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東アジアにおけるピッチアクセント言語の類型論

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A typology of pitch accent languages in East Asia

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0. Introduction

This paper is a typological study of three pitch accent languages of East Asia: Ainu, Korean, and Japanese. The purposes of this paper are to investigate what prosodic or suprasegmental features are shared among those three pitch accent languages and also to make linguistic generalizations about shared prosodic features of the languages. The paper focuses only on word accent, not intonation or the like.

Although the Ainu, the Korean, and the Japanese languages are generally considered to have pitch accent, not all the dialects of those languages have a pitch accent system. In languages/dialects belonging to the latter type (pitch does not play a role in distinguishing one word from another), vowel length plays a role in distinguishing words. In Ainu, Korean, and Japanese, there are various regional dialects, and not all the dialects of the languages share the same prosodic features – some have pitch accent, and others do not.

For the purposes of analysis, pitch accent languages are defined as ones with distinctive pitches. Pitches are distinctive within a word and at the beginning of the word. These two pitch distributions will be treated as different systems. Ones with distinctive pitches within a word make use of a locus to indicate a pitch change. That is, a location of a pitch change is crucial. On the other hand, for systems with distinctive pitches at the word initial position, what matters is whether the initial pitch is high or low. In other words, only the initial pitch determines

words' accentual category. It should be noted, however, that some words in a pitch-accent language might not have a locus. For example, in Tokyo (a pitch-accent language), there is a 'non-locus' category, to which words such as *atama* LHH 'head' belong (see below). In Tokyo, words in this category do not have register, either. Therefore, they are practically 'non-pitch accent words' in a pitch-accent language.

The following part of this paper consists of three sections: accent in Ainu, accent in Korean, and accent in Japanese. In each section, synchronic description of each language and its various dialects will be given, and also the sections take a look at them from a diachronic perspective.

1. Accent in Ainu

With regard to suprasegmental, there are two types of dialects in the Ainu language: pitch accent and non-pitch accent. Ones with distinctive pitches are most of Hokkaidô dialects, except Bihoro and Kuril' dialects (Vovin 1993a). On the other hand, dialects in Sakhalin do not have phonological distinctions in pitch, but they have distinctive vowel length. First, a description of a pitch accent system of Ainu will be given, and then a non-pitch accent system will be discussed.

Concerning the pitch accent system of Ainu, Hattori (1961) observes that, unlike the accent in Japanese, in Ainu a locus is on a high-pitch syllable preceded by a low-pitch syllable. Hattori calls this a "rising locus" and indicates it by using "[". For instance, *tusukur* 'shaman' can be pronounced either LHL or LHH (Hattori 1961:8). They are allophonic. That is, a pitch fall is not phonemic, but a pitch rise is.

In the dialects with pitch accent, there are high (H) and low (L) pitches. In(1), some Hokkaidô Ainu words, extracted from Hattori (1961), are listed to show pitch distinctions. The pitch of the words

differentiates the meaning of the word. From this, it is clear that Hokkaidō Ainu has a phonemic high-low pitch opposition between syllables.

- (1)
- | | | | |
|----------|--------------------|----------|------------|
| kera LH | 'a straw raincoat' | kera HL | 'taste' |
| ika LH | 'by no means' | ika HL | 'overflow' |
| nina LH | 'knead' | nina HL | 'burn' |
| nisap LH | 'shin, leg' | nisap HL | 'sudden' |

Concerning the pitch patterns of the pitch accent system in Ainu, Chiri (1956) identifies the following two types; (a) high pitch is on the first syllable and (b) high pitch is on the second syllable—this is true regardless of how many syllables there are in a word. Notice also that this dialect of Ainu has no vowel length distinction, a 'heavy syllable' always indicates the CVC structure and a 'light syllable' the CV structure.

- (2)
- | <u>Type (a)</u> | | <u>Type (b)</u> | |
|-----------------|-------------|-----------------|-----------|
| ane HL | 'thin' | apa LH | 'door' |
| ika HL | 'to leak' | uhuy LH | 'to burn' |
| una HL | 'ash' | asir LH | 'new' |
| sesek HL | 'hot' | ape LH | 'fire' |
| numan HL | 'yesterday' | ironne LHL | 'thick' |

Furthermore, Hokkaidō Ainu words listed in (3) show that there is a correlation between word-initial closed syllables and high pitch. Chiri explains that words beginning with a closed syllable are in general type (a), while words beginning with an open syllable can be either type (a) or (b), with the majority falling into the type (b) category. That is, the accent of the words with an initial heavy syllable is predictable, but the accent of the words with an initial light syllable is not. However, it should be pointed out that there are some exceptions to this generalization, e.g., *kakka* LH 'vulva' in the Soya Hokkaidō Ainu (Vovin 1993a: 99).

- | | | | | |
|-----|-------------|------------|--------------|--------------|
| (3) | apto HL | 'rain' | kapke HL | 'being bald' |
| | wakka HL | 'water' | okchis HL | 'peak' |
| | humpe HL | 'whale' | enrum HL | 'cape' |
| | mintar HL | 'yard' | tane HL | 'long' |
| | terke HL | 'to dance' | husko HL | 'old' |
| | tontone HLL | 'hairless' | poknasir HLL | 'heaven' |

In the non-pitch accent dialects of Ainu, vowel length is distinctive. For instance, as given in (4) below, minimal pairs can be found. They are extracted from the Raichiska dialect of Sakhalin Ainu.

- | | | | | |
|-----|------|---------------|-------|-------------------------------------|
| (4) | aca | 'birth-mark' | aaca | 'father' |
| | rara | 'to submerge' | raara | 'to despise someone' (Hattori 1964) |

As Hattori (1967) points out, when comparing the two typologically different groups of dialects of Ainu, except for Kuril Ainu, the pitch accent dialects do not have long vowels. Furthermore, there is, in general, a systematic correspondence between the high pitch of the Hokkaidô dialects and long vowels of non-pitch dialects. The following examples are taken from Vovin (1993a).

- | | | | |
|-----|------------------------|-----------------------------|---------------|
| (5) | <u>Saru (Hokkaidô)</u> | <u>Raichiska (Sakhalin)</u> | |
| | pin-ne H-L | piine-h(-pihi) | 'male' |
| | pase HL | paase | 'to be heavy' |
| | nociw LH | noociw | 'star' |
| | numan HL | nuuman | 'yesterday' |
| | kera(-ha) HL(-L) | keera | 'taste' |

Notice that while, as discussed earlier, high pitch of the initial heavy syllable in the Hokkaidô Ainu is predictable, the vowel length in the Sakhalin Ainu is not predictable at all.

As for Kuril Ainu dialects, materials from different sources reveal that they had distinct vowel length (Vovin 1993a). That is to say, Kuril dialects had both phonemic distinctions in pitch accent and phonemic

distinctions in vowel length.

- (6) keera LLH 'wind'² uurar LLH 'clouds'
kaani LLH 'iron' tuup HL 'two' (Vovin 1993a)

Therefore, Ainu dialects can be grouped into three types: (i) dialects in which pitch height is in prosodic contrast; (ii) dialects in which the length of vowels is in a prosodic contrast; and (iii) dialects where the pitch height and long vowels coexist. As far as the data is concerned, there are no Ainu dialects lacking both distinctive pitch and vowel length. This prosodic typology of the Ainu language can be shown as follows ('+' indicates existence and '-' shows non-existence):

(7)

	Hokkaidō	Kuril	Sakhalin
Pitch accent	+	+	-
Vowel length	-	+	+

When it comes to an earlier prosodic structure of the Ainu language, on the basis of the synchronic description, we can come up with the following three hypotheses: (i) Ainu had vowel length, and developed a pitch accent system as it lost distinction in vowel length; (ii) Ainu was a pitch accent language, and developed vowel length distinction as it lost pitch accent, and (iii) Ainu once had both pitch accent and long vowels, but lost one type of the prosodic features (i.e., either a pitch accent system or vowel length distinction). For instance, if hypothesis (i) is correct, the Sakhalin accent is the most archaic, the Hokkaidō accent is innovative, and the Kuril is in the process of losing the vowel length distinction. If hypothesis (ii) is what happened, the situation is opposite to hypothesis (i); vowel length distinction developed and pitch accent was lost in Sakhalin. And then if hypothesis (iii) is what really occurred, in an earlier form of the Ainu language both pitch accent and vowel length distinction coexisted, and the Hokkaidō Ainu lost vowel length distinction and the Sakhalin lost pitch

distinction; i.e. the Kuril Ainu had the most archaic accent system.

Hattori (1967) proposed that proto Ainu (PA) had phonemic distinction in vowel length and did not have a pitch accent distinction; that is, Sakhalin dialects have kept the vowel length distinction and Hokkaidô dialects lost the distinction and developed a pitch accent system. Hattori's claim is based on the fact that high pitch in the Saru dialect of Hokkaidô Ainu corresponds to long vowels in the Raichiska dialect of Sakhalin. Examples in (8) are from Hattori (1967).

(8)		Hokkaidô Ainu	Sakhalin Ainu	Proto-Ainu
	'to laugh'	mina HL	mina	*miina
	'red'	hure HL	huure	*huure ³

However, Vovin (1993a) points out that the high pitch syllables in Hokkaidô correspond not only to the Sakhalin long vowels, but also to the short vowels in open syllable. Moreover, long vowels are found only in open syllables and most of the cases are in the initial syllable of the word. However, high-pitch syllables are either open or closed.

(9)		Hokkaidô dialects	Sakhalin dialects
	'net'	ya H	yaa
	'dry land, shore'	ya H	ya-qunsiri

Similarly, the Sakhalin long vowels correspond to both high and low pitch in Hokkaidô.

(10)		Yakumo (Hokkaidô)	Raichiska (Sakhalin)
	'sake cup'	tuki HL	tuuki
	'large wooden hammer'	tuci LH	tuuci

Therefore, Vovin concludes that pitch accent in Hokkaidô and vowel length in Sakhalin are unrelated phenomena. It is necessary to reconstruct pitch accent as well as vowel length for proto-Ainu. Compare below Hattori's reconstruction with Vovin's for the words for

'to conceal' and 'lightning'. The following are taken from Vovin (1993a: 60).

(ii)	Yakumo	Saru	Raichiska	PA(Hattori's)	PA(Vovin's)
'to conceal'	e-sina	e-sina	e-siina	*esiina	*E-siina
	L-LH	L-HL			LLH
'lightning'	imeru	imeru	imeru	*imeru ¹	*imeru
	LLH	LHL			LLH

In the literature there is no hypothesis as stated in (ii) above. However, as far as reconstruction of proto-Ainu accent is concerned, it seems that Vovin's claim is sound.

2. Accent in Korean

According to Sohn (1999), there are seven dialect areas for the Korean language: Hamkyeng, Phyengan, Central, Chwungcheng⁵, Kyengsang, Cenla, and Ceycwu⁶. With regard to prosodic characteristics of the Korean language, according to Sohn (1999), the language can be categorized into three types: (i) the dialects with a pitch accent system; (ii) the dialects with vowel length; and (iii) the dialects with neither pitch accent nor vowel length.

According to *Language Atlas of Korea* (National Academy of Sciences 1993), dialects belonging to (i) are spoken in South and North Kyengsang Province, Kangwen Province (Samchek, Myengcwu, and Yengwel dialects), North Phyengan Province (eastern Hwuchang dialect), and South and North Hamkyeng Provinces except Cengphyeng. (See National Academy of Sciences (1993) for specific regions or dialects within the provinces.)

Dialects in (ii), that is, ones with vowel length, are spoken in the following regions: Kyengki Province, Hwanghay Province, North and South Chwungcheng Provinces, North (Kumsan and Mucwu dialects)

and South Cenla Provinces⁷. Vowel length is distinctive only in initial syllables. Furthermore, a comparison of dialects with vowel length and Middle Korean (MK)⁸ shows that vowel length corresponds to a rising pitch in MK. From this, it can be concluded that vowels with a rising pitch of MK became long in the modern dialects mentioned above, and vowels with a high or low pitch remained short.

Dialects categorized as (iii)-type have neither vowel length nor pitch. According to Sohn (1999), dialects without distinctive vowel length and pitch are spoken in North Phyengan (Pongsan, Caylyeng, western Hwunchang, Chosan, Sakcwu, Wunsan, Thaychen dialects), South Phyengan (Yengwen, Maysan, Swunchen, Phyengwen, Yongkang, Kangse, Cwunghwa dialects), Kangwen (Hoyyang, Ichen, Yangkwu, Hwachen dialects), and Ceycwu Provinces.

In the Korean dialects with pitch accent, syllables are generally realized as either high pitch or low pitch. In the Pukcheng dialect of South Hamkyeng, the possible accentual patterns for nouns are shown in (12). They are extracted from Ramsey (1978:79). 'O' and 'l' respectively stand for a syllable and a locus (i.e., the symbol 'l' shows a pitch change from high to low).

(12) Accentual patterns of the Pukcheng dialect of Hamkyeng

(a) two syllable nouns with a nominative particle:

/OO/	LH-H	palam-i	'wind-Nom.'
/OOl/	LH-L	atul-i	'son-Nom.'
/OlO/	HL-L	moki-ka	'mosquito-Nom.'

(b) three syllable nouns with a nominative particle:

/OOO/	LHH-H	saytali-ka	'ladder-Nom.'
/OOOl/	LHH-L	kamakwi-ka	'raven-Nom.'
/OOlO/	LHL-L	kamulchi-ka	'mullet-Nom.'
/OlOO/	HLL-L	thokkaypi-ka	'spirit-Nom.'

The accentual patterns of the Kimhay dialect of South Kyengsang Province are /OO/ [LH], /O|O/ [HL], and /|OO/ [HH] for two syllable nouns and LHH, LHL, and HLL for three syllable nouns⁹ (Ramsey 1978: 79).

(13) Accentual patterns of the Kimhay dialect of South Kyengsang

(a) two syllable nouns with a nominative particle:

/OO/	LH-L	palam-i	'wind-Nom.'
/O O/	HL-L	atul-i	'son-Nom.'
/ OO/	HH-L	mokwu-ka	'mosquito-Nom.'

(b) three syllable nouns with a nominative particle:

/OOO/	LHH-L	saytali-ka	'ladder-Nom.'
/OO O/	LHL-L	kkamakwu-ka	'raven-Nom.'
/O OO/	HLL-L	kamuchi-ka	'mullet-Nom.'
/ OOO/	HHL-L	thokkaypi-ka	'spirit-Nom.'

Notice that in both Hamkyeng and Kyengsang, nouns consisting of n syllables can have $n + 1$ possible accentual patterns (n is any positive integer). That is, disyllabic nouns have three pitch patterns, trisyllabic nouns four pitch patterns, etc. This pitch accent system is very much like that for Tokyo Japanese (see Section 3 of this paper).

Do the pitch accent dialects of Korean also have vowel length, like the Kuril Ainu? Ramsey (1978: 121) states, "In the South Hamkyeng dialect there are distinctively long syllables, and, unlike long syllables in the Seoul dialect, they are not restricted to initial position." Ramsey does not clearly explain what 'long syllable' means, but from the context, it includes syllables with a long vowel. Furthermore, from context, it is not really clear whether or not this vowel length is phonemic. The Hamkyeng vowel length is probably phonetic, not phonemic.

Hayata (1976) says that the Yengchen dialect of North Kyengsang Province does not have phonemic long vowels, and that the Yengchen

phonetic long vowels occur in an initial syllable preceded by an accent nucleus and also occur where a sequence of two identical vowels meet: *peemi* [be:mi] 'snake', *saram* [sa:ram] (preceded by an accent nucleus). However, regarding pitch in Antong, another North Kyengsang dialect, Martin (1992: 60) states "...others (such as Antong) have two levels, high and low, but distinguish some of the low syllables by lengthening the vowel." Therefore, in North Kyengsang province there are two different types of dialects; one type with distinctive pitch and vowel length, and the other with only a pitch accent.

In the Seoul dialect, a non-pitch accent dialect of Korean, the distinction in vowel length has been for the most part neutralized. "...many speakers do not use long vowels in all the words for which some speakers retain them, so that most words with a long vowel within a morph have short variants" (Martin 1992: 32). Young speakers of the dialect no longer have a phonemic distinction in vowel length¹⁰.

In general the Seoul long vowels occur in the initial syllable of the words and they correspond to the MK "rising pitch".

(14)	MK	Seoul	
'chestnut'	:pam ¹¹	paam	
'persimmon'	:kam	kaam	
'crab'	:key	keye	
'money'	:twon	toon	(Ramsey 1978: 128)

According to Sohn (1999: 200), the pitch accent of the Kyengsang and Hamkyeng dialects is not innovation, but a remnant of their earlier form – MK. It is known that MK was a pitch accent language with high, rising, and low pitches. Each syllable bears one of the pitches.

The distribution of the rising pitch was in general restricted to the initial syllable. The only exception that Ramsey (1978) finds is *swuul* L 'rice wine', which alternates with *swuwul* LL and *swul* L.

It is claimed that the MK rising pitch is secondary; it is derived from a combination of low and high pitches which merge when the initial consonant of the second syllable is lost (Martin 1992).

An example of this is illustrated below:

- (15) *kahi* LH 'dog' in the earliest MK texts
 kay R(ising) in later texts

The word *kahi* LH lost the intervocalic /h/, causing the L pitch on the first syllable and H pitch on the second merged into one. As a result, rising pitch came to existence in MK.

Martin (1992) and Ramsey (1978) claim that the MK rising pitch was phonemically long, but there is no evidence to support this claim, because MK texts do not indicate vowel length. Furthermore, it is not necessary that rising pitch resulting from contraction of two syllables, low pitched syllable and high pitched one, has to be phonemically long, e.g. contour pitch or rising pitch is not phonemically long in Mandarin Chinese.

According to Martin (1992), the long vowels in the central dialects correspond to either pitch or a combination of pitch and vowel length in other modern dialects. For instance, (16) shows that the Seoul long vowels correspond not only to low pitch in the Kimhay dialect of South Kyengsang, but also to high pitch in the Hamhung dialect of Hamkyeng. However, not all high pitch syllables correspond to syllables with a long vowel; the Hamhung high pitch corresponds to a short vowel in the Seoul dialect as well. The vowel length of the Seoul dialect also corresponds to low pitched long vowels in the Antong dialect of North Kyengsang and the Kwunsan dialect of North Cenla, as shown in (16).

Although there are systematic correspondences between vowel length of the Seoul dialect and either pitch height or vowel length of

the other dialects of Korean, this correspondence varies depending on the dialect. That is, the vowel length of the Seoul dialect corresponds to low pitch in one dialect and high pitch in another. This is very different from the correspondence found in Ainu. The chart in (16) is extracted from Martin (1992: 35).

(16)		Seoul	Kimhay ¹²	Antong- Kwunsan	Hamhung- Holyeng	MK
mal	'horse'	short	high	high short	low	low
pay	'pear'					
son	'guest'					
mal	'measure'	short	mid	low short	high	high
pay	'stomach; boat'					
son	'hand'					
maal	'words'	long	low	low long	high	rising
paay	'double'					
soon	'loss'					

As in Ainu, in Korean pitch accent and vowel length coexist. However, unlike Ainu, some Korean dialects have neither distinctive pitches nor vowel length. This raises some questions as to what earlier accent systems of the Korean language were like. The discussions so far is summarized in (17). As far as prosodic structures are concerned, in Korean there are four types of dialects, including MK. The first type ('Hamkyeng-type') is the dialects with pitch accent (e.g., Kyengsang, Kangwen, North Phyengan, and Hamkyeng except Cengphyeng), the second type ('Kyengki-type') with vowel length (e.g., Kyengki,

Hwanghay, Chwungcheng, and Cenla), the third type ('South Kyengsang') with pitch accent and vowel length (e.g., some South Kyengsang¹⁵), and the fourth type ('Ceycwu-type') with neither pitch accent nor vowel length (e.g., Phyengan, Kangwen, and Ceycwu).

(17)	Hamkyeng-type	Kyengki-type	S.Kyengsang	Ceycwu-type
Pitch accent	+	-	+	-
Vowel length	-	+	+	-

On the basis of this, there are four possible hypotheses: (i) earlier Korean was a pitch accent language; (ii) earlier Korean had distinctive vowel length; (iii) in earlier Korean both pitches and vowel length were distinctive; and (iv) Korean developed distinctive pitches and vowel length.

If hypothesis (i) is correct, South Kyengsang, Hamkyeng, and some of North Kyengsang dialects (Type 1) have kept the earlier prosodic structure, and other dialects underwent changes. For example, modern Korean such as spoken in Seoul (Type 2) lost distinctive pitches and developed vowel length distinction. If hypothesis (ii) is what happened, the scenario would be completely opposite to that of hypothesis (i). If hypothesis (iii) is right, some of North Kyengsang dialects have kept earlier forms and the rest underwent changes. Related to this matter, Martin and Ramsey claim, if MK had both pitch accent and vowel length, modern Korean spoken in Seoul and South Kyengsang province respectively lost distinctive pitch and distinctive vowel length, and Hamkyeng and North Kyengsang dialects have kept both accent systems found in MK. If hypothesis (iv) is correct, dialects belonging to Types 1, 2, and 3 developed their accent systems from a non-pitch accent system with no vowel length.

As regards reconstruction of proto-Korean accent, on the basis of the lexical distribution among accent classes; oxytonic nouns are far

larger than the other classes¹⁴, Ramsey (1991) proposes that proto-Korean was not pitch accent or did not have vowel length, but had a system where the last syllable is automatically given a high pitch. If Ramsey's proposal is right, by the 15th century Korean lost the proto-Korean accent system, and developed pitch accent or both pitch accent and vowel length. Furthermore, since Ramsey does not give any explanation about how the modern Korean accent systems developed.

As Martin contends, if long vowels have resulted from a merger of two syllables, hypotheses (ii) and (iii) would not be possible. Although Ramsey's argument is intriguing, his evidence for hypothesis (iv) is not enough to end our discussion. If one cannot provide explanations for the development of a pitch accent system, hypothesis (i) would be sound.

3. Accent in Japanese

According to Akinaga (1986: 101), the Japanese language can be classified into five main groups: (i) Keihan-type accent. (ii) Tokyo-type accent, (iii) one-pattern accent, (iv) accentless, and (v) ambiguous accent. This is along a line of the traditional classification adopted by a number of Japanese scholars in Japan. However, this classification does not reveal the locus-register distinctions. It has been pointed out that in addition to the location of 'accent' (locus), the initial pitch of a word is distinctive in some dialects of the Japanese language (see McCawley 1977). The locus-register distinctions are crucial when we discuss an accentual history of the Japanese language (see Shimabukuro 2002). Therefore, as mentioned earlier, in this paper we will look at Japanese accent from the locus-register point of view.

Under our classification, there are four main accentual types in Japanese: (i) dialects with both locus and word-initial register (e.g., Kyoto), (ii) dialects with locus, but lacking word-initial register (e.g.,

Tokyo), (iii) dialects with word-initial register only (e.g., Kagoshima), and (iv) dialects having neither locus nor word-initial register (e.g., Southern Miyagi and Yamagata). Throughout this paper, for convenience, (i) - (iv) types are called 'Kyoto-type', 'Tokyo-type', 'Kagoshima-type', and 'South Miyagi-type' respectively. The characteristics of these types will be discussed below.

Generally speaking, like Ainu and Korean, in Japanese there are two distinctive pitches, high and low. For those belonging to (i) and (ii) types, pitch patterns depend upon the location of an accentual nucleus. The pitch falls immediately after a syllable with the nucleus.

First, the description of Befu dialect (Kyoto-type accent), spoken in Hyōgo Prefecture will be given. All data for Befu dialect below is from McCawley (1977). In the Befu dialect, like other Japanese dialects, there are two distinctive pitches, high and low. Pitch patterns depend upon the location of an accentual nucleus. The pitch falls immediately after a syllable with the nucleus. In addition to this, the word-initial pitch (H or L) of a word is phonemically distinct. The distinction of initial pitch is an additional factor in determining pitch pattern. Therefore, a Kyoto-type dialect has more distinct accentual patterns than other Japanese dialects. The following shows that there are three accentual patterns for monosyllables, four for disyllables, and five for trisyllables.

(18) Accentuation of Befu words

(a) monosyllabic nouns with a nominative particle:

$\bar{\prime}O/^{15}$	H-H	ka-ga	'mosquito-Nom.'
$/O/$	H-L	ha-ga	'leaf-Nom.'
$\angle O/$	L-H	ta-ga	'field-Nom.'

(b) disyllabic nouns with a nominative particle:

/̄OO/	HH-H	kaki-ga	'persimmon-Nom.'
/ŌO/	HL-L	hasi-ga	'bridge-Nom.'
/̄OO/	LL-H	hasi-ga	'chopsticks-Nom.'
/OŌ/	LH-L	mado-ga	'window-Nom.'

(c) trisyllabic nouns with a nominative particle:

/̄OOO/	HHH-H	sakana-ga	'fish-Nom.'
/̄OŌO/	HHL-L	azuki-ga	'red beans-Nom.'
/ŌOO/	HLL-L	awabi-ga	'abalone-Nom.'
/̄OOO/	LLL-H	usagi-ga	'rabbit-Nom.'
/̄OŌO/	LHL-L	kabuto-ga	'helmet-Nom.'

Regarding dialects with Tokyo-type accent, Tokyo dialect will be described. Just like the Hamkyeng and Kyengsang dialects of Korean, in the Tokyo dialect the number of pitch patterns of nouns is $n + 1$; that is, monosyllabic nouns can have two pitch patterns, disyllabic nouns three pitch patterns, trisyllabic nouns four pitch patterns, and so on. Notice that not all nouns have an accent nucleus, and also that no words can have more than one syllable with an accent nucleus. All the Tokyo data is from Kindaichi and Akinaga (1997).

(19) Accentuation of Tokyo words

(a) monosyllabic nouns with a nominative particle

/Ō/	H-L	e-ga	'picture-Nom.'
/O/	L-L	e-ga	'handle-Nom.'

(b) disyllabic nouns with a nominative particle

/ŌO/	HL-L	kaki-ga	'oyster-Nom.'
/OŌ/	LH-L	kaki-ga	'fence-Nom.'
/OO/	LH-H	kaki-ga	'persimmon-Nom.'

(c) trisyllabic nouns with a nominative particle

/ŌOO/	HLL-L	makura-ga	'pillow-Nom.'
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/OO]O/	LHL-L	kokoro-ga	'heart-Nom.'
/OOO] /	LHH-L	atama-ga	'head-Nom.'
/OOO/	LHH-H	sakana-ga	'fish-Nom.'

Unlike Kyoto-type dialects, in Tokyo the word-initial pitch is not distinctive. In other words, the initial syllable or more is always low pitch if not accented¹⁶. Once pitch falls it stays low.

In dialects belonging to the third group (Kagoshima-type), only word-initial pitch is distinctive. In other words, they have word-initial register. In Kagoshima dialect, as far as accentuation is concerned, there are only two types: high-register and low-register. High-register words begin with high pitch, and low-register ones with low pitch. Within the domain of accent (i.e., prosodic word), high-register words have high pitch on a penultimate-syllable. Thus, they are F^H ~ H-L for monosyllables, HL ~ LH-L for disyllables, and LHL ~ LLH-L for trisyllables. The other accent type is phonetically high on the final syllable in the prosodic word; the other syllables in the domain are in low pitch (e.g., R ~ L-H, LH ~ LL-H, LLH ~ LLL-H).

(20) Accentuation of Kagoshima words

(a) monosyllabic nouns with a nominative particle

/̄O/	F ~ H-L	ha-ga	'leaf-Nom.'
/_O/	R ~ L-H	ha-ga	'tooth-Nom.'

(b) disyllabic nouns with a nominative particle

/̄OO/	HL ~ LH-L	hana-ga	'nose-Nom.'
/_OO/	LH ~ LL-H	hana-ga	'flower-Nom.'

(c) trisyllabic nouns with a nominative particle

/̄OOO/	LHL ~ LLH-L	sirusi-ga	'mark-Nom.'
/_OOO/	LLH ~ LLL-H	hukuro-ga	'bag-Nom.'

So far, three types of dialects have been discussed. The last type of dialects is the one with no distinctive pitches. One of the dialects

belonging to this group is spoken in southern parts of Miyagi and Yamagata Prefectures, Fukui, and many other parts of Japan. In this dialect, according to Nihon Onseigakkai, ed. (1976), words can be pronounced in a number of ways - there are no rules or categories for words. For example, the word *atama* 'head' is pronounced as follows: LHL, HHL, HLL, LLL, LHH, etc. (cf. *atama* LHH in Tokyo). There are also dialects with a single pitch pattern such as the one spoken around the city of Ôsu in Ehime. In Ôsu, all words are pronounced with initial high, no matter how many syllables a word is made up of (e.g., *kawa* HL 'river, skin', *sakura* HLL 'cherry').

Concerning vowel length in Japanese. According to Shibatani (1994), whether vowel length in Japanese is phonemic or not has been controversial¹⁸, although it is a fact that long vowels contrast with short vowels in minimal pairs. Compare the following examples.

- (21) *su* 'vinegar' *suu* 'number'
 to 'door' *too* 'ten' (Shibatani 1994: 162)

Examples in (21) are good in most of the Japanese dialects, except Kyoto-type dialects and ones in the Ryukyus because there are no monosyllables with a short vowel (e.g., *suu* 'vinegar, number' in Kyoto). However, those dialects contrast *ojisan* 'uncle' and *obasan* 'aunt' with *ojiisan* 'grandfather' and *obaasan* 'grandmother'.

On the basis of the discussion in this section, we can summarize the Japanese accent system as in (22). Among the four major groups of Japanese dialects, in addition to vowel length distinctions, Kyoto-type makes use of both a locus and register. Tokyo-type Japanese has a locus system and vowel length. Kagoshima-type dialects have a register system with vowel length distinctions. Vowel length exists in all the four types. Furthermore, there are no dialects that lack all these features.

(22)	Kyoto	Tokyo	Kagoshima	S. Miyagi
Locus	+	+	-	-
Register	+	-	+	-
Vowel length	+	+	+	+

When it comes to earlier accentual forms of the language, locus, register, and vowel length cannot be avoided. All these three suprasegmental features are crucial in an accentual history of the Japanese language.

Regarding vowel length, let us assume that the length distinctions existed in earlier Japanese because based on the comparison of the dialects in (22), our hypothesis is more reasonable than an assumption that the dialects developed length independently, and have happened to have the same distinctions. Vovin's comparative work (1993b) presents solid evidence from Japanese, Korean, and Ainu, and argues that proto Japanese (PJ) had vowel length distinctions.

Besides vowel length, looking into the four types of the Japanese dialects shown in (22), notice there are two important problems to deal with. The first one is to do with the question whether Kyoto or S. Miyagi is the most archaic. In other words, whether Japanese has lost the prosodic features discussed above or it has gained the features. The second problem is whether Tokyo or Kagoshima is more archaic. That is, which one of the features (locus and register) tends to be lost first, if there is such a tendency. A number of scholars involved in a history of Japanese accentology believe that dialects with fewer accentual categories such as ones classified as Kagoshima-type and southern Miyagi-type have lost their locus distinctions (see Kindaichi (1974)).

With regard to the first problem, there are two possible scenarios. First, if Kyoto is the most archaic, (i) Tokyo and Kagoshima are in the process of losing some features and what follows it is (ii) S. Miyagi is

the most innovative. Second, if S. Miyagi is the most archaic, (i) Tokyo and Kagoshima are in the process of gaining some features and (ii) Kyoto is the most innovative.

Using the comparative method, we are able to reconstruct a PJ with locus, register, and vowel length. In the literature, although specific accentual categories are not identical, a number of scholars (see McCawley (1977), Martin (1978), Hattori (1979)) have argued for the existence of locus and register.

Furthermore, Martin (1978) suggests that there may be a correlation between vowel length and word-initial register. Based on Martin's work, Shimabukuro (1997) reconstructs an accentual system of PJ disyllables, in which an initial long vowel is correlated with low pitch in a register system; i.e., an accentual category with both features in a 'low register category'. Shimabukuro (2002) explains how PJ evolved into modern Japanese dialects based on natural sound changes. On the other hand, if we propose the second scenario mentioned, it is much more difficult to account for how S. Miyagi-type dialects developed two different accentual systems (i.e., locus and register), unless we come up with *ad hoc* sound changes or explanation with language contact.

4. Conclusion

Ainu, Korean, and Japanese are considered to be pitch accent languages. However, by looking into accentual systems of those languages in detail, it has been shown that not all of their dialects have distinctive pitches, even though they are dialects of 'pitch-accent' languages. Furthermore, it has been also revealed that non-pitch accent dialects make use of vowel length instead, although some, depending on the languages, do not have distinctive pitches and vowel length at all.

In the first section of this paper, the accentual system of Ainu

was discussed. The important points are: (i) not all dialects are pitch-accent; (ii) some dialects do not have distinctive pitches, and ones without distinctive pitches have vowel length distinctions; (iii) although there are ones with both pitch accent and vowel length, there are no dialects lacking both distinctive pitches and vowel length; (iv) loci in a pitch-accent dialect correspond to long vowels in a non-pitch accent dialect; and (v) both distinctive pitches and vowel length seem to have coexisted in PA.

The second section discussed Korean suprasegmentals, which is very similar to that of Tokyo Japanese. Korean dialects can be grouped into four types (i.e. Hamkyeng, Kyengki, South Kyengsang, and Ceycwu) based on their prosodic structures. Of those, Hamkyeng-type and South Kyengsan-type dialects are pitch-accent, the rest are non-pitch-accent. From the perspective of vowel length distinction, dialects belonging to South Kyengsang and Kyengki types have vowel distinction. In Ceycwu-type dialects, neither pitch nor vowel length function in their phonological systems.

A comparison of various types of dialects, including MK, shows that there are no correlations between loci and long vowels. However, as the previous studies explain, MK rising pitch and vowel length in certain dialects are correlated to each other — this is a cause-effect relation.

As for PK prosodic structure, in the literature some proposals on a history of prosodic structure of PK. However, at this point, they are not convincing yet. Further research needs to be conducted.

Concerning the prosodic structure of Japanese, Kyoto Japanese has most distinctions/accentual categories among the languages/dialects that this paper has investigated. This is due to its accentual system that consists of locus and register. In Japanese, some dialects do not have distinctive pitches at all (e.g., Southern Miyagi type dialects). As

for vowel length, no Japanese dialects lack vowel length distinctions, although in Ainu and Korean, vowel length is not necessarily shared by their dialects, nor is pitch accent.

Considering the prosodic structure of modern dialects and historical materials, PJ seems to have had register, locus, and vowel length, unless we can account for the development of these suprasegmental features.

Notes

1. On the basis of limited materials of S. Krashenimmikov, Vovin (1993a) concludes that Kuril Ainu had a pitch accent. Kuril is an extinct language.
2. Vovin (1993a) gives two Kuril forms for 'wind': *keera* (p. 66) and *kieiera* (p. 83).
3. The proto-Ainu forms shown here are reconstructed by the author of this paper on the basis of the Hattori's claim on proto-Ainu accent system.
4. Hattori did not give PA forms for 'to conceal' and 'lightning' in his work. However, in order to compare his hypothesis and Vovin's, I reconstructed Hattori's PA forms based on his claim.
5. According to Dr. Alexander Vovin (personal conversation), some dialects of Chwungcheng have pitch accent.
6. Ramsey (1978) says that there are six major dialect areas in modern Korean: Hamkyeng, Phyengan, Central, Cenla, Kyengsang, and Ceycwu. Under Ramsy's classification, the central dialects include dialects spoken in Hwanghay, most of Kangwen, Kyengki, and most of Chwungcheng (Ramsey 1978). Notice that Ramsey's Central dialect area includes Chwungcheng dialect, while Sohn distinguishes Chwngcheng dialect from the central dialect. In this paper, I adopt

- Sohn's classification only because, as Sohn explains, characteristics of Chwungcheng and Central dialects are not identical.
7. Martin (1992: 34) claims that the Cenla has distinctive pitches. However, in Ramsey's analysis, dialects spoken in the Cenla Province do not have pitch accent.
 8. "[T]he language of Korean texts written in the fifteenth and sixteenth centuries." (Ramsey 1978: 2)
 9. I have adopted Ramsey's analysis although Huh (1985) and Martin (1992) claim that the South Kyengsang dialect has three distinctive pitches: low, mid, and high. The adoption of Ramsey's analysis of both Hamkyeng and Kyengsang accent gives us consistency in our analysis. As far as whether or not the Kyengsang dialect has three pitch distinctions is concerned, I leave it as it is for the time being.
 10. In the speech of younger speakers of the Seoul dialect, the old vowel length distinction has been lost, but there are two types of new long vowels; ones derived from dropping an intervocalic /h/ or the vowel /u/, and ones borrowed from other languages such as English. (Martin, 1992: 33)
 11. ':' at the beginning of the words indicates "rising pitch".
 12. As shown in (13), Ramsey (1978) describes Kimhay Korean with only H and L pitches.
 13. Martin (1992) claims that in some of North Kyengsang dialects both pitches and vowel length are distinctive, while Sohn (1999) and Ramsey (1987) say that Kyengsang dialects do not have distinctive vowel length.
 14. The following is extracted from Ramsey (1991: 219).

<u>The lexical distribution of 398 MK nouns among accent classes</u>		Total
Accent class:	1.0	1.1
Example:	mɨl L 'house'	mɨl H 'measure'

Class size:	35(22%)	127(78%)	162
Accent class:	2.0	2.1	2.2
Example:	pòli LL 'barley'	mókay HL 'mosquito'	mèlí LH 'hair'
Class size:	46(19%)	30(13%)	160(68%)
			<u>236</u>
			398

15. “^ˉO...” and “_O...” indicate that they are high register and low register respectively.
16. If the initial syllable is heavy, the first mora is in either low or high pitch, e.g., *sensei-ga* LHHL-L ~ HHHL-L ‘teacher-Nom.’
17. Monosyllables have only one Tone Bearing Unit. Therefore, a sequence of a high pitch and a low pitch, i.e., HL, is considered to be on the syllable. As a result, monosyllables have a falling pitch. For more details on this matter, see Haraguchi (1977).
18. Shibatani (1994) explains the difference between a sequence of two short vowels and a long vowel in analysis. The words in (i) are both pronounced [su:ri] in casual speech, but do both have a long vowel in the first syllable?

- (i) (a) su-uri ‘vinegar vendor’
 (b) suu-ri ‘mathematical principle’

Shibatani's analysis of (i) is as follows:

- (ii) (a) su-uri /suuri/
 (b) suu-ri /su:ri/

Namely, in (ia), the second of the geminate vowels is articulated as an independent segment (a sequence of two identical vowels), while the corresponding vowel in *suu-ri* involves only one articulation; i.e. long vowel.

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論文要約

東アジアにおけるピッチアクセント言語の類型論

島 袋 盛 世

本稿はアイヌ語、韓国語、日本語の超音節的特徴を類型論的に共時的そして通時的観点から比較分析したものである。アイヌ語、韓国語、日本語は高低音調を分別するピッチアクセント言語であると言われているが、本論文ではそれらの言語の方言がすべてピッチアクセント言語ではなく、音調の高低が分別的機能を持たない方言も存在することを指摘する。さらに、ピッチアクセントではない言語・方言間の超音節的特徴を上げ、アイヌ語、韓国語、日本語間で相違点を比較考察する。