Accentuation in Southern and Central Kikaijima

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1 Introduction

This paper provides a broad overview of the accent systems of six villages (Wan, Nakasato, Kamikatetsu, Aden, Sakamine, and Shiomichi) in the Southern and Central Kikaijima regions, based on the joint research carried out in September 2010. The first part of this paper provides an analysis of the accent system of the two communities of Wan and Nakasato, referring to earlier research (Uwano 2000, 2002a). In the second part, the accent systems of the other villages are described and analyzed in comparison to the system of these two villages. For the Northern dialect (Onotsu), readers are referred to Uwano (2002a,b).

2 Nakasato and Wan Dialects

2.1 Previous Research

The accentuation of the Wan dialect on Kikaijima has been analyzed by Uwano (2000, 2002a). According to him, the Wan dialect has only two accent classes, regardless of the word length, like the Kagoshima and Nagasaki dialects. However, because the lexical items in the two accent classes do not match with those of the two accent classes (Types A and B) in Kagoshima and Nagasaki, Uwano uses α and β to represent the two accent classes in Kikaijima. Thus, the Wan dialect can be described as having a two-pattern accent system consisting of α-type and β-type.

According to Uwano (2000, 2002a), in the Wan dialect, the basic unit to which tones are assigned is the mora, not the syllable. In this respect, the Wan dialect is basically the same as the Nagasaki and Koshikijima (Kagoshima Prefecture) dialects, and different from the Kagoshima dialect, whose basic unit is the syllable (Sakaguchi 2001; Kamimura 1937, 1941; Hirayama 1951; Kibe 2000; Kubozono 2010, 2011, 2012).

In terms of the difference between the α-type and the β-type, the α-type defines its tonal pattern in every *bunsetsu*, or the basic syntactic unit consisting of a content word with or without one or more grammatical particles. This is a feature shared by the Kagoshima and Nagasaki dialects. More specifically, the α-type in the Wan dialect assigns a Low tone on the penultimate mora in every *bunsetsu*. Therefore, for nouns pronounced in isolation, the penultimate mora of the noun becomes low, while the other moras become high. For nouns followed by a particle, the penultimate mora of the whole phrase becomes low.

On the other hand, the β-type tonal patterns are defined within each word, rather than each *bunsetsu*, with the pitch rising at the penultimate mora in the domain. In other words, the tone pattern is fixed with the word as its domain, as in the Tokyo dialect. However, regardless of word length, the antepenultimate mora becomes low, and the next mora becomes high. The two types are given schematically below (○ represents a mora in a noun, and △ a mora in a particle).

(1) a. α-type: ○○, ○○○, ○○○○, ○○○○△, ○○○○△△
(Lexical items: midu 'water', tui 'bird', hana 'nose', gama 'cave', hibusji 'smoke', udui 'dance', hasami 'scissors', kaNnari 'thunder', aRtucji 'dawn'…)

b. β-type: ○○○○, ○○○○△, ○○○○△△
(Lexical items: umi 'sea', nabi 'pot', funi 'ship', usu 'mortar', hatana 'sword', hateR 'field', tiNzjoR'ceiling'…)

A broad comparison of the two types is given in Table 1. The difference between domains of α-type and β-type is that the former has characteristics of what Hayata (1999) calls 'word tone', while the latter has characteristics of 'word accent', which means that the system is a hybrid one with the feature of word tone (as in the Kagoshima dialect) and that of word accent (as in the Tokyo dialect).

Table 1

	Tone Bearing Unit	Domain	
α-type	mora	*bunsetsu*	penultimate mora low
β-type		word	penultimate mora high

Table 2 is a classification of dialects which have two-pattern accent systems, based on the tone bearing unit.[1] The difference in tone bearing unit is not directly related to the distinction between word tone and word accent, explained above.

Table 2

Syllabic	Kagoshima, (Koshikijima)
Moraic	Nagasaki, Koshikijima, Kikaijima-Wan

[1] Koshikijima (Teuchi dialect) assigns tones to syllables at the beginning of words, and to moras at the end of words (Kubozono 2010, 2011, 2012).

Returning to the Wan dialect, Uwano (2000, 2002a) proposes the following phonological interpretation of the two tonal patterns listed in (1).

(2) a. α-type: only the penultimate mora in the *bunsetsu* is low (unaccented type)
b. β-type: the penultimate mora in the word has a raising kernel

This analysis assumes, on the one hand, that the location of the rise in pitch is significant in the β-type where the penultimate mora (the second to last mora) is specified as bearing an accent kernel (raising kernel). In the α-type, on the other hand, pitch rise is not significant although it is present, but it is the lowering of the penultimate mora which is considered to be the significant feature.

2.2 Survey

In the current joint research, we gathered accent data from two informants in Wan village, and two informants in Nakasato village, located to the south of Wan. The data used in this paper was collected by the author from two middle-aged male speakers (one in each village).[2]

In the survey, we had the informants read out bare nouns and their bunsetsu forms both in isolation and in sentences. The bunsetsu forms consist of nouns followed by the particles *ga* (nominative case), *kara* 'from', *made* 'until', *karamo* 'even from', and *mademo* 'even till', while the sentence forms consist of a word or bunsetsu followed by another bunsetsu (i.e. a conjunctive form). The speakers were asked to read the items (words/bunsetsu forms) twice, and we noted the pronunciations on paper while recording them using a digital recorder. The same methodology was used in the other villages to be described below.

2.3 α-type

2.3.1 Results

First, two-mora nouns will be discussed. The symbols in the upper right corner of the items, ① and ③, indicate that they belong to the first and the third classes of Kindaichi's classified vocabulary known as *ruibetsu goi*. Class 1 of two-mora nouns corresponds to A-type nouns in the Kagoshima and Nagasaki dialects, and class 3 to B-type noun.

(3) *midu* 'water'①, *tui* 'bird'①, *hana* 'nose'①, *gama* 'cave';
jama 'mountain'③, *pana* 'flower'③, *mami* 'bean';
muni 'wheat'

[2] The informant in Nakasato village is Kiyoji Tokuta (age 53, born May 1953) and the informant in Wan village is Susumu Iwata (age 57, born January 1953).

These words have the following tonal patterns. " ." indicates words/phrases pronounced in isolation, and " … " indicates conjunctive forms.[3]

(4) Isolation Forms: ○○. ○○ga. ○○mo. ○○kara. ○○made.
○○karamo. ○○mademo.
Conjunctive Forms: ○○ga… ○○kara… ○○made…
○○karamo… ○○mademo…

For three-mora nouns, the accentuation of the following words was investigated. ④ indicates class 4 of Kindaichi's classified vocabulary. Class 1 of three-mora nouns belong to A-type and class 4 to B-type in Kagoshima and Nagasaki.

(5) *hibuɛi* 'smoke'①, *udui* 'dance', *katatɛi* 'form'①;
hasami 'scissors'④, *hagami* 'mirror'④, *kujumi* 'calendar'④

These words have the following tonal patterns

(6) Isolation Forms: ○○○. ○○○ga. ○○○mo. ○○○kara. ○○○made.
○○○karamo. ○○○mademo.
Conjunctive Forms: ○○○ga… ○○○kara… ○○○karamo…

Examples of nouns with four moras are *kaɴnari* 'thunder' and *a:tutɛi* 'dawn'. These words have the following tonal pattern.

(7) Isolation Forms: ○○○○. ○○○○ga. ○○○○mo. ○○○○kara.
○○○○made. ○○○karamo. ○○○○mademo.
Conjunctive Forms: ○○○○ga… ○○○○kara… ○○○○karamo…

2.3.2 Analysis

The results in (4), (6), and (7) accord with the description in Uwano (2000, 2002a). That is, the penultimate mora becomes low and the other moras become high with each bunsetsu. Moreover,

[3] In earlier research conducted by Uwano, the tonal patterns of conjunctive forms differ slightly between the Wan and Nakasato dialects (Uwano 2000). We were not able to confirm this in this survey due to insufficient data.

there is no difference between forms pronounced in isolation and conjunctive forms.

Unlike the β-type, which will be explained shortly below, the final mora of the isolation forms does not become low. This mora is invariably high, both in isolation and conjunctive forms.

Analyzing this within the framework of Autosegmental Phonology, proposed by Goldsmith (1976) and Haraguchi (1977), the basic melody of the α-type can be considered to be HLH, which is assigned on a moraic basis from right to left, with the bunsetsu as its domain. When a bunsetsu has more than four moras, the leftmost H tone spreads from right to left. "]" represents the right edge of the domain.

(8) … μ μ μ μ]$_{bunsetsu}$
＼｜｜｜
H L H

It should be emphasized here that this system does not allow tonal patterns such as ○○○̄ and ○○○○̄. As analyzed in Uwano (2000, 2002a), as discussed in (2a) above, only the penultimate mora in the bunsetsu domain becomes low, with all the moras before it becoming high. Informants consistently rejected tonal patterns like *hanaga* ‘nose-NOM’ or *katatei* ‘form’, since the mora before the penultimate mora needs to be high. In other words, their tonal patterns have to be ○○○̄.

2.4 β-type

2.4.1 Results

For β-type nouns, the accentuation of the following words was analyzed. These words belong to B-type in the Kagoshima and Nagasaki dialects (e.g. *umi* ‘sea’ is pronounced as ‘umī’ in both dialects).

（9） a. two-mora nouns
umi ‘sea’④, *nabi* ‘pot’, *huni* ‘ship’, *usu* ‘mortar’④, *tida* ‘sun’
b. three-mora nouns
hatana ‘sword’④, *hate:* ‘field’④
c. four-mora nouns
meerabi ‘young girl’, *tɪɴzo:* ‘ceiling’, *kamakiri* ‘praying mantis’,
murasaki ‘purple’

These words show the following tonal patterns. “～” indicates that the words permit two or more

patterns depending on the word, utterance, or speaker. The result is the same as given in the descriptions in Uwano (2000, 2002a).

(10) a. two-mora nouns

Isolation Forms: ○○. ○○ga. ○○mo. ○○kara. ○○made.
○○karamo. ○○mademo.

Conjunctive Forms: ○○ga…. ○○kara… ○○karamo…

b. three-mora nouns

Isolation Forms: ○○○. ○○○ga. ○○○mo. ○○○kara. ○○○made.
○○○karamo. ○○○mademo.

Conjunctive Forms: ○○○ga… ○○○kara… ○○○karamo…

c. four-mora nouns

Isolation Forms: ○○○○. ○○○○ga (～○○○○ga) . ○○○○mo.
○○○○kara. ○○○○made. ○○○○karamo. ○○○○mademo.

Conjunctive Forms: ○○○○ga… ○○○○kara… ○○○○karamo…

2.4.2 Analysis

Unlike the α-type, the β-type has different tonal patterns for forms pronounced in isolation and conjunctive forms. What the two have in common is that the antepenultimate mora in the word (not the bunsetsu) becomes low, and a pitch rise occurs between this and the following mora. When a word has fewer than three moras, the word is pronounced high from the beginning of the word (i.e. from the penultimate mora).

As for the conjunctive forms, only the antepenultimate mora becomes low, and all other moras, including particles, become high. For two-mora nouns, the entire bunsetsu is high (e.g. *umikara* …). In the case of isolation forms, in contrast, in addition to the antepenultimate mora, the last mora of the bunsetsu becomes low. When a two-mora noun is pronounced in isolation, the tonal pattern becomes ○○ (e.g. *umi*. 'sea'). In this way, the isolation forms are distinguished from the conjunctive forms in terms of the pitch of the last mora in the bunsetsu.

Considering the final low tone in isolation forms as a boundary tone which marks the end of a sentence, it follows that the β-type pattern fundamentally has low on the antepenultimate mora and high on the penultimate mora, as claimed by Uwano (2000, 2002a). In isolation forms, the sentence-final low tone is simply superimposed on this lexical pattern. Thus, two-mora nouns are pronounced in isolation as ○○ (e.g. *umi*. 'sea'), simply because the lexical accent pattern with a high penultimate mora combines with the low tone marking the end of a bunsetsu.

In Autosegmental Phonology, we can analyze this observation in the following way. The β-type

has HLH as a basic melody, as with the α-type, but the melody is associated from the end of the *word*, not from the end of the *bunsetsu*. Moreover, the final mora needs to be hidden from the domain to which the melody is associated by making the final mora phonologically invisible. In other words, HLH is assigned to the word from right to left, with the last mora excluded. This is schematized in (11), where $<\mu>$ indicates the mora which is phonologically invisible. The concept of "phonological invisibility" may seem ad hoc, but it is useful for the analyses of the accent systems of other villages, too (Kamikatetsu, Aden, Shiomichi), so generality seems not to be lost. Also, as analyzed above, while the tonal pattern is assigned to the bunsetsu for the α-type, the word is the relevant domain for β-type. It is very interesting that these kinds of combination can be found in one and the same system. This will become important when comparing these villages with the surrounding villages later in section 3.

(11) $\ldots\mu \quad \mu \ \mu \ \mu <\mu>]_{\text{word}}\,\mu \ \mu$

H L H

As for the analysis in (11), it should also be emphasized that the basic melody is not LH. As explained above, the β-type involves a pitch rise between the antepenultimate and the penultimate moras, but it has other characteristics, too. If the pitch rise were the only significant feature, LLH (conjunctive forms) and LLHL (isolation forms) as well as HLHH (conjunctive forms) and HLHL (isolation forms) should be allowable for four-mora nouns, but this is not the case. For example, *meerabi.* ('young girl', in isolation) is pronounced *meerabi.*, not *meerabi.* by informants. Unless the H tone on the pre-antepenultimate mora is a sentential tone (for example a boundary tone), this should be explained as a feature of the word. This is one reason that HLH is defined as the basic melody in (11). Moreover, assuming this basic melody allows us to reveal a commonality between the α-type and the β-type.

2.5 Other Findings

In addition to the above, the following is also observed in Wan and Nakasato.

2.5.1 One-Mora Nouns

One-mora nouns have no accentual distinctions, all of them having the tonal pattern for the α-type.

(12) *tɕi:* 'blood'①, *ha:* 'tooth', *se:* 'alcohol', *ha:* 'water well'; *mi:* 'eye'③, *hi:* 'tree'③,

ja: 'house'
○○. ○○ga. ○○ga… ○○kara. ○○karamo.

The α-type vs. β-type distinction is lost here, but it is not clear why this change has taken place in the direction of the α-type, rather than the β-type. It should not be problematic either phonetically or phonologically for the words in (12) to have the same tonal pattern as β-type two-mora nouns.

As shown in (12), one-mora nouns are pronounced with a long vowel, whether or not they occur with a particle, making them the same length as two-mora nouns. This is a phonological lengthening from one mora to two moras, which is different from vowel lengthening in interrogative sentences, which we will see in section 2.5.3 below. Lengthening of vowels in interrogative sentences is a phonetic phenomenon that takes place after the tonal pattern is determined, but lengthening of one-mora nouns in (12) gives the entire word two moras which have the same tonal patterns as two-mora nouns. In other words, the vowel lengthening happens phonologically before the tonal pattern is fixed. Alternatively, these words may be listed in the lexicon as two-mora nouns in the first place.

2.5.2 Accentuation of Initialisms

In addition to the basic words, we also investigated loanwords and initialisms, and found that all such words belong to the β-type. The tonal patterns of the forms in isolation are listed in (13).

(13) taNbariN 'tambourine', chokoreeto 'chocolate', teepurekoodaa 'tape recorder', piiaaru (PR), jeeaaru (JR), shiitii (CT), efubiiai (FBI), piitiiee (PTA), waiemushiiee (YMCA)

As shown in (13), the antepenultimate mora is low and the penultimate mora is high. In addition, the isolation forms are affected by the boundary tone to make the mora at the end of the bunsetsu low. Also, tones are assigned on the basis of moras, not syllables, which is the same as words of Japanese origin. In this respect, loanwords and initialisms differ from those in the Koshikijima dialect, where both syllables and moras are relevant. The tonal patterns in Koshikijima are listed in (14). They are A-type words in Koshikijima (cf. Note 1. See Kubozono 2010, 2011, 2012 for details).

(14) taNbariN, chokoreeto, teepurekoodaa, piiaaru, jeeaaru, shiitii, efubiiai, piitiiee, waiemushiiee

Notice that loanwords in Wan and Nakasato belong to the β-type. Considering the fact that β-type words in section 2.4 are pronounced with the B-type pattern in the Kagoshima and Nagasaki dialects, this is an interesting finding. Basically, loanwords in Kagoshima, Nagasaki, and Koshikijima dialects are pronounced as A-type. Also, native Japanese words with the A-type pattern in these dialects correspond to the α-type in Kikaijima Wan and Nakasato dialects (sections 2.3 and 2.4). Given this regular correspondence between dialects, it is expected that loanwords in the Wan and Nakasato dialects would exhibit the α-type pattern, but in fact they belong to the β-type. Why is this?

A common feature shared by the A-type pattern in the Kagoshima dialect and the β-type in the Wan and Nakasato dialects is that the end of the word (the end of the word in the isolation forms in Wan and Nakasato) is pronounced low. Pitch patterns of *chokorēto* 'chocolate' are listed below. Tonal patterns actually differ among dialects, but they commonly show a low tone at the end of the word. This feature is shared by loanwords in Tokyo and Kinki dialects as well.

(15) Kagoshima dialect: chokoreeto
Nagasaki dialect: chokoreeto
Koshikijima dialect: chokoreeto
Wan and Nakasato dialects: chokoreeto
Tokyo dialect: chokoreeto
Kinki dialects: chokoreeto

If loanwords were assigned the other tonal pattern (B-type in Kagoshima dialect, α-type in Wan and Nakasato, unaccented in Tokyo and Kinki dialects), the end of a word would be pronounced high, as in (16).

(16) Kagoshima dialect: *chokoreeto
Nagasaki dialect: *chokoreeto
Koshikijima dialect: *chokoreeto
Wan and Nakasato dialects: *chokoreeto
Tokyo dialect: *chokoreeto
Kinki dialects: *chokoreeto (high beginning, unaccented)
～* chokoreeto (low beginning, unaccented)

The fact that loanwords including initialisms are pronounced with the tonal pattern in (15), not

in (16), squares well with the tonal patterns of English words as they are pronounced in isolation. In English, words in isolation are pronounced with a fall in pitch so that the end of a word is always low. For example, the three-syllable word 'chócolate' has an accent (stress) on the first syllable, and it is pronounced low from the second syllable. The pronunciation of loanwords in Japanese dialects in (15) can be analyzed as the result of preserving the phonetic feature (auditory impression) of English in Japanese (Kubozono 2006, 2007).

One might question here that β-type words in Kikaijima Wan and Nakasato dialects end in a low tone in isolation forms, but not in the conjunctive forms. For example, the conjunctive form of 'chocolate' is *chokoreeto*, which may look identical to the α-type in (16), in that the end of the word is not low. In fact, in terms of the distinction between conjunctive forms and isolation forms of β-type words, only words in the isolation form are pronounced with a low word-final mora. Assuming that the tonal pattern of English is borrowed (preserved), this raises a question of why the resultant borrowed pattern is based on the isolation forms, not the conjunctive forms.

However, we should not ignore the fact that isolation forms are not only non-conjunctive forms (nothing is connected to them), but they also indicate the utterance of the word alone. The fall in pitch at the end of a β-type word might not be a feature of the word (accent), but it does not change the fact that words end in a low tone when uttered in isolation as a declarative sentence. Considering that a fall in pitch at the end of a word is shared by utterances of words in isolation in both English and Japanese, the pattern in (15) can be explained without problem.

Incidentally, a fall in pitch at the end of a word in a single utterance or word is not specific to just the "word" in English. As is well known, English has a stress accent, not pitch accent. Basically, only stress patterns are lexically specified, and the pitch patterns (high and low, rising, falling, etc.) are determined at the utterance level of a sentence (intonation). Therefore, the characteristic of low pitch at the end of a word like 'chocolate' is not a characteristic of the word accent in English, but is instead a prosodic feature of the declarative sentence. When borrowing words, the tonal pattern of the utterance of the word in isolation is borrowed, regardless of whether it is the characteristics of the word or the prosodic feature of the sentence in the source language.

2.5.3 Intonation of Interrogative Sentences

Let us next discuss prosodic features of interrogative sentences in relation to word accent.[4] As in the Kagoshima dialect (Kibe 2010) and Koshikijima dialect (Kubozono 2011b), interrogative sentences in Wan and Nakasato are signaled by the pitch fall at the end of the sentence. Interrogative sentences in these dialects have the sentence-ending particle *na* as in the Kagoshima

[4] This is based on the observation of Nakasato dialect speakers.

dialect, but the vowel in the particle is lengthened in actual utterances so that it is pronounced as *naa* with two moras. The actual tonal patterns can be represented as follows. The left-hand member of each pair is the isolation form, and the right-hand member is the interrogative sentence.

(17) a. α-type: gama 'cave' gamanaa?
hana 'nose' hananaa?
hibuɕi 'smoke' hibuɕinaa?
b. β-type umi 'sea' uminaa?
hatana 'sword' hatanana? (～hatananaa?)

Two points are worth special attention here. First, the sentence-ending particle *na* is included into the domain of tone assignment as the preceding element, similar to case particles such as *ga*. For example, since the particle *na(a)* is attached to the preceding element *hana* ('nose'), the tonal pattern of *hana* changes. In contrast, case particles and sentence-ending particles behave differently in the Kagoshima dialect, where the sentence-ending particle *na* is not included into the domain of tone assignment. For this reason, it does not change the tonal pattern of the preceding element (examples are given in (18)). Putting it differently, the sentence-ending particle *na(a)* is not included in the same bunsetsu as the preceding element in the Kagoshima dialect, but is included in the Wan and Nakasato dialects.

(18) hana. (*hana* 'nose') hanana? hananaa? (cf. hanaga, hanakara)
hana. (*hana* 'flower') hanana? hananaa? (cf. hanaga, hanakara)

Another interesting point about (17) concerns the relationship between the vowel lengthening process of the sentence-ending particle *na* and the tonal pattern. The tone pattern of *gamanaa?* is the same as that of *gamaga* 'cave-NOM' where a one-mora particle is attached to *gama*, but it is not the same as the tonal pattern where a two-mora particle is attached, like *gamakara*. Moreover, the tonal pattern of *hibuɕinaa*?" is the same as that of *hibuɕiga* where a one-mora particle is attached to *hibuɕi* 'smoke', but different from forms with a two-mora particle (*hibuɕikara*). If the tones were assigned after the vowel at the end of nouns is lengthened, the tone of *gamanaa?* or *hibuɕinaa?* could not be explained. The tone of the interrogative sentences can be explained only if we posit the following process.

(19) Basic Form gama+na hibuɕi+na

Assign tonal pattern (α-type)	gamana	hibuɕina
Vowel Lengthening	gamanaa	hibuɕinaa
Isolation form (question)	gamanaa	hibuɕinaa

The interrogative form of β-type nouns (17b) can be analyzed similarly.

(21)	Basic Form	umi+na
	Assign tonal pattern (β-type)	umina
	Vowel Lengthening	uminaa
	Isolation form (question)	uminaa

This analysis shows that the sentence-ending particle *na* is lengthened phonetically, not phonologically. In this regard, it is different from the lengthening of one-mora nouns discussed in section 2.5.1.

3 Accentuation in Sakamine Village

Thus far we have presented an overview of the accent system of the Wan and Nakasato dialects. From this section we will extend our range to other villages in Southern and Central Kikaijima and investigate the similarities and differences among the villages. We will start with Sakamine village, which is around 5 km north of Wan and Nakasato villages. This village is located midway between Wan/Nakasato villages and the northern dialect village of Onotsu, and the accentuation is also somewhat different from that of Wan and Nakasato. The data is taken from one elderly speaker[5] by the author. Due to time constraints, many items (especially the tone of conjunctive forms) could not be asked.

3.1 Results

In terms of having a mora-based two-pattern accent system, Sakamine is the same as Wan and Nakasato. This is a common feature among the villages where the research reported here was conducted.

As for the actual tonal pattern of the α-type and β-type, α-type is not exactly the same as that of Wan and Nakasato. That is, with the bunsetsu as the domain, the tonal pattern of the final three moras is HLH (only the penultimate mora is low). Also like Wan and Nakasato, the isolation and

[5] Keitaro Hayabusa (age 79; born February 1931)

conjunctive forms have the same pattern in the α-type. The end of the bunsetsu in the isolation forms shows a pitch fall, as in Wan and Nakasato. Moreover, one-mora nouns are categorized into the α-type, and undergo vowel lengthening to behave as two-mora nouns in terms of accentuation.

On the other hand, the tonal pattern of the β-type is clearly different from that of Wan and Nakasato villages. The tonal pattern of two-mora nouns (*umi* 'sea', *nabi* 'pot', *punI* 'ship', *usu* 'mortar', and *tida* 'sun') are as follows:

(21) Isolation Forms: ○○. ○○ga. ○○mo. ○○kara ～ ○○kara.[6] ○○made.
○○karamo ～ ○○karamo. ○○mademo ～○○mademo.
Conjunctive Forms: ○○ga…

(22) and (23) show the tonal patterns of three-mora and four-mora nouns, respectively. The former has words like *hatana* 'sword', *pateR* 'field', *gamaku* (= *gama no oku*) 'rib', and the latter has words like *paNmeR* ('food stuff'), *meRrabi* 'young girl', *tINzjoR* 'ceiling', and *asagoR* 'morning glory'.

(22) Isolation Forms: ○○○. ○○○ga ～○○○ga. ○○○mo.
○○○kara ～○○○kara. ○○○made.
○○○karamo ～○○○karamo.
○○○mademo～○○○mademo.
Conjunctive Forms: ○○○ga…～○○○ga…

(23) Isolation Forms: ○○○○. ○○○○ga ～○○○○ga. ○○○○mo.
○○○○kara ～○○○○kara.
○○○○made ～○○○○made.
○○○○karamo ～○○○○karamo ～○○○○karamo.
○○○○mademo ～○○○○mademo.
Conjunctive Forms: ○○○○ga… ○○○○made… ○○○○mademo…

In (21)-(23), the difference between the isolation forms and the conjunctive forms is the same as that of Wan and Nakasato: the final mora in the isolation form is low, but the conjunctive forms become high until the end of the bunsetsu. What is worth special attention concerns the position of the rise in pitch: the rise at the penultimate mora in the word domain is not as significant as in

[6] The pattern of HLHL may be interpreted as a result of the noun and the particle pronounced in two separate bunsetsu (to emphasize the particle).

Nakasato and Wan, and the rise seems to occur more frequently at the penultimate mora in the bunsetsu domain. In other words, pitch generally rises between the antepenultimate and the penultimate moras in each bunsetsu. In addition, while the low tone before the pitch rise is assigned only to one mora in most cases in Wan and Nakasato, it is often associated with two or three moras in Sakamine.[7] In this respect, there is quite a lot of variation between words or between utterances.

3.2 Analysis

The following table summarizes the difference between Wan/Nakasato and Sakamine β-type patterns.

Table 3

Wan/Nakasato	○○.	○○ga.	○○kara.	○○karamo.
Sakamine	○○.	○○ga.	○○kara ～ ○○kara.	○○karamo～ ○○karamo.
Wan/Nakasato	○○○.	○○○ga.	○○○kara.	○○○karamo.
Sakamine	○○○.	○○○ga～ ○○○ga.	○○○kara ～ ○○○kara.	○○○karamo～ ○○○karamo.
Wan/Nakasato	○○○○.	○○○○ga.	○○○○kara.	○○○○karamo.
Sakamine	○○○○.	○○○○ga～ ○○○○ga.	○○○○kara～ ○○○○kara.	○○○○karamo～ ○○○○karamo～ ○○○○karamo

The Wan/Nakamine and Sakamine dialects share the feature "pitch rise at penultimate mora", but the domain of tone assignment is different. For the former dialects, the pitch rises at the penultimate mora in the word (noun), but for the latter, the pitch rises at the penultimate mora with the bunsetsu as its domain. Focusing on the locus of the rise, the dialects can be compared as in (24) (']' indicates the right edge of the domain).

(24) β-type

Wan/Nakasato ○○○]. ○○○]ga. ○○○]kara. ○○○]karamo。

Sakamine ○○○]. ○○○ga]. ○○○kara]. ○○○karamo].

[7] For example, the tonal pattern for "three-mora noun + one-mora particle" is ○○○*ga*., not ○○○ *ga*.. Even for "four-mora nouns + one-mora particle", the ○○○○*ga*. pattern was not observed.

If this interpretation is correct, the domain of tone assignment in the Sakamine dialect is changing from “word” to “bunsetsu” even for the β-type, to match with the α-type. That is, whereas the word-tone-like α-type and word-accent-like β-type co-exist in Wan and Nasakato, the system in Sakamine is more simplified, with both α-type and β-type having word-tone-like characteristics.

4 Accentuation in Kamikatetsu, Aden, and Shiomichi villages

Let us move on to the villages on the east coast. Our research was conducted in Kamikatetsu village which is located at the south end of the island, in Aden which is 5 km away from Kamikatetsu to the northeast, and in Shiomichi which is 5 km northeast of Aden. These villages have almost the same system and tonal patterns, so they are discussed together in one section. The data described and analyzed in the paper are taken from one speaker for each village.[8]

These three villages are the same as Wan, Nakasato, and Sakamine in that they have a two-pattern accent system where moras, not syllables, are used as the basic unit. But the actual tonal patterns differ from those of Wan and Nakasato: the tonal pattern for β-type is the same as that of Wan and Nakasato, but that of the α-type is different. This is discussed in the following sections.

4.1 α-type

First, two-mora nouns (*midu* ‘water’, *turi* ‘bird’, *hana* ‘nose’, *gama* ‘cave’, *jama* ‘mountain’, *mami* ‘bean’, *pana* ‘flower’, *mungi* ‘wheat’) have the following tonal patterns. Standard Japanese particles *ga* and *mo* become *nu* and *mu*, but the Standard Japanese forms are used below.

(25) Isolation Form: ○○. ○○ga. ○○mo. ○○kara. ○○made. ○○karamo. ○○mademo.
Conjunctive Form: ○○ga…

The following is the tonal pattern of nouns of three to five moras. There are five three-mora nouns (*hibuɕi* ‘smoke’, *udui* ‘dance’, *katatɕi* ‘form’, *hasami* ‘scissors’, *hagami* ‘mirror’, *kujumi* ‘calendar’), one four-mora noun (*a:tutɕi* ‘dawn’), and one five-mora noun (*haɴna:ri* ‘thunder’) in our data.

[8] The Kamikatetsu speaker is Katsuichi Ōtomo (age 73, born December 1936). The Aden speaker is Fujio Fumoto (age 59, born November 1950). The Shiomichi speaker is Teruo Fujiwara (age 67, born June 1943).

(26) Isolation Form: ○○○. ○○○ga (～○○○ga) . ○○○mo. ○○○kara.
○○○made (～○○○made) ○○○karamo (～○○○karamo)
○○○mademo.
Conjunctive Form: ○○○ga… [○○○kara… ○○○made… ○○○karamo…][9]

(27) Isolation Form: ○○○○. ○○○○ga. ○○○○. ○○○○kara.
○○○○made. ○○○○karamo. ○○○○mademo.
Conjunctive Form: ○○○○ga…
[○○○○kara… ○○○○made… ○○○○karamo…]

(28) Isolation Form: ○○○○○. ○○○○○ga. (～○○○○○ga.) ○○○○○mo.
○○○○○kara. ○○○○○made. ○○○○○karamo.
○○○○○mademo.
Conjunctive Form: ○○○○○ga…
[○○○○○kara… ○○○○○made… ○○○○○karamo…]

It seems that, like the α-type in Wan and Nakasato, the bunsetsu is the domain for the assignment of the ○○○ and ○○○○ tonal patterns. For example, the tonal patterns of the isolation form of a noun and noun+one-mora particle are the same as those of Wan and Nakasato, with each bunsetsu showing HLH in final position. However, this generalization fails to hold when the particle is two or more moras in length. In this case, the final mora of the noun (i.e. word) becomes low, instead of the penultimate mora in the bunsetsu. In other words, in Kamikatetsu, Aden, and Shiomichi, the pitch rise immediately after the noun is phonologically important. (The row labelled "Kamikatetsu" covers forms in Kamikatetsu, Aden and Shiomichi.)

(29) Wan/Nakasato ○○○ga. ○○○kara. ○○○karamo.
Kamikatetsu ○○○ga. ○○○kara ～○○○kara. ○○○karamu.

The basic melody of Kamikatetsu can be analyzed to be HLH. The difference from Wan and Nakasato lies in the domain of tone assignment. In Kamikatetsu, Aden, and Shiomichi, [noun + the first mora of particle], rather than the entire bunsetsu, is the domain for assignment of the HLH melody from right to left. Additionally, L may be assigned to more than one mora ( ] indicates the right edge of the domain).

[9] Patterns in [ ] in (26)-(28) are not based on the collected data, but are forms assumed from the collected data of other words.

(30) Wan/Nakasato ○○○]. ○○○ga]. ○○○kara]. ○○○karamo].
Kamikatetsu ○○○]. ○○○ga]. ○○○ka]ra. ○○○ka]ramu.

Analyzing the tonal pattern in Kamikatetsu, Aden, and Shiomichi as in (8) reveals a picture in (31).[10,11] As in (8), the leftmost H tone spreads to the left in long words/phrases, i.e. to the beginning of the bunsetsu, and the rightmost H tone spreads to the right, i.e. to the end of the bunsetsu. $<\mu \ldots \mu>$ means that moras after the second mora of a particle are phonologically invisible. For bunsetsu lacking a particle, the HLH melody is assigned from the final mora of the noun.

(31) $\ldots \mu \ \mu \ \mu \ \mu \ ]_{word} + \mu \ ] \ <\mu \ldots \mu>$
＼ | | ／
H L H

Finally, there is no distinction between α-type and β-type for one-mora nouns in Kamikatetsu, Aden, and Shiomichi. One-mora nouns belong to the α-type, and behave the same as two-mora nouns.

4.2 β-type

The β-type pattern in Kamikatetsu, Aden, and Shiomichi is the same as that of Nakasato and Wan, with the pitch rising on the penultimate mora of nouns.[12] However, for "three-mora noun+particle" forms, the rise is not as obvious at the penultimate mora as in Nakasato and Wan, and sometimes the antepenultimate mora seems to be H or M(id). Moreover, for *usu-kara*, *usu-made*, *tida-kara* etc., HMML is heard alongside HHHL. Similarly, for *gamaku-made*, …HMML

[10] Relating to (31), unlike the α-type in Wan and Nakasato, it appears that the α-type pattern differs between isolation and conjunctive forms in Kamikatetsu. For noun+2-mora particle and noun+3-mora particle forms, the conjunctive form is pronounced high until the end of the particle, while the final mora of a particle is pronounced low in the isolation form. In contrast, in Wan and Nakasato, the isolation form does not end in a low tone. This dialectal difference arises because the α-type in Wan and Nakasato has LH at the end of a bunsetsu, with H always assigned to one mora, which cannot be low even in the isolation form. On the other hand, in the α-type in Kamikatetsu, Aden, and Shiomichi, the H of LH spreads to multiple moras at the end of a bunsetsu, so the HLH basic melody can be readily assigned while the mora at the end of the bunsetsu (marking the end of the sentence) is pronounced low.
[11] To use the concept of the accent kernel, the final mora of the noun can be analyzed as having a raising kernel (to make the next mora high).
[12] If treating it in the same way as α-type, it is possible to analyze it as having a raising kernel on the antepenultimate mora of words (nouns).

is heard alongside …HHH. The tonal patterns for two-, three-, and four-mora nouns are listed in the isolation and conjunctive forms in (32) – (34).

(32) Isolation Form: ○○. ○○ga. ○○mo. ○○kara. ○○made.
○○karamo. ○○mademo.
Conjunctive Form: ○○ga… (○○kara… ○○karamo…)

(33) Isolation Form: ○○○. ○○○ga (～○○○ga ～MHHL) ○○○mo.
○○○kara. (～gamakukara LHMML). ○○○made.
○○○karamo. ○○○mademo.
Conjunctive Form: ○○○ga… (～○○○ga… ～MHHH…)

(34) Isolation Form: ○○○○. ○○○○ga (～○○○○ga) ○○○○mo.
○○○○kara. ○○○○made. ○○○○karamo. ○○○○mademo.
Conjunctive Form: ○○○○ga… ○○○○kara… ○○○○karamo…

5 Summary

5.1 Comparison among the Villages

Based on the discussion above, the following table shows the similarities and differences among the villages/dialects for each accent pattern. The tonal pattern in Wan and Nakasato is represented as A (α-type) and X (β-type), and the similarities and the differences are specified. The meanings of A, B, X, Y are given in (35).

Table 4 α-type and β-type for each dialect

	Sakamine	Wan	Nakasato	Kamikatetsu	Aden	Shiomichi
α-type	A	A	A	B	B	B
β-type	Y	X	X	X	X	X

(35) A: The bunsetsu is the domain whose final three moras are HLH.
B: [word+ first mora of particle] is the domain (not bunsetsu) and ends with HLH.
X: The word is the domain in which pitch rises at the penultimate mora.
(the final mora of the word is invisible, and the moras before that have HLH)
Y: The bunsetsu is the domain in which pitch rises at the penultimate mora.
(the final mora of the sentence is invisible, and the moras before that have HLH)

5.2 Discussion

The following four features are shared by all dialects.

(36) a. two-pattern accent system
b. the basic melody for both α- and β-types is HLH
c. the basic melody is assigned on a moraic basis.
d. the basic melody is assigned from the right edge of word or phrase

In contrast, the dialects differ in the domain to which the basic melody is assigned. The difference basically derives from whether the melody is assigned to the word or to the bunsetsu. According to Hayata's (1999) classification, the former is word-accent-like, and the latter, word-tone-like.

In some dialects, a difference in domain is observed between α-type and β-type. For example, Wan and Nakasato have the bunsetsu (i.e. word-tone-like) as the domain for α-type nouns, and the word (i.e. word-accent-like) as the domain for the β-type. The following table summarizes the difference among dialects from this point of view. The time notation in the table is the direction from the center of the island (12 is north, and 6 is south), to provide a broad overview of the geographical connection.

Table 5 Classification According to the Domain HLH Melody assignment

	Sakamine	Wan	Nakasato	Kamikatetsu	Aden	Shiomichi
location (o'clock)	10	8	8	6	4	2
α-type	bunsetsu			word ＋ 1 μ		
β-type	bunsetsu	word				

Considering the difference among villages (dialects) as a historical change that took place in the whole of Kikaijima, it can be assumed that a diachronic change affected the accentual domain. It can be said that the nature of the accent has been changing between the word-accent-like type and the word-tone-like type. The following are three logically possible scenarios.

(37) a. Change from a bunsetsu-based (word tone) system to a word-based (word accent) system
b. Change from a word-based (word accent) system to a bunsetsu-based

(word tone) system

c. Change from a hybrid system involving both the word (word accent) and the bunsetsu (word tone) to a unified system

(37a) assumes that the original system is that of Sakamine, which changed into that of Wan and Nakasato, and eventually became that of Kamikatetsu, Aden, and Shiomichi. This interpretation assumes that the β-type changed before the α-type did. It also implies that the oldest system is retained in Sakamine village.

On the other hand, (37b) implies changes in the opposite direction: the current word-based system in Kamikatetsu represents the oldest system, which has changed into that of Wan and Nakasato, and eventually into the bunsetsu-based system of Sakamine. Under this view, the current system in Kamikatetsu has changed towards a bunsetsu-based system to the extent that its α-type is defined in the domain of "word+1 mora" rather than the word itself. This means that α-type is ahead of β-type in tonal change.

(37c) is a hypothesis that combines the above processes. It posits the current hybrid system of Wan and Nakasato as the original system where the domain is different for α-type and β-type, and assumes that two changes occurred to resolve the mixed characteristics. In Sakamine village, the original system changed to a uniformly bunsetsu-based system, whereas in Kamikatetsu, Aden and Shiomichi, it changed to a uniformly word-based system. Although logically possible, this analysis poses a basic question of why the original system was a hybrid one in the first place.

In the absence of relevant data, it is difficult at this point to determine which hypothesis is correct. It may be possible to answer this question if we pursue research in the direction outlined in the next section.

5.3 Remaining issues

This study has uncovered many questions for future work. Needless to say, we need to elicit data from more speakers, and from each speaker we must elicit more data. In addition to this, further investigation is required for the following four topics. First, it is important to make a more rigid phonological analysis for each village. More specifically, it is necessary to clarify which part of each tonal pattern is distinctive, with special attention to the type of the kernel (raising, ascending, and lowering kernels) (Hattori 1973; Uwano 1999).[13] Second, the accent rules for compound words need to be examined. Understanding the compound accent rules for each village

[13] For example, when the tonal pattern L_1HL_2 is observed in 3-mora words, the following four interpretations are possible: (i) the H mora carries a ascending kernel; (ii) the L_1 mora carries a raising kernel; (iii) H carries a lowering kernel; and (iv) L_2 carries a descending kernel (Uwano 1999).

as well as the similarities and differences among the villages might give us important clues as to the historical changes that took place in Kikaijima.

The third question concerns the comparison of the accent systems of the Northern dialects of Onotsu and Shitōke and those of the Southern/Central areas which were analyzed in the paper. This will be essential if we want to explain the differences between the Southern and Central dialects shown in Tables 4 and 5. Lastly, it will also be important to examine phonological features other than word accent, especially the relationship between segmental features (vowels and consonants) and the accent system. There is no intrinsic relationship a priori between the distribution of accent systems and segmental features, but it might give us a good clue when we consider the subclassification of dialects and the historical changes discussed in the previous section that took place in the accent systems of Kikaijima.

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