplaces or in quiet public spaces.

The subjects were asked to read aloud a series of printed sentences in which the target words given in section 3.3 were embedded. For example, for *kani*<sup>7</sup> “crab”, the frame sentence *kani-ga hau* “the crab

6 ①, ②, etc. denotes words with akusento-kaku on the nth mora. Words marked as ① are accentless.

7 Other than proper names, romanizations are given in Kunrei-shiki.

crawls” was used. All the responses were recorded, and analysed using the author’s auditory judgment and f0 traces of the recordings.

### 3.2. Informants

Informants are identified by a five character code indicating the survey site, a unique identifier, their age and gender at the time of the survey. Unless otherwise specified, the informants lived solely in the survey site. Those born outside the survey site are from closely neighbouring towns and cities only.

Sapporo				Obira			
ca30f	Female, 30	ci59m	Male, 59	na52f	Female, 52, Rumoi		
cb33f	Female, 33	ce66f	Female, 66	nc47f	Female, 47		
cd62f	Female, 62. Born Tsukigata, Sapporo from age 14	ch62f	Female, 62	nb63m	Male, 63		
Abashiri				Nanae			
ea34f	Female, 34. Born Abashiri, Sapporo from age 18	eh69m	Male, 69,	sa59m	Male, 59	sf25f	Female, 25
eb15m	Male, 15	ej61m	Male, 61. Born Bihoro, Abashiri from age 17	sb41m	Male, 41. Born Hakodate, Nanae from age 30		
ec50f	Female, 50	ek59f	Female, 59. Born Okoppe, Abashiri from age 15	sc33f	Female, 33		
ee58f	Female, 58	el60f	Female, 60. Born Ozora, Abashiri from age 15	sd60m	Male, 60. Born Hakodate, Nanae from age 30		
ef58f	Female, 58			se41m	Male, 41. Born Matsumae, Nanae from age 26		

### 3.3. Wordlists

All survey items are taken from the accent class wordlists in Kindaichi (1973; 1975).

**Table 5: Survey Word Lists**

Class I:	<i>ebi</i> “prawn”, <i>taki</i> “waterfall”, <i>ika</i> “squid”, <i>usi</i> “cow”, <i>sara</i> “dish”, <i>himo</i> “string”, <i>hati</i> “bee”, <i>kani</i> “crab”, <i>sake</i> “booze”, <i>hana</i> “nose”
Class II:	<i>huyu</i> “winter”, <i>kawa</i> “river”, <i>hata</i> “flag”, <i>nasi</i> “pear”, <i>hasi</i> “bridge”, <i>mati</i> “town”, <i>isi</i> “stone”, <i>kami</i> “paper”, <i>hizi</i> “elbow”, <i>mune</i> “chest”
Class III:	<i>yama</i> “mountain”, <i>kuri</i> “chestnut”, <i>kuma</i> “bear”, <i>inu</i> “dog”, <i>kome</i> “rice”, <i>mimi</i> “ear”, <i>sita</i> “tongue”, <i>hana</i> “flower”, <i>kutu</i> “shoes”, <i>uma</i> “horse”
Class IV:	<i>miso</i> “miso”, <i>umi</i> “sea”, <i>sora</i> “sky”, <i>hasi</i> “chopsticks”, <i>ito</i> “thread”, <i>kinu</i> “silk”, <i>kata</i> “shoulder”, <i>hune</i> “ship”, <i>hari</i> “needle”, <i>kama</i> “scythe”
Class V:	<i>kaki</i> “oyster”, <i>saru</i> “monkey”, <i>mayu</i> “eyebrow”, <i>aki</i> “autumn”, <i>mado</i> “window”, <i>hebi</i> “snake”, <i>kumo</i> “spider”, <i>tabi</i> “tabi”, <i>ame</i> “rain”, <i>sake</i> “salmon”

## 4. Survey Results

Table 6 gives the accent class correspondences shown by each informant<sup>8</sup>.

**Table 6: Accent Class Correspondence in 24 HJ speakers (2 mora nouns)**

		I	II (open V2)	II (close V2)	III	IV · V (open V2)	IV · V (close V2)
Sapporo	ca30f	①	②	②	②	①	①
	cb33f	①	②	②	②	①	①
	ci59m	①	①	①	②	②	①
	cd62f	①	①	①	②	②	①
	ch62f	①	②	①	②	②	①
	ce66f	①	②	①	②	②	①
Abashiri	eb15m	①	②	②	②	①	①
	ea34f	①	②	②	②	①	①
	ec50f	①	②	②	②	①	①
	ee58e	①	②	②	②	②	①
	ef58f	①	②	②	②	①	①
	ek59f	①	②	②	②	①	①
	el60f	①	②	②	②	②	①
	ej61m	①	②	①	②	②	①
eh69m	①	①	①	②	②	①	
Obira	nc47f	①	②	②	②	②	①
	na52f	①	①	①	②	②	①
	nb63m	①	①	①	②	②	①
Nanae	sf25f	①	②	②	②	①	①
	sc33f	①	②	②	②	①	①
	sb41m	①	②	②	②	①	①
	se41m	①	②	①	②	②	①
	sa59m	①	②	①	②	②	①
	sd60m	①	②	②	②	②	①

From the results in table 6, we can see that classes I and III are invariant, produced as ① and ② respectively by all speakers at all survey sites. However, based on the production of classes II, IV and V, we can classify the accent class correspondences of the HJ speakers into four groups as below.

<sup>8</sup> Correspondences for each class were determined as follows: Class I and III showed very little variation and no interactions with segmental material, so table shows the accent pattern with which the simple majority of the words in the class were pronounced. In class II, some speakers showed divergent accent production depending on the quality of the vowel in V2, hence correspondences for class II words with close V2 (*huyu* “winter”, *nasi* “pear”, *hasi* “bridge”, *mati* “town”, *isi* “stone”, *kami* “paper”, *hizi* “elbow”) and open V2 (*mune* “chest” *kawa* “river”, *hata* “flag”) are given separately. Class IV and V demonstrate similar behaviour, so are also shown separately depending on close/open V2. However, a number of lexical exceptions, produced consistently with a specific accent pattern across all speakers (*kama* “scythe”, *hune* “ship”, *sake* “salmon”, *kumo* “spider”, *mayu* “brow”) were also observed, and these were not taken into consideration when determining the affiliation of the accent classes as a whole.

**Table 7: Accent Class Correspondence Sets**

	I · II	①
A	III · IV (open) · V (open)	②
	IV (close) · V (close)	①
	I · II (close)	①
B	II (open) · III · IV (open) · V (open)	②
	IV (close) · V (close)	①
	I	①
C	II · III · IV (open) · V (open)	②
	IV (close) · V (close)	①
	I	①
D	II · III	②
	IV · V	①

Group A can be considered HJ’s “traditional” word-accent correspondence set, matching that described by Hirayama (1957), Haga (1961) etc. This is typical of the “outer ring” (Kindaichi, 1977) Tokyo-accent varieties, including Akita (Sato, 1982) and Aomori (Hojo, 1982) Japanese. Group D is the same correspondence set seen in TJ, while groups B and C combine correspondences from both sets.

**Table 8: Informants sorted by Accent Class Correspondence Sets**

Region \ Correspondence Set	A	B	C	D
Abashiri	eh69m	ej61m	el60f ee58f	ek59f ef58f ec50f ea34f eb15m
Obira	nb63m na52f		nc47f	
Sapporo	cd62f ci59m	ch62f ce66f		cb33f ca30f
Nanae		se41m sa59m	sd60m	sf25f sc33f sb41m
Average Speaker Age	61	57.8	56.3	37.8

By sorting the informants by the accent correspondence sets they show, as in table 8, we can see that the variation observed here is clearly age-stratified. Informants in group A have the highest average age, which is successively lower for members of groups B, C and D. This stratification may be interpreted in one of two ways. If we assume that the accent correspondence sets displayed by the members each group reflect their speech at the age which they acquired language, then each group can be considered a stage of a language change in progress in HJ. However, if HJ speakers change their accent production throughout their lifetimes, then it is possible that no change is in progress in HJ, and that this phenomenon is an example of age-graded variation (cf. Labov, 1972).

However, from previous research, there are reasons to believe that the age-related variation shown in Table 8 does represent a language change in progress. According to Ono (1993), accent class correspondences that align with Tokyo Japanese (i.e., group D) could be seen in most HJ speakers under 35 at that time (p.247), roughly corresponding to speakers under 55 at present. Accordingly, although there are differences depending on survey site, we can see that almost all the informants under 55 are found in



group D. In other words, at least over the 20 years since Ono's survey, the accentual characteristics of each age group have remained largely stable, with speakers likely to retain the accent class correspondences that they held previously. In addition, Takano (2011), conducting a longitudinal study of HJ characteristics, found little change in accent correspondences over speaker lifetimes, stating that for HJ, changes in apparent time can be considered to represent language change in progress (p.12).

Hence we can suggest that the accent class correspondences of HJ have changed from A to D, and that B and C represent intermediate stages in this process. The fact that no speakers produce class II as ① who do not also retain the traditional V2 split in classes IV and V, suggests that the shift from ② to ① in class II predates the convergence of classes IV and V to ①. In addition, in the change from set A to B, the fact that it is words with open vowels in V2 which are first to realise as ② (ie, accent lies on the mora containing the open vowel) conforms with a general tendency in many Japanese varieties for close vowels to be considered relatively suboptimal sites for phonological prominence, such as that conferred by the *akusento-kaku*. This tendency is visible not only in explicit phonological splits, such as that seen in classes IV and V in traditional HJ, where only words with open vowels in V2 can bear accent on that mora, but also as a general statistical trend across the lexicon of varieties such as TJ and Kyoto Japanese (Yoshida, 2006)

## 5. Dialect Levelling in HJ

The shifts in word-accent correspondence identified above appear unlikely to have resulted from dialect-internal factors. For example, given that classes I and II had previously converged to ①, sound change rules should prevent their regular re-separation into ① and ② (cf. Tokugawa, 1978). Rather, this process is consistent with change induced by contact with a socially dominant variety, in this case TJ. Accordingly, the only word-accent classes to undergo accent shift are those which previously displayed accent correspondences divergent from TJ. Furthermore, the fact that no pattern other than D is observed in the youngest speakers (eb15m and sf25f) suggests that D is the "endpoint" of this process.

This is consistent with the nationwide diffusion of standard language features, known as *kyotuugoka* "standardization" taking place in almost every region of Japan, and usually ascribed to the influence of the mass media during the postwar period. However, although to an extent endorsing this view, Ota & Takano (2014), points out that the spread of television coincides with the postwar economic recovery and consequent increased geographical mobility for speakers of regional varieties. Hence it is difficult to untangle the influence of mass media from that of increased dialect contact. The data presented in section 4 provides some possible further avenues to explore this problem.

Although the shift in accent class correspondences was apparent within each survey site, some small differences are apparent in the relative ages of the speakers assigned to each group. For example, while all speakers under 55 in Sapporo and Abashiri show standard accent-class correspondences (group D), in the smaller, more rural settlements of Obira and Nanae, some speakers in their 40s (nc47f, se41m) have retained non-standard accent patterns. Although the sample here is too small to provide definitive conclusions, if further work were able to establish the existence of a significant gap between the pace of standardization between urban areas and more isolated rural ones, this may point to more important role for direct speaker contact, rather than media, in the diffusion of Tokyo-style accent correspondences.

## References

- Dallyn, Thomas (2016) “On the Tonal Characteristics of Hokkaido Japanese”, in *Linguistic Typology of the North*, Vol. 4: Niigata University.
- Hirayama, Teruo (1957) *Nihongo onchô no kenkyu*, Meiji Shôin
- Haga, Yasushi (1961) “hôgen no jittai to kyoutûgoka no mondaiten” in *Hôgenkôza Vol 2*, pp. 100-127
- Hattori, Shirô (1954). “On’inron kara mi ta kokugo no akusento”, *Kokugogaku Kenkyû 2*, reprinted in S. Hattori (1960). *Gengogaku no hôhō*. Iwanami Shôten, pp. 240-277.
- Hôjô, Tadao (1982) “Tôhoku Hôgen no Gaisetu” in *Kôza Hôgengaku 4 — Hokkaidô Tôhoku Tihô no Hôgen*, K. Iitoyo, H. Sukezumi, R. Satô eds. Kokusho Hankôkai, pp.149-177
- Igarashia, Yosuke, Takubob, Yukinori, Hayashib, Yuka, Kuboc, Tomoyuki (2011) “How many tonal constraints in Ikema Ryukyuan?” *17th International Congress of Phonetic Sciences (ICPhS XVII)*. , pp. 930-933.
- Hokkaido Shimbun Joho Kenkyujo (1997) *Hokkaidô marugoto hayawakari*, Hokkaidô Shinbunsha
- Kindaichi, Haruhiko (1973) “*Kokugo Akusento no rekisi kenkyu — genri to hôhō*”, Hanawa Shoubou.
- Kindaichi, Haruhiko (1975) *Nihongo no Hôgen: Akusento no hensen to sono jissô*, Kyôiku Shuppan
- Kindaichi, Haruhiko (1977) “Akusento no Bunpu to Hensen” in S. Ono, T. Shibata (eds.), *Hôgen*, Iwanami Shôten pp. 144-157
- Kubozono, Haruo (2007) “Tone change in language contact: Evidence from Kagoshima Japanese”. *Tones and tunes (Volume 1): Typological studies in word and sentence prosody*. pp. 323-351.
- Ono, Yoneichi (1993) *Hokkaidô Hôgen no Kenkyû*, Gakugei Shoto
- Ono, Yoneichi (1997) “Hokkaidô Hôgen no rekishi to Hokkaidô Hôgen no Seiritsu” in *Hokkaido no Kotoba*, T. Hirayama ed., Meijishôin
- Ota, Ichiro & Takano, Shôji. (2014) “The media influence on language change in Japanese sociolinguistic contexts” in J. Androusoopoulos (ed.), *Mediatization and sociolinguistic change.*, Walter de Gruyter, pp. 171-204.
- Ozaki, Yoshimitsu (1984) “Sapporo-shi no Akusento” in *Hokkaidô hôgen kenkyukai kaihô*, No. 7
- Takemoto, Takuya (2010) “Hokkaidô Obihiro-shi Hôgen no Akusento”, in *Hôgen Onsei Kenkyû*, no. 4, pp. 1-53.
- Takano, Shôji (2011) “Sapporo hôgen meisi akusento no jitujikan kenkyû ~ yamahana chiku paneru chôsaichiji hôkoku”. *Hokkaidô hôgen kenkyukai kaihô* No. 88, p. 40-58
- Satô, Minoru (1982) “Akitaken no Hôgen” in K. Iitoyo, H. Sukezumi, R. Satô (eds.), *Kôza Hôgengaku 4 — Hokkaidô Tôhoku Tihô no Hôgen*, Kokusho Hankôkai, pp.271-295
- Tokugawa, Munemasa (1978) “Nihongo no akusento no keifu” in T. Shibata, M. Katô, M. Tokugawa (eds.), *Nihon no gengogaku Vol. 6*. Taishukan Shoten, p.543-569
- Uwano, Zendo (1977) “Nihongo no akusento” in S. Ono, T. Shibata (ed.) *Iwanami Koza Nihongo 5: On'in*. Iwanami Shoten. pp. 281-321
- Uwano, Zendo (1989) “Nihongo no akusento” in M. Sugito, Y. Miyaji (eds.) *Kôza Nihongo to Nihongo no kyôiku 2: Nihongo no Onsei · On'in*. Meiji Shoin. pp. 178-205
- Uwano, Zendo (2012) “Three types of accent kernels in Japanese”. *Lingua*, Vol. 122, No. 13, pp. 1415-1440
- Yoshida, Yûko. (2006) Accents in Tokyo and Kyoto Japanese vowel quality in terms of duration and licensing potency. 2006, 249-264p.