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A RECONSTRUCTION OF THE ACCENTUAL HISTORY OF
THE JAPANESE AND RYUKYUAN LANGUAGES

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ABSTRACT

This dissertation reconstructs the accentual history of the Japonic languages (i.e., the Japanese and Ryukyuan languages). Applying the comparative method, the reconstruction of Proto Japonic (PJ) accent is based on modern dialects of Japanese and Ryukyuan and also on the dialect of the *Ruiju Myôgi-shô* (a text written in the 11th century).

The author looks into 'natural' accentual changes in the Japonic languages and formalizes them. Using these changes or rules, he accounts for the developments of the accent systems of descendant dialects or languages from PJ. Furthermore, he takes typology of accent (i.e., locus and register) into account and explains how typologically different accent systems develop.

The dissertation has revealed that Hattori Shiro's accentual subcategories for disyllables are seen not only in Amami and Okinawa Ryukyuan, as he claims, but also seen in Yaeyama and Miyako Ryukyuan. Based on this, the author argues that Proto Ryukyuan (PR) and PJ must have had these distinctions, although Hattori did not reconstruct them. Therefore, there are in total eight accent categories for PJ disyllables -- it had been thought that there were only five distinctions.

Kyoto dialect has been thought to have evolved directly from the dialect of the *Ruiju Myôgi-shô*. Because of this, it was difficult to account for the development of Kyoto dialect. However, based on accentual correspondences, the author contends that Kyoto dialect is not a direct descendant of the dialect of

the *Ruiju Myôgi-shô*, and that the development of the Kyoto dialect is explained by the aforementioned natural changes.

The correlation between a long vowel in the initial syllable and word-initial register has been suggested by Samuel E. Martin and Hattori. However, the register in relation to the length has not been reconstructed. This dissertation gives more evidence to support the register hypothesis, and reconstructs a register system in PR and PJ.

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LIST OF ABBREVIATIONS AND NOTATIONS

assml	Assimilation
C-smpl	Contour Pitch Simplification
D-chng	Domain Change
D-smpl	Double Accent Simplification
F	falling pitch
F-dltn	Final Accent Deletion
F-loss	Final Accent Loss
H	high pitch
I-low	Initial Pitch Lowering
I-gain	Initial Accent Gain
L	low pitch
L-sprd	Low Tone Spreading
MK	middle Korean
OJ	old Japanese
PA	Proto Amami
PK	Proto Korean
PJ	Proto Japonic
PM	Proto Miyako
PMJ	Proto Mainland Japanese
PO	Proto Okinawa
PR	Proto Ryukyuan
PY	Proto Yaeyama
R	rising pitch
shift	Accent Shift
V-shrt	Vowel Shortening
V-lngth	Vowel Lengthening
]	phonemic pitch fall between syllables or moras
)	phonemic pitch fall within a syllable or mora
[	phonemic pitch rise between syllables or moras
(	phonemic pitch rise within a syllable or mora
<u> </u> x	x is high register
<u> </u> x	x is low register
O	syllable
o	mora

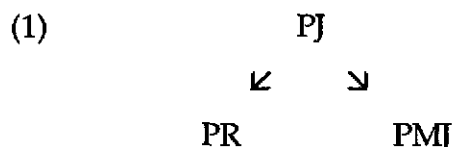
CHAPTER 1

INTRODUCTION

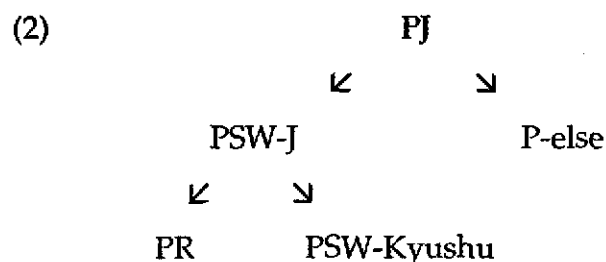
1.1. BRIEF INTRODUCTION ON JAPONIC LANGUAGE HISTORY

1.1.1. Proto-Japonic and Proto-Ryukyuan

According to Hattori (1959), Proto-Japonic (PJ) was a language spoken by a people who settled in northern Kyushu (southwestern Japan) from the Korean peninsula around 300 B.C., and Ryukyuan branched off from PJ before 300 A.D., i.e., no more than 600 years later. Thorpe (1983) says that Ryukyuan and Japanese had diverged significantly earlier than the eighth century A.D. Both of the claims are based on the hypothesis that Proto-Mainland Japanese (PMJ) and Proto-Ryukyuan (PR) split from PJ. That is:



However, another view claims that Proto-South Western (PSW) Japanese branched off from PJ and then PR and PSW-Kyushu developed from PSW Japanese. Many scholars who know that there are similarities between Ryukyuan and SW-Kyushu Japanese prefer this view. Uemura Yukio (1972) is one of the proponents of this view.



There is also a view proposed by Miller (1971). According to Miller, Middle Korean (MK), Old Japanese (OJ), and Ryukyuan are sister languages which split from Proto-Korean-Japanese (PKJ).



Miller's proposal is too unlikely to merit careful consideration, because the relation between Japanese and Ryukyuan is far more transparent than the one between Korean and Japanese, or that between Korean and Ryukyuan. Therefore, we will not consider his proposal as a possible relation between Korean, Japanese, and Ryukyuan. Since there is no doubt that Ryukyuan is a daughter dialect of proto-Japonic, we will carefully look into the Japanese-Ryukyuan connection.

1.1.2. Relation to Social and Political History of Japanese Archipelago

According to Hattori (1959), the Yayoi people, with advanced culture, settled in Northern Kyushu from the Korean peninsula about 300 B.C. They later moved to Central Japan, where the old capital Kyoto is now situated, and also to the Ryukyus. It is known from archaeological evidence that there were people (called the Jōmon people) in the Japanese archipelago before the Yayoi people came. In general the Ainu people were there before the Yayoi, as well, and are commonly thought to be descended from a northern Jōmon people. However, it is not known from when and from where the Jōmon people came.

Ryukyuan is a group of dialects spoken by 194,383 inhabitants of the Ryukyu archipelago (OKCS 1998, KOS 1999).¹ The archipelago consists of four major island groups (Amami, Okinawa, Yaeyama, and Miyako) comprising approximately 140 islands, but only 47 of them are populated (OOCVB 1996). It is 500 miles long and is located between Kyushu to the northeast and Taiwan to the southwest. What eventually became the Ryukyu civilization formed into an independent kingdom contending with two strong neighboring countries, China and Japan. However, in 1609, the kingdom fell into the hands of the Shimazu clan of Kagoshima, Kyushu, though it retained much of its internal autonomy. When the Japanese government was centralized and the clans were abolished in the second half of the nineteenth century, the inhabitants of the Ryukyu islands were discouraged from using their language and were educated in Standard Japanese in the schools. The Ryukyu islands became a prefecture of Japan in 1879, known as Okinawa Prefecture. WWII brought an end to this status, but it was regained after the return of the islands to Japan from the post-war American occupation in 1972.

1.1.3. Relation to Other Languages in the Region

There have been a number of proposals on the genetic affiliation of the language of mainland Japan. Among them, the relation of Ryukyuan to it is the only one on which all linguists agree. By linguists who specialize in Japanese

¹ The accurate number of native Ryukyuan speakers is no known. The number (194,383) we have is a total number of 65 year-old or older inhabitants in the Ryukyus, assuming that native inhabitants who are 65 years old or older are able to speak Ryukyuan: 163,230 in Okinawa prefecture (OKCS 1998) and 31,153 in Amami (KOS 1999). Note that the number 194,383 still does not reflect the actual number of native Ryukyuan speakers because quite a number of non-Ryukyu-born people have moved into the Ryukyus and live there, as well.

linguistics, Ryukyuan is now considered a dialect of Japanese, in one sense or another of "dialect" and "Japanese." Other than the proposal on the relation between Ryukyuan and Japanese, the most widely-debated and persuasive are those which relate Japanese to the Altaic family, including Korean. Scholars such as G. J. Ramstedt, Nicholas Poppe, Karl Menges, and Johannes Benzing have been involved in establishing the Japanese-Altaic connection. Martin (1966) and Whitman (1985) demonstrate a genetic relation between Japanese and Korean.

Another often-debated hypothesis is the so-called southern theory. Proponents of the southern theory claim that Japanese is a mixed language related with both Altaic and Austronesian. Murayama Shichirô is one of the proponents of the mixed-language hypothesis. According to Murayama (1985), Japanese verb roots are of either Altaic or Austronesian origin, while inflectional endings are Altaic.

A major problem faced by scholars investigating the genetic relationship of Japanese has to do with the difficulty in establishing cognate sets. For example, Martin (1966) compares 320 possible cognates between Japanese and Korean and reconstructs their proto-forms, yet he limits himself, strictly speaking, to "twenty items that show the proper correspondences to be cognates and about which we have little doubt" (Martin 1966: 196-7).

1.2. ISSUES TO BE DEALT WITH AND THE IMPORTANCE OF THESE ISSUES

1. Kindaichi's (1975) or Ramsey's (1979) hypothesis. In order to reconstruct the accentual history of Japanese and Ryukyuan, we cannot avoid

the controversial issue of whether Tokyo-type or Kyoto-type accent is more conservative (see 1.3. for our definition of accent - locus and register). Choosing one view or the other is crucial to our reconstruction of the accentual history because choosing one over the other will lead us to a completely different reconstruction of the history. For example, if Tokyo-type accent is more conservative, the distribution of Tokyo-type and Kyoto-type dialects can be explained by the wave theory. That is to say, accentual changes started in the area where Kyoto-type dialects are spoken, and spread outward.

(4) Ramsey's hypothesis

Tokyo-type old ((Kyoto-type new)) Tokyo-type old

On the other hand, if Kyoto-type accent is more conservative, we have to assume that the same accent changes occurred in two different areas surrounding the Kyoto-accent area:

(5) Kindaichi's hypothesis

(((Tokyo-type))) Kyoto-type (((Tokyo-type)))
new old new

There are some advantages and disadvantages in both hypotheses.

However, overall Ramsey's has more crucial problems. For instance, Ramsey proposes leftward accent shift for Japanese, but in universally-agreed-upon cases in Japanese and Ryukyuan, accent shifts rightward; leftward accent shift is not found in the languages (see Chapter 4). Therefore, in this dissertation, we will follow Kindaichi's hypothesis. However, this does not mean that we agree with all points that Kindaichi proposes. We will discuss in detail reasons why Kindaichi's is preferable to Ramsey's.

2. Pitch and vowel length. There is a correlation between initial-syllable vowel length and initial low pitch in Japanese and Ryukyuan. Martin (1975, 1987) suggests that there may have existed a correlation between initial-syllable vowel length and initial low pitch (called low register) in Japanese. He points out that some Ryukyuan disyllabic nouns belonging to historical accent class 2.3 (LL), 2.4 (LH), and 2.5 (LF) contain an initial long vowel, and that their initial low pitch in modern Japanese is a reflex of original PJ initial-syllable vowel length. However, not all nouns in these historical accent classes show vowel length, that is to say, most of them lost PJ vowel length, but kept initial low register, e.g., *duru* LL ‘mud’ in Shuri and *du:ru* LLL ‘mud’ in Ôhama (Ishigaki Ryukyuan). This necessitates intensive study of Ryukyuan suprasegmental features.

3. Devoiced vowels. Development of the accent system of the Japanese and Ryukyuan languages in relation to devoiced vowels. Nouns with initial devoiced vowel belonging to PJ accent type A (initial-high register) are type B (initial-low register) in Ryukyuan dialects such as Aden, Nakijin, Hateruma, Shiraho, Miyako, and Yonaguni. Shimabukuro (1998a) has claimed that accent shift from A to B in Ryukyuan was caused by a phonetically devoiced vowel in the first syllable existing in PR, and that the shift did not occur in Ryukyuan dialects such as Shuri and Hentona, which lost the process of devoicing.

Finding correlations between suprasegmentals and segments or between suprasegmentals and other suprasegmentals is important for reconstructing a language because archaic forms are often kept in either a segment or a suprasegmental after a certain correlation between the segment(s) and suprasegmental(s) is lost, and a history of the language can be reconstructed by

recovering this correlation. In the case of Japanese and Ryukyuan, there appear to be three kinds of correlations between suprasegmentals and segments or other suprasegmentals: one between accent shift and devoiced vowel (see previous paragraph), one between voicing in initial consonant and initial pitch height (see 7 in this section and also footnote 5), and one between low register and vowel length (see 2 in this section). An examination of these correlations will help in reconstructing the accentual system of PJ and PR.

4. How pitch accent changes in Japanese. This study will also look into other pitch-accent languages such as Korean and Ainu, and tone languages in Africa and Southeast Asia, in order to elucidate natural tendencies in pitch change. It is important to investigate such tendencies because they help in pitch-accent-system reconstruction.

5. Whether neighboring languages such as Korean and Ainu have kept suprasegmental and segmental features of earlier stages of the Japanese language. Since these languages have a history of contact with Japanese, they may retain in loanwords features Japanese has lost. For example, Vovin (1993b: 130) reconstructs PJ **tu:tu[-Ci]* LLH 'hammer', with initial-syllable vowel length, on the basis of the fact that the Ainu borrowing **tu:ti* LLH from Japanese has initial vowel length. He suggests that the Ainu word is an early-Eastern-Old-Japanese loan. If neighboring languages have kept linguistic features that Japanese lost, then they would certainly contribute to a reconstruction of the Japanese language.

6. Whitman's Law -- a problem occurring in analyses relating to Whitman's /-r-/ deletion rule and initial-syllable long low-pitched vowels. What

has come to be known as Whitman's Law (Whitman 1985) deletes /-r-/ when a preceding vowel is short. However, there are a number of initially low-pitched nouns with the syllable structure (C)Vr- in Old Japanese. If Whitman's hypothesis is correct, it is possible that those nouns originally had a long vowel before the /-r-/ and that somehow the long vowel has gotten shortened, but the word kept the word-initial low register. Therefore, by this logic, the word *duru* (LL) 'mud' in Shuri, for example, was **do:ro* (LLL) in PJ. Whitman's Law plays a crucial role in the reconstruction of the accentual systems of the Japanese and Ryukyuan languages, because it involves vowel length and it is claimed to have a correlation with initial low register. Therefore, we need to further investigate the relation between Whitman's Law and vowel length.

7. Register and initial voiced obstruents -- whether the origin of accentual register in Japanese has to do with a voicing distinction in word-initial obstruents. Through comparison with Proto-Altaic, Vovin (1997) proposes a hypothesis that a register system in Japanese developed in conjunction with the loss of contrast between initial voiceless and voiced obstruents in PJ. That is to say, words with a PJ initial voiced obstruent came to be initial low-register words and ones with a PJ initial voiceless obstruent became initial high-register words as the distinction of voicing in initial obstruents was lost.

- | | | | |
|-----|------------------|---|---|
| (6) | PJ low register | < | Proto Altaic initial voiced obstruents
(*b, *d, *j, *g) |
| | PJ high register | < | Proto Altaic initial voiceless obstruents
(*p ^h , *p, *t ^h , *t, *c ^h , *c, *k ^h , *k) |

However, there are a number of exceptions, for example, the following:

(7)	Proto Japonic	Proto Altaic
(a)	* <i>da</i> H 'arrow'	* <i>da</i> 'arrow'
(b)	* <i>ta</i> L 'rice-field'	* <i>tʰala</i> 'field'

According to Vovin, exceptions like (7a) might have lost an initial laryngeal, that is to say, **Lda* H (with L indicating a laryngeal) became **da* H. Vovin also says that exceptions such as that in (7b) might have lost vowel length – which Martin (1975, 1987) claims to have existed in relation to low register in the Japanese and Ryukyuan languages – and have kept the low pitch. Vovin's hypothesis requires further research.

1.3. PITCH ACCENT IN RELATION TO MORAS, SYLLABLES, PITCH, STRESS, AND TONES

In pitch-accent systems, phonemic pitch change can occur anywhere within a string, either within or between syllables/moras. For example, in Kyoto the word for 'window' is *mado* LF, in which pitch falls within the second syllable (= mora). In the word *hasi* HL 'bridge,' pitch falls between the first and the second syllable (= mora).

According to Haraguchi (1977: 340-3), both syllable and mora can be the accent-bearing unit and tone-bearing unit depending on the language. Namely, what bears accent and what bears tone is determined by each language. The tone-bearing unit is not necessarily also an accent-bearing unit. For example, in Tokyo, tone-bearing units are moras, but accent-bearing units are syllables, while in Kyoto, both tone-bearing units and accent-bearing units are moras. In other words, in Tokyo there is no contrast between CVV|CV (HHL) and CV|VCV (HLL) or between CVN|CV and CV|NCV; pitch always falls after the first mora in a syllable which contains two moras, if the syllable is accented.

However, in Kyoto, any mora can be accented. Notice also that in both of these dialects each mora is linked to a tone. Syllable boundaries are indicated by a dot.

(8) (a) Tokyo dialect

ni.hon 'Japan'	ryoo.ri 'cooking'
L H L	H L L

(b) Kyoto dialect

on.na 'woman'	on.do 'temperature'
/	\
H L	H L

However, phonological duration is measured in terms of the mora. For example, the Japanese poetry *haiku* consists of three lines of 5, 7, and 5 moras.

Inaba (1996: 135) says that rhythm and pitch are independent of each other in Japanese because "rhythm involves timing with the alternation of strong and weak while pitch involves frequency[,] with patterns like LHHHL, LHH, and LHL. The point of contact between rhythm and pitch is only the location where the last foot-head meets the last high pitch." In the following example "<ex>" indicates extrametricality, "TJ" is Transitional Juncture, which is employed to meet the binary foot requirement, and "/tó/" is an accented syllable:

(9)	Rhythm:	<ex>	(+ TJ)	(+ -)	(+ - -)	
		ya	ma	ho to	tógisu	'mountain quail'
	Pitch:	L	H	H H	H L L	

With regard to differences between pitch-accent, tone, and stress languages, we briefly discuss general characteristics of these three systems below.

First, a pitch-accent language is one whose lexicon specifies either the syllable on which an accent occurs or only whether a word is one type, not the other, when there are only two types of accent. For instance, in Tokyo Japanese, which is generally considered to be a prototypical pitch-accent language (McCawley 1978), there are two types of nouns: accented and unaccented. In this dissertation the term 'accent' denotes a distinctive fall or rise in pitch, indicated by "↓" or "↑" respectively. The following examples are from Tokyo Japanese and Sonai (Iriomote) Ryukyuan.

- (10)
- | | | | |
|-------------|------------------------|--|----------------------|
| | Tokyo ² | | Sonai |
| accented: | ka↓ki HL(L) 'oyster' | | pa↑na LH(H) 'flower' |
| | kaki↓ LH(L) 'fence' | | |
| unaccented: | kaki LH(H) 'persimmon' | | pana LL(L) 'nose' |

As far as nouns in Tokyo and Sonai are concerned, without knowledge of the existence and location of accent, the pitch shape of the nouns is unpredictable. Thus, both the existence and location of the accent need to be indicated in the lexicon. However, the pitch shape of verbs and adjectives in Tokyo is predictable if we know that a given verb or adjective is accented. There are, for example, two pitch patterns for disyllabic verbs in Tokyo: HL for accented and LH for unaccented. The verb meaning 'tear (paper or cloth)' is accented, so it is *sa↓ku*, and the verb meaning 'bloom' is *saku* LH because it is unaccented. Therefore, for verbs and adjectives the location of accent does not need to be specified, but the information on whether or not they are accented must be indicated in the lexicon.

² The letter in parentheses indicates the pitch of a following particle. For example, a particle is low in pitch after the word *ka↓ki* 'oyster', i.e., *ka↓ki-ga* HL-L. Note that the pitch shapes of the words *kaki↓* 'fence' and *kaki* 'persimmon' are identical (i.e., LH) when uttered in isolation. The difference is clear only when a particle is added.

At the phonetic level, in pitch-accent languages not all words have accent, while in stress-accent languages all lexical words have stress, and in tone languages most lexical words have tone(s) (see discussions below for more details on stress-accent and tone languages). According to *Onseigaku dai-jiten* [A dictionary of phonetics] (1976), there are Japanese dialects not having a distinctive pitch accent, such as spoken in Miyagi, the southern part of Yamagata, Fukui, Hachijō-jima, etc. In those dialects, a given word can be pronounced in many different ways because pitch is not distinctive. For example, *atama* 'head' can be pronounced with LHL, HHL, HLL, LLL, or LHH (cf. LHH in Tokyo), without changing the meaning of the word. It is widely believed that accent systems have become less complex in the history of Japonic languages (Kindaichi 1960). Therefore, the modern Japonic non-pitch-accent languages must have lost their pitch distinction in the course of their development.

A system of pitch accent is potentially made up of two typologically different sub-systems. One is locus accent, and the other is initial-register accent. For example, Tokyo dialect has locus accent, where pitch fall is distinctive, e.g., *atama* LHH(L) 'head' vs. *kokoro* LHL(L) 'heart' (Hirayama 1960). Shuri Ryukyuan has distinctive initial-register accent, where there are only two accent categories: initial high ("A") and initial low ("B"), e.g., *hana* A 'nose' vs. *hana* B 'flower' (Kokuritsu Kokugo Kenkyūjo 1963). Furthermore, both locus accent and initial-register accent can coexist in one pitch-accent system. Hyōgo dialect, for example, distinguishes not only *kaki* HH 'persimmon' and *hasi* HL 'bridge' by means of locus accent, but also *azuki* HHL 'red bean' and *kabuto* LHL 'helmet' by initial-register accent (McCawley 1968).

following example shows that H in HL has to link to an accented syllable,³ indicated by /ó/, and a rule lowers the initial syllable (Haraguchi 1977: 9-17). Compare (12) with the examples in (11).

(12) *kokoro* 'heart' in Tokyo Japanese



Regarding pitch-accent languages with no phonemic accent, Ôgami-island dialect of Miyako Ryukyuan, for example, has only one phonetic pitch shape for all words, e.g. *pa*: LL 'leaf', *pana* LL 'flower', *mitum* LLL 'woman' (Hirayama, et al. 1967: 31-32). In this language, words do not need to specify underlying tone at all because the pitch shape of the words is completely predictable.

On Haraguchi's autosegmental analysis of Japanese pitch accent, Vance questions the appropriateness of an autosegmental analysis of the Japanese accent. He says:

"[O]ne of the characteristics of African languages that motivates the autosegmental approach is the crowding of n [n is any positive integer] tones onto a word with fewer than n syllables. In Standard Japanese, however, whenever the H and L of the melody are crowded onto a single mora, Haraguchi's tone simplification rule [50] eliminates the contour tone. In other words, Japanese does not work the way we expect a language with relatively autonomous tones to work." (Vance 1987: 105)

Furthermore, more importantly, Haraguchi's analysis obscures the crucial distinction between locus and initial-register accent in the Japonic languages.⁴

According to Hyman (1975), a stress language is a language whose lexicon specifies at most the syllable on which an accent occurs. However, in some stress

³ 'Accented syllable' in Haraguchi (1977) simply means the syllable to which the H tone has to link.

⁴ Ainu and Korean, pitch-accent languages, distinguish locus accent from initial-register accent as well (Shimabukuro 1999).

languages such as Turkish (stress on the final syllable), Polish (stress on the penultimate), Hungarian (stress on the initial syllable), the stressed syllable is predictable. Therefore, in the lexicon of those languages, there is no specification of stressed syllable. In addition, there is only one primary accent per word, but there can be secondary accent. However, there is also secondary accent in some pitch-accent languages. For instance, according to Kindaichi (1975: 223), in the Goka dialect of Iki-island, *sakana* 'fish' is pronounced MLH(L) (pitch falls after the first mora and after the third mora).⁵ It also seems to be true that all lexical words in stress languages have at least one stressed syllable, but not all words in pitch-accent languages need to have accent, e.g. *sakana* 'fish' (i.e., with no accent) in Tokyo Japanese.

In a stress language, the presence or absence of stress can cause segmental changes. For example, vowel reduction when a vowel is not stressed (e.g., English).

(13) Vowel reduction in English (connected speech)

'university' [junɪvərsɪtɪ] > [junvərsɪtɪ] > [junvərsɪ]

In a tone language, voicing in consonants causes changes in pitch height⁶ (e.g., Mandarin Chinese). In a pitch-accent language, both accent and segments affect the pitch shape of a word. For example, Tokyo Japanese has a process of vowel

⁵ "M" in MLH(L) stands for a mid-high pitch.

⁶ Vovin (1997) claims that the contrast between initial voiceless and voiced obstruents, which is Altaic in origin, existed in Proto-Japonic, and word-initial voiced obstruents historically lowered the initial pitch of words. If this is true, voicing in consonants would also affect pitch height in pitch-accent languages.

devoicing,⁷ but a vowel in accented syllables usually does not undergo the process (Han 1962: 81). However, according to McCawley (1977: 266), voiceless vowels can shift an accent to the right.

- (14) /t̥i̯kaku/ -> t̥ika̯ku 'near'
 /h̥u̯kaku/ -> h̥uka̯ku 'deep'

Yet, Vance (1987: 50) gives *aki̯kaze* 'autumn wind', where the devoiced syllable *ki* carries accent.

According to Cheng (1973), stress and tone are not mutually exclusive because stress exists in at least some tone languages. For example, in Mandarin Chinese, weakening in unstressed syllables occurs, e.g., /lí pa/ -> [lí bə] 'fence' where the initial syllable is phonetically stressed.

⁷ In Tokyo Japanese, high vowels (*i* and *u*) are devoiced when followed by a voiceless consonant and before a morpheme boundary, if the word is tonic and the preceding syllable has a voiced vowel (Martin 1987: 76).

CHAPTER 2

CRITICAL REVIEW

In this section, I will critically review previous major studies on the accentual history of the Japonic languages. Studies that we focus on are Hattori (1933b, 1937a, and 1951), Kindaichi (1975 [1954]), Tokugawa (1978 [1962]), Okuda (1975), McCawley (1977), Ramsey (1979), Thorpe (1983), Martin (1987), and Matsumori (1993 and 1998). All of the studies involve a reconstruction of history and pre-history of accent systems in the Japanese language and/or the Ryukyuan language.

2.1. HATTORI

As far as the accentual history of the Japonic languages is concerned, Hattori's series of articles that appeared in *Hôgen* (1931-33a) are the very first comparative studies. In these articles, Hattori points out regular correspondences in accent between several dialects of Japanese, yet does not reconstruct a proto accent of the languages. His first attempt to reconstruct a proto accent system of the Japanese language appeared in *Genshi nihongo no ni-onsetsu meishi no akusento* [The accent of disyllabic nouns in proto-Japanese] in 1937. In this article, Hattori reconstructs an accent system of proto mainland Japanese (PMJ) for only disyllabic nouns.

(1) PMJ accent for disyllabic nouns (Hattori 1937a: 47-48)

- 2.1⁸ *HH(F)⁹
- 2.2 *HF(L)
- 2.3 *LL(R)
- 2.4 *LH(H)
- 2.5 *LH(F)

Hattori demonstrates how accent categories can be reconstructed by using the comparative method, but does not explain how he reconstructs the phonetic values of each accent category.

In Hattori (1933b), on the basis that the location of accent in Tokyo-type dialects is one syllable right of the location of accent in Kyoto-type dialects, he claims that Tokyo-type accent derived from Kyoto-type accent by shifting accent rightward.¹⁰ For example:

- | | | | |
|-----|-----------------------|--------|--------------|
| (2) | Kôchi (Kyoto-type) | Tokyo | |
| | ọ\|turu ¹¹ | oti\|ru | 'fall, drop' |

Hattori was never satisfied with his hypothesis that Kyoto-type is more conservative than Tokyo-type accent because it contradicts the fact that new lexical items are found in Kyoto-type dialects and more archaic words are in Tokyo-type dialects. (See Yanagita 1930 for details.)

⁸ Numbers indicate corresponding accent categories of the *Ruiju-myôgi-shô* (also called *Myôgi-shô*), a Chinese-Japanese dictionary written in the 11th century. This is one of the oldest existing written records with accent marks. More specifically, the first number indicates the number of syllables, and the last number shows an accent category. Therefore, '2.1' means Myôgi-shô disyllabic accent category 1. Similarly, 1.2 and 3.2 respectively indicate Myôgi-shô monosyllabic accent category 2 and Myôgi-shô trisyllabic accent category 2.

⁹ A pitch in parentheses is for a following particle.

¹⁰ 'Tokyo-type' and 'Kyoto-type' refer to modern Tokyo-type and modern Kyoto-type respectively throughout this dissertation. The Japanese dialect used in Myôgi-shô is traditionally considered to be an earlier dialect of Kyoto Japanese.

¹¹ Following Shibatani's phonemic analysis (1990), we use a phoneme /t/, which becomes palatalized to [ç] before /i/.

(3) a. Distribution of accent types

(Tokyo-type (Kyoto-type) Tokyo-type)
 new old new

b. Distribution of lexical items

(Tokyo-type (Kyoto-type) Tokyo-type)
 old new old

To avoid this contradiction, Hattori (1937a) proposes a new hypothesis that both Tokyo-type and Kyoto-type dialects developed from a proto language different from either of them.

(4) Proto accent
 / \
 Tokyo-type Kyoto-type

Hattori also revises the reconstruction of the accent system for disyllabic nouns as below. Compare it with the earlier one in (1).

(5) PMJ accent for disyllabic nouns (Hattori 1937a: 51)

- 2.1 *HH(F)
- 2.2 *HF(L)
- 2.3 *LH(L)

There are only three categories in (5) because Hattori claims that in order to reconstruct proto categories for 2.4 and 2.5 categories he needs the data from the Ryukyuan language. For the first three categories, the only difference between (1) and (5) is in 2.3; *LL(R) in (1) and *LH(L) in (5). Note that *LH(L) is the same as that of modern Tokyo-type dialects (see below). Hattori argues that a crucial advantage of the new hypothesis over the old one is that the new one is in accordance with the distribution of lexical items. That is to say, Tokyo-type

accent is more similar to PJ accent than Kyoto-type accent is. Therefore, (3a) should be revised as follows as well:

(6) Distribution of accent types

(Tokyo-type (Kyoto-type) Tokyo-type)
 old new old

Although Hattori claims that the system of Tokyo-type accent is more conservative than that of Kyoto-type, it is not clear on what basis Hattori claims so. The following are the accent systems of Tokyo and Kyoto dialects with diachronic changes, taken from Hattori (1937a: 52). Throughout this dissertation, diachronic changes are indicated by '>', e.g. *X > Y; X changes to Y and '=' indicates no change, e.g. *Z = Z; Z remains the same.

(7) a. Tokyo dialect

*2.1 HH(F) > HH(H) > LH(H)
 *2.2 HF(L) > HH(L) > LH(L)
 *2.3 LH(L) = LH(L)

b. Kyoto dialect

*2.1 HH(F) > HH(H)
 *2.2 HF(L) > HL(L)
 *2.3 LH(L) > LL(H) > HL(H) > HL(L)

Comparing 2.1 and 2.2 categories in both (7a) and (7b), we will see that there are more changes in Tokyo than in Kyoto (four changes vs. two). However, for 2.3, there is no change in Tokyo, but there is a series of three changes from a proto form to a modern form in Kyoto. If there is a way to determine which system is more conservative, Hattori should reveal it. Furthermore, without reconstructing a whole accent system, it would be quite difficult to argue about archaism of one system in comparison with another.

In *Ruiju-myôgi-shô* [A collection of words by category], the pitch of each syllable is marked in accordance with a Chinese system of marking tones for syllables. In this system, dots are placed next to the character; a dot placed at the lower left corner (◡◻) represents the “even tone (E)”, a dot at the upper left corner (◡◻) represents the “rising tone (R)”, a dot at the upper right (◻◡) indicates the “departing tone”, and a dot at the lower right (◻◡) denotes the “entering tone.”¹² Of the four tones, only the first two are regularly used to show phonological distinctions.

(8) Myôgi-shô accent categories and their pitch shapes

Disyllabic nouns		Trisyllabic nouns	
	Traditional interpretation		Traditional interpretation
Myôgi-shô		Myôgi-shô	
RR	HH	RRR	HHH
RE	HL	RRE	HHL
EE	LL	REE	HLL
ER	LH	ERR	LHH
		ERE	LHL
		EER	LLH
		EEE	LLL

It is widely accepted in the literature that R and E are high pitch and low pitch respectively. For example, a disyllabic word marked with RR is HH pitch, a word with RE is HL, a word with EE is LL, and so on. According to Hattori, there are four pitch shapes for disyllabic words and seven for trisyllabic words in Myôgi-shô. In (8), disyllabic examples are extracted from Kindaichi (1937) and trisyllabic examples are from Ôhara (1942).

¹² Ramsey (1979: 161) says, “The [◡]entering tone[◡] represented in Chinese not a distinctive pitch contour, but rather meant that the syllable ended in a -p, -t, or -k stop; in Japanese language texts the use of this “tone” was rare and inconsistent.”

In his article (1951), pointing out that in Kyoto Myôgi-shô **EEE** and Myôgi-shô **RRE** merged into **HHL**, Hattori suggests that Myôgi-shô **EEE** be 'mid falling pitch' (*chûchûge-gata*), namely, **MML**.

- (9) Myôgi-shô Kyoto
 EEE > **HHL**
 RRE >

Therefore:

- MML** > **HHL**
HHL >

Not:

- LLL** > **HHL**
HHL >

His reasoning is that falling pitch easily merges with another falling pitch, but merging of level pitch and falling pitch is unnatural. Moreover, Hattori also suggests **MLH** for Myôgi-shô **EER** and **ML** for Myôgi-shô **EE** by referring to Kindaichi's claim that Myôgi-shô **EE** and Myôgi-shô **RE** merged into **HL** in the Kamakura period (1192-1333 A.D.).

- (10) Myôgi-shô Kyoto
 EE > **HL**
 RE >

Therefore:

- ML** > **HL**
HL >

Not:

- LL** > **HL**
HL >

Therefore, Hattori's view on Myôgi-shô categories and their pitch shapes is as follows:

(11) Disyllabic nouns		Trisyllabic nouns	
Myôgi-shô	Hattori's	Myôgi-shô	Hattori's
RR	HH	RRR	HHH
RE	HL	RRE	HHL
EE	ML	REE	HLL
ER	LH	ERR	LHH
		ERE	LHL
		EER	MLH
		EEE	MML

In his article *Genshi nihongo no akusento* [The accent of Proto-Japonic language] (1951), Hattori expands his reconstruction covering monosyllabic, disyllabic, and trisyllabic words. This article includes two sets of reconstructions of the PJ accent system. Hattori reconstructs a PJ accent system and later in the article he revises it. The revised version is more complex than the earlier one through adding alternative pitch shapes.

(12) Hattori's reconstruction (1951)

First Reconstruction

Monosyllabic Accent

*H(H) (1.1)				>	Tokyo-type L(H)
ti 'blood'					
*H(L) (1.2)	>	H(H)	>		Tokyo-type L(H)
na 'name'					
*L(H) (1.3)	>	F(H)	>		Tokyo-type H(L)
ki 'tree'					
*RF.(L) ¹³ (1.3)				>	Tokyo-type H(L)
ha 'tooth'					

¹³ The pitch 'RF.' occurs within a syllable and a dot following 'RF' indicates a syllable boundary.

Disyllabic Accent

*HH(H) (2.1) usi 'cow'	>	Myôgi-shô HH(H)	>	Kyoto HH(H)
			>	Tokyo LH(H)
			>	Morioka LL(L)
			>	Takamatsu HH(H)
			>	Kagoshima LH(L)
*HF(L) (2.2) isi 'stone'	>	Myôgi-shô HL(L)	>	Kyoto HL(L)
			>	Tokyo LH(L)
			>	Morioka LL(L)
			>	Takamatsu HL(L)
			>	Kagoshima LH(L)
*LH(L) (2.3) asi 'foot, leg'	>	Myôgi-shô ML(H)	>	Kyoto HL(L)
			>	Tokyo LH(L)
			>	Morioka LH(L)
			>	Takamatsu HH(H)
			>	Kagoshima LL(H)
*LH(H) (2.4) iki 'breath'	>	Myôgi-shô LH(H) ML(H)	>	Kyoto LL(H)
			>	Tokyo HL(L)
			>	Morioka HL(L)
			>	Takamatsu LL(H)
			>	Kagoshima LL(H)
*HL(L) (2.5) aki 'autumn'	>	Myôgi-shô LH(L)	>	Kyoto LH(L)
			>	Tokyo HL(L)
			>	Morioka HL(L)
			>	Takamatsu LF(L)
			>	Kagoshima LL(H)
	>	LH(L)		

Trisyllabic Accent

*HHH(H) (3.1) kuruma 'cart'	>	Myôgi-shô HHH(H)	>	Kyoto HHH(H) Tokyo-type ¹⁴ LHH(H)
*HHF(L) (3.2) tobira 'door'	>	Myôgi-shô HHL(L) LHF(L)	>	Kyoto HLL(L) Tokyo-type LHH(H)
*HFL(L) (3.3) tikara 'strength'	>	Myôgi-shô HFL(L) LHL(L)	>	Kyoto HLL(L) Tokyo-type LHL(L) ¹⁵
*LLH(L) (3.4) kagami 'mirror'	>	Myôgi-shô MML(H) > HHL(L) > LLH(L)	>	Kyoto HLL(L) Tokyo-type LHH(L)
*LLH(H) (3.5) abura 'oil'	>	Myôgi-shô MLH(H)	>	Kyoto HLL(L) Tokyo-type LHH(H)
*LHL(L) (3.5) inoti 'life'	>	Myôgi-shô MLH(L)	>	Kyoto HLL(L) Tokyo-type LHL(L) ¹⁶
*LHH(H) (3.6) nezumi 'mouse'	>	Myôgi-shô LHH(H)	>	Kyoto LLL(H) Tokyo-type LHH(H)
*LHF(L) (3.7) kusuri 'drug'	>	Myôgi-shô LHL(L)	>	Kyoto LHL(L) Tokyo-type LHH(H)
*HLL(L) (3.7) kabuto 'helmet'	>	Myôgi-shô LHL(L)	>	Kyoto LHL(L) Tokyo-type HLL(L)

¹⁴ For trisyllabic examples, Hattori (1951) gives the pitch patterns of Tokyo-type (Chûgoku) dialects, not of Tokyo dialect.

¹⁵ In Tokyo, the pitch for the word 'strength' is LHH(L) (Kindaichi 1966, Nihon Hôshô Kyôkai 1971). Cf. *tika ira* LHL in Hiroshima (Hirayama 1960).

¹⁶ In Tokyo, the pitch for the word 'life' is HLL(L) (Kindaichi 1966, Nihon Hôshô Kyôkai 1971).

Revised Reconstruction

Monosyllabic Accent

*H(H) (1.1)	>	Myôgi-shô H(H)	
	>	Tokyo-type L(H)	
*H(L) (1.2)	>	Myôgi-shô F(L)	
	>	H(H)	> Tokyo-type L(H)
*FR.(H) ~ R(H) (1.3)	>	R(H)	> Myôgi-shô L(H)
	>	F(L)	> Tokyo-type H(L)
*FR.(L) ~ H(L) (1.3)	>	Myôgi-shô H(L)	
	>	F(L)	> Tokyo-type H(L)

Disyllabic Accent

*HH(H) (2.1)	>	Myôgi-shô HH(H)	
	>	Tokyo-type LHH(H)	
*HF(L) (2.2)	>	Myôgi-shô HL(L)	
	>	HL(L)	> Tokyo-type LH(L)
*LF(L) ~ L.RF.(L) (2.3)	>	Myôgi-shô ML(H)	
	>	HF(L)	> Tokyo-type LH(L)
*FH(H) ~ LH(H) (2.4)	>	Myôgi-shô LH(H)	
	>	FL(L)	> Tokyo-type HL(L)
*FH(L) ~ LH(L) (2.5)	>	Myôgi-shô LH(L)	
	>	FL(L)	> Tokyo-type HL(L)

Trisyllabic Accent

*HHH(H) (3.1)	>	Myôgi-shô HHH(H)	
	>	Tokyo-type LHH(H)	
*HHF(L) (3.2)	>	Myôgi-shô HHL(L)	
	>	HHF(L)	> Tokyo-type LHH(L)
*HFL(L) (3.3)	>	Myôgi-shô HLL(L)	
	>	HFL(L)	> Tokyo-type LHL(L)
*LLF(L) ~ LL.RF.(L) (3.4)	>	Myôgi-shô MML(H)	
	>	HHF(L)	> Tokyo-type LHH(L)
*LLH(H) (3.5)	>	Myôgi-shô MLH(H)	
	>	HHH(H)	> Tokyo-type LHH(H)
*LFL(L) ~ L.RF.L(L) (3.5)	>	Myôgi-shô MLH(L)	
	>	HFL(L)	> Tokyo-type LHL(L)
*FHH(H) ~ LHH(H) (3.6)	>	Myôgi-shô LHH(H)	
	>	HHH(H)	> Tokyo-type LHH(H)
*FHH(L) ~ LHH(L) (3.7)	>	Myôgi-shô LHL(L)	
	>	HHH(H)	> Tokyo-type LHH(H)
*FHL(L) ~ LHL(L) (3.7)	>	Myôgi-shô LHL(L)	
	>	FLL(L)	> Tokyo-type HLL(L)

Adopting the comparative method, Hattori demonstrates how he reconstructs accent categories for monosyllabic nouns based on the data from Myôgi-shô, modern Tokyo, and Kyoto dialects. However, as shown in (12) above, Hattori reconstructs five accent categories for disyllabic nouns and nine for trisyllabic nouns without providing us with any data of accentual correspondences.

When it comes to the reconstruction of phonetic pitch shapes for the reconstructed accent categories, Hattori's methodology is even more mysterious. In Hattori (1951), he does not reveal how he assigns the phonetic values to each accent category, but shows how the pitch shapes change from PJ

to the modern dialects of Tokyo, Kyoto, Morioka, Takamatsu, and Kagoshima (see (13) below). Although Hattori shows the development of the pitch shapes for accentual categories, it is not certain how he comes up with the pitch shapes for the PJ accent categories on the basis of the correspondences below. The following correspondences are extracted from (12) and arranged as they are given.¹⁷

(13)	2.1	2.2	2.3	2.4	2.5
Kyoto	HH(H)	HL(L)	HL(L)	LL(H)	LH(L)
Tokyo	LH(H)	LH(L)	LH(L)	HL(L)	HL(L)
Morioka	LL(L)	LL(L)	LH(L)	HL(L)	HL(L)
Takamatsu	HH(H)	HL(L)	HH(H)	LL(H)	LF(L)
Kagoshima	LH(L)	LH(L)	LL(H)	LL(H)	LL(H)
Myôgi-shô	RR(R)	RE(R)	EE(R)	ER(R)	ER(E)
PJ	*HH(F)	*HF(L)	*LH(L)	*LH(H)	*HL(L)

Notice that Hattori's reconstruction of the phonetic values for the accent categories is not systematic. In other words, for example, it is not known how and why Hattori reconstructs PJ *HF(L) for 2.2 based on the correspondences, Kyoto HL(L) : Tokyo LH(L) : Morioka LL(L) : Takamatsu HL(L) : Kagoshima LH(L) : Myôgi-shô RE(R).

With regard to the development of accent in modern dialects from PJ, what Hattori does is present a series of accentual changes without explanation. For example, Hattori claims that PJ 2.2 *HF(L) developed into LH(L) in Tokyo and Kagoshima, HL(L) in Kyoto through Myôgi-shô RE(R), HL(L) in Takamatsu, and LL(L) in Morioka, but no explanation is given how the changes occurred. It

¹⁷ In fact, we do not know what dialects are involved in Hattori's reconstruction. Since he shows the development of accent in Tokyo, Kyoto, Morioka, Takamatsu, and Kagoshima, I assume these dialects are used for the reconstruction of PJ. Furthermore, because Hattori does not list any accentual correspondences, and also because assuming all the dialects mentioned in (12) are used for the reconstruction, I will list a set of correspondences based on the data in (12) here.

is unknown what sorts of principles of accentual change are involved in Hattori's reconstruction.

(14) Hattori's claim on the Development of accent from PJ 2.2 to modern dialects

PJ *HF(L)	>	LH(L)		Tokyo, Kagoshima
	>	RE(R)	>	HL(L)
	>	HL(L)		Kyoto
	>	LL(L)		Takamatsu
				Morioka

The development should be explainable in accordance with natural pitch change. Without linguistic explanations, a hypothesis is not sound.

According to Hattori (1979a), there are two subcategories of nouns in each of the accent categories 2.3, 2.4, and 2.5. That is to say, some nouns in accent categories 2.3, 2.4, and 2.5 have vowel length in the initial syllable, and the initial-syllable vowel length of those nouns in some dialects of Ryukyuan corresponds to a short vowel with accent in other dialects. I will call that subcategory "(a)," and the rest subcategory "(b)," namely, 2.3a, 2.3b, 2.4a, 2.4b, 2.5a, and 2.5b. See some examples below -- examples for 2.3a are taken from Hattori (1979b: 100) and examples for 2.4a and 2.5a are from Hattori (1979a: 103-104). Vowel length in the first syllable in Shuri corresponds to a short vowel with accent in Nakijin.

(15) Correspondences between vowel length and accent

	2.3a 'jar'	2.4a 'breath'	2.5a 'shadow'
Shuri	ka:mi B ¹⁸	ʔi:ci B	ka:gi B
Nakijin	haɿmi	ʔiɿci	haɿgi

Compare (15) with the examples in (16) for 2.3, 4, 5b which constitute Hattori's

¹⁸ "B" following Shuri words stands for initial low pitch.

other category. Examples for 2.3b are from Hattori (1979b: 101) and examples for 2.4b and 2.5b are from Hattori (1979a: 105).

(16)	2.3b 'hole'	2.4b 'board'	2.5b 'sweat'
Shuri	?ana B	?ica B	?asi B
Nakijin	?ana┐a	hica┐a	hasi┐i

Hattori (1979a: 106) says, there are two possible hypotheses regarding reconstruction of accent for the correspondences shown in (15). They are as follows:

- (17) I. The initial-syllable vowel length in 2.3a, 2.4a, and 2.5a existed in PJ, and the length gave rise to accent when the long vowel became short.
- II. The initial-syllable vowel length in 2.3a, 2.4a, and 2.5a developed from a short vowel in the accented syllable.

Hattori chooses Hypothesis I. That is, vowel length in Shuri is a remnant of PJ vowel length and its corresponding short vowel with accent in Nakijin is secondary. However, Hattori's argument is not persuasive. He explains, if we hypothesize that initial-syllable accent is original in PJ, we would have to reconstruct two subcategories for each of the 2.3, 2.4, and 2.5. On the other hand, if we propose initial vowel length in PJ, we would not have to reconstruct two subcategories for each of the 2.3, 2.4, and 2.5. However, there is no clear explanation given how it can be done and why it is so. Furthermore, Hattori fails to mention that there is another possible hypothesis in addition to two hypotheses mentioned in (17). That is:

(18) Hypothesis III

Initial-syllable vowel length and initial-syllable accent existed independently in PJ.

From the point of view of the comparative method, we have to reconstruct two subcategories for each of the 2.3, 2.4, and 2.5 accent categories, unless we can account for some correspondences as secondary, because there are two distinctive correspondences in each of the 2.3, 2.4, and 2.5.

Another reason that Hattori gives us to support his hypothesis has to do with the accent systems of the Ainu language. In different dialects of Ainu, there are two distinct types of accent systems; pitch accent and non-pitch accent. In a system of non-pitch accent, there is vowel length distinction, but there is no such distinction in the pitch accent system. The initial-syllable high pitch in pitch-accent Ainu (i.e., Hokkaido) dialects corresponds to vowel length in the corresponding syllable of words in non-pitch accent Ainu (i.e., Sakhalin) dialects. For example (Hattori 1967: 219):

(19)	'red'	'breathe'	'yesterday'
Saru (Hokkaido)	hure HL	hese HL	numan HL
Raichiska (Sakhalin)	hu:re	he:se	nu:man

Referring to these correspondences of accent and vowel length between Hokkaido and Sakhalin Ainu, Hattori (1967: 220) says,

- (20) "... to iu taiô wo miru to, karafuto hôgen no hô ga korera no ten de wa hobo kokei wo tamotte iru mono to kangaerareru. [Looking at such correspondences, it would appear that Sakhalin Ainu seems to have retained an archaic form.]"

And then he reconstructs the initial-syllable vowel length in Proto-Ainu (PA) for words like those in (19).¹⁹ It is not clear why Hattori thinks that the vowel length in Sakhalin is more conservative than the accent in Hokkaido. Hattori's methodology is questionable. If there are principles of universal accent change

¹⁹ Arguing that the correspondence mentioned in (19) is not regular, Vovin (1993b) reconstructs both vowel length and pitch accent for Proto-Ainu.

on which Hattori relies, and/or if there are languages which have developed accent from vowel length, Hattori should reveal them. Without clear methodology and reasoning, Hattori's argument is far from convincing. Therefore, this argument for PA vowel length does not support Hattori's argument for PJ vowel length.

The last crucial drawback in Hattori's reconstruction of the accentual history of PJ is that he does not take accent typologies into account. As shown below, in general three types of pitch accent are found in the Japonic languages. (See Chapters 5 and 6)

(21) Pitch-Accent Typologies

- | | |
|-------------------------------|---|
| (a) Register and locus accent | e.g., Kyoto-type dialects |
| (b) Locus accent | e.g., Tokyo-type dialects |
| (c) Register accent | e.g., Kagoshima dialect, some Ryukyuan dialects |

Hattori's reconstruction ignores typology of PJ accent and does not account for how typologies shift from one type to another in pitch-accent languages. In fact, none of the studies reviewed in this chapter discusses the accentual history of the Japonic languages from the point of view of typological shift. Questions on pitch-accent typology have to be raised and investigated.

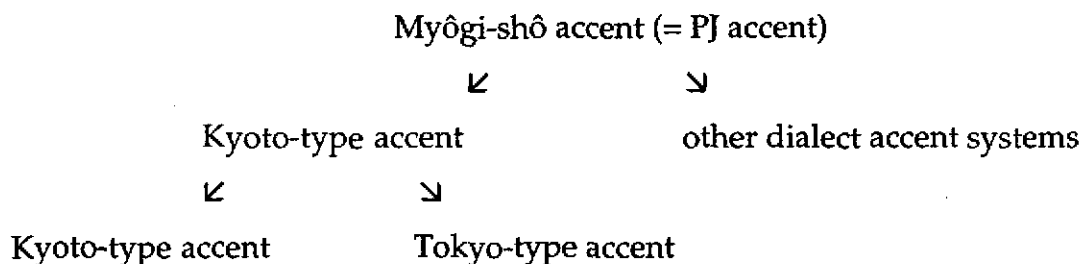
2.2. KINDAICHI

Another well-known study on the accentual history of the Japanese language is Kindaichi (1975 [1954]). In his article, Kindaichi claims that Tokyo-type accent developed from Kyoto-type accent.²⁰ Kindaichi adds that although not all Japonic dialects developed from Kyoto-type Japanese, all the Japonic

²⁰ This claim is based on Hattori's (1937a) abandoned older hypothesis (see Kindaichi 1975: 60-61).

dialects evolved from a dialect having the accent system of Myôgi-shô. That is to say, the Myôgi-shô accent is identical to PJ accent.

(22) Kindaichi's hypothesis on history of Japanese accent



(23) gives correspondences in pitch types for disyllabic words between modern Tokyo-type and modern Kyoto-type dialects (Kindaichi 1975: 56). Solid lines denote the correspondences between words which can be at the end of a sentence, and dotted lines the correspondences between words which cannot be at the end of a sentence.

(23) Modern Kyoto-type		Modern Tokyo-type
HH(H)	(a)	LH(H)
	(b)	
HL(L)	(c)	LH(L)
LH(H)	(d)	HL(L)
LH(L)	(e)	

Regarding correspondences (a), (b), and (c), Kindaichi argues that it is difficult to assume that Kyoto-type accent developed from Tokyo-type accent because there is no reason for why Tokyo-type LH(H) split to HH(H) and HL(L) in Kyoto-type dialects. On the other hand, it would be reasonable to hypothesize that Kyoto-type HL(L) split to LH(H) and LH(L) in Tokyo-type dialects because there is a distributional difference between LH(H) and LH(L).

Furthermore, Kindaichi adds that in Japanese there is a 'rule' of the pitch change from HL(L) to LH(L); shift of an accent rightward.

(24) Distributional difference between LH(H) and LH(L) in Tokyo

LH(H) -- cannot occur at the end of a sentence, e.g., *ok-u* 'put, place (something)', ("rentai (Attributive)" form).

LH(L) -- can occur at the end of a sentence, e.g., *ok-e* 'put, place' (something)', ("meirei (Imperative)" form).

However, Kindaichi's argument is faulty because there is no such accent split just described above. It will be clear that Kyoto-type HL(L) does not correspond to both LH(H) and LH(L) in Tokyo-type dialects if we look at the data carefully. Kyoto-type HL(L) corresponds only to LH(L). For example, according to the data given by Kindaichi (1975: 51), the "rentai" form of the verb for 'to put, place (something)' is HH(H) in Wakayama (Kyoto-type) dialect and LH(H) in Kôfu (Tokyo-type) dialect. The "meirei" form of the verb is HL(L) in Wakayama and LH(L) in Kôfu.

(25)		Wakayama		Kôfu
	ok-u ("rentai")	HH(H)	:	LH(H)
	ok-e ("meirei")	HL(L)	:	LH(L)

That is to say, the split did not occur, but the Wakayama HH(H) and HL(L) simply became LH(H) and LH(L) respectively. Since in the Japonic languages a verb is in general placed at the end of a sentence, we only deal with verbs here.

For correspondences (23d) and (23e), as Kindaichi notes, although the change from LH(H) to HL(L) is a completely opposite direction to the change stated in the rule mentioned above, he claims that in Kyoto LH(H) and LH(L) changed to HL(L). He explains that, according to Kamikô Kan'ichi's report (see Kindaichi (1975: 57)), younger people tend to pronounce LL(L) for words with

LH(H) pitch pronounced by older people in Osaka. Therefore, he argues, LH(H) is in the process of becoming LL(L). Kindaichi also mentions that in the area covering part of Yamagata prefecture and of northern Miyagi prefecture, words pronounced in careful speech with LL(L) are HL(L) in fast speech. Thus, it seems that a change from LL(L) to HL(L) is in process. From these phenomena of pitch change, Kindaichi claims that pitch changes as follows; LH(H) > LL(L) > HL(L). Based on this claim, Kindaichi argues that Kyoto LH(H) and LH(L) might have merged to LL(L), then becoming HL(L) in Tokyo.

Kindaichi brings our attention to a theoretical issue, as well. As in (26), listing theoretically possible hypotheses on PJ accent, Kindaichi argues that (26c) is the least possible one because Proto-Tokyo-Kyoto is not real; there is no evidence for the existence of Proto-Tokyo-Kyoto and a hypothesis based on 'non-existing evidence' is not preferable.

- (26) (a) Tokyo-type accent developed from Kyoto-type accent.
 (b) Kyoto-type accent developed from Tokyo-type accent.
 (c) Both Tokyo-type and Kyoto-type developed from Proto-Tokyo-Kyoto.

Kindaichi also says that if with either (26a) or (26b), we could not explain how the difference between the two dialects above came into existence, then we should consider (26c). However, since we can account for the development, we should disregard (26b) and (26c). Moreover, Kindaichi notes that the reason that linguists suggest hypothetical Proto-Indo-European is that they cannot explain that all Indo-European languages developed from Sanskrit. Apparently

Kindaichi thinks that a language in the oldest existing written record should be the origin of its descendent languages.

There is no reason why (26c) is excluded from possible hypotheses just because a proto language is hypothetical. When we reconstruct a proto language by the comparative method, a proto language is normally a hypothetical language. There are a number of cases where corroborative evidence has come to light in support of reconstructed forms, e.g. the evidence of Hittite for the Proto-Indo-European laryngeal (Fox 1995: 173-181). The reason why the hypothesis that the Indo-European languages developed from Proto-Indo-European is preferable is not because we cannot explain that all Indo-European languages developed from Sanskrit, but because a reconstructed language need not be identical to any attested language.

Just like Hattori's earlier hypothesis shown in (3a), Kindaichi's hypothesis conflicts with Yanagita's findings in the distribution of lexical items shown in (3b). To support his hypothesis, Kindaichi incorrectly claims that the wave theory does not account for the distribution of all aspects of language and that vocabulary is one aspect to which the theory applies, but does not apply to phonology. From the Rhenish Fan, we already know that sound changes can also spread (see Anttila 1989: 290-2).

If Kindaichi's hypothesis is correct, we would have to assume that exactly the same innovation independently occurred in two different areas surrounding the Kyoto-type accent area. Although Kindaichi claims that the accentual changes from Kyoto-type to Tokyo-type can be explained by regular changes in accent, he cannot account for why the Kyoto-type accent has remained the same

for centuries. Furthermore, Kindaichi should also explain why Kagoshima-type dialects did not undergo the same changes as Tokyo-type did and why the Tokyo-type accent is not seen in any other places; if it is a result of natural accent change from the same ancestral language, we should find the same type of accent system randomly distributed throughout Japan.

In addition, a problem in the distribution of accentual systems within Kyoto-type itself also needs to be raised here. Most of Kyoto-type dialects share the number of accentual categories and the pattern of accent merger, namely, four accentual categories -- 2.2 and 2.3 merged, but phonetic pitch shape for each category varies depending on the dialect. For example (Hyôgo examples are taken from McCawley 1977):

(27)

	2.1	2.2, 3	2.4	2.5
Kyoto	HH(H)	HL(L)	LH(H)	LH(L)
Hyôgo	HH(H)	HL(L)	LL(H)	LH(L)

However, in Ibuki-island, there is a dialect which has five accent categories, just like Myôgi-shô. Except for 2.1 and 2.5 accent categories, the pitch shapes of the categories are very different from those of Myôgi-shô. Compare Ibuki-island examples with the Myôgi-shô accent system. In Ibuki-island dialect, younger speakers distinguish the same number of accent categories as older speakers, but pitch shapes are not identical.

(28) Ibuki-island, Kagawa Prefecture (Wada 1966a)

	2.1	2.2	2.3	2.4	2.5
Younger	HH(H)	HH(L)	HL(L)	LH, LL(H)	LH(L)
Older	HH(H)	HL(L)	HL, HH(L)	LH, LL(H)	LH(L)
Myôgi-shô	RR(R)	RE(R)	EE(R)	ER(R)	ER(E)

The distribution of Ibuki-island (see Map 1 in Appendix) and Kyoto dialects seems to suggest that a new change, namely, the merging of 2.2 and 2.3 accent categories occurred in Kyoto and the change did not affect Ibuki-island dialect, which is far from the central -- Kyoto -- area. However, Kôchi, even farther away from the central area, has an accent system identical to that of Kyoto dialect (Hattori 1933b). That is to say, the distribution of these accent systems does not seem to be accounted for by the wave theory when we look at the geographical location of Kyoto, Ibuki-island, and Kôchi.

(29) The distribution of Kyoto-type accent for disyllabic nouns

Myôgi-shô

∨

Kyoto	)	Ibuki-island	)	Kôchi)
4 categories		5 categories		4 categories	

However, in the history of Japan, Kôchi became one of the areas under the control of the central court in the eighth century A.D. (Yamamoto 1970). That is, there was a constant contact between the center and Kôchi. On the other hand, Ibuki-island has been isolated from the center because of its inconvenient location. Therefore, the distribution of 4-category type accent and 5-category type accent among Kyoto, Ibuki-island, and Kôchi can be explained.

Kindaichi agrees with the traditional view that the values of "even tone" and "rising tone" in Myôgi-shô are 'low pitch' and 'high pitch' respectively. Under this view, the dialect described in Myôgi-shô is a Kyoto dialect because of similarities between the Myôgi-shô dialect and the modern Kyoto dialect. (30) illustrates similarities between Kôchi dialect (Kyoto-type) and the Myôgi-shô dialect in accent.

(30) Kindaichi's view on pitch shapes for disyllabic nouns in Myôgi-shô in comparison with Kôchi dialect and Tokyo dialect

	2.1 kane 'metal'	2.2 isi 'stone'	2.3 inu 'dog'	2.4 umi 'sea'	2.5 aki 'autumn'
Myôgi-shô	RR(R)	RE(R)	EE(R)	ER(R)	ER(E)
Kindaichi	HH(H)	HL(H)	LL(H)	LH(H)	LH(L)
Kôchi	HH(H)	HL(L)	HL(L)	LH(H)	LH(L)
Tokyo	LH(H)	LH(L)	LH(L)	HL(L)	HL(L)

Kindaichi explains how the Myôgi-shô accent system has become that of Kôchi as follows:

(31) Accent changes from Myôgi-shô to modern Kôchi

	Myôgi-shô		Kôchi dialect
2.1	HH(H)	=	HH(H)
2.2	HL(H)	>	HL(L)
2.3	LL(H)	>	HL(L)
2.4	LH(H)	=	LH(H)
2.5	LH(L)	=	LH(L)

Note that Myôgi-shô 2.1, 2.4, and 2.5 did not change at all, and the only changes are seen in 2.2 and 2.3; HL(H) changed to HL(L), and LL(H) merged with HL(L). If Kindaichi is right, the Kyoto-type accent did not change much for about nine centuries, but accent of all other dialects changed drastically by shifting accent rightward. As illustrated in (32), Kindaichi (1984: 19) shows how the Kagoshima accent developed from the Myôgi-shô accent. Notice here that the Tokyo accent evolved from the Kyoto accent, a descendant of the Myôgi-shô dialect, but the Kagoshima accent evolved directly from the Myôgi-shô dialect, although a series of changes is involved in the course of its development.

(32)	Kyoto			Tokyo
	<u>HH(H)</u>	>	<u>LH(H)</u>	= <u>LH(H)</u>
	<u>HL(L)</u>	>	<u>LH(L)</u>	= <u>LH(L)</u>
	<u>HL(L)</u>		<u>LH(L)</u>	<u>LH(L)</u>
	<u>LL(H)</u>	>	<u>LL(L)</u>	> <u>HL(L)</u>
	<u>LH(L)</u>	>	<u>LL(H)</u>	> <u>HL(L)</u>

↗

Myôgi-shô

2.1 HH(H)

2.2 HL(H)

2.3 LL(H)

2.4 LH(H)

2.5 LH(L)

↘

Ôita

<u>HH(H)</u>	=	<u>HH(H)</u>	>	<u>LH(H)</u>	=	<u>LH(H)</u>	>
<u>HH(H)</u>		<u>HH(H)</u>		<u>LH(H)</u>		<u>LH(H)</u>	
<u>LL(H)</u>	>	<u>HL(L)</u>	>	<u>LH(L)</u>	=	<u>LH(L)</u>	=
<u>LH(H)</u>	=	<u>LH(H)</u>	>	<u>LL(L)</u>	>	<u>HL(L)</u>	=
<u>LH(H)</u>		<u>LH(H)</u>		<u>LL(L)</u>		<u>HL(L)</u>	

Hanji²¹

Kagoshima

<u>LL(L)</u>	=	<u>LL(L)</u>	>	<u>HL(L)</u>	>	<u>HL ~ LH(L)</u>
<u>LL(L)</u>		<u>LL(L)</u>		<u>HL(L)</u>		<u>HL ~ LH(L)</u>
<u>LH(L)</u>	=	<u>LH(L)</u>	=	<u>LH(L)</u>	>	<u>LH ~ LL(H)</u>
<u>HL(L)</u>	>	<u>LH(L)</u>		<u>LH(L)</u>		<u>LH ~ LL(H)</u>
<u>HL(L)</u>	>	<u>LH(L)</u>		<u>LH(L)</u>		<u>LH ~ LL(H)</u>

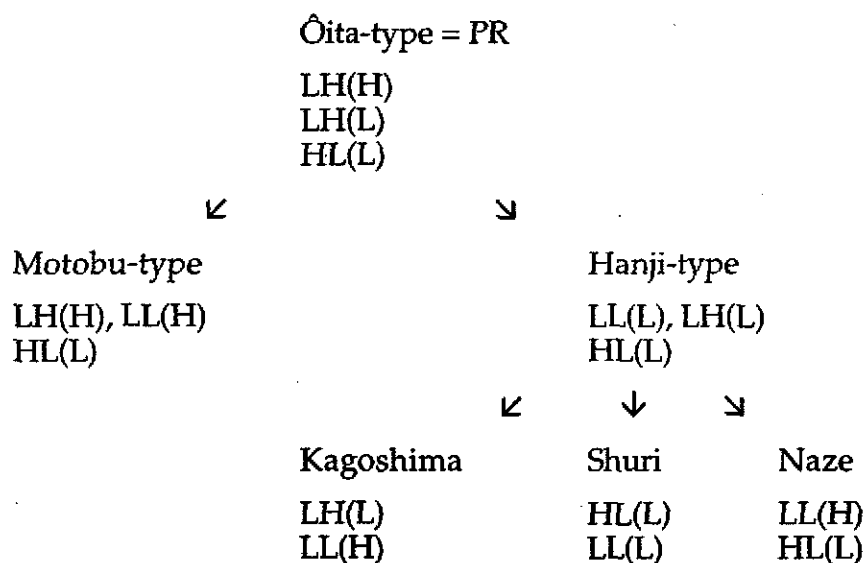
Kindaichi (1975: 146) proposes a PR accent system for disyllabic nouns as follows:

²¹ Hanji Ryukyuan is spoken in Hanji, Kunigami-son, Okinawa island [Okinawa hontô].

(33) Kindaichi's reconstruction of PR accent

Accent categories	Pitch shape	Examples
2.1, 2	LH(H)	kaze 'wind', hasi 'bridge'
2.3	LH(L)	hana 'flower'
2.4, 5	HL(L)	iki 'breath', kage 'shadow'

In (33), 'Accent categories' refer to Myôgi-shô accent categories. That is, in PR, PJ 2.1 and 2.2 had merged, as had PJ 2.4 and 2.5. Notice that this system is identical to that of Ôita. Therefore, Kindaichi claims that the Ryukyuan language evolved from Ôita-type Japanese.

(34) Kindaichi's hypothesis (1984: 19)²²

In addition, according to Kindaichi, PR accent split into Motobu-type and Hanji-type first. Then the accent of Hanji-type Ryukyuan evolved into other

²² We have simplified Kindaichi's chart in Kindaichi (1984: 19) to show that the accent of Kagoshima (Kyushu), Shuri (Okinawa), and Naze (Amami) developed from Hanji-type accent, not Motobu-type accent. In Kindaichi's original chart, there is a series of changes in accent from Hanji-type accent to those modern dialects of the Japonic languages. In his analysis, Kindaichi lists LH(H), LL(H), and HL(L) accent distinctions for Motobu dialect. However, Hirayama, et al. (1966) present that Sakimotobu dialect has LH(H), LR ~ LL(H), and HL(L). Kindaichi does not say specifically what dialect of Motobu he is using.

Kyushu (e.g., Kagoshima) dialects and Ryukyuan dialects (e.g., Shuri Ryukyuan, Amami Naze Ryukyuan).

Concerning the controversial issue of PJ vowel length, Kindaichi (1975: 138) believes that the initial-syllable vowel length found in modern Ryukyuan did not exist in PR. That is, it is a secondary development after the breakup of PR. For his claim, Kindaichi argues that since the PR accent system is identical to that of Ôita, and since in Ôita there is no initial-syllable vowel length in 2.3, 4, 5a accent categories, then some Ryukyuan dialects must have developed the vowel length. Kindaichi (1975: 145) adds, the initial-syllable vowel length in 2.3 nouns in Ryukyuan is phonologically conditioned -- the second syllable of those nouns contains the vowel /i/. However, as with Hattori (1979a: 103), Kindaichi's claim is faulty, because there are words containing both /a/ in the second syllable and a long vowel in the first syllable, e.g., *na:ka* 'middle, inside', and also because there are words without the initial-syllable vowel length even though they have /i/ in the second syllable, e.g., *muzi* 'wheat'.

Kindaichi has not given us clear explanations how the vowel length came into existence in Ryukyuan. A crucial shortcoming of his hypothesis is that he ignores the existence of the correspondences, in the initial syllable of 2.3, 4, 5a nouns, between, on the one hand, vowel length and, on the other, a short vowel with accent (see examples in (15) above). As stated by Hattori, these correspondences are not due to chance, but are systematic. Furthermore, as shown in (33), Kindaichi proposes three accent categories for the PR disyllabic

nouns. If Kindaichi is right, he has to explain how subcategories (a) and (b) in 2.3, 2.4, and 2.5 developed in the Ryukyuan dialects.

2.3. TOKUGAWA

In his article, Tokugawa (1978 [1962]) reconstructs PJ accent for disyllabic nouns based on accent categories found in modern dialects and also based on the geographical distribution of those accent categories. However, Tokugawa does not reconstruct phonetic values for each accent category.

Tokugawa's reconstruction of PJ accent has been carried out with the following presuppositions (I) - (IV).

(I) PJ had five accent categories for disyllabic nouns. This is because there is no Japonic language with more than five accent categories.

(II) Merger of accent categories is what happened in the development of accent in modern dialects. In other words, no accent category split into two. Moreover, once two accent categories merged, they never split back to the original accent categories. For example, in Kyoto Japanese there are four accent categories: HH(H), HL(L), LL(H), and LH(L). The second category, HL(L), is a result of the merger of the PJ 2.2 and 2.3 categories. Later in the history of Kyoto Japanese, this category does not split back to two original accent categories identical to PJ 2.2 and 2.3, nor can it.

(35) This is what occurred:

PJ 2.2 -----> Kyoto 2.2, 3
 PJ 2.3 ----->

But, the following will never occur.

Kyoto 2.2, 3 -----> 2.2
 -----> 2.3

In fact, though, as Tokugawa admits in the revisions to his reconstruction, an accent category does split into two different categories. Discussions on this matter will appear below.

(III) There were five stages in the history of the accentual change from PJ to accentless dialects in which all accent categories merged. As far as the number of accent categories is concerned, there were 5 at the first stage, 4 at the second, 3 at the third, 2 at the fourth, and 1 at the fifth.

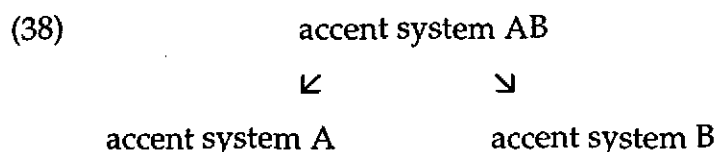
(36)	PJ	—————>				Accentless
Stage:	I	II	III	IV	V	
Number of accent categories:	5	4	3	2	1	

Development from PJ accent occurred by means of merger of accent categories. If a language goes through all the stages, it would lose all the accent distinctions; all the accent categories merge. A change occurs stage by stage; i.e., a language at the second stage does not skip the third stage and become a language at the fourth stage. However, Tokugawa fails to take typological shift into consideration, e.g., a shift from locus accent to register accent in Kagoshima.

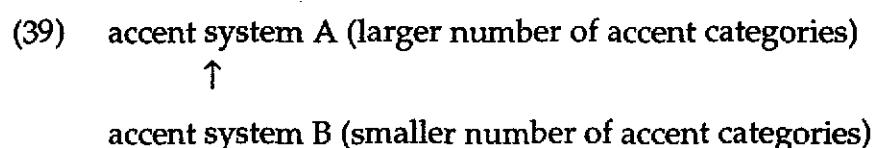
(IV) (a) When languages with the same accent system are found geographically next to each other, all of these languages have evolved from an accentually identical earlier language. (b) When accent system A and accent system B are located geographically next to each other and the development of accent system B from accent system A can be explained by accent merger, the following must be true.

- (37) accent system A (larger number of accent categories)
 ↓
 accent system B (smaller number of accent categories)

(c) Furthermore, if both accent systems above can be explained as developing from an identical earlier accent system, the following must be true.



Concerning Tokugawa's presupposition (IV), (IVa) is not necessarily true because languages influence one another by contact. According to Thomason and Kaufman (1988), any linguistic features can be borrowed from one language to another by contact. It is possible that due to contact between those languages in question, they resulted in having the same accent system. For (IVb), this is similar to Kindaichi's method adopted in his reconstruction of PJ accent (see discussion on Kindaichi's reconstruction of PJ and also Kindaichi 1975 [1954]). This method is problematic because a new accent system can evolve from another by splitting accent categories. That is to say, (39) can be true. Compare (39) with (37) and notice that they are completely opposite reconstructions of the history of accent systems A and B.



Tokugawa points out that there are logically 52 possible accent types; 1 at the first stage (PJ), 10 the second stage, 25 the third stage, 15 the fourth, and 1 the fifth stage.

Although Tokugawa assumes that there have been five stages of changes in accent, the number of possible accent changes is not 3750 ($1 \times 10 \times 25 \times 15 \times 1 = 3750$), but 180 ($10 \times 6 \times 3 = 180$). The reason is because, for instance, accent type

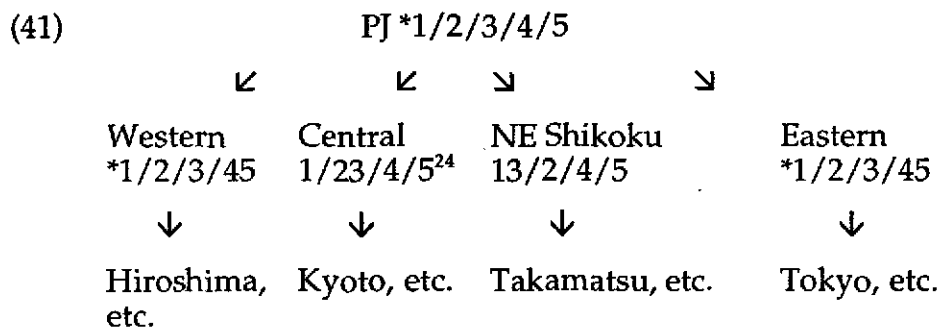
1/23/4/5,²³ where 2.2 and 2.3 merged, does not change to accent type 12/3/45, where 2.1 and 2.2 merged. As presupposition (II) states, the change from 1/23/4/5 to 12/3/4/5 is not possible because in the former 2.2 and 2.3 merged, but in the latter 2.1 and 2.2 merged. Therefore, Tokugawa says that even though there are 180 possible changes, the actual number of the changes occurring was much less.

(40) Logically possible accent types in terms of accent-category merger
(Tokugawa 1978: 546-548)

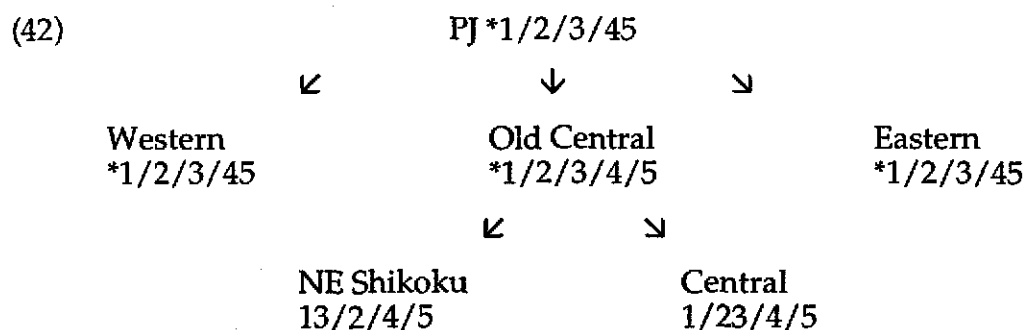
Stage I:	1/2/3/4/5			
Stage II:	12/3/4/5 1/25/3/4 1/24/3/5	13/2/4/5 1/2/3/45 1/2/35/4	14/2/3/5 1/23/4/5	15/2/3/4 1/2/34/5
Stage III:	1/2/345 12/34/5 14/2/35 145/2/3 13/25/4 1/25/34 14/3/25	123/4/5 13/2/45 1/234/5 12/35/4 1/24/35 125/3/4	15/3/24 1/235/4 14/23/5 1/23/45 134/2/5 12/3/45	1/3/245 13/24/5 15/2/34 135/2/4 15/23/4 124/3/5
Stage IV:	1/2345 13/245 125/34 1234/5	12/345 134/25 1235/4 145/23	135/24 1245/3 15/234 123/45	2/1345 14/235 124/35
Stage V:	12345			

Tokugawa (1978: 562-3) first discusses his earlier proposal that PJ split into four different accent systems: Eastern, Central, Northeastern Shikoku, and Western. Note that the accent systems of Western Japanese and Eastern Japanese are identical and unattested.

²³ "/" indicates a boundary between accent categories. An accent system like 1/23/4/5 indicates that PJ 2.2 and 2.3 categories merged into one, thus this language has four accent categories.



As shown in (42), Tokugawa (1978: 565) revises his earlier hypothesis on PJ accent by suggesting that the distinction of 2.4 and 2.5 is a later development in the central area of Japan, because the distinction of 2.4 and 2.5 is found only in central Japanese and also because cases of accent split *are* found in Japanese. In Tokugawa's revised reconstruction, PJ did not distinguish 2.4 from 2.5, and PJ accent split into Western, Old Central, and Eastern accents. Northeastern Shikoku and central accent developed from old central accent. This hypothesis is similar to Thorpe's (see discussion on Thorpe's reconstruction of PJ below).



For his explanation on the fourth category of PJ accent developing categories 2.4 and 2.5, Tokugawa (1978: 565) says that an accent category does split and that there *are* some examples for it, but there is no case where accent

²⁴ The accent system for Central Japanese is 1/23/4/5 in Tokugawa (1978: 562-3), but it is probably a misprint because the accent system of Kyoto Japanese is 1/23/4/5. Thus, assuming that Tokugawa meant 1/23/4/5 for Central Japanese, I have accordingly made an adjustment in the chart.

category 2.5 was involved.²⁵ If there is no evidence for the development of category 2.5 in any dialects of Japanese, how can Tokugawa claim that 2.5 category is an innovation? It's false to argue that the split of 2.5 from 2.4 occurred if the only evidence that can be brought to bear is that a similar split is found in other accent categories. If there is no direct evidence for the development of 2.5, we must reconstruct category 2.5, giving five accent categories for disyllabic nouns in PJ.

Tokugawa's reconstruction is an interesting one because of its methods, excluding all possible external causes to language change, but taking geographical distributions of accent types into account. There is no doubt that geographical distributions of linguistic changes and external influence on language change are correlated with each other, because dialect geography also must deal with the spread of change which is induced by external influence, namely, language contact. We cannot ignore possibilities of language-contact-induced change when we reconstruct a history of a language. Therefore, Tokugawa's reconstruction is unrealistic.

Tokugawa's attempt at reconstructing PJ accent is incomplete in the sense that he only reconstructs PJ accent for disyllabic nouns and also that he does not reconstruct the phonetic values for the reconstructed accent categories.

²⁵ "Rui no naibu de (aruiwa ittan tōgō shita ikutsu ka no rui ga, moto no kubetsu de nai betsu no) kubetsu wo shōzuru koto wa ariuru shi, gen ni aru. 'Rui no kubetsu' ga tōgō no hōkō ni nomi susumu to iu koto wa, 'kata' no atarashii hassei zōka ga nakatta to iu koto wo imi suru mono de wa nai. Shikashi 5-rui no kubetsu igai no kubetsu wa, dai 1-ni, bunri ni kanren ga atta to omowareru jijitsu ga genzai mitomerareru,"

2.4. OKUDA

On the basis of data from Myôgi-shô, Kunio Okuda (1975: 56) proposes a PJ accent system as in (43); eight accent categories for disyllabic nouns and eleven for trisyllabic nouns.

(43) Okuda's reconstruction of PJ accent for disyllabic and trisyllabic nouns

	Pitch	Examples in Myôgi-shô	
2.1	HH(H)	hana-ga	'nose-Nom(inative).'
2.2	H [~] L(L)	ka [~] mi-ga	'paper-Nom.'
2.3	LL [~] (H)	hana [~] -ga	'flower-Nom.'
2.4	L [~] H(H)	ka [~] sa-ga	'umbrella-Nom.'
2.5	L [~] H [~] (L)	ma [~] do [~] -ga	'window-Nom.'
2.6	[RH(H)	[goma-ga	'sesame-Nom.' (Kamei, et al. 1964: 129)
2.7	[R [~] L(L)	[ha [~] gi-ga	'leg-Nom.' (Hayata 1973: 146)
2.8	HH [~] (L)	Not attested	

	Pitch	Examples in Myôgi-shô	
3.1	HHH(H)	iwasi-ga	'sardine(s)-Nom.'
3.2	HH [~] L(L)	azu [~] ki-ga	'read bean(s)-Nom.'
3.3	H [~] LL(L)	ci [~] kara-ga	'strength-Nom.'
3.4	LLL [~] (H)	atama [~] -ga	'head-Nom.'
3.5	LL [~] H(H)	koko [~] ro-ga	'heart-Nom.'
3.6	L [~] HH(H)	u [~] sagi-ga	'rabbit-Nom.'
3.7	L [~] H [~] L(L)	ka [~] bu [~] to-ga	'helmet-Nom.'
3.8	[RHH(H)	[siwoni-ga	'aster-Nom.' (Hayata 1973: 146)
3.9	[R [~] LL(L)	[e [~] lyami-ga	'epidemic-Nom.' (Hayata 1973: 146)
3.10	LL [~] H [~] (L)	hono [~] ho [~] -ga	'flame-Nom.' (Kamei, et al. 1964: 129)
3.11	HHH [~] (L)	Not attested	

Okuda (1975) suggests that pitch rise was phonemic in Myôgi-shô and that such a rise in pitch became non-distinctive in Middle Japanese because of a historical change involving mergers in accentual patterns.

Looking into the Myôgi-shô data, Okuda claims that there are constraints on the combination of pitch rise ([~]) and pitch fall ([~]) in Myôgi-shô.

- (44) "The constraints are: (↑) may not be preceded by (↓) within a word, and (↑) and (↓), if both present, may not be separated by more than one [syllable]." (Okuda 1975: 58)

Based on the constraints, Okuda points out that there are six logically-possible pitch patterns for disyllabic nouns (i.e., HH(H), H↓L(L), LL↑(H), L↑H(H), L↑H↓(L), and HH↓(L)) and eight for trisyllabic nouns (i.e., HHH(H), HH↓L(L), H↓LL(L), LLL↑(H), LL↑H(H), L↑HH(H), L↑H↓L(L), and HHH↓(L)). Okuda suggests that the PJ accent system should include all the pitch patterns. All the pitches are attested in Myôgi-shô except HH↓(L) and HHH↓(L).

Okuda suggests another five accent categories for PJ. They are ↑RH(H), LL↑H↓(L), ↑R↓L(L), ↑R↓LL(L), and ↑RHH(H). ('R' stands for rising pitch.) Regarding ↑RH(H) and LL↑H↓(L), Okuda refers to Kamei, et al. (1964) where the word *goma* 'sesame' is indicated with ↑RH(H) and *honoho* 'flame' is with LLH(L). For ↑R↓L(L), ↑R↓LL(L), and ↑RHH(H), he mentions Hayata (1973) in which *hagi* 'leg', *eyami* 'epidemic', and *siwoni* 'aster' are described as ↑R↓L(L), ↑R↓LL(L), and ↑RHH(H), respectively. Okuda argues, although those categories cannot be reconstructed based on the constraints in (44), they are attested in Myôgi-shô. Thus, they should be reconstructed in PJ.

As can be seen in (45) below, Hayata (1973) points out that polysyllabic words with the initial R in Myôgi-shô are problematic.

- (45) "Polysyllabic words with the "rising" mark are problematic and might be accounted for in various ways. Some outstanding illustrative examples are discussed here. *siwoni* [RHH] 'aster' and *goma* [RH] 'sesame' are Chinese loan words. The rather unusual form *Ngoma* is found as well as the more common form *goma* [RH] in the Ruiju[-] myôgi[-]shô, where N represents a grapheme interpreted as a syllabic nasal. 'eyami' [RLL] 'epidemic' is probably a compound word, since 'e' was used also in isolation meaning 'epidemic', and *yami* is a nominalized form of a verb *yam*- 'to be sick'." (Hayata 1973: 147)

According to Okuda's reconstruction of PJ accent, the number of accentual patterns is eight for disyllabic nouns and eleven for trisyllabic nouns.

(46) Disyllabic: HH(H), HL(L), LL(H), LH(H), LH(L), HH(L), RH(H), RL(L)

Trisyllabic: HHH(H), HHL(L), HLL(L), LLL(H), LLH(H), LHH(H),
LHL(L), LLH(L), HHH(L), RHH(H), RLL(L)

However, the constraints stated in (44) also enable reconstruction of / \uparrow OO/ [LL(L)] and / \uparrow OOO/ [LLL(L)], although, like the categories HH(L) and HHH(L), the LL(L) and LLL(L) categories do not exist in Myôgi-shô. Okuda did not state why he did not reconstruct / \uparrow OO/ and / \uparrow OOO/.

The most crucial point of Okuda's argument has to do with his methodology. It is not certain why Okuda thinks that his method of reconstruction can reveal the accentual history and prehistory of Japonic languages. In other words, Okuda does not give any reasons why logically-possible accent categories based on the constraints in Myôgi-shô are the same as the accent categories of PJ. If there is a good reason for Okuda to do this, he should reveal it.

Another drawback of Okuda's reconstruction is that it is done based on only the Myôgi-shô data. Needless to say, in principle, the more data we have, the better form of proto-language we can reconstruct. This is because the dialect used in Myôgi-shô has developed over centuries from PJ and it's highly unlikely for the dialect to keep all accentual features that PJ had. Some other dialects might have kept some features that the Myôgi-shô dialect has lost in the course of its development. Therefore, a reconstruction based on one source of data is not credible.

2.5. MCCAWLEY

In his article *Accent in Japanese*, James D. McCawley (1977) has reconstructed the PJ accent system for two-mora and three-mora nouns. His methods of reconstruction involve two steps which are different in nature. The first step utilizes the comparative method -- a reconstruction of a proto form by comparing accent types of modern dialects and Myôgi-shô, and the second step is adoption of some accentual categories which are not reconstructed by him, but which were originally suggested by Hayata (1973) and Hattori (1951).

(47) (a) Accent correspondences for two-mora nouns

	Myôgi-shô	Hyôgo	Tokyo	Akita/Ôita	W. Kyushu
2.1	HH(H)	HH(H)	LH(H)	LH(H)	F(alling)
2.2	HL(L)	HL(L)	LH(L)	LH(H)	F
2.3	LL(H)	HL(L)	LH(L)	LH(L)	L(evel)
2.4	LH(H)	LH(H)	HL(L)	HL(L)	L
2.5	LH(L)	LH(L)	HL(L)	HL(L)	L

(b) Accent correspondences for three-mora nouns

	Myôgi-shô	Hyôgo	Tokyo	Akita	Ôita	W. Kysh
3.1	HHH(H)	HHH(H)	LHH(H)	LHH(H)	LHH(H)	F
3.2	HHL(L)	LHL(L)	LHH(H)	LHH(H)	LHH(H)	F
3.3	HLL(L)	HLL(L)	LHL(L)	LHL(L)	LHH(L)	F
3.4	LLL(H)	LHL(L)	LHH(L)	LHH(L)	LHH(L)	L
3.5	LLH(L)	HLL(L)	LHL(L)	LHL(L)	LHL(L)	L
3.6	LHH(H)	LHH(H)	LHH(H)	LHL(L)	HLL(L)	L
3.7	LHL(L)	LHL(L)	HLL(L)/ LHH(H)	LHL(L)	HLL(L)	L

With regard to the first step of McCawley's reconstruction of PJ accent, it is simply based on accentual correspondences between Myôgi-shô and five modern dialects: Hyôgo (Kyoto-type), Tokyo, Akita (northeastern Honshu), Ôita (northeastern Kyushu), and Western Kyushu dialects. Hyôgo dialect is Kyoto-type, and both Akita and Ôita dialects are Tokyo-type, but not identical to that of

Tokyo. In Western Kyushu, there are only two accent categories: falling and low. Note that these categories of Western Kyushu systematically correspond to the initial pitch height of the accent categories in Myôgi-shô.

On the basis of the correspondences shown above, McCawley reconstructs PJ accent as in (48). Except for the reconstructed 3.7b category, McCawley's reconstruction of PJ accent is identical to the accent system of Myôgi-shô.

(48) McCawley's reconstructed PJ accent

	Disyllabic		Trisyllabic
2.1	*[OO HH(H)	3.1	*[OOO HHH(H)
2.2	*[O]O HL(L)	3.2	*[OO]O HHL(L)
2.3	*OO[LL(H)	3.3	*[O]OO HLL(L)
2.4	*O[O LH(H)	3.4	*OOO[LLL(H)
2.5	*O[O] LH(L)	3.5	*OO[O] LLH(L)
		3.6	*O[OO LHH(H)
		3.7a	*O[OO] LHH(L)
		3.7b	*O[O]O LHL(L)

McCawley's reconstruction is not done yet at this point. He will add one more accent category for two-mora nouns and two more categories for three-mora nouns to his reconstruction. These additional accent categories are HH(L), HHH(L), and LLH(H). The first two are adopted from Hayata (1973) (see discussion above) and the third one is from Hattori (1951). Therefore, the final version of McCawley's reconstruction is as follows:

(49) McCawley's reconstruction of PJ accent²⁶

2.1	*[OO	HH(H)	3.1	*[OOO	HHH(H)
2.2a	*[OO]	HH(L)	3.2a	*[OOO]	HHH(L)
2.2b	*[O]O	HL(L)	3.2b	*[OO]O	HHL(L)
2.3	*OO[	LL(H)	3.3	*[O]OO	HLL(L)
2.4	*O[O	LH(H)	3.4	*OOO[	LLL(H)
2.5	*O[O]	LH(L)	3.5a	*OO[O]	LLH(L)
			3.5b	*OO[O	LLH(H) - Hattori
			3.6	*O[OO	LHH(H)
			3.7a	*O[OO]	LHH(L) - based on Tokyo
			3.7b	*O[O]O	LHL(L)

McCawley claims, if this reconstruction is correct, the following historical developments have occurred (50). However, (50) does not explain how changes take place. Regarding the change from PJ 2.2b */[O]O/ to /OO/ in Akita and Ôita, for example, in (50b) he says that accent was lost in high-initial words in Akita and Ôita. This does not explain the development of the dialects. We need to explain how the change took place step by step. It would be more straightforward if we propose that the development of PJ */[O]O/ to /OO/ in Akita and Ôita involves a series of accent changes, */[O]O/ > /O]O/ > /OO]/ > /OO/.

Furthermore, (50) should include that a rising pitch "[is not phonemic in Tokyo-type dialects; thus PJ rising pitch becomes non-distinctive in Tokyo-type dialects. For example, a rising pitch becomes non-distinctive in the development

²⁶ McCawley gives us two different representations of his PJ accent. He first considers only a falling pitch accent, marked with "ˆ" (McCawley uses a tick (') to indicate a falling pitch, but here we use "ˆ" for convenience). And then later he adopts Okuda's analysis where a rising pitch ("ˆ") is also distinctive. For example, McCawley first gives PJ */[O]O/ for 2.3 and later by adopting Okuda's analysis he gives PJ */OO[/. Both PJ forms indicate LL(H) phonetically. However, there is a difference when we explain the change from the PJ form to the Tokyo form. According to (50), PJ */[O]O/ becomes /O]O/ and then an accent shift one mora to the right /OO]/ in Tokyo, Akita, and Ôita. But there is no explanation for the development of PJ */OO[to Tokyo /OO]/.

of PJ 2.2b */[O]O/ to /OO]/ in Tokyo. Thus, the development goes */[O]O/ > /O]O/ > /OO]/, not */[O]O/ > /O[O]/, because the initial pitch height is predictable.

(50) Historical developments in accent (McCawley 1977: 286)

	Dialect	Developments
(a)	W. Kyushu	Syllables past the first become L (thus, only the pitch on the first syllable remains distinctive).
(b)	E. Kyushu (Ôita) and N. Honshu (Akita)	Accent is lost in high-initial words.
(c)	All Japanese dialects, except a couple of localities where the first three categories remain mutually distinct: Togi (Noto peninsula) and Ibuki-island (Kagawa prefecture).	OO[LL(H) > [O]O HL(L) ²⁷
(d)	E. Honshu (including Tokyo and Akita), W. Honshu, E. Kyushu (Ôita)	Accent shifts one mora to the right.

See McCawley's reconstructed PJ accent and its development to those of the modern dialects summarized in (51). We have added an accent change or a series of accent changes in parentheses where it is needed to explain the developments. The developments for 2.2a, 3.2a, 3.5b, and 3.7a are missing because they cannot be explained by any of the accent changes listed in (50), and we will examine them below. The following abbreviations are used for each

²⁷ McCawley mentions the change for only two-mora nouns in (50c), but based on the data, we can assume a similar change (i.e., /OOO[/ > /O[O]O/) has also occurred in three-mora nouns.

dialect: Ky = Kyoto, To = Tokyo, Ak = Akita, Ôi = Ôita, and WK = Western Kyushu.

(51) McCawley's PJ reconstruction and its developments

	PJ		Myôgi-shô		Modern dialects
2.1	*[OO	>	[OO	> >	[OO [Ky, To, Ak, Ôi] F [WK]
2.2a	*[OO]				
2.2b	*[O]O	>	[O]O	> > > >	[O]O [Ky] (O]O >) OO] [To] (O]O > OO] >) OO [Ak, Ôi] F [WK]
2.3	*OO]	>	OO]	> > >	[O]O [Ky] ([O]O > O]O >) OO] [To, Ak, Ôi] L [WK]
2.4	*O]	>	O]	> > >	O]O [Ky] (OO >) O]O [To, Ak, Ôi] L [WK]
2.5	*O]	>	O]	> > >	O]O [Ky] (OO >) O]O [To, Ak, Ôi] L [WK]

	PJ		Myôgi-shô		Modern dialects
3.1	*[ooo]	>	[ooo]	> > >	[ooo] [Ky] ooo [To, Ak, Ôi] F [WK]
3.2a	*[ooo]				
3.2b	*[oo]o	>	[oo]o	> > >	[oo]o [Ky] (ooo] >) ooo [To, Ak, Ôi] F [WK]
3.3	*[o]oo	>	[o]oo	> > > > >	[o]oo [Ky] o]oo / oo]o [To] oo]o [Ak] (oo]o >) ooo] [Ôi] F [WK]
3.4	*ooo]	>	ooo]	> > >	([o]oo >) [oo]o [Ky] (ooo > o]oo > oo]o >) ooo] [To, Ak, Ôi] L [WK]
3.5a	*oo[o]	>	oo[o]	> > > >	(ooo] >) [o]oo [Ky] (ooo >) o]oo [To] (ooo > o]oo >) oo]o [Ak, Ôi] L [WK]
3.5b	*oo[o]				
3.6	*o[oo]	>	o[oo]	> > > > >	o[oo] [Ky] ooo [To] (ooo > o]oo >) oo]o [Ak] (ooo >) o]oo [Ôi] L [WK]
3.7a	*o[oo]				
3.7b	*o[o]o	>	o[o]o	> > > >	o[o]o [Ky] (ooo] > ooo >) o]oo [To, Ôi] (ooo] > ooo > o]oo >) oo]o [Ak] L [WK]

When it comes to the reconstructed accent categories 2.2a, 3.2a, 3.5b, and 3.7a, the developments of these categories to the modern dialects cannot be explained by the changes in (50). As shown in (52), it seems, the simplest way to explain the developments is that accents have shifted one mora to the left. McCawley agrees with Hayata that accent shifts one mora to the left for 2.2a and 3.2a. This leftward accent shift can apply to 3.7a, as well. A disadvantage of proposing a leftward accentual shift is that it is very rare in Japonic languages (see Chapter 4).

(52) PJ 2.2a, 3.2a, 3.5b, and 3.7a and their reflexes in modern Kyoto

2.2a * [OO] > Kyoto [O]O

3.2a * [OOO] > Kyoto [OO]O

3.5b * OO[O] > Kyoto [O]OO

3.7a * O[OO] > Kyoto O[O]O

The form for PJ 3.5b, */ OO[O] /, is originally Hattori's reconstruction. But Hattori gives no clear explanation how he has derived the form and on what principles of accent change his reconstruction is based. The development of PJ */ OO[O] / to Kyoto [O]OO / and Tokyo [O]OO / can be explained by both a rightward shift and a leftward shift, and both of them are equally complex.

(53) (a) Rightward shift

PJ * OO[O] > OOO[O] > [O]OO (Kyoto)

PJ * OO[O] > OOO[O] > [O]OO > OO[O] (Tokyo)

(b) Leftward shift

PJ * OO[O] > OO[O] > O[O]O > [O]OO (Kyoto)

PJ * OO[O] > OOO[O] > OO[O] > (Tokyo)

In addition, McCawley also suggests a leftward accent shift for the Tokyo

3.3 accent /O]OO/ from PJ */[O]OO/; that is, */[O]OO/ > /OO]O/ > /O]OO/.

- (54) "In most 'Tokyo-type dialects' (e.g. Numazu and Hiroshima, which otherwise agree closely with Tokyo in accent), these words have OO]O. In Tokyo, OO]O is comparatively rare in 3-syllable nouns: aside from compound and derived nouns, only koko]ro has that accentuation. Tokyo thus appears to have undergone a shift OO]O > O]OO. "
(McCawley 1977: 302)

What McCawley claims is that accent has shifted one mora to the right and later shifted one mora to the left. If this is what actually has occurred, a reconstruction of accentual history seems to be impossible because accent shifts both directions. Rather, by taking into consideration that a common direction of accent shift is rightward, it is more reasonable to suggest an alternative way, that PJ 3.3 has remained the same in most of the 3.3 nouns and in some 3.3 nouns accent shifted one mora to the right.

It is reasonable to question why the PJ accent system has been retained in Kyoto-type dialects -- almost the same for centuries -- except 2.2a, 3.2a, 3. 5b, and 3.7a, but accent systems of other dialects such as Tokyo-type and Western Kyushu-type have undergone drastic changes. It is unrealistic that the Kyoto-type have not changed for centuries and others have undergone a series of changes.

2.6. RAMSEY

S. Robert Ramsey (1979) challenges Kindaichi's (1975) hypothesis, which is one of the most widely accepted hypotheses on the accentual history of the Japonic languages. With internal and comparative evidence, Ramsey argues that the accent of Tokyo-type dialects is more conservative than that of Kyoto-type

dialects. Ramsey compares Myôgi-shô with three types of dialects in modern Japanese: Tokyo-type, Kyoto-type, and Kagoshima-type, and presents structural evidence for his claim.

Ramsey claims that the actual pitch values of “even tone” and “rising tone” are not reflected directly in Myôgi-shô. We have no simple way of knowing what the labels “even tone” and “rising tone” mean. If we assign ‘low’ to “even tones” and ‘high’ to “rising tones” as in Kindaichi’s hypothesis, the accent system of Myôgi-shô looks like those of the modern Kyoto-type dialects. Ramsey says they superficially resemble it in disyllabic nouns, but they don’t in longer words.

(55)

	Myôgi-shô	Tokyo	Kôchi	Kagoshima	
1.1	R(R)	mi L(H)	mi H(H)	mi F	‘body’
1.2	R(R)	hi L(H)	hi H(L)	hi F	‘sun’
1.3	E(R)	ki H(L)	ki L(H)	ki L	‘tree’
2.1	RR(R)	kane LH(H)	kane HH(H)	kane F	‘metal’
2.2	RE(R)	isi LH(L)	isi HL(L)	isi F	‘stone’
2.3	EE(R)	inu LH(L)	inu HL(L)	inu L	‘dog’
2.4	ER(R)	umi HL(L)	umi LH(H)	umi L	‘sea’
2.5	ER(R)	aki HL(L)	aki LH(L)	aki L	‘autumn’

Comparing the accent system of Myôgi-shô with those of Tokyo-type and Kyoto-type dialects, Ramsey points out that accent in Tokyo-type dialects corresponds to pitch change from E to R in Myôgi-shô. There is no such correspondence between modern Kyoto dialect and Myôgi-shô. For example, as shown in (55), pitch falls after the second syllable in the Tokyo noun for ‘dog’ and in Myôgi-shô there is pitch transition from E to R after the second syllable, whereas in Kyoto pitch falls after the first syllable. We should keep it in mind that the initial unaccented syllable is phonetically low in Tokyo.

Ramsey says, if the pitch value 'high' is assigned to E and 'low' is assigned to R, we would be able to explain why there are such correspondences in accent between Myôgi-shô and Tokyo dialect. That is, E is distinctively higher pitch than R and the accent in Myôgi-shô has been preserved by Tokyo-type dialects.

Although it has been claimed that Myôgi-shô had category 2.5, in which nouns are marked with the so-called "east-dot", Ramsey doubts the existence of the category. The reasons Ramsey gives are (1) "... it is not clear what the "east-dot" could have represented phonologically because the pitch of a following particle was apparently unaffected by it. (The essence of the 2.5 distinction in the Kyoto-type dialects is that it lowers the pitch of a following particle.)" and (2) "... since only a tiny percentage of the 2.5 nouns were ever marked with the dot, it seems unwise to generalize about the entire class on this basis (Ramsey 1979: 164)."

However, we cannot deny the possibility that there was a 2.4- 2.5 accentual distinction in Myôgi-shô because, as Martin (1987) points out, there is evidence for category 2.5, in which nouns behave differently from 2.4 nouns when followed by the particle /no/ (Poss.), even though evidence is limited (for the examples, see Martin 1987: 173). Martin contends that "... the original class 2.5 may have been larger than is indicated by the evidence of later dialects and that through the years 2.4 has been acquiring members of 2.5 ... " Martin's hypothesis cannot be ignored because it accords with philological evidence that the Kyoto dialect has developed its accent system by merging accent categories, but not splitting them (see Kamei, et al. 1964). Furthermore, the merger of accent categories seems to be a natural way to explain how other Japonic

languages have developed their accent systems (see Tokugawa 1958, Kindaichi 1974 and 1975, Hirayama, et al. 1966 and 1967). In this work, we will follow Martin's hypothesis. That is, category 2.5 is ER(E). Therefore, the correspondence shown for category 2.5 in (55) must be revised as follows.

(56)

	Myôgi-shô	Tokyo	Kôchi	Kagoshima
2.5	ER(E)	aki HL(L)	aki LH(L)	aki L 'autumn'

According to Ramsey's proposal, if R is low pitch and E is high pitch, the Myôgi-shô 2.5 ER(E) would be HL(H). That is, the particle following 2.5 nouns seems to have its own accent, which contradicts Ramsey's hypothesis -- particles did not and do not have their own accentuation.

There is another problem with Ramsey's hypothesis, in which he proposes leftward accent shift. If R is 'low' and E is 'high', the Myôgi-shô 2.2 RE(R), for example, is LH(L) and it has remained the same in Tokyo, but it changed to HL(L) in Kyoto-type dialects.

(57)

	Myôgi-shô	Tokyo		Kôchi
2.2	RE(R) = LH(L)	isi LH(L)	>	isi HL 'stone'

Supposing Ramsey is correct, we would have to assume, for example, that 2.2 words such as *isi* 'stone' have undergone the change shown in (57), that is, that accent shifted one mora or syllable to the left.

Ramsey argues for leftward accent shift by mentioning a phenomenon of accentual change when followed by the genitive particle *no*. In Myôgi-shô, the particle *no* continues the pitch of the preceding syllable, even though the syllable

has an accent. Nouns preceding the particle *no* become accentless. This phenomenon is seen in modern dialects. For example, in Tokyo, when word-final-accented nouns, such as LH(L) and LHH(L) are followed by the particle *no*, the nouns lose their accent and become accentless.

(58) Tokyo dialect

ike LH(L) 'pond'	ike no mawari LH H HHH
otoko LHH(L) 'male'	otoko no gakusei LHH H HHHH

In Wakayama (Kyoto-type), unlike in Tokyo, the particle *no* does not continue the pitch of the preceding syllable, but the particle cancels an accent on a penultimate syllable, e.g., HL(L) > HH(H). See the examples in (59). Ramsey explains that this accent change indicates that the words *ike* and *otoko* were once HH(L) and HHH(L), and an accent has shifted from the word final to the penultimate syllable.

(59) Wakayama dialect

ike HL(L) 'pond'	ike no mawari HH H HHL
otoko HHL(L) 'male'	otoko no gakusei HHH H HHHH

However, an accent normally shifts rightward in Japonic languages. Therefore, it is more reasonable to account for the accentual change of the *no*-phrase by the 'natural' change of accent in Japonic languages. (See Chapter 4)

Pointing out that the Kagoshima falling accent and level accent correspond to word-initial R and E respectively in Myôgi-shô, Ramsey claims that Kagoshima dialect has retained the initial pitch height of Myôgi-shô. The Kagoshima accent F and L do correspond to R and E respectively in Myôgi-shô, but the initial pitch heights of the F and L do not match the values of R and E; as (60) illustrates, their correspondences are completely opposite. Ramsey has to

account for why these correspondences are opposite in pitch height and also how Kagoshima accent has developed from that of Myôgi-shô.

(60) Ramsey's hypothesis

Myôgi-shô			Kagoshima		
R	low	:	F	high initial	
E	high	:	L	low initial	

By contrast, if R is high and E is low, the pitch height of R and E matches the initial height of F and L accent. Therefore, the widely-accepted analysis is more reasonable for the claim that the initial pitch height (register) of Myôgi-shô has been retained in Kagoshima dialect.

(61) Widely-accepted analysis

Myôgi-shô			Kagoshima		
R	high	:	F	high initial	
E	low	:	L	low initial	

Ramsey says that the archaic accents of nouns are often preserved in compounds. He demonstrates, for example, *sake* 'rice wine' (2.1) is LH(H) in Tokyo and HH(H) in Kyoto. However, when the noun is in the final position of compounds, it becomes *-zake* LL in both Tokyo and Kyoto. Furthermore, the pitch LL is identical to the accent of the word *sake* in Myôgi-shô, i.e. RR(R). (62) shows more examples.

(62)	Gloss	Tokyo	Kyoto	Myôgi-shô
2.3	'belly'	hara(ga) LH(L) ~ -bara HH	hara HL ~ -bara HH	EE(R)
2.4	'soup'	siru HL ~ -ziru HL	siru LH ~ -ziru HL	ER(R)

The evidence above justifies Ramsey's hypothesis. However, it is not known whether these three examples are the only ones that Ramsey has found, whether

the phenomenon is commonly seen in other compounds, or if this phenomenon is also found in compounds involving trisyllabic nouns. We leave this for future research.

Ramsey points out a problem that results from Kindaichi's analysis of the Myôgi-shô "even tones" and "rising tones." The accent correspondences of words like *kawa* HL 'river' (2.2) and *yama* HL 'mountain' (2.3) in modern Kyoto are respectively RE(R) and EE(R) in Myôgi-shô. According to Kindaichi, both RE(R) and EE(R), namely, HL(H) and LL(H), changed to HL. In his analysis, a following particle appears to have independent accentuation. That is, in Myôgi-shô particles had their own accentuation, but it is lost in modern Kyoto.

(63)

	Myôgi-shô	Kindaichi's	Modern Kyoto	Modern Tokyo
2.2	RE(R)	HL(H)	HL(L)	LH(L)
2.3	EE(R)	LL(H)	HL(L)	LH(L)

On the contrary, Ramsey says, if the "even tones" were high pitched instead of low, and the "rising tones" were low pitched instead of high, these particles would have low pitch. We do not need to assume the change of the particle accentuation in Kyoto -- particles do not have their own accentual system.

(64)

	Myôgi-shô	Ramsey's	Modern Kyoto	Modern Tokyo
2.2	RE(R)	LH(L)	HL(L)	LH(L)
2.3	EE(R)	HH(L)	HL(L)	LH(L)

When it comes to the distribution of Tokyo-type dialects and Kyoto-type dialects, Ramsey's hypothesis gives a simpler explanation on how these dialects have come to be distributed as they are now than Kindaichi's. Agreeing with the wave theory, an innovation must have occurred in the Kyoto area and then spread out from there into the more conservative Tokyo-type areas, in contrast

with Kindaichi's hypothesis that an innovation occurred in two separate areas of Tokyo-type dialects. Ramsey's hypothesis explains in a simple manner why Tokyo-type dialects are spoken in the northeastern part and the southwestern part of Japan. In the case of an area of Tokyo-type dialect surrounded by Kyoto-type dialects in the Kî peninsula, Ramsey explains that the isolated rural villages are not influenced by the innovation.

Without touching upon Kyushu dialects, Ramsey's hypothesis seems to be correct. However, the reality of the distribution of accent types is much more complex. For instance, addition of further-west accent types shows possible lack of bilateral symmetry, an important portion of Ramsey's dialect-geographical argument. Going from the center toward Kyushu, we will see the following distribution of accent types (a number in parentheses indicates the number of accent categories for disyllabic nouns).

(65) Distribution of accent types

Kyoto-type	)	Tokyo-type	)	Miyazaki-type	)	Kagoshima-type
(5)		(3)		(0)		(2)

However, we do not find the same distribution from the center toward the northeastern part of Japan -- i.e., different accent types seem more as if scattered over the area, so it does not seem to be a 'wave'-like distribution.

As Ramsey says, if an accentual innovation has started in the central area of Japan and spread outward, we would find more archaic accent systems as we go outward. Under Ramsey's hypothesis, the farther we from the center, the more conservative dialects we find. That is, Tokyo-type dialects are more conservative than Kyoto-type ones, Miyazaki-type dialects are more conservative than Tokyo-type, and so on. Then, however, if so, Ramsey has to

account for why Kagoshima-type dialects, which have only a two-way distinction, are more conservative than Miyazaki-type in which there is no accentual distinction.

Ramsey has brought our attention to a new interpretation of accent marks in Myôgi-shô texts and has revealed an intriguing hypothesis on the accentual history of the Japonic languages. However, as discussed above, we have found Ramsey's hypothesis unconvincing.

2.7. THORPE

In *Ryukyuan language history* (1983), Thorpe reconstructs PJ accent and PR accent, and explains how PJ evolved to PR and also how modern Ryukyuan dialects developed from PR.

On the basis of data from Myôgi-shô and modern dialects, Thorpe reconstructs the PJ accent system for monosyllabic, disyllabic, and trisyllabic nouns. In his reconstruction, pitch rise ([+rise]) and pitch fall ([+fall]) are phonemic and they are indicated by "↑" and "↓" respectively.

(66) Thorpe's reconstructed PJ accent system for nouns (Thorpe 1983: 129)

monosyllabic	disyllabic	trisyllabic
1.1 [O H(H)	2.1 [OO HH(H)	3.1 [OOO HHH(H)
1.2 O] H(L)	2.2 O]O HL(L)	3.2 [OO]O HHL(L)
1.3 O L(L)	2.3 OO LL(L)	3.3 O]OO HLL(L)
	2.4 O↑O LH(H)	3.4 OOO LLL(L)
	2.5 OO] LH(L)	3.5 OO↑O LLH(H)
		3.6 O↑OO LHH(H)
		3.7 OO]O LHL(L)

Thorpe's reconstruction of PR is as follows (numbers indicate the correspondence of Thorpe's reconstructed PJ accent categories to the most widely used categories):

(67) PR accent system (1983: 129-30)

monosyllabic	disyllabic	trisyllabic
1.1, 2 [O H(H)	2.1, 2 [OO HH(H)	3.1, 2, 3 [OOO HHH(H)
1.3 O [↑] L(H)	2.3 OO [↑] LL(H)	3.4, 5 OOO [↑] LLL(H)
	2.4, 5 OO [↓] LH(L)	3.6, 7 OO [↓] O LHL(L)

In Thorpe's dissertation, there is no discussion on his methodology of reconstruction. What he does is present reconstructed forms without a lucid explanation of how he reconstructs them and explains how the forms have evolved to the corresponding forms of the reflexes.

In order to account for pitch accent phenomena including accentual changes, Thorpe adopts a theory of non-transformational generative phonology. In his analysis of the PJ accent system, there are two phonemic tonal melodies: [+rise] and [+fall]. Words have underlying tonal melody or melodies and the location of the melody is specified in an underlying representation. For example, the representation of words with /O[↑]O/ (LH) pitch shape is [+rise, 2nd syllable] and of words with /OO[↓]/ LH(L) is [+fall, 2nd syllable]. However, in PR, the melodies [+rise] and [+fall] merged into [+accent] if their location features are [1st syllable] or [2nd syllable]. Beyond the second syllable all accents are lost. For example, the PJ /O[↑]O/ [+rise, 2nd syllable] merges with PJ /OO[↓]/ [+fall, 2nd syllable] and becomes /OO[↓]/ [+accent, 2nd syllable]. Words with /[↑]OO/ pitch shape are [+accent, 1st syllable]. There are also words with no underlying accent. They are /[↑](O)²⁸ ~ /O[↑](O)/, /O[↑]O/ ~ /OO[↑](O)/, /OO[↑]O/ ~ /OOO[↑](O)/. A final high pitch is automatic if there is no accent.

²⁸ "([↑])" indicates a rising pitch. That is, pitch rises within a syllable.

Notice that in Thorpe's analysis, the term 'accent' does not parallel the widely-accepted usage of the term in Japonic linguistics. That is, according to Thorpe, the reconstructed PR accent category $/\bar{\text{O}}\text{OO}/$ $[\text{HHH}(\text{H})]$ has an accent, i.e., [+accent, 1st syllable], because of the initial rising accent. However, nouns belonging to this category are high-level pitch -- no pitch fall.

According to Thorpe (1983: 119-127), there are four types of changes in accent. The first type is a change occurring before pause (indicated by "#"). For instance, $/\text{O}\bar{\text{O}}/\#$ becomes $/\bar{\text{O}}/\#$. Another example is that in words without underlying melody their final syllable becomes high pitch, e.g., $/\text{OO}/ > / \text{O}\bar{\text{O}}/ \sim / \text{OO}\bar{\text{O}}(\text{O})/$. Second, changes occur after pause. For example, an initial high pitch become low after pause, e.g., $\text{HHL} > \text{LHL}$. Third, the melody [+fall] shifts to the right, and [+rise] shifts to the left. Thorpe explains, this type of changes occur typically in Ryukyuan dialects, where moras like *Q*, *N*, devoiced *i*, and the second segment of long vowel or sequence of vowels cannot bear tonal melody features. Finally, there is a type of changes called "echo" fall. Echo fall is a predictable secondary pitch fall, which occurs two syllables behind a primary fall or any final high pitch mora in many dialects of Japanese and Ryukyuan.

(68) Echo fall

$\text{OO}\bar{\text{O}}$	$>$	$\text{O}\bar{\text{O}}\bar{\text{O}}$
$\text{OOO}\bar{\text{O}}$	$>$	$\text{O}\bar{\text{O}}\text{OO}\bar{\text{O}}$
$\text{OOO}\bar{\text{O}}$	$>$	$\text{OO}\bar{\text{O}}\bar{\text{O}}$

The first type agrees with 'natural' change in accent (see Chapter 4). For instance, $\text{H}(\text{L})$ becomes $\text{H}(\text{H})$ by going through $/\text{O}\bar{\text{O}}/$ $[\text{H}(\text{L})] > / \text{O}/$ $[\text{L}(\text{L})] > / \bar{\text{O}}/$ $[\text{H}(\text{H})]$, namely, rightward accent shift. As Kindaichi (1974, 1975) discusses, the second type is also commonly seen in the Japonic languages. For example, in

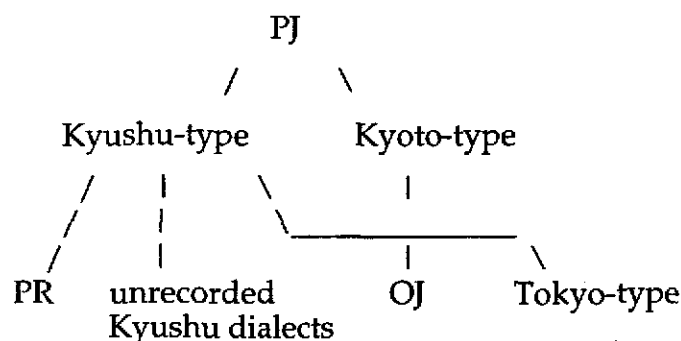
Tokyo, it occurred after losing ‘word initial register system’ – the initial mora is always low if it’s not accented. The third type of change contradicts what other studies have revealed. For example, McCawley (1977: 266) states, an accent shifts to the right when it is preceded by a voiceless syllable, e.g., /tasu^hke-ta/> *tasuke* ^h*ta* ‘rescue-Past’ (see also Chapter 4). Regarding the fourth type, Thorpe mentions that echo fall is found in medieval Japanese (Wenck 1959: 408), Shimane dialect (Okuda 1975: 48), dialects in Iwate and Kôchi prefectures (McCawley 1977: 17),²⁹ and some Ryukyuan dialects. However, words with two peaks are rarely found in the Japonic languages. The reason is, according to Kindaichi (1967), that words with two peaks are not stable – There is a tendency to change.

In addition, Thorpe (1983: 138) claims that in Aden (Kikai-island) [+fall] shifted one mora to the left (‘Fall Retraction’) in the course of the development of its accent system from PR. This is contradictory to the first and third types of changes mentioned above.

Arguing against a hypothesis that PR developed from an accent system like Ôita dialect (Hirayama and Nakamoto 1964: 69-102), Thorpe gives four reasons why he disagrees with the hypothesis. First, PR evolved out of a language which had to resemble PJ more than any of its descendants in the prehistoric era. The following diagram shows Thorpe’s view of the Japonic language relationship.

²⁹ McCawley’s article (1977) starts from page 261 and ends on page 302. Therefore, we cannot locate examples.

(69) Thorpe's view of the Japonic language relationship (1983: 236)³⁰



Thorpe (1983: 237) explains, "the great historical value of the Ryukyuan languages resides in their preservation of [PJ] language elements inherited through Kyushu that have been lost everywhere else." Since Thorpe does not give reasons why PR evolved from a language which had to be more like PJ than any of its descendants, this is not justified.

Second, Thorpe says that the accent system for three-mora nouns in Ôita dialect is incompatible with that of PR. As far as the pattern of accent merger is concerned, an accent system such as that in PR cannot develop from that of Ôita because in Ôita 3.3 merged with 3.4, but in PR 3.3 merged with 3.1 and 3.2.

(70) Ôita three-mora accent and PR three-mora accent

	Ôita	PR
3.1	LLL(L)	HLL(L)
3.2	LLL(L)	HLL(L)
3.3	HHH(H)	HLL(L)
3.4	HHH(H)	LLL(L)
3.5	HHL(L)	LLL(L)
3.6	HLL(L)	HHL(L)
3.7	HLL(L)	HHL(L)

³⁰ This tree diagram takes geographical information into account. This is the reason that two lines cross: the line between Kyoto-type and OJ and the one between Kyushu-type and Tokyo-type.

Third, according to Thorpe, with possible historically attested and phonetically motivated accent changes, it is not possible to explain naturally how modern dialects of Ryukyuan have developed from a system like Ôita. However, it is not true that we have to come up with ad hoc changes to explain the development of PR from Ôita. For example, the last category (3.6, 7) of the PR trisyllabic nouns is easily explained by 'natural' accent change, rightward accent shift (HLL > HHL). As we mentioned earlier, Thorpe's hypothesis itself has problems with regard to 'natural' change (see above).

Fourth, says Thorpe, it's not possible that East Tokunoshima accent preserves the PR accent system, because, if so, the development of other dialects of Ryukyuan has to be explained by a number of independent unprecedented changes. Thorpe adds, his reconstruction minimizes the number of changes which can account for the development of the Ryukyuan dialects. Thorpe's argument on 'simplicity' of a hypothesis is not justified because no evidence is given.

In summary, Thorpe has accomplished a great deal in his dissertation, making use of an enormous amount of data. However, as we have pointed out, Thorpe's hypothesis has problems in his explanation of accent change. His reconstruction methodology is not clear. A reconstruction of an accentual history of a language requires clear explanations of methodology and has to be done based on attested evidence or phonetically motivated changes.

2.8. MARTIN

Incorporating previous studies on accentual history, Martin (1987) has set forth his version of the accentual history of the Japonic languages. He reconstructs PJ accent on the basis of 800 monosyllabic, disyllabic, and trisyllabic nouns in six modern dialects of the Japonic languages: Tokyo, Kyoto, Kagoshima, Shodon (Amami), Shuri (Okinawa), and Yonaguni. According to Martin, adopting the comparative method, we have to reconstruct at least three proto accent categories for monosyllabic nouns; at least five for disyllabic nouns; and at least seven for trisyllabic nouns. However, in his reconstruction, “despite various doubts about them” (Martin 1987: 162), Martin includes some extra categories (2.2a, 3.2a, 3.5a, and 3.7a) that some linguists have proposed.

This reconstruction is carried out by means of the comparative method based on a set of correspondences among the dialects listed above, except the categories 1.3a, 2.2a (Hayata 1973), 3.2a (Hayata 1973), 3.5a (Hattori 1951), and 3.7a (McCawley 1977). Martin explains, the fourth category for monosyllabic nouns, namely 1.3a, cannot be reconstructed on the basis of the modern dialects, but both Myôgi-shô and structural evidence suggests that earlier kinds of Japanese must have had the category 1.3a. Martin (1987: 180-1) observes that in Myôgi-shô 1.3 nouns, some are marked with even tone, i.e., low pitch, (e.g., *me* ‘eye’, *te* ‘hand’, *ki* ‘tree’), and some are marked with going tone, i.e., rising pitch, (e.g., *me* ‘female’, *mo* ‘garment’, *su* ‘nest’).

On structural consideration, Martin (1987:243) points out that the pitch pattern of a noun will be identical to that of the groups of nouns of the appropriate number of syllables when the noun is followed by a particle.

(71)	1.1	H(H)	->	2.1	HH(H)
	1.2	H(L)	->	2.2	HL(L)
	1.3a	L(L)	->	2.3	LL(L)
	1.3b	L(H)	->	2.4	LH(H)

Furthermore, Martin (1987: 251) says, "Something over 60 percent of the nouns of two and three syllables are atonic. If we distinguish 1.3a as an atonic low class, the same percentage prevails for the monosyllabic nouns as well. (This provides an independent argument in favor of making that distinction.)"

According to Martin, except for 2.2a, there is no philological evidence for the distinction of categories 3.2a, 3.5a, and 3.7a. Moreover, Martin implicitly rejects the distinction between 3.5a and 3.5b by giving both categories LLH(H) pitch.

(72) Martin's PJ accent (1987: 273)

1.1	H(H)	ti	'blood'
1.2	H(L)	ha	'leaf'
(1.3a	L(L))		
1.3b	L(H)	te	'hand'
2.1	HH(H)	kaze	'wind'
2.2a	HH(L) > HL(L)	hito	'person'
2.2b	HL(L)	isi	'stone'
2.3	LL(L)	yama	'mountain'
2.4	LH(H)	matu	'pine'
2.5	LH(L)	saru	'monkey'
3.1	HHH(H)	katati	'shape'
3.2a	HHH(L) > HHL(L)	tokage	'lizard'
3.2b	HHH(L)	azuki	'red bean'
3.3	HLL(L)	hatati	'twenty'
3.4	LLL(L)	kagami	'mirror'
3.5a	LLH(H)	sudare	'reed screen'
3.5b	LLH(H) (? < LLH(L))	namida	'tears'
3.6	LHH(H)	usagi	'rabbit'
3.7a	LHH(L) > LHL(L)	kusuri	'drug'
3.7b	LHL(L)	kabuto	'helmet'

Martin claims that PJ accent has two kinds of typologically different features, initial register and locus accent, and also that the PJ register system is retained in Kagoshima-type dialects and in some Ryukyuan dialects (such as Shodon and Shuri).

When it comes to the developments of the modern dialects from PJ, Martin says, Kagoshima-type dialects lost locus accent, but retain initial-register accent. Tokyo-type dialects lost the register distinctions, but retain the locus accent. With regard to the “low atonic” categories, Martin suggests the following changes.

(73)

	Kyoto		PJ		Tokyo
2.3	HL	<	*LL(L)	>	LH(L)
3.4	HLL(L)	<	*LLL(L)	>	LHH(L)

That is to say, PJ low-register atonic became high-register prototonic in Kyoto-type dialects and oxytonic in Tokyo-type dialects. At the same time, or earlier, PJ 1.3a L(L) merged with 1.3b L(H), resulting in three monosyllabic accent categories.

Like most of the other major studies on Japonic accent, Martin does not investigate ‘natural’ accent change in relation to the development of phonetic pitch shape. Martin says, “There remain many problems in plotting the phonetic developments found in the modern dialects and in accounting for the various mergers of accent types ([section] 6). We will put these problems aside for future work” (1987: 247).

Martin talks about some accent changes caused by segmental changes and analogy. First, in some dialects, the second mora of a heavy syllable cannot be accented, e.g., *ka ĩ* ‘shell’ in Tokyo vs. *kai ĩ* in Kyoto. According to Martin, this is

due to the monosyllabification of separate syllables in Tokyo dialect into a heavy syllable in which the second mora cannot have a locus. Second, devoiced vowels shifted an accent onto an adjacent 'stronger' syllable.³¹ Third, by analogy, homophonic words shifted their accent category to another. These changes are not enough to account for the accentual history of the Japonic languages -- we also have to look into the nature of accent change in order to account for the development of the accent system of the Japonic languages.

Concerning the relation between vowel length and accent, Martin suggests a word initial low register in relation to vowel length. That is, words with initial-low register had vowel length word initially. This hypothesis is based on the fact that there are a number of long vowels in Shuri and some other Ryukyuan dialects in 2.3, .4, and .5 nouns. However, Martin raises the question "why the majority of low-register nouns did not maintain the vowel length and why so few verb stems seem to manifest the reflex" (1987: 247). There is still no answer to this question. Apparently further investigation is needed.

As mentioned earlier, Hattori also noticed the phenomenon of the Ryukyuan vowel length, and contended that this is a remnant of PJ vowel length. It has been kept in some Ryukyuan dialects, but in others it simply became short with high pitch.

(74)	PJ *CVV- LL-	---->	CVV- LL-	(e.g., Shuri)
		`---->	CV- H-	(e.g., Nakijin)

In addition, Martin points out that the first syllable of some 2.2 and 2.3 nouns contains a long vowel, but the syllable is high in pitch: HHL. Martin

³¹ Martin (1987: 253) calls syllables containing a full vowel 'stronger syllables' as opposed to syllables with a devoiced vowel. Moreover, he does not mention to which direction the accent shifts.

suggests, "possibly it is a shape-restricted retention of the earlier vowel length we assume for Type 2.3 extended to the less-populated Type 2.2 with the merger of the two [categories], even though the pattern of the merged type does not begin with a low pitch" (1987: 248).

Martin does not touch upon the controversial issue of the geographical distribution of accent types in relation to the development of the modern dialects. As we mentioned earlier, choosing one or the other hypothesis would lead us to a completely different history of Japonic accent (see above).

2.9. MATSUMORI

Another study on the history of Japonic accent is Matsumori (1993). She reconstructs PJ based on a phenomenon of 'downstep' found in the dialects of Ibuki-island (Kagawa prefecture), Ômi (Kagawa prefecture), Tsubata (Ishikawa prefecture), and Shiramine (Ishikawa prefecture). Downstep is considered a phenomenon of pitch change from high to mid-high when the high pitch is preceded by another high pitch, e.g., $\text{---} \text{---} (\text{HH}) > \text{---} \text{---} (\text{HM})$, cf. $\text{---} \text{---} (\text{HL})$. According to Hyman and Schuh (1974), downstep historically results from losing a L tone between two H tones.

$$(75) \quad \begin{array}{c} \text{OOO} \\ | \quad | \quad | \\ \text{H L H} \end{array} (\text{HLH}) \quad > \quad \begin{array}{c} \text{OOO} \\ | \quad | \\ \text{H(L)M} \end{array} (\text{HHH}) \quad > \quad \begin{array}{c} \text{OOO} \\ | \quad / \quad | \\ \text{H} \quad \text{M} \end{array} (\text{HHM})$$

(76) Downstep in Ibuki-island

i nu	>	i nu	>	inu	'dog'
\					
H L H		H(L)H		H M	
atama	>	atama	>	atama	'head'
		/		/	
H L H		H(L) H		H M	

As demonstrated above, words have underlying HLH tones no matter how many moras the words consist of. The L tone gets disconnected and the H tone preceded by another H becomes M.³² Note that the processes from an underlying form to a surface form shown above are not observed -- only the surface form is observed. Agreeing with Kindaichi (1967), Matsumori says, the reason why the pitch shape HLH undergoes a change is that it is not stable due to having two peaks. According to her, in addition, there are two other changes that HLH undergoes. They are as follows:

(77) (a) Single-peaking

OOO (HLH)	>	OOO (HLL)
H H		H

(b) Plateauing

OOO (HLH)	>	OOO (HHH)
		/
H H		H H

Matsumori mentions that the HLH pitch shape is found in Makurazaki (Kagoshima prefecture) and some dialects in Oki island and that according to

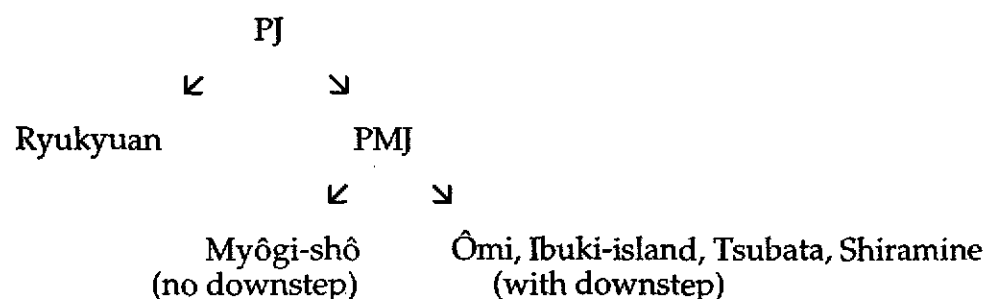
³² Apparently the middle pitch, indicated by M, is phonemic because in Ibuki-island there are three contrastive pitch patterns involving the M (Uwano 1985). See the following examples.

kuruma	HHH	'car'
musume	HHL	'daughter'
atama	HHM	'head'

Kindaichi (1967), a pitch pattern with two peaks is not stable; thus, it has great tendency to change. However, there is no evidence for development of the HLL, HHH, and HHM from the HLH. By contrast, pitch changes such as LL(L) > HL(L) are attested in Ryukyuan (see Hirayama and Nakamoto 1964 and Hirayama, Ôshima, and Nakamoto 1967). Thus, proposing the change LLL > HLL is more reasonable than HLH > HLL, unless there is evidence for the latter. Since a rightward accent shift is common in Japonic languages (see Chapter 4), the change HLL > HHL is natural, and also this analysis is much simpler than Matsumori's.

Disagreeing with a widely-accepted claim that the PJ accent is similar to that of Myôgi-shô, Matsumori suggests that the PJ accent system and even the accent system of PMJ be much different from that of Myôgi-shô. The reason based on this claim is that the Myôgi-shô accent does not account for the development of downstep in the modern dialects mentioned above. She continues, in order to account for the downstep, we have to reconstruct a PMJ accent system which is more archaic than the Myôgi-shô accent system.

(78) Matsumori's proposal on the history of Japonic accent



According to Matsumori, the development of the downstep phenomenon from PMJ and also from PJ can be explained by her suggested changes in (76), (77), and the common changes discussed in Kindaichi (1973).

Matsumori adopts Kindaichi's (1973) rules of accent change in order to explain the historical development of the Japonic accent. The following are Kindaichi's three rules of accent change.

(79)

- (a) Pitch height of a syllable (or mora) tends to assimilate to that of its preceding one.

e.g., $\begin{matrix} \text{LHH} > & \text{LLH} & > & \text{LLL} \\ \text{HLL} > & \text{HHL} & > & \text{HHH} \end{matrix}$

- (b) The initial high pitch tends to become low pitch.

e.g., $\text{HHH} > \text{LHH}$

- (c) The first L tends to become H when L's are in sequence.

e.g., $\text{LLL} > \text{HLL}$

Based on changes listed in (76), (77), and (79), Matsumori reconstructs PMJ as follows:

(80) Matsumori's PMJ accent system (1993: 52)

1.1 *F(H)	2.1 *FH, HL(H)	3.1 *HLH
1.2 *L(L)	2.2 *LL	3.2 *HLL
1.3 *H(H)	2.3 *LH	3.3 *LLL
	2.4 *HH	3.4 *LLH
	2.5 *HL	3.5 *LHH
		3.6 *HHH
		3.7 *HHL

As far as Matsumori's reconstruction is concerned, there are several questions on her methodology. First of all, her method allows us to reconstruct a phonetic shape for phonemic accent categories, but not the phonemic accent categories themselves. Matsumori does not reconstruct accent categories themselves, nor does she discuss how she reaches the conclusion that there are three monosyllabic, five disyllabic, and seven trisyllabic accent categories in PMJ. She presupposes that PMJ had three accent categories for monosyllabic nouns, five

for disyllabic nouns, and seven for trisyllabic nouns. With her method it is not possible to reconstruct phonemic accent categories of PMJ. In addition, even if Matsumori's method (or any other methods) could allow her to reconstruct the way she does above, we should question why the number of the categories have remained the same for about fourteen centuries (the fourth century B.C. to the eleventh century A.D.)³³, but have become much fewer in number in modern dialects of the Japonic languages over about nine centuries (the eleventh century A.D. to present), in some modern dialects there being no distinction in accent at all.

Matsumori (1993: 49) purports to show how Ōmi accent developed from PMJ by undergoing the following changes.

- (81) (a) First mora becomes H when beginning with L.
 (b) First mora becomes L when the first and second moras are H.
 (c) Downstep occurs.

However, the changes do not give us the right results. For instance, according to Matsumori, as shown in (82), the Ōmi 3.5 accent HHM evolved from PMJ *LHH by undergoing two changes: (81a) and (81c); (81b) is not applicable.

(82)	PMJ	(81a)	(81c)	Modern Ōmi
	3.5 *LHH	> HLH	>	HHM

In fact, as revealed below, by (81a), PMJ *LHH should have become HHH, not HLH. And then the HHH should have become LHH by (81b). Therefore, Matsumori's explanation fails.

³³ As far as the number of accent categories is concerned, Matsumori's reconstruction of PJ is the same as that of her PMJ.

(83)	PMJ	(81a)	(81b)	Expected Modern Ômi
	3.5 *LHH	>	HHH	>
				LHH

Matsumori also shows how the modern Ibuki-island trisyllabic accent evolved from PMJ by going through a series of changes. These changes are listed in (84), and (85) illustrates the development of the Ibuki-island accent system.

(84) Changes proposed by Matsumori (1993: 51)

- (I) (a) HLH > HHH
- (b) first mora becomes L when the first and second moras are H.
- (c) first mora becomes H when beginning with L
- (d) accent shift to the right

(II) Downstep

(85) The development of the trisyllabic accent system in Ibuki-island proposed by Matsumori (1993: 51)

	PMJ	(I)		(II)	Ibuki-island
3.1	*HLH	>	HHH	=	HHH
3.2	*HLL	>	HHL	=	HHL
3.3	*LLL	>	HLL	=	HLL
3.4	*LLH	>	HLH	>	HHM
3.5	*LHH	>	HLH	>	HHM
3.6	*HHH	>	LHH	=	LHH
3.7	*HHL	>	LHL	=	LHL

Matsumori explains, (Ia) applies to 3.1, (Ib) to 3.6 and 3.7, (Ic) to 3.3 and 3.4, (Id) to 3.2, and (II) to HLH pitch of 3.4 and 3.5. Notice that at the first stage none of the changes listed in (I) apply to 3.5. Thus, it is not certain how PMJ *LHH becomes HLH.

As apparent from her demonstration above, at the first stage the changes do not all occur at once; they occur one after another within the stage.

Therefore, as shown in (87), we interpret that there are five accent changes that Ibuki-island dialect has gone through from PMJ.

- (86) (a) HLH > HHH
 (b) First mora becomes L when the first and second moras are H.
 (c) First mora becomes H when beginning with L.
 (d) Accent shift to the right
 (e) Downstep

When Matsumori's PMJ accent forms undergo all the changes, only the forms for 3.1 and 3.2 are the same as those of Ibuki-island. The rest of the outcomes do not match. In (87), we demonstrate how all the categories of PMJ undergo changes stage by stage. This demonstration reveals that Matsumori's hypothesis fails to account for the development of the accent categories except 3.1 and 3.2 categories. The column under 'my result' shows my working out of the outcome of the changes. '?' indicates uncertainty of applicability of a change or a form due to lack of information.

(87)

PMJ	(a)	(b)	(c)	(d)	(e)	our result	Ibuki-island
3.1 *HLH	> HHH	> LHH	> HHH	= HHH	= HHH?	HHH	HHH
3.2 *HLL				> HHL	= HHL	HHL	HHL
3.3 *LLL			> HLL	> HHL	= HHL	HLL	HLL
3.4 *LLH			> HLH	> HHL?	= HHL?	HHM	HHM
3.5 *LHH			> HHH	> ?	= HHH?	HHM	HHM
3.6 *HHH		> LHH	> HHH	> ?	= HHH?	LHH	LHH
3.7 *HHL		> LHL	> HHL	> HHH(L)	> HHM	LHL	LHL

It is apparent that Matsumori's hypothesis has problems. Not only does the analysis for the development of Ibuki-island have problems, but also other analyses such as for Ômi accent and Myôgi-shô accent have similar problems.

Matsumori makes use of autosegmental analysis to account for the downstep phenomenon. She explains, PMJ 2.1 *FH has a tonal melody HLH and *FH is HL(H) when followed by a particle. Its analysis is shown in (88).

Although Matsumori does not mention any processes/rules which are involved in this analysis, it is clear that tones link to a tone bearing unit from right to left because H and L tones are linked to the tone bearing unit on the left when there are two TBUs.

- (88) (a) when in isolation (b) when followed by a particle

FH
OO
/ | |
HL H

HL(H)
OO (O)
| | |
H L H

Matsumori's analysis is in contrast with Haraguchi's (1977) analysis, in which tones link to a tone bearing unit from left to right. If we follow Haraguchi's analysis, (88) will be an outcome. That is, PMJ 2.1 is *HR, instead of *FH. Since Matsumori does not discuss her analysis in detail from the viewpoint of autosegmental phonology, it is not certain why her analysis does not agree with Haraguchi's and also if two different analyses are possible.

- (89) (a) when in isolation (b) when followed by a particle

HR
OO
| | \
H LH

HL(H)
OO (O)
| | |
H L H

In her article (1998), Matsumori reconstructs the PR accent system for monosyllabic and disyllabic nouns in (90). This reconstruction is based on Hattori's (1979a and b) discovery of the two subcategories within 2.3, 4, and 5 (see discussion above). Matsumori claims that these subcategories may not have existed in PJ because they are found only in Ryukyuan.

(90) Matsumori's PR accent system

Monosyllabic accent

Category I	Myôgi-shô 1.1 and 1.2 nouns
Category II	Myôgi-shô 1.3 nouns

Disyllabic accent

Category I	Myôgi-shô 2.1 and 2.2 nouns
Category II	Myôgi-shô 2.3a, 2.4a, and 2.5a
Category III	Myôgi-shô 2.3b, 2.4b, and 2.5b

Regarding the controversial issue on the history of the initial-syllable vowel length in the Japonic languages, Matsumori (1998) argues that the vowel length may not have existed in PJ, but that it came into existence in Proto Ryukyuan because the correspondences between the initial-syllable vowel length and an accented short vowel are found only in the Ryukyuan language, but not in the Japanese language (see above for discussion on the correspondences). Note that based on the same correspondences, Hattori (1979a and b) claims that the vowel length existed in PJ.

Matsumori's reasoning for excluding vowel length from the reconstruction of PJ is faulty. The reason is that, in principle, we must reconstruct a linguistic feature for a proto language unless we can account for its existence. As discussed earlier, we cannot account for the reason why there is such a correspondence between the vowel length and accent, and also why some Ryukyuan dialects have the vowel length in particular accent categories.

CHAPTER 3

HISTORICAL LINGUISTIC METHODS

3.1. "KOKUGOGAKU" IN JAPAN

Thorpe (1983: 4) states:

- (1) "... Ryukyuan descriptive materials [have] been augmented with a whole series of almost uniformly excellent studies by Japanese and Ryukyuan linguists; this literature includes not only research on particular languages and dialects but also several ambitious comparative studies. Yet, surprisingly, a systematic effort to solve the major problems of Ryukyuan language history has hardly begun."

After more than two decades passed, this statement is still relevant not only to the studies of Ryukyuan language but to "kokugogaku" (studies of the national language) as a whole, with the exceptional work of Hattori Shirô (see below).

As far as historical studies of the accentual system of the Japanese and Ryukyuan languages are concerned, most scholars in "kokugogaku" confine their studies to the inspection of written records and speculation on phonetic values of distinctive accentual categories recognized in the written records. With this methodology, the "kokugogaku" scholars have come to believe that the ancestral language of all Japonic languages is identical to the language described in *Myôgi-shô* (e.g., see Kindaichi 1975 [1954]), even though this hypothesis has crucial problems (see Chapter 2).

Based on written records, Kindaichi (1947, 1954, 1960, 1974, and 1975) discusses "laws of accent change" to account for the linguistic situation found today in Japan. However, all of his 'laws' are not supported by comparative method evidence, and furthermore, the laws are based only on Kyoto dialect of Japanese available in written texts.

In his series of articles, *Kokugo sho-hôgen no akusento gaikan* [An overview of the accent of the national-language dialects] (1931), Hattori has demonstrated that when the comparative method is properly applied, we can reconstruct earlier accentual forms of the Japonic languages, independent of written records. Hattori has been the only linguist who understood and used properly the methodology of the comparative method in Japan. Oddly enough, although the “kokugogaku” scholars’ central focus is on revealing what earlier stages of the Japanese language had been like, none of kokugogaku-linguists has taken advantage of the comparative method.

3.2. WESTERN LINGUISTICS

In Western linguistics, linguists have generally employed the comparative method to reconstruct the accentual history of the Japonic languages. The comparative method is a method of comparative reconstruction whereby we can hypothesize a “protophoneme” (Anttila 1989: 278) on the basis of sets of correspondences coming from different languages (Anttila 1989: 229). For example, based on regular correspondences of pitch shapes in modern dialects of the Japonic languages, McCawley (1977), Ramsey (1979), Thorpe (1983)?,³⁴ and Martin (1987) reconstruct proto accent systems (see Chapter 2). They also utilize old written texts in their reconstruction. In addition, Ramsey’s work involves the inspection of the written texts, and gives a new interpretation of the data in the texts, which is completely different from a commonly-accepted interpretation of the texts.

³⁴ It is not certain that Thorpe uses the comparative method in his reconstruction because he does not explain his methodology and also does not show any sets of correspondences. Thus, here I list Thorpe with “?”.

None of the work done by western linguists addresses or discusses principles of 'natural' accentual change. Without the principles of the accentual change, it seems to be impossible to account for the development of accent system of modern languages from that of PJ in a scientific way. Reconstruction can be done because sound change is regular. In other words, the phonological system of a language does not change randomly, but rather in a very structured way (Fox 1995). Looking into data on the accent of the various Japonic dialects, we will find that accent shifts rightward (see below). This rightward shift of accent can be found in other languages in the world, as well (see below).

3.3. METHODOLOGY

3.3.1. Methods for Reconstruction of PJ and PR Accent

The reconstruction of protoforms of the Japanese and Ryukyuan languages will in principle be done by the comparative method. More specifically, the reconstruction will involve the comparison of modern languages/dialects³⁵ as well as old existing texts such as *Ruiju-myôgi-shô* [A

³⁵ All data of modern languages/dialects are extracted from published materials that have extensive lists of words. Ryukyuan data are in general from the materials that Hirayama Teruo, Ôshima Ichirô, and Nakamoto Masachie published in the 1960s. Tokyo and Kyoto data are taken from the accentual dictionaries that Hirayama and Kindaichi Haruhiko compiled. And Kogoshima data are mostly from Hirayama (1951).

collection of words by category] and *Bumôki* [A dictionary of Shingon-shû].³⁶

Crucial points in reconstructing the accent system of PJ are (i) establishment of accent categories, (ii) filling the categories with phonological material, and (iii) explanation of the development of modern accent with phonetically reasonable accent changes.

3.3.2. Establishment of accent categories

To establish accent categories, we simply compare accentuations of two or more languages. Let us take a reconstruction of PJ disyllabic nouns as an example (taken from Chapter 7 of this dissertation). For the establishment of PJ disyllabic accent categories, we compare the PR categories with those of PMJ. PR disyllabic nouns have three and PMJ disyllables have five accent categories. As shown in (2), there are eight correspondence sets. This leads us to a reconstruction of eight accent categories for PJ disyllables.

(2) Accentual correspondence between PR and PMJ disyllables

(a)	(2.1)	PR	PMJ
		* ⁻ OO]	* ⁻ OO
'nose'		[HH(L)]	[HH(H)]
		* ⁻ p ^h ana]	* ⁻ pana
(b)	(2.2)	PR	PMJ
		* ⁻ OO]	*O]O
'stone'		[HH(L)]	[HL(L)]
		* ⁻ ?isi]	*i]si
(c)	(2.3)	PR	PMJ
		* ⁻ OO]	* ⁻ OO
'flower'		[LH(L)]	[LL(H)]
		* ⁻ p ^h ana]	* ⁻ pana

³⁶ *Bumôki*, literally "a book of repairing (something) forgotten", is a dictionary of words used in Shingon-shû Buddhism. It describes not only the meaning of the words, but also their pronunciation. This dictionary was written in 1687.

(d)		PR	PMJ
		* _{oo} O)	* _{OO}
		[LHF ~ LHH(L)]	[LL(L)]
'bone'	(2.3)	*p ^h u:ni)	* _{poney}
(e)		PR	PMJ
		* _{OO}]	*O]O
		[LH(L)]	[LH(H)]
'shoulder'	(2.4)	* _{k^hata}]	*ka]ta
(f)		PR	PMJ
		* _{oo} O)	*O]O
		[LHF ~ LHH(L)]	[LH(H)]
'sea'	(2.4)	*ʔu:mi)	*u]myi
(g)		PR	PMJ
		* _{OO}]	* _{OO}]
		[LH(L)]	[LH(L)]
'rain'	(2.5)	* _{ʔami}]	*amey]
(h)		PR	PMJ
		* _{oo} O)	* _{OO}]
		[LHF ~ LHH(L)]	[LH(L)]
'shadow'	(2.5)	*k ^h a:gi)	*kagey]

3.3.3. Filling the categories with phonological material

After establishing accent categories, we fill the categories with phonological material such as locus, register, and vowel length. We also assign phonetic pitch shape to each accent category, determined by the phonemic information; e.g., the phonetic pitch of /O]O/ should be HL. These procedures result in the following PJ accent shown in (3), where PJ forms are added to the correspondences in (2).

(3) Reconstruction of PJ disyllabic accent categories

(a)		PR * ⁻ OO] [HH(L)] * ⁻ p ^h ana]	PMJ * ⁻ OO [HH(H)] * ⁻ pana	PJ * ⁻ OO [HH(H)] * ⁻ pana
'nose'	(2.1)			
(b)		PR * ⁻ OO] [HH(L)] * ⁻ ?isi]	PMJ *O]O [HL(L)] *i]si	PJ *O]O [HL(L)] *e]si
'stone'	(2.2)			
(c)		PR *_OO] [LH(L)] *_p ^h ana]	PMJ *_OO [LL(H)] *_pana	PJ *_OO [LL(L)] *_pana
'flower'	(2.3)			
(d)		PR * ^{oo} O) [LHF ~ LHH(L)] *p ^h u:ni)	PMJ *_OO [LL(L)] *_poney	PJ * ^{oo} O [LL(L)] *_po:nay
'bone'	(2.3)			
(e)		PR *_OO] [LH(L)] *_k ^h ata]	PMJ *O]O [LH(H)] *ka]ta	PJ *O]O [LH(H)] *ka]ta
'shoulder'	(2.4)			
(f)		PR * ^{oo} O) [LHF ~ LHH(L)] *?u:mi)	PMJ *O]O [LH(H)] *u]myi	PJ * ^{oo} O [LLH(H)] *u:]myi
'sea'	(2.4)			
(g)		PR *_OO] [LH(L)] *_?amĩ]	PMJ *_OO] [LH(L)] *amey]	PJ *_OO] [LH(L)] *amay]
'rain'	(2.5)			
(h)		PR * ^{oo} O) [LHF ~ LHH(L)] *k ^h a:gi)	PMJ *_OO] [LH(L)] *kagey]	PJ * ^{oo} O] [LHH(L)] *ka:gay]
'shadow'	(2.5)			

3.3.4. Explanation of the development of modern accent with phonetically reasonable sound changes

After reconstructing proto accent, what follows is explanation of the development of modern languages from the protoform. Our explanation has to be reasonable with natural accentual changes. For example, as Chapter 4 explains, accent shifts rightward in the Japonic languages -- leftward changes rarely occur. Therefore, the change from /O]O/ to /OO]/ is natural, but the other direction is unnatural. It is also natural for similar accent types to merge. The development of PR disyllabic accent from PJ shown in (4) demonstrates this. After Accent Shift, accent categories in (4a) and (4b) merged -- both are high-level in isolation. Three accent categories in (4c, e, and g) also merged -- all the accentuations are initial low (either LH or LL in isolation). And another merger involves initial-low-nouns with a long vowel in the initial syllable. (We only point out facts here that are relevant to our discussion. For full explanation on the development shown below, see Chapter 7.)

(4) Development of PR disyllabic accent from PJ

PJ	accent shift		abductive change		assml	PR
(a) * ⁻ OO	=	⁻ OO	>	⁻ OO]	=	⁻ OO]
(b) *O]O	>	⁻ OO]				
(c) * ₋ OO	=	₋ OO				
(e) *O]O	=	O]O	>	₋ OO]	=	₋ OO]
(g) *OO]	≈	₋ OO]				
(d) * ₋ ooO	=	₋ ooO				
(f) *oo]O	=	oo]O	>	₋ ooO]	>	ooO]
(h) *ooO]	≈	₋ ooO]				

Furthermore, if there is more than one possible explanation or hypothesis for the development of modern accentuation, our selection is primarily based on simplicity and naturalness of the development. On this matter, see 5.2.3. where we demonstrate our procedures step by step by using Amami Ryukyuan monosyllabic accent as an example.

3.3.5. Phonological Framework

In “Kokugogaku” (see 3.1.) of Japan, reconstruction is in general based on traditional Japanese phonological analysis; no overtly stated theory of phonology is involved. In Western linguistics, some of the previous reconstructions are done in the framework of generative phonology, such as Thorpe (1983), Hayata (1973), and Okuda (1975).

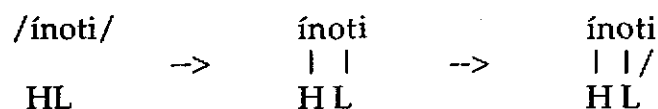
There are quite a number of synchronic theoretical analyses of Japanese and Ryukyuan pitch-accent systems in the framework of segmental phonology, autosegmental phonology, and metrical phonology. One of the well-known studies in the segmental approach is McCawley (1977). McCawley analyzes Japanese pitch accent using the notion of ordered phonological rules. For example, McCawley (1977: 261-262) gives the following three ordered rules to predict the pitch of a phrase in Tokyo Japanese.

- (5) (a) Make every mora H.
- (b) Make every mora after the first mora of an accented syllable L.
- (c) (i) Make the first mora L if the second mora is H.
- (ii) Make the first mora L if the second mora is H and not in the same syllable.

In the autosegmental approach, segments and tones are presented at different tiers or levels. A word has a tone melody at the tonal tier, and it links

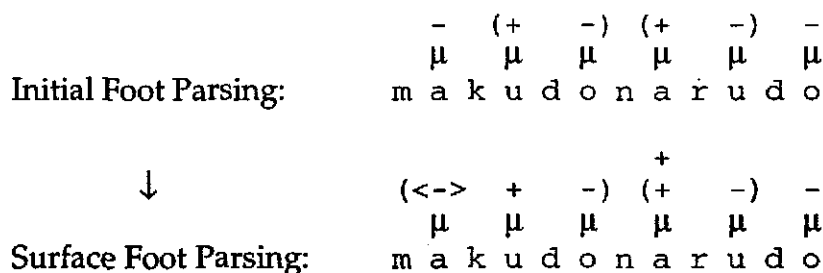
to segments by rules. For example, Haraguchi (1977) claims that Tokyo Japanese has a HL tone melody and it links to segments as shown in (6).

(6) *ínoti* 'life' in Tokyo Japanese (Haraguchi 1977: 7-18)



In the metrical approach, the systems of pitch accent are analyzed utilizing foot structures and rules. For instance, Inaba (1996: 138) analyzes the word *makudonarudo* 'McDonald's' in Tokyo Japanese as shown in (7). In Inaba's analysis, feet are built directly on moras, which are primitive timing units in Japanese, and two different levels of foot parsing are recognized: initial binary foot parsing and surface ternary foot parsing. Inaba's metrical approach correctly predicts the pitch shape of the word.

(7) *makudonárudo* in Tokyo Japanese



All the theories mentioned above describe pitch accent phenomena in a proper way and predict the pitch patterns of words and phrases. My reconstruction will not be entirely in a particular framework of phonology, but I will make use of recent findings in phonological theory whenever they help me to explain certain linguistic phenomena in the history of Japanese and Ryukyuan languages.

Using the methods discussed above, I will reconstruct the proto accent system and also explain how the proto system has evolved to the systems of the modern dialects. Certainly, I will take advantage of previous contributions, such as Martin's, Kindaichi's, Thorpe's, and Matsumori's. My work will, I hope, be an improvement on what has been done in these previous works.

Chapter 4

ACCENT CHANGE

4.0. INTRODUCTION

Our purpose in this chapter is to determine whether there are natural accent changes in language. The chapter consists of two main parts: one is concerned with the Japonic languages (Japanese and Ryukyuan) and the other focusing on other languages other than the Japonic. In each part, we discuss characteristics of accent changes that are seen in languages.

The Japonic section is important for our reconstruction of earlier forms of Japanese and Ryukyuan accent because our reconstruction is based on natural accent changes discussed in this section. The second part will give us some insight on accent change, comparing Japonic accent changes with those of other languages.

4.1. ACCENT CHANGE IN JAPONIC LANGUAGES

This section reveals diachronic accent changes that took place in the history of Japonic languages as well as synchronic processes. Regarding diachronic changes, there have been a number of studies on historical written materials including *Ruiju-myôgi-shô*, *Bumôki*, *Wajitaikan-shô*,¹ and so on. We

¹ *Ruiju-myôgi-shô*, also called *Myôgi-shô*, is a Chinese-Japanese dictionary written in the 12th century. This is one of the oldest existing written records with accent marks. *Bumôki*, literally “a book of repairing (something) forgotten”, is a dictionary of words used in Shingon-shû Buddhism. It describes not only the meaning of the words, but also their pronunciation. This dictionary was written in 1687. *Wajitaikan-shô* was written around the 17-19th centuries.

will discuss accent changes seen in those materials.

As for synchronic processes, we examine processes seen in careless speech in comparison with careful speech, different accent patterns between two different generations, and accent shifts in relation to devoiced vowels, vowel length, and vowel quality.

4.1.1. Accentual Change in Historical Written Records

Kindaichi (1947) tries to determine rules of accent change on the basis of both comparisons of historical materials with modern Kyoto-type dialects and comparisons of careful speech with careless speech.² This is the first study that tries to formulate rules of accent change in Japanese. His study is based on the assumption that the Kyoto dialect is a descendant of the Myôgi-shô dialect. In fact, modern Kyoto dialect is not a direct descendant of that of the Myôgi-shô. This is obvious from correspondences between Myôgi-shô accent and Kyoto accent (see Chapter 6). We believe that there were probably various Kyoto-type dialects in the 11th century, just as there are now. The Kyoto dialect has probably developed from one of the Kyoto-type dialects similar to the dialect of Myôgi-shô existing at that time. Another dialect that Kindaichi mentions in his study is Toyama dialect. As far as the accent correspondences based on Hirayama's word list (1935: 28-51) are concerned, the Toyama dialect is not a descendant of the Myôgi-shô dialect, either. It is not known whether other Kyoto-type dialects are direct descendants from the Myôgi-shô. A claim on

² With regard to his comparisons of careful and careless speech, we will discuss the matter in 4.1.2.

historical change based on uncertain ascendant-descendant relationship is hardly sound. Therefore, when we discuss historical accent change, we do not include modern dialects of Japanese in comparison with dialects in the historical materials.

In order to see the patterns of diachronic accent changes, Kindaichi (1960: 45-6) compares the accentual patterns in various historical materials written in different eras. The language described in those various materials is considered to be the dialect spoken in the old capital, Kyoto. The data shown in (1) include accentuation of monosyllabic, disyllabic, and trisyllabic nouns both in isolation and when followed by the topic marker *-fa* (Top.) (in the written texts it is *-fa*, but in modern Japanese it is *-wa*).

As the data show, by the 16th century monosyllabic nouns are two-mora in isolation, but they are one mora when followed by a particle, e.g., *mi* 'fruit' > *mi*: ~ *mi-fa* 'fruit (Nom.)'.

From the philological evidence in (1), it is obvious that the number of accent distinctions became fewer as time went by. This is a result of merging one accent category to another. A five-way distinction of Myôgi-shô monosyllabic accent became three-way by the time of Wajitaikan-shô. As for disyllables, five distinctions became four by losing one accent category. And the eight distinctions of Myôgi-shô trisyllabic accent became a five-way distinction by the 19th century.

As presented in (1), Kindaichi believes that the language of Myôgi-shô developed to modern Kyoto Japanese. However, his chart in (1) has a discrepancy. Myôgi-shô LLH(H) (1o) and Myôgi-shô LLF(H) (1p) should have

merged during the 14-16c. because both were HLL(L) at the time. There is no reason why these two categories should not have merged. This is another piece of evidence that modern Kyoto is not a direct descendant of the language used in Myôgi-shô.

(1) Comparison of accentual patterns in various historical materials³

I. Monosyllables

	Myôgi-shô 12c.	Shizakôshiki 12-14c.	Bumôki 14-16c.	Wajitaikan-shô ⁴ 17-19c.	Modern Kyoto				
(a)	H(H)	>	H(H)	=	HH ~ H(H)	=	HH		
(b)	R(H)						~ H(H)		
(c)	F(H)	>	F(L)						
(d)	R(L)	>	H(L)	>	HL ~ H(L)	=	HL ~ H(L)	=	HL ~ H(L)
(e)	L(H)	=	L(H)	=	LH ~ L(H)	=	LH ~ L(H)	=	LH ~ L(H)

Examples:

- (a') *mi* 'fruit', *mi-fa* 'fruit (Top.)'
- (b') *su* 'nest', *su-fa* 'nest (Top.)'
- (c') *fi* 'day', *fi-fa* 'day (Top.)'
- (d') *fa* 'tooth', *fa-fa* 'tooth (Top.)'
- (e') *ki* 'tree', *ki-fa* 'tree (Top.)'

³ Examples are from Myôgi-shô.

⁴ Kindaichi uses three or four materials for each era (see Kindaichi 1960: 30). For convenience, we list one for each era.

II. Disyllables

	Myôgi-shô 12c.	Shizakôshiki 2-14c.	Bumôki 14-16c.	Wajitaikan-shô 17-19c.	Modern Kyoto
(f)	HH(H)	= HH(H)	= HH(H)	= HH(H)	= HH(H)
(g)	HL(H)	> HL(L)	> HL(L)	= HL(L)	= HL(L)
(h)	LL(H)	= LL(H)			
(i)	LH(H)	= LH(H)	= LH(H)	> LH ~ LL(H)	= LH ~ LL(H)
(j)	LF(H) ⁵	> LF ~ LH(L)	= LF ~ LH(L)	= LF ~ LH(L)	= LF ~ LH(L)

Examples:

- (f') *kaze* 'wind', *kaze-fa* 'wind (Top.)'
 (g') *kawa* 'river', *kawa-fa* 'river (Top.)'
 (h') *yama* 'mountain', *yama-fa* 'mountain (Top.)'
 (i') *sora* 'sky', *sora-fa* 'sky (Top.)'
 (j') *ame* 'rain', *ame-fa* 'rain (Top.)'

⁵ Note that there are four manuscripts of Myôgi-shô, and not all of them show a falling pitch.

III. Trisyllables

	Myôgi-shô 12c.	Shizakôshiki 12-14c.	Bumôki 14-16c.	Wajitaikan-shô 17-19c.	Modern Kyoto
(k)	HHH(H)	= HHH(H)	= HHH(H)	= HHH(H)	= HHH(H)
(l)	HHL(H)	> HHL(L)			
			> HHL(L)	= HHL(L)	
(m)	HLL(H)				
		> HLL(L)			
(n)	LLL(H)				
				>	HLL(L)
(o)	LLH(H)	= LLH(H)	> HLL(L)	= HLL(L)	
(p)	LLF(H)	> LLH(L)	> HLL(L)	> HLL(L)	> HHL(L)
(q)	LHH(H)	= LHH(H)	= LHH(H)	>	LLH ~ LLL(H)
(r)	LHL(H)	> LHL(L)	= LHL(L)	=	LHL(L)

Examples:

- (k') *katati* 'shape', *katati-fa* 'shape (Top.)'
 (l') *azuki* 'red beans', *azuki-fa* 'red beans (Top.)'
 (m') *omote* 'surface', *omote-fa* 'surface (Top.)'
 (n') *tikara* 'strength', *tikara-fa* 'strength (Top.)'
 (o') *inoti* 'life', *inoti-fa* 'life (Top.)'
 (p') *fitoe* 'one layer', *fitoe-fa* 'one layer (Top.)'
 (q') *usagi* 'rabbit', *usagi-fa* 'rabbit (Top.)'
 (r') *kabuto* 'helmet', *kabuto-fa* 'helmet (Top.)'

Looking into the data, we know that some accentual patterns underwent changes while others have remained the same. Accent categories in (1a), (1f),

and (1k), namely high-level atonic, kept their accentuation. High-level pitch seems to be very stable. On the other hand, other nouns underwent some change(s). In (2) we list all changes seen in the historical materials. There are seven types of changes.

(2) Accentual changes seen in historical materials

- (a) Simplification of contour pitch: $R > H$, $F > H$, $F > L$
- (b) Lowering pitch of particles: $F(H) > F(L)$, $R(H) > H(L)$, $HL(H) > HL(L)$,
 $LF(H) > LH(L)$, $HHL(H) > HHL(L)$, $HLL(H) > HLL(L)$, $LHL(H) > LHL(L)$, $LLF(H) > LLH(L)$
- (c) Change of final-high to initial-high: $LL(H) > HL(L)$, $LLH(H) > HLL(L)$,
 $LLL(H) > HLL(H) > HHL(L)$
- (d) Change in domain: $LH(H) > LH \sim LL(H)$, $LLH(H) > LLH \sim LLL(H)$
- (e) $LF(H) > LF \sim LH(L)$
- (f) Low Tone Spreading: $LHH(H) > LLH(H)$
- (g) $LLH(L) > HLL(L)$

First, contour pitches⁶ seem to be unstable. Rising pitch became high (i.e., $R > H$) by the 14th century; e.g., *su-ha* $R(H)$ 'nest (Top.)' became $H(H)$. Most falling pitch underwent leveling by the 16th century except for $LF \sim LH(L)$ in (1j); nouns with this accent retain falling pitch on the final syllable in isolation, but lose it when followed by a particle, e.g., *ame* LF 'rain', *ame-ha* $LH-L$. According to Kindaichi (1960: 34), in addition to the accentuation listed in (1), in Myôgi-shô there are also words with HF , FL , RH , and RL pitches, although they are few in number, e.g., *mizo* HF 'gutter', *nizi* FL 'rainbow', *kisa* RH 'elephant', *hagi* RL 'shank'. In addition to the changes shown above, Kamei, et al. (1964: 128-9) find

⁶ We analyze contour pitches such as rising pitch and falling pitch as a sequence of two level pitches. That is, R-pitch is a sequence of L-pitch and H-pitch. F-pitch is a sequence of H-pitch and L-pitch. See also Chapter 3.

more accentual patterns with contour pitch that underwent changes. They are listed with some examples in (3).

(3) Additional accentual changes found in historical materials by Kamei

	Myôgi-shô 12c.		Shizakôshiki 12-14c.
(a)	HF	>	HL
(b)	LHF	>	LHL
(c)	HHF	>	HHL
(d)	LFL	>	LHL

Examples:

- (a') ha-ga 'leaf (Nom.), ka-mo 'mosquito (Add.)'
- (b') kasa-mo 'umbrella (Add.)'
- (c') take-mo 'bamboo (Add.)'
- (d') ame-ga 'rain (Nom.)'

With a close examination of accentual changes involving contour pitches, we have formalized the changes as in (4). The rule in (4i) must precede the one in (4ii). That is, F-pitch becomes L when preceded by H-pitch. Other than that circumstance, contour pitches generally become high. As autosegmental analysis in (4i) illustrates, a HL-noun with two TBUs has an underlying HL melody. The H-tone is linked to both TBUs and the L-tone is associated with only the final TBU. This rule delinks the H-tone from the final TBU. As a result, one TBU receives one tone; there is no double-linked TBU.

In (4ii), there are two examples. First, a monosyllabic noun with F-accent has a HL melody. Both tones are associated with one TBU. The rule in (4ii) eliminates the linkage between L-tone and a TBU; thus, the H-tone remains connected. Another example is a monosyllabic noun with R-accent. It has a LH

melody and both tones are linked with one TBU. The rule in (4ii) also simplifies this contour pitch by delinking the L-tone from the TBU. Since the rules simplify contour pitches, we call these phenomena *Contour Pitch Simplification* throughout this dissertation.

(4) Contour Pitch Simplification

(i) $F > L / H _$

e.g., $\begin{array}{cc} H & F \\ O & O \\ | & / \\ H & L \end{array} > \begin{array}{cc} H & L \\ O & O \\ | & | \\ H & L \end{array}$

(ii) $F, R > H$

e.g., $\begin{array}{cc} F & H \\ O & O \\ | \backslash & | \\ H & L \end{array} > \begin{array}{cc} H & H \\ O & O \\ | & | \\ H & H \end{array}$

e.g., $\begin{array}{cc} R & H \\ O & O \\ | \backslash & | \\ L & H \end{array} > \begin{array}{cc} H & H \\ O & O \\ | & | \\ H & H \end{array}$

The second type of accent change is a lowering of the pitch on a particle (2b). As far as the data in (1) are concerned, this change was completed by the 14th century. Kindaichi (1960: 36-42) claims that Myôgi-shô nouns had already started lowering the pitch of particles and there were already alternative forms such as HL(H) ~ HL(L), LF(H) ~ LF(L), HHL(H) ~ HHL(L), HLL(H) ~ HLL(L), LHL(H) ~ LHL(L), and LLF(H) ~ LLF(L). Kindaichi explains that a 'bond' between nouns and particles became stronger and the particles lost their original

accent.⁷ As a result, particles take the pitch of the preceding syllable. That is, particles are L when preceded by low pitch; particles are H when preceded by high pitch.

The third type of accent change is one of final-high nouns to initial-high. This is seen in disyllabic and trisyllabic nouns. We include the change from LLL(H) to HHL(L) here as well, because this basically involves the same process followed by Accent Shift. The change from LLL(H) to HHL(L) can be explained by Initial Accent Gain and Accent Shift, namely LLL(H) > HLL(L) > HHL(L). The Initial Accent Gain rule gives an accent on the initial syllable. And the rule of Accent Shift shifts the accent onto the following syllable. Furthermore, the change from final-high to initial-high probably involves another stage between LLL(H) and HLL(L), namely HLL(H).

In (2d), final-high nouns were LH or LLH in isolation and LH(H) and LLH(H) when followed by a particle; i.e., the final syllable of words in this pattern was high. However, after the 17th century, those nouns expanded the domain of accent to a 'phonological word' (i.e., a noun and a particle). Thus, only the final syllable was high both in isolation and in a phrase (= a 'phonological word'). In Kagoshima dialect the domain of accent is a phrase, as well (see Chapter 6).

According to the change in (2e), Myôgi-shô nouns with LF(H) had developed to have alternative pitch shapes; LF in isolation and LH(L) when followed by a particle. This change is not due to a single change, but it involves

⁷ Kindaichi (1960: 36) mentions that this explanation on lowering pitch of particles originated with Kamei Takashi, but gives no reference.

the changes in (2b) and (2d). As Kindaichi claims, in Myôgi-shô, a particle had its own accent, which was high pitch. When the particle lost its accent, LF(H) became LF(L). And then nouns with this accent expanded the domain of accent to a phrase. As a result, they became LF in isolation, but they are LH(L) in a phrase. An autosegmental analysis shown in (5) gives us a clear picture of this phenomenon. (5a) illustrates that a high tone is associated to the final syllable and a low is also connected with the same syllable because there is no other TBU available for the L-tone. In (5b), when a particle is added, the L-tone of the HL melody is relinked and linked to the particle.

(5) LF(H) > LF ~ LH(L)

- (a) $\begin{array}{c} \text{OO} \\ /| \\ \text{H L} \end{array} > \begin{array}{c} \text{OO} \\ /| \\ \text{H L} \end{array}$
- (b) $\begin{array}{c} \text{OO-O} \\ /| \\ \text{H L} \end{array} > \begin{array}{c} \text{OO-O} \\ | | \\ \text{H L} \end{array}$

Another type of accent change seen in written documents is rightward spreading of L-tone as in (2f). For example, in Myôgi-shô the word *usagi* LHH 'rabbit' became LLH by the 19th century. An autosegmental analysis in (6) illustrates this phenomenon. In Myôgi-shô, a L-tone was associated with the first syllable of the word and a H-tone was with both the second and the final syllable. By the 19th century, the L-tone became connected with the second syllable as well, and the association line between the second syllable and the H-tone was delinked. As a result, the H is connected only with the final syllable.

(6) Low Tone Spreading

12th c.		17-19th c.
usagi		usagi 'rabbit'
\	>	/
L H		L H

Finally, the change in (2g) is very similar to the change in (2c). Both changes result in initial-high accent. The difference is whether or not the final syllable is accented.

In written materials, some words are recorded with different accentuation in different materials in the same era. This presumably shows that those words had alternative accent forms when they were recorded. According to Sakurai (1978: 168), in Jusei Rongi the words for 'heart', 'life', 'to answer', etc. are recorded with three different accentuations: LLH, HLH, and HLL. Those words must have been pronounced in three ways at the time of Jusei Rongi. He also says that the change, LLH > HLL, was in process at that time, and the pitch shape of HLH was the middle stage from LLH to HLL. In addition, although it is said that nouns with two peaks such as HLH are rare, HLH accent is seen not only in historical materials but also in modern dialects of Japanese. In Narada dialect of Yamanashi, the word for 'heart' is *kokoro* HLH(L); cf. *asagao* HLHL(L) 'morning glory' (Uwano 1977: 293).

4.1.2. Accent in Careful Speech and Connected Speech

It has been pointed out that there is a difference in accent between careful speech and careless speech in Japanese and also that alternative accentuation is due to a change that a language is undergoing. (See Kindaichi 1947 and Akinaga

1966). In this section, we are going to investigate what types of accentual changes are involved in this process.

(7) Accent change in connected speech

(a) Rightward Accent Shift	examples
HL(L) > HH(L), HLL > HHL	<i>ame-ga</i> 'rain (Nom.)', <i>tori-ga</i> 'bird (Nom.)' in Shizuoka. (Kindaichi 1947: 43)
LHL > LHH	seen in Shizuoka, but no examples are given. (Kindaichi 1947: 39)
LH(L) > LL(H), LHL > LLH	<i>hana-ga</i> 'flower (Nom.)', <i>yama-ga</i> 'mountain (Nom.)' in Chiba. (Kindaichi 1947: 34-5 and 40)
(b) Change from Atonic to Tonic	examples
(i) LL > HL	seen in Yamagata and northern Miyagi Prefectures, but no examples are given. (Kindaichi 1975: 58)
HHH > HLL	seen in Mie and Kôchi, but no examples are given. (Kindaichi 1947: 28-9)
HHH > HHL	<i>katati</i> 'shape', <i>sakura</i> 'cherry', etc. in Fukui. (Kindaichi 1947: 27)
(ii) LL(L) > HH(L)/LH(L)	<i>kaze</i> 'wind' and <i>tori</i> 'bird' in Nîgata. (Kindaichi 1975: 249)
(c) Low Tone Spreading	examples
LH(H) > LL(H), LHH > LLH	<i>sora-ga</i> 'sky (Nom.)', <i>suzume</i> 'sparrow' in Kochi. (Kindaichi 1947: 17) <i>otoko</i> 'male', <i>tikara</i> 'strength' in Hiroshima. (Kindaichi 1974: 55)
(d) LLH > HLH	seen in Saitama, but no examples are given. (Kindaichi 1947: 35)

In (7) we have summarized changes that we have found in the literature.

There are basically four types.

The first type of change is shifting an accent onto the following syllable. For example, as a result of this change, nouns with HL(L) accent, for example, become HH(L). We call this kind of accent shift Rightward Accent Shift. As shown in (7a), there are some examples from Shizuoka dialect. In this dialect, *ame-ga* 'rain (Nom.)' is HL-L when uttered carefully, but it is HH-L when uttered carelessly. In Chiba, LHL-nouns (/OO]O/) become LLH (/OOO]/) in careless speech. Notice that Shizuoka nouns keep high pitch on the syllable from which the accent shifted (i.e., HL(L) > HH(L)), but in Chiba the syllable previously accented becomes low after the accent shifts onto the following syllable (i.e., LHL > LLH). This is due to a phonetic rule that the dialects have.

As for the second type of change, (7b) shows there are two kinds. The first one is a change from atonic to initial accent. As (7bi) shows, according to Kindaichi (1975: 58), in the Shōnai dialect of Yamagata Prefecture and in northern Miyagi Prefecture, LL-words become HL in careless speech.⁸ In Mie and Kōchi dialects high-level atonic becomes initial-high in careless speech (Kindaichi 1947). These changes we call Initial Accent Gain (see 4.1.1). Moreover, in the dialect of Fukui certain nouns are HHH when uttered with care, but they are HHL in connected speech. Examples are given in (7bi).

The other kind of change categorized under Change from Atonic to Tonic is in (7bii). Kindaichi (1975: 249) says that in Murakami dialect of Nīgata Prefecture, in careless speech LL(L)-nouns become either HH(L) or LH(L), e.g., *kaze* 'wind'.

⁸ Unfortunately, Kindaichi (1975: 58) does not present any examples or the sources where examples can be found.

In addition to this, in the dialect, HL(L)-nouns also shift their accent onto the second syllable, resulting in HH(L). This change we call *Rightward Accent Shift* (see (7a) above). In Murakami there are three accentual distinctions in disyllables in careful pronunciation: HL(L), LH(L), and LL(L). Note that LH(L) in (8c) does not undergo a change.

(8) Careful and careless speech in Murakami dialect of Nigata

	careful		careless	examples
(a)	HL(L)	->	HH(L)	haru 'spring', hasi 'chopsticks'
(b)	LL(L)	->	HH(L)/LH(L)	kaze 'wind', tori 'bird'
(c)	LH(L)	=	LH(L)	ame 'rain', sora 'sky', inu 'dog', etc.

When nouns are uttered carelessly, there are only two distinctions because LL(L)-words merge with either LH(L)- or HH(L)-words. (9) describes this phenomenon.

(9) Accent merger in Murakami

(a) LL(L) merges with HL(L)				(b) LL(L) merges with LH(L)			
	careful		careless		careful		careless
	HL(L)				HL(L)	->	HH(L)
		->	HH(L)				
	LL(L)				LL(L)		
						->	LH(L)
	LH(L)	=	LH(L)		LH(L)		

Another change seen in careless speech is Low Tone Spreading (7c), which is also found in historical materials. According to Kindaichi (1947), in Kôchi dialect, nouns with LH(H) or LHH become LL(H) or LLH when carelessly uttered. Examples are shown in (7c). Kindaichi (1947) and Akinaga (1966) also report that in Hiroshima, words such as *otoko* 'male', *tikara* 'strength', *sakura*

'cherry', *katati* 'shape', etc. are LHH in careful speech, but LLH in careless speech.

The change in (7d) causes two peaks in words. This is seen in the dialect of Saitama. In the dialect, nouns with LLH pitch become HLH in connected speech (Kindaichi 1947: 35). Unfortunately, Kindaichi does not give any examples. In addition, Hattori (1933) mentions that a series of changes LLH > HLH > HLL is natural without giving any reasons for his claim. However, judging from his article, his claim is probably based on his observation of Japanese dialects, although he does not say in what dialects this phenomenon is taking place or has taken place. The change from LLH to HLH is explained by Initial Accent Gain. And we call the change from HLH to HLL Double Accent Simplification in this dissertation.

4.1.3. Accent Shift in Relation to Vowel Devoicing

In many modern Japanese dialects, high vowels between voiceless consonants become devoiced.⁹ These devoiced vowels are indicated with a circle underneath when necessary, e.g., *tu̥ku* 'arrive'. When an accented syllable contains a devoiced vowel, the accent often shifts onto the following syllable. For example, in Tokyo, the word *asita* 'tomorrow' belongs to LHH-accent category, but it is pronounced with LLH pitch because of the devoiced syllable, *s̥i* in *asita* (Kindaichi 1980 [1951]: 564). Vance (1987: 86) also discusses this

⁹ 'Devoiced' simply means voiceless.

phenomenon of accent shift. Pointing out the following examples, he explains that accent shifts rightward. Initial-accent disyllabic nouns often shift the accent onto the final syllable. For trisyllabic nouns with accent on the second syllable, the accent sometimes remains in the same position when the final syllable contains a devoiced vowel.

(10) Rightward Accent Shift in Tokyo

/t̚₁ku/ ~ /t̚₁ku/ 'arrive'

/f̚₁ku/ ~ /f̚₁ku/ 'blow'

/kaku₁su/ ~ /kaku₁su/ ~ /kaku₁su/ 'hide'

In addition, McCawley (1978: 266) says, "There is evidently a rule shifting accent to the right when it falls on a voiceless syllable. However, this rule has exceptions, both systematic and idiosyncratic. Accent is never shifted off of an adjective stem onto an ending nor off of a noun onto a particle." And he gives the following two examples: *yoros̥i* *katta* 'was okay' (ending *-katta*) and *mat̥i* *kara* 'from the town' (particle *kara*). In both examples, the accent on devoiced syllables stays on the syllable even though it contains a devoiced vowel.

According to Hirayama et al. (1967), in Ryukyuan, accent shifts in relation to devoicing of vowels are also found. For example, in Ishigaki dialect of Yaeyama Ryukyuan, the word for 'person' is *p̥i*₁*tu* LH(L); other high-register disyllables are HL(L) (see also 5.5.1.1). In Ishigaki, when HL(L)-nouns contain a devoiced vowel in the initial syllable, the accent shifts onto the second syllable.

4.1.4. Accent Change in Relation to Vowel Length

On the basis of historical written records, Sakurai (1978) proposes that lengthening of vowels caused accent change. In Amakusa-ban Isoho Monogatari,¹⁰ the word for 'head' is *ko:be* with a long [o]. Sakurai explains that this is historically a compound consisting of *kabu* 'head' and *be* 'direction' or *kami* 'hair' and *he* 'edge', and that the long vowel [o:] in *ko:be* must have been derived from the change *kau-fe* > *ko:be*. In Myôgi-shô, *kaube* is marked with LHH. And in Shiza Kôshiki (12-14th centuries), *kaube* is with not only LHH but also the alternative accentuation LLH. Sakurai suggests that the alternative pronunciation be due to the vowel lengthening mentioned above.

4.1.5. Accent Shift in Relation to Vowel Quality

Japanese accent is also sensitive to vowel quality. In some cases, shifting of accent onto the following syllable depends on a vowel quality that a syllable contains. Wada (1958) reports that in Takamatsu, some 2.2-nouns¹¹ are HL(L) and others are LF(L); both are phonemically the same. HL-words have either /i/ or /u/ in the final syllable and the LF-words have /a/, /e/, or /o/ in the final syllable. That is, if a word contains a high vowel (i.e., either /i/ or /u/), the accent is on the initial syllable. On the other hand, if the word has non-high vowels (i.e., /a/, /e/, or /o/), it is realized as LF(L). Examples are *isi-ga* HL-L 'stone (Nom.)' and *uta-ga* LF-L 'song (Nom.)'.

¹⁰ This is a Middle Japanese text written in the Latin alphabet in late 16th century.

¹¹ "2.2" is one of the five accent categories for Myôgi-shô disyllabic nouns.

4.1.6. Accent conditioned by Syllable Structure

Kindaichi (1974: 177) observes that in Tokyo, nouns with LHL(L) pitch such as *kaki* /*he* 'fence' in general retain their accent on the second syllable even when uttered in a phrase. However, some of LHL(L)-nouns become LHH(H) when followed by the possessive marker *no*. The final syllable of those words consists of two moras. Examples are *sato*: 'sugar', *nioi* 'smell', and *nihon* 'Japan'.¹²

A similar phenomenon to this is also seen in many Ryukyuan dialects (see Hirayama, et al. 1966). For example, in the Kamishiro dialect of Ryukyuan, some final-accent nouns are HL(L) or HLL(L) pitch, e.g., *hui* /HL(L) 'voice', *wui* /HL(L) 'bucket', *muQkwa* /HLL(L) 'bridegroom'; cf. *usi* /LF ~ LH(L) 'mortar'. This occurs only for words in the word structure of CVi or CVQCV.

4.1.7. Accent in Two Different Generations

According to Hirayama and Nakamoto (1964: 87), older and younger speakers of Hateruma dialect of Ryukyuan pronounce the same words differently. For example, speakers who are over 50 pronounce the word *pana* 'nose' with LL(L) accent, and on the other hand, speakers who are in their 20s pronounce the same word with HL(L). A similar phenomenon is seen in the dialect of Kudaka Ryukyuan. Hirayama, et al. (1966: 189) report that low-level- atonic nouns are pronounced with initial accent by younger speakers. For example, older speakers pronounce *pana* 'flower' and *pasira* 'pillar' LL(L) and LLL(L) respectively, but for younger ones, they are HL(L) and HLL(L).

¹² The word for 'smell' is pronounced with three syllables in careful speech, but it is pronounced with two syllables in careless speech. In the latter case, the final syllable consists of two moras.

In addition, it should be noted that Umegaki (1957) discusses accentual change taking place in younger speakers of Osaka. Examining junior high school students' speech in comparison with that of older speakers in Osaka, Umegaki reports that words with HHL-accent in older speakers' speech appear as either HLL, LHL, HHH, or LLH in younger speakers'. However, it is difficult to determine whether these changes are natural because words are irregularly similar in accentuation with those of its neighboring areas such as Kyoto, Hyogo, Nara, etc. For example, for younger speakers in Osaka the word for 'forest' (3.4) is *hayasi* HHH. The word is also HHH in Kyoto, HHL in Hyogo and Kochi, and LHL in Toyama. Since there is high possibility of language contact, we are not going to include his work for discussion on natural sound change.

4.1.8. Overview

We have investigated both diachronic changes and synchronic processes of accentuation in Japonic languages. There are basically six changes that we have discussed. See (11) below.

(11) Accentual changes found in the Japonic languages

- (i) Leveling of contour tones (Leveling)
- (ii) Lowering of pitch of particles (Lowering)
- (iii) Change from final-high to initial-accent (Initial Accent Gain)
- (iv) Change of domain
- (v) Low Tone Spreading
- (vi) Rightward accent shift (Accent Shift)

Changes in (11i), (11ii), and (11iv) are seen only in historical materials. According to the texts, Leveling (11i) was completed by the 16th century (with one exception) and Lowering (ii) by the 14th century. The change of domain took place between the 17th and 19th centuries. There is also a change that is

found in synchronic material, i.e., Accent Shift (11vi). And Initial Accent Gain (11iii) and Low Tone Spreading (11v) are found in both diachronic and synchronic materials.

From the phonological and phonetic point of view, among the six changes in (11), Initial Accent Gain, Accent Shift, and Low Tone Spreading are apparently under certain condition(s). See (12). “+” indicates a change occurs in relation to the condition under which it is marked.

(12) Accentual changes in relation to their conditions

	careless speech	vowel devoicing	vowel quality	vowel length
Initial Accent Gain	+			
Accent Shift	+	+		
L-tone Spreading	+		+	+

On the basis of (12), we should say that (i) Initial Accent Gain takes place when speakers carelessly speak; (ii) Accent Shift occurs in careless speech, and it also takes place when an accented syllable contains a devoiced vowel; and (iii) Just like the other two changes, Low Tone Spreading also takes place in careless speech. This change is also seen in relation to vowel quality and vowel length.

With a careful look of all the changes discussed above, we can see patterns of the changes as follows: atonic (either high-level, low-level, or final-high atonic) > initial-accent (i.e., HLL) > second-syllable accent (either LHL or HHL) > final-accent (either LLH(L) or LHH(L)) > initial- and final-high (i.e., HLH) > atonic. Changes in (11i and ii) are only seen earlier in the history. The change of Domain in (11iv) is seen throughout the history. On the basis of the patterns of those changes, we reconstruct proto accent systems of the Japonic languages in this dissertation.

4.2. ACCENT CHANGE IN OTHER LANGUAGES

In this section we are going to investigate what kind of accentual changes (both diachronic and synchronic) are seen in other languages. It is difficult to compare Japonic pitch accent with other suprasegmental systems such as stress accent (e.g., Bahasa Indonesia), tonal system (Mandarin Chinese), and the like. What we are focusing on are changes in pitch height in both tone and pitch accent languages and also changes in the location of stress in stress languages. Needless to say, we exclude changes conditioned on grammatical basis or changes caused by language contact. For example, Polish words generally keep stress accent on the penultimate syllable, even when suffixes are added. For instance, when the adjectival suffix *-owi* is added to the word *nauczyciel* 'teacher' (Nom.sg), the stress falls on the vowel /o/ in *-owi*, namely *nauczyciel-ówi* (Kenstowicz 1994: 552). It seems that the accent on the penultimate of *nauczyciel* shifted onto the initial vowel of the suffix *-owi*. However, this 'shift' took place by referring to a word boundary; i.e., it is morphologically conditioned. More importantly, this is a matter of placement of stress in relation to the boundary, not a phenomenon of accentual shift.

Although we have looked into a number of languages in different language families such as Niger-Kordofanian, Austronesian, Uralic, Turkic, Dravidian, Sino-Tibetan, etc., there are not many discussions on changes in suprasegments in the literature. Among those we have investigated, we are going to select some languages from different language families to show suprasegmental changes commonly seen in the languages. The languages that

we present in this chapter are Korean, Ainu, African languages (e.g., Gwari, Kikuyu, Fe?Fe?, etc.), Austronesian languages (e.g., Bahasa Indonesian, Mukah, etc.), and Chinese (e.g., Mandarin and Cantonese).

4.2.1. KOREAN

There have been quite number of studies on Korean accent (e.g., Ramsey 1978, Kim 1988) even though relatively few dialects of Korean have distinctive accent (e.g., Hamkyeng dialect spoken in the northeastern part of North Korea and Kyengsang dialect spoken in southeastern part of South Korea). We will investigate what kind of accentual changes are involved in the history of the Korean language.

Ramsey (1978) contends that the accent system of the Hamkyeng dialect is more conservative than that of the Kyengsang dialect. This is mainly based on the fact that Hamkyeng accent and Middle Korean (MK)¹³ accent are similar. Applying the comparative method, Ramsey concludes that Hamkyeng accent is than that of Kyengsang. The development of Kyengsang accent can be explained by shifting an accent of Hamkyeng one syllable to the left. Correspondences of MK, South Hamkyeng, and Kyengsang accents in (13) show that "South Hamkyeng lexical accent is directly related to the entity that was marked as the [']departing tone['] in MK. The accent of each South Hamkyeng lexical item can be determined by locating the first occurrence of the [']departing tone['] in the corresponding MK lexical item. If the MK lexical item contains no occurrence of

¹³ "[T]he language of Korean texts written in the fifteenth and sixteenth centuries." (Ramsey 1978: 2)

the [']departing tone['], then the corresponding South Hamkyeng lexical item contains no accent and is therefore atonic. (Ramsey 1978:83)¹⁴

(13) Comparison of MK, South Hamkyeng, and Kyengsang accent (Ramsey 1978: 82)

MK	S. Hamkyeng		Kyengsang		
side dots	accent	examples	accent	examples	gloss
L	o	kkoc-í	o	kkóch-i	'flower'
D	ó	káp-i kkoc káp-i	'o	'kaps-i kkoch 'kaps-i	'price' 'price of flowers'
LL	oo	palam-í	oo	plam-i	'wind'
LD	oó	atúl-i	óo	átul-i	'son'
DL, DD	óo	móki-ka kaal móki-ka	'oo	'mokwu-ka kasíl mokwu-ka	'mosquito' 'autumn mosquito'
LLL	ooo	saytali-ká	ooo	saytalí-ka	'ladder'
LLD	ooó	kamakwí-ka	oóo	kkamákwu-ka	'raven'
LDL, LDD	oóo	kamúlchi-ka	óoo	kámuchi-ka	'mullet'
DLL, DLD, DDL, DDD	óoo	thókkaypi-ka	'ooo	'thokkaypi-ka	'spirit'

According to Jeong (1985), in Kyengsang dialect there are four accent patterns for trisyllables: HLL, HHL, LHL, and LLL.¹⁵ Kyengsang nouns with HHL accent can be pronounced HLL as long as the initial high pitch is pronounced clearly. And, LLL- and LHL-nouns are also interchangeable. It seems that the initial pitch plays a crucial role in distinguishing one accent from another.

¹⁴ MK texts are marked with the "side dots" to indicate accent of words. The "side dots" which mark level tone and departing tone are indicated by respectively L and D in (13).

¹⁵ It should be pointed out that Jeong's analysis of Kyengsang accent is not identical to Ramsey's.

Jeong also says that in MK the final pitch of adverbial and prenominal forms varies between low and high, without changing meaning of the words. He suggests the change of high to low at the end of words, namely ...H# > ...L#. ¹⁶ Agreeing with Lee Sung-nyong's proposal in 1964, Jeong claims that in MK, a change in accent starts from the end of a word. The reason for this, he continues, is that the final pitch does not function to distinguish one word from another; whether the final pitch is low or high is not important in MK.

Another observation on MK, is in Lee Sang-ak (1985: 16). He points out that around the end of the fifteenth century, high-level nouns were also pronounced HLH or HHL. He says that the variations of accent existed until the end of the sixteenth century.

In the matter of PK accent, there are two hypotheses. One is that PK did not have distinctive accent (Ramsey 1978). If this is correct, MK developed its accent system and lost it by the end of sixteenth century.¹⁷ On the other hand, Whitman (1994) argues that PK had distinctive accent, at least for nouns. We do not know what sorts of changes PK underwent to develop or to lose its accent because neither of the hypotheses reveals how the system came to exist and to lose its function. We leave this as it is for the time being with hope to see further studies in the future.

In sum, on the basis of our discussions above, considering variation of accent a change in progress, there are four types of accentual changes found in Korean. See (14).

¹⁶ The symbol "#" indicates a word boundary.

¹⁷ MK is considered to be a precursor of Seoul dialect, which has no distinctive accent.

(14) Accentual changes found in Korean

- (a) Leftward accent shift (e.g., HHL > HLL)
- (b) Final high lowering, i.e., ...H# > ...L# (e.g., HHH > HHL)
- (c) LHL > LLL
- (e) HHH > HLH

As Jeong proposes, in Korean, accentual change starts from the end of a word. This is completely opposite to the case of the Japonic languages, where accent shifts rightward and lowering of pitch goes from the left to the right. Although Martin (1966) claims that Korean is related to Japanese, accentual changes involved in its development are a kind of mirror image from those of the Japonic languages.

4.2.2. AFRICAN LANGUAGES

In this section, we will discuss tonal changes that take place in African languages. For most of the African languages their tonal systems consist of two or three tones, namely H-, L-, and Mid-tones. This system is much simpler than those of Chinese or Thai, where there are four or more tones.

Following Hyman's discussions on tonal change (1975), our discussion consists of two main parts, the first is on Phonetic Tone Rules and the second is on Morphophonemic Tone Rules. Among Morphophonemic Tone Rules, we have excluded rules that are grammatically conditioned.

Hyman and Schuh (1974) and Hyman (1975) discuss natural tone rules. According to Hyman (1975), there are two types of natural tone rules. One is phonetic tone rules, and the other is morphophonemic rules. We discuss phonetic tone rules first, and then morphophonemic rules.

4.2.2.1. Phonetic Tone Rules

First, Hyman and Schuh give assimilation, simplification, and rightward tonal shift for their natural phonetic rules. Under assimilation, there are two subtypes, namely Vertical Assimilation and Horizontal Assimilation. Vertical Assimilation involves a change in tone height; either a low or high tone to a mid tone. Horizontal Assimilation causes contour tones; either R (i.e., LH) or F (i.e., HL).

In (15a), Hyman makes a clear distinction between natural and unnatural vertical assimilation. Based on that, L-tones become M-tones only when immediately followed by a H-tone. And H-tones become M-tones only when immediately preceded by a L-tone. For example, in Gwari /gyìwýé dā/ LHM 'possessor of money' becomes *gyìwýēdā* LMM (Hyman 1975: 221-5).¹⁸

(15) Assimilation

(a) Vertical Assimilation

Natural	Unnatural
L-H > M-H	H-L > H-M
L-H > L-M	H-L > M-L

(b) Horizontal Assimilation

Natural	Unnatural
L-H > L-LH	L-H > LH-H
H-L > H-HL	H-L > HL-L

(c) Gwari examples

/òkpá/	>	òkpǎ	'length'	([ǎ] is rising tone.)
/súkNù/	>	súkû̃	'bone'	([û̃] is HL tone, [̃] indicates a nasalized sound.)

¹⁸ The symbols á, à, and ā indicate high-tone, low-tone, and mid-tone respectively.

Regarding Horizontal Assimilation, a H-tone preceded by a L-tone becomes a R-tone. And a L-tone becomes a F-tone when preceded by a H-tone. Since this is progressive assimilation, L- or H-tones are not affected by a following tone. See the Gwari examples in (15c) (Hyman 1975: 222).

Hyman also mentions that some languages undergo Complete Horizontal Assimilation. It means that H- and L- become assimilated completely to their preceding tones. That is, L-H-H becomes L-L-H by undergoing L-LH-H (16). H-L-L becomes H-HL-L and then finally H-H-L. This phenomenon is seen in Kikuyu, e.g., /gòr/ + /íré/ > gòrìré 'bought (immediate past)'

(16) Complete Assimilation

L-H-H > L-LH-H > L-L-H
H-L-L > H-HL-L > H-H-L

Another phonetic change that Hyman discusses is Simplification -- one type of assimilation. Similar to Leveling of Contour Pitch discussed earlier (see 4.1.1.), it simplifies contour tones to level tones. For example, in Fe?Fe? a rising tone becomes mid tone when followed by a L-tone. Compare the following examples.

(17) Simplification in Fe?Fe? (Hyman and Schuh 1974: 91)

[tũu]	'drum'
[tũu lè]	'this drum (near speaker)'
[tũu lǒ]	'that drum (near hearer)'
[tũu lì]	'that drum (far from speaker and hearer)'

Moreover, Leben (1971: 203) reports that in Hausa, all LH rising tones are simplified to H-level tone.

Regarding direction of tonal shift, Hyman and Schuh (1974) argue that tonal shift to the right is natural because it is motivated by nothing more than neighboring tones. And they consider that tonal shift to the left is unnatural because there is an external explanation for it. An example for natural change is as follows:

(18) Rightward tonal shift in Ewe

/lòs tiè/ → lòs tiè 'look for the pot'

In Ewe, H-tone of the word *lòs* 'look for (it)' shifts onto the initial syllable of the word *tiè* and the initial syllable becomes high (i.e., *tiè* > *tiè*). And L-tone of 'look for (it)' spreads to its second vowel (i.e., *lòs* > *lòs*).

As for shifting of tones to the left, see the following Gaʔanda examples. In Gaʔanda, the vowel of the perfective suffix *-wú* is apocopated after a vowel. Thus, a phrase consisting of the verb *và* 'shoot' and the perfective suffix *-wú* becomes *vǎw*.

(19) Leftward tone shift in Gaʔanda (Hyman and Schuh 1974:104)

/vǎ-wú/	→	vǎw	'he shot (it)'
/ná dlè-wú/	→	ná dlǎw	'I dipped (it) out'

Hyman and Schuh (1974) contend that after the loss of the vowel *u*, the H-tone on the vowel shifts onto the syllable to its left because there is no TBU on its right. They add, "Such [']extenuating circumstances['] probably account for most cases of shifting to the left (Hyman and Schuh 1974: 104)." Moreover, in Wolaitta there are examples for both rightward and leftward shift, but its leftward shift is grammatically conditioned (Amha 1996).

On the direction of tonal shift, Schuh (1978) also claims that the most common tone spreading rules are rightward and they can be schematically shown in (20) below (a tone in 'X' varies from language to language).

(20) The most common tone spreading rules

H-tone Spreading:	H L X > H H X
L-tone Spreading:	L H X > L L X

See below. Examples for H-tone Spreading are from Bade and Bolanci (Schuh 1978: 226), and examples for L-tone Spreading are from Duwai and Ngizim (Schuh 1978: 222).

(21) Examples for High and Low Tone Spreading

H L L > H H L

Bade: /nón kàtáw/	-->	nón kâ táw	'I returned'
Bolanci: /kũm sàawùrà/	-->	kũm sáawùrà	'ear of falcon'

L H H > L L H

Duwai: /kèvùs báí/	-->	kèvùs báí	'it's not a warthog'
Ngizim: /gùbés báí/	-->	gùbès báí	'it's not a warthog'

Schuh's claim is supported by Maddieson's Tone Spreading (1976). He also says that tones spread rightward. See below.

(22) Maddieson's Tone Spreading Rules in Bantu languages

High Tone Spreading:	HL{L or #}	>	HH{L or #}
Low Tone Spreading:	LH{H or #}	>	LL{H or #}

Contrary to Hyman and Schuh's rightward shift hypothesis, there are also counterexamples reported in the literature. One of them is given by Odden (1985). According to him, Kimatuumbi has a Retraction Rule, which shifts the H-tone from the final syllable onto the preceding one that contains a long vowel. In

(23), "VV" indicates a long vowel in a syllable, and "." in "VV." means a syllable boundary.

(23) Retraction Rule (Odden 1985: 359-60)

$$\begin{array}{ccc} & \text{H} & \\ & | & \\ \text{VV.} & \text{V} & > & \begin{array}{c} \text{H} \\ / \\ \text{VV.} \end{array} \text{V} \end{array}$$

$$\begin{array}{ccc} & \text{H} & \\ & | & \\ \text{e.g., mboopo} & & > & \begin{array}{c} \text{H} \\ / \\ \text{mboopo} \end{array} \end{array}$$

Furthermore, disagreeing with Hyman and Schuh, Schadeberg (1977) discusses leftward movement. He states, "In the case of non-tonal phonological phenomena, rules of various sorts are known to operate from right to left as well as from left to right, synchronically as well as diachronically. From a general linguistic point of view perseveration (progressive assimilation) and anticipation (regressive assimilation) both seem to be perfectly normal, natural process." However, he adds, "It is true that for some phenomena, one direction may be more normal than the other; e.g., $t > c / i$ is more natural as an anticipation rule / $__ i$ than as a perseveration rule $/ i __$ (Schadeberg 1977: 201-2)."

4.2.2.2. Morphophonemic Tone Rules

We will introduce Hyman's Morphophonemic Tone Rules in this section. They are Dissimilation, Copying, Polarization, and Floating Tones.

First, Hyman (1975: 224) states, "Just as dissimilation most frequently is bound to certain morphemes or constructions, the same is true of tonal dissimilations." For example, in Hausa a sequence of two L-tones at the end of a word results in L-H when a vowel in the final syllable is long.

(24) Dissimilation in Hausa

Underlying form

/kàràntà:/ 'to read' --> kàràntá: HLH

Second, "Copying refers to the process by which a syllable (most frequently a grammatical morpheme such as a pronoun) is considered to have no underlying tone of its own, but rather receives its tone from a neighboring syllable" (Hyman 1975: 224). For instance, in Kru the relative clause marker *a* is high after a H-tone verb and low after a L-tone verb. That is, the tone of the preceding verb is copied on the following marker.

Polarization is a rule that assigns a tone opposite to that of the neighboring syllable to a morpheme – this is a completely opposite process to Copying. For example, in Hausa the direct object pronoun *ši:* takes a H-tone when the tone of the preceding verb is low, and a L-tone when preceded by a H-tone. (Hyman 1975: 224-5)

(25) Polarization in Hausa¹⁹

/mún ká:mà ši:/ 'we seized it' --> mún ká:màši: H HL H

/mún sàyé: ši:/ 'we bought it' --> mún sàyé: ši: H LHL

For a process involving Floating tones, Hyman (1975: 225) gives examples from Central Igbo and Aboh Igbo as follows:

(26) Floating tones

Central Igbo /àgbà 'èṅwè/ 'jaw of monkey' --> àgbá èṅwè

Aboh Igbo /ègbà 'èṅwè/ 'jaw of monkey' --> ègbà éṅwè

¹⁹ In Hausa, Polarization precedes Dissimilation. Furthermore, a domain of Dissimilation is a word, while that of Polarization is a phrase. The following example demonstrates this.

/mún kàràntà: ši/ --> mún kàràntà: ši: --> múnkàràntá: ši: 'we read it' (Hyman 1975: 224)

The phrase for 'jaw of monkey' consists of two morphemes, i.e., *àgbá èṅwè* in Central Igbo and *ègbà éṅwè* in Aboh Igbo. Focusing on tones, although both have the same underlying form, their surface forms are not identical. This is because in Central Igbo a floating H-tone between the two morphemes is assigned to the preceding vowel (i.e., /à/), and in Aboh Igbo the H-tone is assigned to the following vowel (i.e., /è/). In both cases, the original tones that the vowels had were replaced by the H-tone.

4.2.2.3. Summary

According to Hyman (1975), there are phonetic tone rules and morphophonemic tone rules. The former rules involve Assimilation (Vertical and Horizontal), Simplification, and Rightward Tonal Shift, and the latter Dissimilation, Copying, Polarization, and Floating Tones. We have summarized our discussions in (27).

(27) Phonetic tone rules

(i) Assimilation

Vertical – This can be either rightward or leftward. The rightward shift is similar to L-tone Spreading seen in Japonic languages.

Horizontal – This can also be either rightward or leftward.

(ii) Simplification – This is similar to Leveling of Contour Pitch seen in Japonic.

(iii) Rightward Tonal Shift – There are counter examples against this claim.

(28) Morphophonemic Tone Rules

- (i) Dissimilation – Two tones dissimilate to each other.
- (ii) Copying – A grammatical morpheme receives a tone from a stem; this is similar to a characteristic of Japanese particles. This takes place in a rightward direction.
- (iii) Polarization – This is very similar to Dissimilation.
- (iv) Floating Tones – Floating tones can shift either rightward or leftward.

In African languages, changes involving tones vary. Although Hyman and Schuh claim that rightward tonal changes are natural and that leftward changes are unnatural, there are some examples of leftward changes. However, it is likely that one language tends to have one direction of change, not both directions. For example, in Central Igbo floating tones attach to the preceding syllable; on the other hand, in Aboh Igbo floating tones attach to the following syllable. As mentioned earlier, some of the changes in African languages are very similar to ones in the Japonic languages.

4.2.3. AUSTRONESIAN LANGUAGES

This section looks into the nature of accent shift in Austronesian languages. Our focus is especially on the following two questions: under what condition does accent shift and also in what direction does it shift? Here what we call accent is 'stress' in Austronesian languages. We have selected Bahasa Indonesia, Mukah, and Ratahan to show characteristics of the languages.

4.2.3.1. Bahasa Indonesia

Bahasa Indonesia is a stress language, where a stress falls on a penultimate syllable (Halim 1975). In the language, if the vowel of a penultimate

syllable is a schwa followed by a single consonant, stress shifts to the final syllable of disyllables. If a schwa is followed by a consonant cluster, stress does not shift. The examples in (29) demonstrate this -- in the words in (29a and b), accent is on their penultimate syllable, while in (29c) the accent is on the final syllable. From this, we can conclude that in Bahasa Indonesia, accent shifts to the right.

(29) Accent shift in Bahasa Indonesia (Halim 1975)

- | | | |
|-----|-------|---------|
| (a) | ádu | 'fight' |
| (b) | ómpat | '4' |
| (c) | kənái | 'know' |

4.2.3.2. Mukah

According to Blust (1988), Mukah, spoken in Borneo, is a stress-accent language. In general the penultimate syllable of a word receives accent in Mukah -- monosyllabic words are also accented. In Mukah, accent shifts to the final syllable under the following three conditions: (i) if the penultimate syllable contains a schwa, (ii) if the last two syllables consist of a consonant and the vowel /a/ in the penultimate syllable, and a high vowel in the last syllable (the high vowel is lengthened), and (iii) if the nucleus of the penultimate syllable is followed by a glottal stop (in the last case, stress optionally shifts to the final syllable). It should be noted that a schwa in the final syllable can receive accent.

(30) Accent in Mukah (Blust 1988: 178-9)

/tələw/	təlów	'three'
/təba/	təbá	'well'
/pai/	paí:	'stingray'
/daʔəm/	dáʔən ~ daʔón	'leaf'
/ñáʔəm/	ñáʔəm ~ ñaʔóm	'water'

The alternative forms in the last two examples above demonstrate that an accent shifts rightward in Mukah.

4.2.3.3. Sangiric languages

In his study of the Sangiric languages, James N. Sneddon (1984) accounts for how Proto-Sangiric (PS) stress accent evolved in Ratahan. In PS, accent is on a penultimate high vowel and in Ratahan accent is on the final vowel. That is to say, accent of PS shifted from a penultimate vowel to an immediately following vowel.

(31) Development of Ratahan accent from Proto Sangiric

PS		Ratahan	
*Ríud	>	iúr	'to pull'
*tían	>	tián	'belly'
*súan	>	suán	'to plant'
*túid	>	tuír	'stump'

(Sneddon 1984: 53)

4.2.3.4. Conclusion on accentual change in Austronesian languages

We have discussed accentual changes seen in Austronesian languages. Our discussion makes it clear that Austronesian languages undergo the same type of accentual change. In Bahasa Indonesian, accent shifts rightward. For Mukah words, accent also shifts rightward. In the development of Ratahan accent from PS, accent shifted rightward.

(32) Accent changes in Austronesian languages

- (a) Bahasa – rightward accent shift
- (b) Mukah – rightward accent shift
- (c) PS to Ratahan – rightward accent shift.

4.2.4. Chinese

When it comes to Chinese, it is known that tones in Chinese change depending on their environments. In this section, we are looking into characteristics of tone sandhi.

First, according to Chao (1965: 33), Mandarin Chinese tones can be phonetically described in numbers as shown below. Chao uses five levels of pitch to describe tones. The first tone (i.e., 55) is high-level, the second tone (i.e., 35) rises from level 3 and ends in high pitch, the third tone (i.e., 214) falls from level 2 to 1 and rises to level 4, and the fourth tone (i.e., 51) falls from high to low. Referring to Chao's notation, we describe tone sandhi.

(33) Mandarin Chinese tones

1 st tone	:	55	high-level
2 nd tone	:	35	rising
3 rd tone	:	214	falling-rising
4 th tone	:	51	falling

In Mandarin tone sandhi, 35 rising tone becomes high-level (i.e., 55) when preceded by high-tone (either 55 or 35) (Chao and Yang 1962 and Cheng 1973: 44). In the following formula, "t" stands for any tone except neutral tone. The following examples are from Chao and Yang (1962).

(34) Mandarin tone sandhi

35 -> 55 / {5} __ t

dong 55 + nan 35 + feng 55	->	dong nan feng 55 55 55
'east' 'south' 'wind'		'southeast wind'

san 55 + nian 35 + ji 51	->	san nian ji 55 55 51
'three' 'year' 'class'		'third year class'

In Cantonese, 53 falling tone becomes 55 (high-level) when followed by either 55 or 53 (Hashimoto 1972 and Cheng 1973). The pitch of level 3 is raised to 5. The following examples are extracted from Hashimoto (1972: 112).²⁰

Hashimoto gives another tone sandhi rule in Cantonese. See below. In this case, falling tone 21 becomes level tone 22 when followed by either 21 or 22. Both rules basically have the same characteristic – the lower part of the tones is raised to the same height as the following pitch.

(35) Cantonese tone sandhi

53	→	55	/ _ {5}	
21	→	22	/ _ {2}	
ĩŋ 53 + kɔ:ĩ 53	→	ĩŋ kɔ:ĩ 55 53		'should, must'
sɛm 53 + kɛp 5	→	sɛm kɛp 55 5		'anxious'
mA: 21 + ɪvũ 21	→	mA: ɪvũ 22 21		'sesame oil'

Regarding the direction of change, tone spreading from the left to the right can account for Mandarin tone sandhi. However, in Cantonese, tone spreads leftward. That is, in Chinese, tones can spread either rightward or leftward depending on the dialect.

4.2.5. SUMMARY

This chapter has had discussions on natural accent change not only in the Japonic but also in other languages such as Korean, African languages, Austronesian languages, and Chinese. Our findings are summarized as follows:

²⁰ We follow Hashimoto's notation for Cantonese phonemes. See Hashimoto (1972).

(36) Summary of accent changes

- (a) Japonic accent changes: rightward direction
- (b) Korean: starting from the end (... H# > ... L#)
- (c) African: either direction, depending on the language
- (d) Austronesian: rightward direction
- (e) Chinese: either direction

In the Japonic languages, we found that regular sound change occurs from the left to the right. On the contrary, in Korean the accent change starts from the end of words. In African languages, tones shift either to the right or to the left, depending on the language. In Austronesian languages, stress shifts to the right. Finally, Chinese tones involved in tone sandhi spread in either direction, depending on the dialects.

To conclude, as far as our discussions are concerned, strictly speaking, changes involved in the development of accent differ from language to language. On the other hand, from the viewpoint of direction in change, a language tends to shift its accent in one direction. For example, in Japanese, its accent shifts rightward, and Korean shifts accent leftward.

Regarding reconstruction of proto accent forms of earlier Japonic languages, with our findings on the patterns of the accent changes and the comparative method, we are going to reveal the accentual history of the Japanese and Ryukyuan languages in this dissertation.

CHAPTER 5

RECONSTRUCTION OF PROTO-RYUKYUAN ACCENT

5.1. INTRODUCTION

Throughout this work, our reconstruction of proto accent forms deals with only nouns. Neither verbs nor adjectives are included, because the accent patterns of Japonic nouns are much more complex than those of verbs or adjectives and also because the noun accent types reflect all types of verb and adjective accent.

By excluding compounds and loanwords, we have carefully selected Japonic cognates. However, some cultural words such as the one for ‘chopsticks’ are included because the accentuation of those words parallels other words in the same category. Furthermore, the phonology of those cultural words that we have included does not seem to match that of neighboring languages, from which Japonic languages might have borrowed, e.g., Chinese or Austronesian languages. Therefore, we assume that those words might have existed at the time of PJ.

In some cases, it is difficult to see patterns in correspondences between Ryukyuan nouns and their cognates in Myōgi-shō because of missing cognates from the correspondence sets. In those cases, in order to capture the patterns, we added more cognates, which are not on our original word list. However, they are not reconstructed.

(1) Japonic cognates which are used for our reconstruction

Myôgi-shô List of cognates
categories

- | | |
|-----|--|
| 1.1 | hair, blood |
| 1.2 | leaf, name |
| 1.3 | three, eye, tooth |
| 2.1 | nose, cow, bird, loins, wind, beard |
| 2.2 | stone, paper, bridge |
| 2.3 | flower, mountain, cloud, bone, dog |
| 2.4 | boat, sea, shoulder, breath, board, mortar, chopsticks, needle |
| 2.5 | sweat, rain, bridegroom, voice, shadow, bucket |
| 3.1 | mark, smoke, forehead, yawn |
| 3.2 | centipede, two |
| 3.3 | strength, gold |
| 3.4 | bag, fan, treasure, mirror |
| 3.5 | pillar, fat, life, tears, pillow, heart, cousin |
| 3.6 | crow, eel, earthworm |
| 3.7 | medicine, whale, field |

5.2. AMAMI RYUKYUAN

5.2.1. Description of Amami Ryukyuan Accent

Amami Ryukyuan is made up of dialects spoken in the Amami islands, including Amami Ô-shima, Tokunoshima, Kikai Island, Okinoerabu Island, and Yoron Island. We are going to make use of three Amami dialects of Ryukyuan for our reconstruction. They are Naze dialect of Amami Ô-shima, Kamishiro dialect of Okinoerabu-Island, and Kametsu dialect of Tokunoshima. These dialects have been carefully chosen in order to cover the characteristics of Amami accent.

The sources for the Amami dialects are as follows: Hirayama, et al. (1966 and 1967) for the Naze dialect, Hirayama, et al. (1966) and Kyûgakkai Rengô

Amami Ōshima Kyôdôchôsa Iinkai, ed. (1959) for the Kamishiro dialect, and Hirayama, et al. (1966) and Hattori (1979a and 1979b) for the Kametsu dialect.

5.2.1.1. Naze Dialect

There are three accentual distinctions in Naze dialect. They are atonic, penultimate accent, and final accent. No register distinction is involved. Atonic nouns have high pitch on the final mora of a 'prosodic word', e.g., *hana* LH 'nose', or *hana-ga* LL-H 'nose (Nom.)'. For monomoraic atonic nouns, they are high in pitch, but L(H) when uttered with a particle, e.g., *ci* H 'blood', *ci-ga* L-H 'blood (Nom.)'.

Penultimate-accent nouns have high pitch on the penultimate mora and the rest of each word is low in pitch, e.g., *ha ɿri* HL 'needle', *ha ɿri-ga* HL-L 'needle (Nom.)'. Notice that the pitch shape is not affected by the addition of a particle. That is, the domain of the accent seems to be a lexical word.

For final-accent nouns, they keep a high pitched mora word-finally, and the rest of the moras on the words are low in pitch, e.g., *garasi* ɿLLH 'crow', *garasi* ɿga LLH-L 'crow (Nom.)'. The high pitch stays on the final mora of a lexical word. The domain of locus accent is a lexical word, while that of atonic accent is a prosodic word.

With regard to Tone Bearing Units (TBU), the Naze TBU is the mora, because the pitch changes between moras within the same syllable, e.g., *kagan* LLH 'mirror'. If the syllable were the TBU, the pitch would change at the syllable boundary.

Below, we are going to discuss the details of the accent system of Naze monosyllables, disyllables, and trisyllables.

Monosyllables: Unlike many other Ryukyuan dialects, Naze monosyllables have no vowel length. Our data show that the monosyllables are basically CV-structure, except for the word *ʔin* 'dog'.

(2) Naze monosyllabic accent

Phonemic	Phonetic	Myô ¹	List of nouns
O	H ~ L(H)	1.1	<i>kʰi</i> 'hair', <i>ci</i> 'blood'
		1.2	<i>ha</i> 'leaf', <i>na</i> 'name'
		1.3	<i>kʰi</i> 'tree', <i>mī</i> 'eye', <i>ha</i> 'tooth'
	<hr/>		
	LH ~ LL(H)	2.3	<i>ʔin</i> 'dog'

Naze monosyllabic nouns do not have distinctive accent; all the nouns are atonic. They are generally high-level in isolation, but low-pitch in a phrase with a particle, i.e., L(H) -- low on the stem and high on the particle. Furthermore, when a noun contains two moras, namely *ʔin* 'dog', the noun is LH. However, it is low-level when followed by an enclitic, e.g., *ʔin* LH, *ʔin-nu* LL-H.

In our data, except for *ʔin* 'dog', all Naze synchronically monosyllabic nouns are also historically monosyllabic. With regard to the word *ʔin* 'dog', it is historically disyllabic, but has become monosyllabic after losing the final vowel /u/. Based on many Japonic cognates (e.g., *inu* in Tokyo and Kyoto), the earlier Japonic form for 'dog' should be something like **inu* with the vowel /u/ at the end.

¹ "Myô" stands for Myôgi-shô. That is to say, numbers under "Myô" indicate Myôgi-shô accent categories.

Disyllables: Our synchronic analysis of Naze disyllabic nouns shows that there are three accentual types: atonic, penultimate accent, and final accent. In disyllabic atonic nouns, there are two types. One type consists of two moras, and the other contains three moras. The former type is historically disyllabic, but the latter is historically trisyllabic. Nouns belonging to the latter type, three-mora disyllabic, have either a long vowel or a syllable-final moraic nasal.

The two-mora atonic nouns correspond to Myôgi-shô accent categories 2.1-5, not restricted to certain types of Myôgi-shô accent category or categories. The three-mora atonic corresponds to both 3.2 and 3.4 in Myôgi-shô; there is no systematic correspondence.

In disyllabic penultimate-accent nouns there are also two-mora nouns and a three-mora noun. The three-mora noun, i.e., *ʔo ɿgi ~ ʔu ɿgi* 'fan', is historically trisyllabic, cf. *afuki* LLL 'fan' in Myôgi-shô (Mochizuki 1974).

The word *kʰu ɿ* 'voice' (2.5) has a CVV structure. We treat it as disyllabic because there is no need to treat it as monosyllabic and also because historically it is attested as disyllabic, i.e., *kowe* LH(L)² 'voice' in Myôgi-shô (Mochizuki 1974). Moreover, in Naze, historical monosyllabic nouns are generally in CV structure.³

² It is LH in Mochizuki (1974). That is, we do not know whether or not the word for 'voice' has accent on the final syllable. However, in Martin (1987) the word is LH(L). Therefore, we treat the word as final-accent.

³ In Naze, historical disyllables also appear as CV, e.g., *nu* 'wheat', *ʔo* 'millet', *ʔma* 'horse', *ʔyu* 'fish', *hi* 'breast', *ʔo* 'foam' (Hirayama et al. 1967: 194-387). In addition, they are also in CV: and CVn derived from historical disyllables, e.g., *mun* 'thing', *na ɿ* 'inside', *de:* 'bamboo', *min* 'ear' (Hirayama et al. 1967: 196-387).

(3) Naze disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OO	LH ~ LL(H)	2.1	<i>hana</i> 'nose', <i>ʔusi</i> 'cow', <i>tʰuri</i> 'bird', <i>kʰusi</i> 'loins', <i>higi</i> 'beard', <i>hazyē</i> 'wind'
		2.2	<i>ʔisi</i> 'stone', <i>kʰabi</i> 'paper', <i>hasi</i> 'bridge'
		2.3	<i>hana</i> 'flower', <i>yama</i> 'mountain', <i>kumu</i> 'cloud'
		2.4	<i>ʔita</i> 'board', <i>mugi</i> 'barley', <i>kʰata</i> 'shoulder'
		2.5	<i>ʔasi</i> 'sweat', <i>ʔamī</i> 'rain'
	LLH ~ LLL(H)	3.2	<i>ta:ci</i> 'two'
		3.4	<i>kagan</i> 'mirror'
O|O	HL(L)	2.3	<i>hu</i> <i>hī</i> 'bone'
		2.4	<i>hu</i> <i>hī</i> 'boat', <i>ʔu</i> <i>mi</i> 'sea', <i>ha</i> <i>ri</i> 'needle', <i>ʔu</i> <i>ʔi</i> 'mortar', <i>ha</i> <i>ʔi</i> 'chopsticks', <i>ʔi</i> <i>ki</i> 'breath'
		2.5	<i>kʰa</i> <i>gē</i> 'shadow', <i>kʰu</i> <i>ʔi</i> 'voice', <i>mo</i> <i>ho</i> 'bridegroom', <i>u</i> <i>hī</i> 'bucket'
	HLL(L)	3.4	<i>ʔo: ʔi</i> ~ <i>ʔu ʔi</i> 'fan'
ooO|	LLH(L)	3.6	<i>mē:za</i> <i>ʔ</i> 'earthworm'

Naze two-mora penultimate-accent nouns correspond to Myôgi-shô accent categories 2.3-5. The word for 'fan', corresponding to Myôgi-shô accent category 3.4, has two alternative forms; one with three moras (i.e., *ʔo: ʔi*) and the other with two (i.e., *ʔu ʔi*). From the data, it is obvious that the two-mora form is regular and the three-mora form is irregular. Probably the three-mora form is a borrowing from a Japanese dialect because of the vowel /o:/, on the basis of the fact that the Japanese mid vowels (i.e., /o/ and /e/) in general correspond to high vowels (i.e., /u/ and /i/) in Naze (e.g., *ko* *kē* 'voice' in Tokyo, but *ku* *kī* 'voice' in Naze).

The third accentual type is final accent. There is only one noun for the category, and the word is originally trisyllabic, cf. *mimizu* LHH 'earthworm' in

Myôgi-shô category 3.6 (Mochizuki 1974). It should be noted that *më:za* 'earthworm' behaves like trisyllabic nouns (see trisyllabic accent).

Trisyllables: There are three patterns of accentuation in Naze trisyllabic nouns: atonic, penultimate accent, and final accent.

Atonic nouns are final-high in a phrase; i.e., LLH or LLL(H). Our data in (4) show that words in this accent category correspond to Myôgi-shô categories 3.1 and 3.3-5. However, an investigation of a larger data set reveals that Naze atonic trisyllables correspond to Myôgi-shô categories 3.1-7; *sakura* 'cherry' (3.2), *ʔaziki* 'red beans' (3.2), *hizyari* 'left' (3.6), *hadasi* 'barefoot' (3.6), *ʔusiru* 'behind' (3.7), *kaigo* 'silkworm' (3.7), *mabuta* 'eyelid' (3.7).⁴

Regarding the penultimate-accent nouns, they are normally LHL(L), but they are HLL(L) if the second syllable contains the high-front vowel (i.e., /i/). Hirayama (1966: 124) explains that due to the high-front vowel, *hasi ʔa* and *kuzi ʔa* are phonetically HLL(L). The data below show that Naze nouns with penultimate-accent correspond to Myôgi-shô cognates in accent categories 3.2, 3.4-5, and 3.7. Looking into more cognates, we have found that there is a noun corresponding to Myôgi-shô category 3.6 as well: *ʔusa ʔi* 'rabbit' (3.6) (Hirayama 1966). There is also another 3.5-noun with penultimate-syllable accent: *ʔinu ʔi* 'life' (Hirayama, ed. 1982: 374). Therefore, Naze trisyllables in this category correspond to Myôgi-shô 3.2 and 3.4-7 nouns. In addition, because most of Naze

⁴ The cognates for 'cherry', 'red beans', 'eyelid', and 'barefoot' are taken from Hirayama, ed. *Gendai Nihongo dai-jiten*, the one for 'left' is from Hirayama, et al. (1966), and the ones for 'behind' and 'silkworm' are from Hirayama (1986).

nouns in this category correspond to low-register in Myôgi-shô, except for *muka ʔi* 'centipede' (3.2), the accentuation of 'centipede' might be irregular.

(4) Naze trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OOO	LLH ~ LLL(H)	3.1	<i>kibusi</i> 'smoke', <i>ʔakubi</i> 'yawn'
		3.3	<i>kugani</i> 'gold', <i>cikyara</i> 'strength'
		3.4	<i>takara</i> 'treasure'
		3.5	<i>ʔabura</i> 'fat', <i>ʔinuci</i> 'life'
OO]O	LHL(L)	3.2	<i>muka ʔi</i> 'centipede'
		3.4	<i>huku ʔo</i> 'bag'
		3.7	<i>kusu ʔi</i> 'medicine'
	HLL(L)	3.5	<i>hasi ʔa</i> ~ <i>ha ʔya</i> ~ <i>ha ʔa</i> 'pillar'
		3.7	<i>kuzi ʔa</i> 'whale'
OOO]	LLH(L)	3.6	<i>garasi ʔ</i> 'crow', <i>ʔunagi ʔ</i> 'eel'

The word for 'pillar' (3.5) has three alternative forms, i.e., *ha ʔira* ~ *ha ʔya* ~ *ha ʔa*. Since Hirayama, et al. list those forms without any discussion, we are not certain under what circumstances the alternative forms are uttered -- e.g., casual speech vs. careful speech -- and also whether some of their informants or all of the informants alternate the forms.

The pitch shapes of Naze final accent nouns are LLH(L). In (4), there are only two nouns in this category: *garasi ʔ* 'crow' and *ʔunagi ʔ* 'eel', and they correspond only to Myôgi-shô accent category 3.6.

5.2.1.2. Kamishiro Dialect

Considering the system as a whole, the accent system of Kamishiro dialect is one of the most complex ones among the Ryukyuan dialects because it utilizes two typologically different distinctions (i.e., locus accent and register).

In Kamishiro, there are high-register atonic, low-register atonic, penultimate, and final accents. High-register nouns are phonologically high-level, but their initial syllable is phonetically in low pitch. This is due to a phonetic rule which lowers the pitch of an unaccented initial syllable.

Low-register atonic nouns start in low and end in high pitch. When uttered without a particle, the final mora of the prosodic word rises in pitch. However, it is high when the prosodic word ends in a particle, e.g., *_hi*: LR 'tree', *_hi:-ga* LL-H 'tree (Nom.)'. This indicates that the TBU of Kamishiro accent is the mora. It also indicates the prosodic word is the domain of accent.

The third type of Kamishiro accentual pattern is penultimate accent. The accentuation of this type is only seen in trisyllabic nouns. The pitch shape of the accent is LHL in isolation, but LHL(L) when followed by a particle, e.g., *huku ru* LHL 'bag', *fuku ru-ga* LHL-L 'bag (Nom.)'. That is, the domain of the accent is a lexical word.

Regarding the fourth distinction, final accent, it is seen in longer words; monosyllables do not have this distinction. Final-accent disyllables are LF in isolation, but they are LH(L) when followed by a particle. Unlike final-accent disyllables, final-accent trisyllables are LLH(L) (i.e., without falling accent).

Monosyllables: There are two distinctive accent categories for monosyllabic nouns and both of them are atonic – there is no pitch fall, but nouns are distinguished by register: high-register and low-register. The high-

register nouns are in high pitch throughout a phrase. The low-register nouns are LR in their citation forms, but they become LL(H) in a phrase with a particle.⁵

By contrast with Naze monosyllabic nouns, all Kamishiro monosyllabic nouns are two moras long with vowel length.

The Kamishiro monosyllabic data show regular correspondences between the Kamishiro nouns and certain Myôgi-shô accent categories. More specifically, Kamishiro high-register monosyllabic nouns correspond to Myôgi-shô accent categories 1.1-2, and low-register nouns to Myôgi-shô category 1.3.

(5) Kamishiro monosyllabic accent⁶

Phonemic	Phonetic	Myô	List of nouns
̄oo	HH(H)	1.1	̄hi: 'hair', ̄ci: 'blood'
		1.2	̄ha: 'leaf', ̄na: 'name'
<hr/>			
_oo	LR ⁷ ~ LL(H)	1.3	_hi: 'tree', _mi: 'eye', _ha: 'tooth'

Disyllables: Kamishiro disyllabic nouns have three accent categories.

Two of them are atonic: high-register and low-register, and the other one is final accent.

Kamishiro has a phonetic rule for pitch shape. This rule lowers the pitch of the initial unaccented syllable if the syllable consists of one mora, e.g., ˉhana

⁵ According to Tokugawa (1958), Kamishiro monosyllables are in either CV: or CV. The former type is HH(H) pitch and the latter is R pitch (i.e., pitch rises within a syllable). Nouns with rising pitch are a little shorter than two-mora nouns, but a little longer than monomoraic nouns. He distinguishes them using CV: in contrast with CV: and CV in length. Furthermore, in Tokugawa's analysis, two-mora nouns become monomoraic when followed by a particle. Thus, for example, *hi*: HH 'hair' is *hi-nu* H-H, and *hi*: R 'tree' is *hi-nu* L-H.

⁶ The word for 'blood' is extracted from Kyûgakkai Rengô Amami Ô-shima Kyôdôchôsa Iinkai, ed. (1957).

⁷ This pitch shape is exactly the same as that of disyllabic low-atonic nouns, where the pitch rises within the second syllable. However, from Hirayama, et al. (1966), for CV: nouns, it is not clear whether the pitch rises at the end of the words or the pitch gradually rises within a word from the beginning of the words.

LH(H) 'nose' vs. $\bar{ta:ci}$ HHH(H) 'two'. Therefore, most of the high-register atonic nouns are phonetically LH(H); the word $\bar{ta:ci}$ 'two' is HHH(H). The word for 'two' is historically trisyllabic. As a result of losing one syllable, it became disyllabic; cf. *futatu* LHH(L) 'two' in Tokyo (Nihon Hôshô Bunka Kenkyûjo, (ed.). 1971), *futatu* HHL 'two' in Myôgi-shô (Mochizuki 1974). On the other hand, all Kamishiro low-register disyllabic nouns are LR in isolation, but LL(H) when pronounced with a particle.

(6) Kamishiro disyllabic accent⁸

Phonemic	Phonetic	Myô	List of nouns
\bar{OO}	LH(H)	2.1	\bar{hana} 'nose', $\bar{?usi}$ 'cow', $\bar{t}^h ui$ 'bird', \bar{hazi} 'wind'
		2.2	\bar{hasi} 'bridge', $\bar{?isi}$ 'stone'
		2.4	$\bar{?uni}$ 'sea', $\bar{?iki}$ 'breath'
		3.2	$\bar{ta:ci}$ 'two'
$_OO$	LR	2.3	$_hana$ 'flower', $_yama$ 'mountain'
	~ LL(H)	2.4	$[_kata]$ 'shoulder', $[_?ita]$ 'board', $[_ha:ri]$ 'needle'
		2.5	$_?ami$ 'rain'
OO]	LF ~ LH(L)/ LLH(L)	2.4	$hi:ni$]'boat', $?usi$]'mortar', $hasi$]'chopsticks'
		2.5	$haga$]'shadow'
	HL(L)/ HHL(L)	2.5	hui]'voice', wui]'bucket', $muQkwa$] 'bridegroom'
	LLH(L)	3.4	$?o:gi$]'fan'

⁸ Words for 'bird', 'boat', 'sea', 'breath', and 'rain' are taken from Kyûgakkai Rengô Amami Ôshima Kyôdôchôsa linkai, ed. (1957). Words in square brackets are written in *kanji* (Chinese characters) in the original sources (see Hirayama, et al. 1966: 159), but the discussion makes clear the vowel-length distinctions.

Synchronically all historically-disyllabic atonic nouns begin with low pitch, yet the difference between high-register and low-register nouns is that in the former the pitch rises after the first syllable, and in the latter the pitch rises at the end of a phrase.

As stated in 5.2.1, nouns with CVV structure such as $\bar{t}^h ui$ 'bird' are treated as disyllabic in this dissertation. We summarize the reasons as follows; (i) there is no reason why we have to treat them as monosyllabic, (ii) they are historically disyllabic, and (iii) Ryukyuan monosyllabic nouns are normally CV: structure.

Low-register atonic disyllabic nouns are phonetically LR in their citation forms, but LL(H) when followed by a particle. Most of the nouns are two-mora, but the word for 'needle' (2.4) has three moras, $_ha:ri$. The pitch shape of this word is not certain because Hirayama does not discuss the pitch shape of three-mora nouns in this category. However, based on Kamishiro (three-mora) trisyllabic low-register nouns, the word for 'needle' is probably LLR ~ LLL(H).

There are three allophonic subtypes of final-accent nouns. The first type is phonetically LF in isolation, but LH(L) when followed by a particle. Like other ordinary disyllables, this type of nouns has (C)V(C)V structure, with one exception; $hi:ni$ 'boat'. This word has a pitch shape of LLF ~ LLH(L).

The second type is HL(L) in the surface representation. The pitch shape of the words with CVV or /Q/ in the initial syllable is predictable. Words with CVV structure are HL(L), and words with CVQCV are HHL(L). Regarding the

word for 'bridegroom' (2.5), according to Serafim (1994),⁹ there are two possible explanations for the development of *muQkwa* 𑖦. First, the form might have resulted from an earlier form **mo:kura* because in Ryukyuan the morpheme *Qkwa* is derived from **kura* or **ku:ra*, cf. **kura* > *Qkwa* HL(L) 'child' in Shuri. In addition, the word for 'bridegroom' might have had an initial-syllable long vowel in an earlier form. A number of Ryukyuan dialects show the initial-syllable vowel length in their cognates. For example, in Shuri and Onna dialects of Okinawa Ryukyuan, their cognate forms show length. We will discuss the matter of vowel length in 5.3.3. The other explanation is that *muQkwa* 𑖦 has been contaminated by the word *makura* 'pillow' which resulted in *maQkwa* or the like in Ryukyuan. For example, the word *maQkwa* in Shuri is historically trisyllabic, cf. *makura* LLH 'pillow' in Myôgi-shô (Mochizuki 1974). In its history, the word lost a moraic segment, and in order to compensate the loss of the segment, the gemination of /k/ took place.

The third type of final-accent disyllabic noun in Kamishiro is phonetically LLH(L), and for this type there is only one example, e.g., *ʔo:gi* 𑖦 'fan'. This is historically a trisyllabic noun. In Mochizuki (1974), it is listed as *afuki* LLL 'fan' in Myôgi-shô.

The accentuation of Kamishiro words for 'breath' (2.4) and 'sea' (2.4) must be irregular because 2.4 nouns are usually either low-register or final-accent in Kamishiro. Notice that Kamishiro high-register nouns correspond to Myôgi-shô

⁹ More specifically, it is according to both Serafim (1994) and discussions with Dr. Leon A. Serafim during my writing this dissertation. For convenience, we cite only Serafim (1994).

category 2.1 or 2.2 and 'breath' and 'sea' are the only high-register nouns belonging to Myôgi-shô accent category 2.4.

Trisyllables: The Kamishiro trisyllables have a four-way accent system. In the system, there are high-register atonic, low-register atonic, penultimate-accent, and final-accent categories. They are phonetically realized as follows: LHH(H), LLR ~ LLL(H), LHL(L), and LLH(L) respectively. Notice that all Kamishiro trisyllabic nouns begin with low pitch because of a phonetic rule that lowers the pitch of an unaccented initial syllable. While the pitch rises after the first syllable in high-register atonic nouns, in low-register atonic nouns the pitch rises at the end of the phrase.

As far as our data are concerned, high-register trisyllabic nouns correspond to Myôgi-shô accent category 3.1, and the low-register trisyllables to Myôgi-shô category 3.4. Penultimate-accent nouns are either category 3.4 or 3.7 in Myôgi-shô, and the final-accent noun, *garasi* ʔ 'crow', corresponds to Myôgi-shô accent category 3.6. The data in (7) lack nouns corresponding to Myôgi-shô accent categories 3.2, 3.3, and 3.5.

(7) Kamishiro trisyllabic nouns

Phonemic	Phonetic	Myô	List of nouns
ˉOOO	LHH(H)	3.1	ˉ <i>hibusi</i> 'smoke', ˉ <i>ʔakubi</i> 'yawn', ˉ <i>sirusi</i> 'mark'
ˌOOO	LLR ~ LLL(H)	3.4	ˌ <i>hagani</i> 'mirror', ˌ <i>takara</i> 'treasure'
OOˌO	LHL(L)	3.4 3.7	<i>huku</i> ʔru 'bag' <i>guzi</i> ʔya 'whale'
OOOˌ	LLH(L)	3.6	<i>garasi</i> ʔ 'crow'

5.2.1.3. Kametsu Dialect¹⁰

In the Kametsu dialect, there are three types of accentuation: atonic, penultimate accent, and final accent. Atonic nouns are phonetically low-pitched on the initial syllable; monosyllables are high-level.

For penultimate-accent nouns, the penultimate syllable is high in pitch and the rest are low-pitched, e.g., *muda* ̂di LHL 'centipede', *muda* ̂di-ga LHL-L 'centipede (Nom.)'. When the penultimate syllable consists of two moras, the pitch falls between the moras, e.g., *gun* ̂za HLL 'whale'. In addition, there are no penultimate-accent monosyllables.

In final-accent nouns, the pitch falls within a final mora, and the rest of moras in words are low in pitch, when uttered without a particle. However, they are final-mora-high when followed by a particle, e.g., *yama* LF 'mountain', *yama-ga* LH-L 'mountain (Nom.)'. This is very similar to Kyoto (see 6.2.2).

Monosyllables: In Kametsu, there are atonic and final-accent monosyllabic nouns. Atonic nouns are phonetically high-level, but the phonetic pitch shape of the tonic nouns is rather complex, with two types. One is LF in isolation, but HH(L) when used in a phrase. The other type is HL(L) both in isolation and used in a phrase.

¹⁰ Most of the nouns listed here are taken from Hirayama, et al. (1966), unless other sources are indicated, except bold-faced words (Hattori 1979b).

(8) Kametsu monosyllabic accent¹¹

Phonemic	Phonetic	Myô	List of nouns
oo	HH(H)	1.1	<i>kî:</i> 'hair', <i>ci:</i> 'blood'
		1.2	<i>ha:</i> 'leaf', <i>na:</i> ¹² 'name'
oo]	LF ~ HH(L)	1.3	<i>kî:</i>]'tree', <i>mî:</i>] ³ 'eye', <i>ha:</i>]'tooth'
	HL(L)	2.3	<i>ʔin</i>]'dog'
		2.4	<i>ʔun</i>]'sea'

On the basis of our data above, the pitch shape of the HL-nouns is predictable. That is to say, the pitch falls after the initial mora when the second mora is a nasal, i.e., *ʔin*]HL(L) 'dog' and *ʔun*]HL(L) 'sea'. Furthermore, these nouns with a moraic nasal are historically disyllabic; cf. *inu* LL 'dog', *umi* LH 'sea' in Myôgi-shô (Mochizuki 1974).

Notice that some of the monosyllabic nouns listed above may be monomoraic, e.g., *na* 'name' and *mî*]'eye' (see also footnote 11).

Our data show that there are regular correspondences between Kametsu monosyllabic accent and Myôgi-shô accent; Kametsu monosyllabic atonic nouns correspond to Myôgi-shô categories 1.1-2, and tonic nouns to Myôgi-shô category 1.3.

Disyllables: For disyllabic nouns, there are three types of accentuation in Kametsu. They are atonic, penultimate accent, and final-falling accent, and are phonetically realized as LH(H), HL(L), and LF ~ LH(L) respectively.

¹¹ Hirayama, et al. (1966: 149) states that Kametsu monosyllabic nouns are generally two moras long with a long vowel, but they are occasionally pronounced as monomoraic words. For example, *ha:*]'tooth' is occasionally pronounced as *ha*]F, *ha*]-nu H-L.

¹² This is from Hirayama (1986); in Hattori (1979b), it is described as *na* 'name'.

¹³ This is taken from Hirayama (1986); this is *mî*]'eye' in Hattori (1979b).

(9) Kametsu disyllabic accent¹⁴

Phonemic	Phonetic	Myô	List of nouns
OO	LH(H)	2.1	<i>hana</i> 'nose', <i>ʔusi</i> 'cow', <i>tʰur</i> ¹⁵ 'bird', <i>kʰusi</i> 'loins', <i>sigi</i> 'beard', <i>kʰadɪ</i> 'wind'
		2.2	<i>ʔisi</i> 'stone', <i>kabi</i> 'paper', <i>hasi</i> 'bridge'
		3.2	<i>ta:ci</i> 'two' ¹⁶
Oŋ	HL(L)	2.3	<i>hu ɲɪ</i> 'bone'
		2.4	<i>hu ɲɪ</i> 'boat', <i>ha ɲi</i> 'needle', <i>ʔu ɲɪ</i> 'mortar', <i>ʔi kʰɪ</i> 'breath',
		2.5	<i>kʰu ɲi</i> 'voice', <i>kʰa ɲɪ</i> ¹⁷ 'shadow'
		3.4	<i>hu ɲoku</i> 'bag', <i>o ɲi</i> 'fan'
		3.5	<i>ha ɲa</i> 'pillar',
		3.6	<i>ga ɲa</i> 'crow', <i>mi ɲa</i> 'earthworm'
		3.7	<i>gun ɲa</i> 'whale'
OOŋ	LF ~ LH(L)	2.3	<i>hana ɲ</i> 'flower', <i>yama ɲ</i> 'mountain', <i>kʰumo ɲ</i> 'cloud'
		2.4	<i>kʰata ɲ</i> 'shoulder'
		2.5	<i>ʔami ɲ</i> 'rain', <i>ʔasi ɲ</i> 'sweat', <i>ʔuki ɲ</i> ¹⁸ 'bucket'
		3.5	<i>ʔamba ɲ</i> 'fat'

Our synchronic analysis of Kametsu disyllabic nouns shows that they are either two moras or three moras long. Of those, historically disyllabic nouns appear to be two-mora in Kametsu, but historically trisyllabic nouns which have

¹⁴ Kametsu disyllabic nouns such as 'bird', 'stone', 'breath', 'bone', 'boat', 'mortar', 'voice', 'shadow', 'mountain', 'rain', and 'sweat' are available on the word list in Chapter 5 of Hirayama, et al. (1966), but the accent of those words is not marked at all.

¹⁵ The vowel /ɪ/ in the word *mi* 'eye' (Hattori 1979a) corresponds to /i/ in Hirayama, et al. (1966). With regard to disyllabic nouns, however, in the initial syllable Hattori's vowel /ɪ/ corresponds to /i/ in Hirayama, et al., and in the final syllable Hattori's /ɪ/ corresponds to /i/ in Hirayama, et al.

Hattori	Hirayama, et al.	
ʔisi	ʔisi	'stone'
ʔikʰɪ	ʔikɪ	'breath'

¹⁶ This is extracted from Kyûgakkai Rengô Amami Ô-shima Kyôdôchôsa Iinkai, ed. (1957).

¹⁷ Hattori seems to phonetically distinguish [i] from [ɪ] in his description. Both symbols correspond to /i/ in Hirayama, et al. (1966).

¹⁸ This is from Hirayama (1986).

become disyllabic are usually three-mora, e.g., *hu* ʔku 'bag' (3.4). Compared with Japanese cognate forms (e.g., *fukuro* in Tokyo and Kyoto), it is obvious that those words have become disyllabic after losing a syllable. Furthermore, there are also disyllabic two-mora nouns derived from original trisyllabic forms. Examples are *o* ʔi 'fan', *ha* ʔa 'pillar', *ga* ʔa 'crow', and *mi* ʔda 'earthworm', cf. Myôgi-shô cognates for these words, respectively *afuki* LLL 'fan', *fasira* LLH 'pillar', *karasu* LHH 'crow', and *mimizu* LHH 'earthworm' (Mochizuki 1974).

Most of the Kametsu disyllabic atonic nouns correspond to Myôgi-shô categories 2.1-2, except for *ta:ci* 'two' (3.2). Kametsu disyllabic tonic nouns generally correspond to Myôgi-shô 2.3-5 accentuation, with the exception of historically-trisyllabic nouns. Moreover, some of Myôgi-shô 2.3-5 nouns correspond to Kametsu penultimate accent and others to final accent.

Trisyllables: Kametsu trisyllabic nouns have a three-way accent distinction: atonic, penultimate accent, and final accent, and they are phonetically LHH(H), LHL(L), and LLF ~ LLH(L) respectively. The structure of the trisyllabic nouns is (C)VCVCV.

Based on our original word list, we have analyzed Kametsu trisyllabic accent as in (10a), which lacks nouns corresponding to Myôgi-shô categories 3.2-3, 3.5, and 3.7. From this, we do not know what type of accentuation those cognates have in Kametsu. In order to know what type of accentuation those missing cognates have and also to know whether or not there are even more accent distinctions for Kametsu trisyllables, we have expanded our word list. In addition to our original word list, most of the words are added from Hirayama,

ed. (1986), except for the ones for 'eel' and 'rabbit' (Hirayama 1966). The result of this investigation is shown in (10b).

(10) Kametsu trisyllabic accent

(a) Analysis of Kametsu trisyllabic accent limited to our original word list

Phonemic	Phonetic	Myô	List of nouns
OOO	LHH(H)	3.1	<i>sirusi</i> 'mark', <i>k'ibusi</i> 'smoke', <i>ïakubi</i> 'yawn'
OO]O	LHL(L)	3.6	<i>ïuna</i>]gi 'eel'
OOO]	LLF ~ LLH(L)	3.4	<i>kagami</i>]'mirror'

(b) Analysis of Kametsu trisyllabic accent with an expanded word list

Phonemic	Phonetic	Myô	List of nouns
OOO	LHH(H)	3.1	<i>sirusi</i> 'mark', <i>k'ibusi</i> 'smoke', <i>ïakubi</i> 'yawn'
		3.2	<i>sakura</i> 'cherry'
		3.3	<i>cikyara</i> 'strength'
		3.6	<i>hadaka</i> 'naked'
OO]O	LHL(L)	3.2	<i>muka</i>]re 'centipede' ¹⁹
		3.4	<i>kata</i>]na 'sword'
		3.5	<i>huta</i>]ru 'firefly', <i>ïiga</i>]ta 'figure'
		3.6	<i>ïuna</i>]gi 'eel', <i>hada</i>]si 'barefoot', <i>siza</i>]i 'left', <i>ïuna</i>]gi 'eel', <i>nizi</i>]mi 'mouse', <i>ïusa</i>]gi 'rabbit'
		3.7	<i>kusu</i>]i 'drug', <i>cuba</i>]ki 'camellia'
OOO]	LLF ~ LLH(L)	3.4	<i>kagami</i>]'mirror', <i>hasami</i>]'scissors', <i>sikari</i>] 'light'
		3.5	<i>ïinuci</i>]'life' ²⁰

The data in (10b) reveal that Kametsu trisyllables with atonic accent correspond to Myôgi-shô 3.1-3 and 3.6, ones with penultimate accent to Myôgi-shô 3.2 and 3.4-7, and ones with final accent to Myôgi-shô 3.4-5. This is rather

¹⁹ The Kametsu cognate for 'centipede' is taken from Uemura Kouji (1959).

²⁰ There is another form for 'life' in the same source; *ïinoci*] (Hirayama 1986: 832).

systematic except for two nouns with possible irregular accentuation: *hadaka* 'naked' (3.6) and *muka ɽe* 'centipede' (3.2). If they turn out to be irregular, we would have an accent system that Kametsu atonic and penultimate accent nouns respectively correspond to Myôgi-shô 3.1-3 (high-register) and Myôgi-shô 3.4-7 (low-register). Because many Kametsu historically-trisyllabic nouns have become disyllabic, We are not able to find other 3.2- and 3.6-cognates in order to determine whether or not the words in question are regular.

5.2.2. Correspondences and Reconstruction of Proto-Amami accent

Presenting correspondences among the three Amami dialects, in this section, we are going to show our reconstructed accentual forms for monosyllables, disyllables, and trisyllables.

Monosyllables: Based on the following two sets of correspondences, in principle we are able to reconstruct two accentual categories for Proto Amami (PA) monosyllabic nouns. One of our proto accentual patterns is high-level atonic, and the other is final accent. PA monosyllables are two moras long. This means that in the Naze line they evolved into monomoraic, while the other two dialects have retained the length.

Except for the word meaning 'dog', reconstructed monosyllables listed above are historically monosyllabic. The word for 'dog' is historically disyllabic; however, it is monosyllabic in modern Amami dialects. Thus we have to reconstruct it as a monosyllable for PA. At the time of PA, it had already become monosyllabic.

(11) Reconstructed PA accent for monosyllabic nouns

(a)		Naze	Kamishiro	Kametsu	PA
		O	oo	oo	*oo
		[H ~ L(H)]	[HH(H)]	[HH(H)]	[HH(H)]
'hair'	(1.1)	k ^h i	hi:	k ^h i:	*k ^h i:
'blood'	(1.1)	ci	ci:	ci:	*ci:
'leaf'	(1.2)	ha	ha:	ha:	*ha:
'name'	(1.2)	na	--	na:	*na:

(b)		Naze	Kamishiro	Kametsu	PA
		O	oo	oo	*oo
		[H ~ L(H)]²¹	[LR ~ LL(H)]	[LF ~ HH(L)]²²	[LH(L)]
'tree'	(1.3)	k ^h i	hi:	k ^h i:	*k ^h i:
'eye'	(1.3)	mī	mi:	mi:	*mī:
'tooth'	(1.3)	ha	ha:	ha:	*ha:
'dog'	(2.3)	?in	--	?in	*?in

All of the Naze dialect forms have lost PA vowel length. The reason for proposing vowel length in PA monosyllables is mainly based on a phenomenon of long-vowel shortening in Japonic languages. For example, PO **mu: ku* 'bridegroom' became *mu hu* in Nakijin, cf. *_mu:ku* in Shuri. Furthermore, this vowel length in the initial syllable is deeply related with the accent system of Ryukyuan languages (see 5.3.3).

Disyllables: As shown below, there are three sets of accentual correspondences. For convenience, we summarize the correspondences of accent categories and reconstructed PA accent categories in (12), and nouns that we have actually reconstructed are listed in (13).

²¹ For 'dog', its pitch shape is LH ~ LL(H).

²² The pitch shape of the word for 'dog' is HL(L).

(12) Summary of accentual correspondences and reconstruction of PA accent for disyllabic nouns

	Naze	Kamishiro	Kametsu	PA
(a)	OO [LH ~ LL(H)]	$\overline{\text{OO}}$ [LH(H)] ²³	OO [LH(H)]	*OO [HH(H)]
(b)	OO [LH ~ LL(H)]	$\overline{\text{OO}}$ [LR ~ LL(H)]	OO] [LF ~ LH(L)]	*OO] [LH(L)]
(c)	O]O [HL(L)]	OO] [LF ~ LH(L)] ²⁴	O]O [HL(L)]	*O]O [HL(L)]

On the basis of those, we propose three accent categories for PA disyllabic nouns. The categories are high-level atonic, final accent, and penultimate accent. That is, the PA disyllables distinguish one from another by locus. Notice that the accent system of Kametsu dialect is phonemically identical to that of PA.

(13) Reconstructed PA disyllabic nouns

(a)		Naze	Kamishiro	Kametsu	PA
		OO [LH ~ LL(H)]	$\overline{\text{OO}}$ [LH(H)]	OO [LH(H)]	*OO [HH(H)]
'nose'	(2.1)	hana	$\overline{\text{hana}}$	hana	*hana
'cow'	(2.1)	?usi	$\overline{\text{usi}}$	?usi	*?usi
'bird'	(2.1)	t ^h uri	$\overline{\text{t}^{\text{h}}\text{ui}}$	t ^h ui	*t ^h uri
'loins'	(2.1)	k ^h usi	--	k ^h usi	*k ^h usi
'beard'	(2.1)	higi	--	sigi	*higi
'wind'	(2.1)	hazye	$\overline{\text{hazi}}$	k ^h adi	*k ^h azi
'stone'	(2.2)	?isi	$\overline{\text{?isi}}$	?isi	*?isi
'paper'	(2.2)	k ^h abi	--	k ^h abi	*k ^h abi
'bridge'	(2.2)	hasi	$\overline{\text{hasi}}$	hasi	*hasi
'two'	(3.2)	ta:ci	$\overline{\text{ta:ci}}$	ta:ci	*ta:ci

²³ The word for 'two' is HHH(H).

²⁴ The pitch shape of 'voice', 'bucket', and 'bridegroom' are HL(L), and 'fan' has LH(L) pitch.

(b)		Naze OO [LH ~ LL(H)]	Kamishiro _OO [LR ~ LL(H)]	Kametsu OO] [LF ~ LH(L)]	PA *OO] [LH(L)]
'flower'	(2.3)	hana	_hana	hana]	*hana]
'mountain'	(2.3)	yama	_yama	yama]	*yama]
'cloud'	(2.3)	kumu	--	k ^h umo]	*k ^h umu]
'shoulder'	(2.4)	k ^h ata	[_kata]	k ^h ata]	*k ^h ata]
'rain'	(2.5)	?ami	_?ami	?ami]	*?ami]
'sweat'	(2.5)	?asi	--	?asi]	*?asi]
'board'	(2.4)	?ita	[_?ita]	--	*?ita]
'tears'	(3.5)	nada	--	--	*nada]

(c)		Naze O]O [HL(L)]	Kamishiro OO] [LF ~ LH(L)]	Kametsu O]O [HL(L)]	PA *O]O [HL(L)]
'bone'	(2.3)	hu]nĩ	--	hu]nĩ	*hu]nĩ
'mortar'	(2.4)	?u]si	usi]	?u]si	*?u]si
'chopsticks'	(2.4)	ha]si	hasi]	--	*ha]si
'shadow'	(2.5)	k ^h a]gẽ	haga]	k ^h a]gĩ	*k ^h a]gĩ
'boat'	(2.4)	hu]nĩ	hi:ni]	hu]nĩ	*hu:]nĩ
'needle'	(2.4)	ha]ri	[ha:ri]	ha]ri	*ha:]ri
'voice'	(2.5)	k ^h u]i	hui]	k ^h u]i	*k ^h u]i
'bridegroom'	(2.5)	mo]ho	muQkwa]	(muQkwa) ²⁵	*mu]kwa
'bucket'	(2.5)	u]hĩ	wui]	uki]	*wu]k ^h i
'breath'	(2.4)	?i]ki	?iki]	?i]ki	*?i]ki
'sea'	(2.4)	?u]mi	?uni]	?u]n	*?u]mi
'fan'	(3.4)	?o:]gi ~ ?u]gi	o:]gi]	?o:]gi	*?o:]gi

The vowel /o/ in the Kametsu word *k^humo* 'cloud' (13b) is irregular because the vowel /o/ normally does not appear in Kametsu. In Kametsu, the vowel /u/ corresponds to the vowel /o/ in most of mainland Japanese.

In (13c), the Kamishiro words *?iki* 'breath' and *?uni* 'sea' have irregular accent. For explanations, see discussion in 5.2.1.2 above. In the same

correspondence set, the Kametsu cognate for 'bucket' has irregular accentuation, as well. Kametsu cognates in this correspondence set are penultimate accent.

With regard to nouns corresponding to Myôgi-shô accent category 2.3, almost all of 2.3-cognates are in (13b); one in (13c).²⁶

Trisyllables: For PA trisyllabic nouns, we have reconstructed four accent categories on the basis of the following four sets of correspondences.

(14) Summary of accentual correspondences and reconstruction of PA accent for trisyllabic nouns

	Naze	Kamishiro	Kametsu	PA
(a)	OOO [LLH ~ LLL(H)]	<u>OOO</u> [LHH(H)]	OOO [LHH(H)]	*OOO [HHH(H)]
(b)	OOO [LLH ~ LLL(H)]	<u>OOO</u> [LLR ~ LLL(H)]	OOO] [LLF ~ LLH(L)]	*OOO] [LLH(L)]
(c)	OO]O [LHL(L)]	OO]O [LHL(L)]	OO]O [LHL(L)]	*OOO) [LHF ~ LHH(L)]
(d)	OOO] [LLH(L)]	OOO] [LLH(L)]	OO]O [LHL(L)]	*OO]O [LHL(L)]

As shown in (14), they are */OOO/, */OOO]/, */OOO)\, and */OO]O/.

Like PA monosyllabic and disyllabic accent, PA trisyllabic accent has a locus system. Among the Amami Ryukyuan dialects, the Kamishiro dialect is the only one that utilizes both register and locus. Moreover, in PA trisyllables, final accent (*/OOO]/) is distinguished from final-falling accent */OOO)\. The

²⁵ The accentuation of this is not available (Hirayama 1966: 307).

²⁶ Our investigation on the accentuation of twelve 2.3-cognates shows a similar pattern that eleven 2.3-cognates belong to (13b), and one cognate for 'flea' (i.e., *no imi* in both Naze and Kametsu) has the same pattern as in (13c). Cognates that we have investigated are 'net', 'mud', 'grave', 'pigeon', 'color', 'tortoise', 'god', 'rice', 'weed', 'parent', 'moon', and 'flea'.

following correspondence sets contain cognates not included on our word list. We have added them in order to see more general patterns in correspondences in terms of Myôgi-shô accent categories. For example, without added data, we would not be able to know that Naze and Kametsu 3.2-cognates also show a regular pattern for the correspondence in (15a); the 3.2-cognate for 'centipede' seems to have irregular accentuation (see also below). Additional data are shown in boldface; Kametsu cognates are from Hirayama (1986), and Naze cognates are extracted from Hirayama (1992).

Nouns in (15a) regularly correspond to Myôgi-shô 3.1-3 accent categories, in which nouns start in high pitch. Cognates in (15b) are 3.4-5 nouns and they are all low-initial in Myôgi-shô. In (15c), there are nouns corresponding to 3.2 (high-register) and 3.4-7 (low-register). Many of nouns are 3.4-7 nouns, and 3.2-noun is only one, i.e., 'centipede'. This leads us to think that the 3.2-noun must have irregular accentuation. In (15d), nouns correspond only to Myôgi-shô accent category 3.6.

(15) Reconstructed PA trisyllabic nouns

(a)		Naze	Kamishiro	Kametsu	PA
		OOO	[~] OOO	OOO	*OOO
		[LLH	[LHH(H)]	[LHH(H)]	[HHH(H)]
		~ LLL(H)]			
'mark'	(3.1)	sirusi	[~] sirusi	sirusi	*sirusi
'smoke'	(3.1)	k ^h ibusi	[~] hibusi	k ^h ibusi	*k ^h ibusi
'yawn'	(3.1)	?akubi	[~] akubi	?akubi	*?akubi
'cherry'	(3.2)	sakura	--	sakura	* sakura
'red beans'	(3.2)	?aziki	--	(mamami)	* aziki
'strength'	(3.3)	cikyara	--	cikyara	*cikyara
'gold'	(3.3)	k ^h ugani	--	--	*k ^h ugani

(b)		Naze OOO [LLH ~ LLL(H)]	Kamishiro _OOO [LLR ~ LLL(H)]	Kametsu OOO [LLF ~ LLH(L)]	PA *OOO [LLH(L)]
'mirror'	(3.4)	k ^h agan	_hagani	k ^h agami	*k ^h agami
'treasure'	(3.4)	t ^h akara	_takara	--	*t ^h akara
'light'	(3.4)	hikyari	--	sikyai	*hikari
'calendar'	(3.4)	kuyumi	--	--	*kuyumi
'fat'	(3.5)	?abura	--	?amba	*?abura
'life'	(3.5)	?inuci	--	?inuciṽ	*?inuci
'pillow'	(3.5)	makura	--	maQkwa	*makura
'cousin'	(3.5)	?itoko	--	--	*?itoko

(c)		Naze OO]O [LHL(L)]	Kamishiro OO]O [LHL(L)]	Kametsu OO]O [LHL(L)]	PA *OOO [LHF ~ LHH(L)]
'centipede'	(3.2)	muka]zi	--	muka]re	*mukazi]
'bag'	(3.4)	huku]ro	huku]ru	hu]Qku	*hukuru]
'sword'	(3.4)	kata]na	--	kata]na	*katana]
'pillar'	(3.5)	hasi]ra ²⁷	--	ha]ra	*hasira]
'figure'	(3.5)	sigata	--	sigata	*sigata]
'rabbit'	(3.6)	usa]gi	--	usa]gi	*usagi]
'drug'	(3.7)	k ^h usu]ri	--	kusu]ri	*k ^h usuri]
'whale'	(3.7)	kuzi]ra	guzi]ya	gu]nza	*kuzira]

(d)		Naze OOO] [LLH(L)]	Kamishiro OOO] [LLH(L)]	Kametsu OO]O [LHL(L)]	PA *OO]O [LHL(L)]
'eel'	(3.6)	unagi]	--	?una]gi	*?una]gi
'crow'	(3.6)	garasi]	garasi]	ga]ra	*gara]si
'earth- worm'	(3.6)	më:za]	--	mī]da	*më(C)ë]za

There are obvious disyllabic words on our list of correspondences for trisyllables. For example, in Kametsu the corresponding noun for the cognate 'crow' (15d) is *ga]ra*. However, in both Naze and Kamishiro, their cognate form is trisyllabic, and thus we are able to reconstruct a trisyllabic form for PA 'crow'.

Another example, a more complex one, is for 'earthworm' (15d). In Naze its cognate is *më:za* ʔ, in Kamishiro it is not available, and in Kametsu *mi* ʔ*da*. The Naze form indicates that the word used to be trisyllabic; the vowel /ë:/ must have come from a sequence of two vowels, i.e., CV(C)V.²⁸ Therefore, we are able to reconstruct **më(C)ëza* ʔ 'earthworm'. However, we do not know the values of the consonant in the second syllable on the basis of the data.

The vowel /o/ in the word *huku* ʔ*o* 'bag' is irregular because a vowel corresponding to the Japanese vowel /o/ is generally /u/ in Naze. Therefore, we have reconstructed /u/ in the final syllable of the PA noun for 'bag'. Concerning the word meaning 'whale' (15c), the Kamishiro and Kametsu forms have a /g/ at the word-initial position, while the Naze form has a /k/. In Ryukyuan, nouns related to animals tend to begin in a voiced consonant, e.g., *gani* 'crab' (Serafim 1993). Ryukyuan dialects seem to have developed this characteristic, because it is not found in the Japanese language.

5.2.3. Discussion on Methods for Reconstruction

In this section, we demonstrate how we arrived at our reconstruction of the PA accent system by using Amami monosyllabic accent as an example. Our methods are primarily based on simplicity and naturalness of the development of modern accentuation from a proto language. There are three procedures that we follow in order to determine our reconstruction of a proto accent system.

²⁷ This word has alternative forms: *ha* ʔ*ya* and *ha* ʔ*a* (Hirayama, et al 1966: 125)

²⁸ In the discussion of the vowel /ë/ in *më:za* ʔ 'earthworm' with Dr. Leon A. Serafim, he pointed out that the vowel /ë/ is derived from a sequence of two vowels.

First, we present all possible hypotheses for PA monosyllabic accent. Second, we examine which hypothesis can account for the development of modern accent systems from the PA accent in the simplest manner; i.e., the fewer the changes, the simpler a hypothesis is. Third, we also examine whether sound changes involved in the hypotheses are natural, including ordering of the changes. Furthermore, the rules of sound change occurring in a language generally affect all words that meet conditions for application of the rules. In other words, in general there are no rules that apply to, for example, disyllabic nouns, but not to trisyllabic nouns, where both types of nouns have the same phonological or phonetic structure – the only difference is in the number of syllables or moras. If we can account for the development of a modern accent system as a whole from its proto form by the same set of rules, we do not have to propose a separate set of rules for monosyllables, disyllables, and trisyllables, unless there is a reason to do so.

With regard to reconstruction of PA accent, there are eight logically-possible accent systems for PA monosyllabic nouns, as shown below.

(16) Eight possible accentual patterns of PA for monosyllabic nouns

- | | | | |
|--|---------------------------|----------------------------|---|
| (i) (a) * [–] oo
(b) * _– oo | (ii) (a) *oo
(b) *oo] | (iii) (a) *oo
(b) *o]o | (iv) (a) *o]o
(b) *oo |
| (v) (a) *oo]
(b) *oo | (vi) (a) *o]o
(b) *oo] | (vii) (a) *oo]
(b) *o]o | (viii) (a) * [–] oo]
(b) * _– oo] |

It should be noted that the Naze type of accentuation (i.e., /O/ for all monosyllables) is not reconstructable as proto accentuation. The reason is that there are no distinctive accent categories in Naze, and also because there is no phonetic/phonological motivation for the development of two distinctive accent

categories in Kamishiro and Kametsu from a non-distinctive system like that of Naze.

Furthermore, there is another reason for excluding the Naze type of accentuation, that is, in Naze dialect there had been a historical shortening (i.e., /OO/ > /O/), but not lengthening (i.e., /O/ > /OO/). For example, historical disyllables such as 'fly' and 'ash' are *hë* (Hirayama 1982); cf. *fafe* 'fly' and *fafi* 'ash' in Myôgi-shô.

(17) Rejected hypothesis

PA		Naze
*O	=	O
PA		Kamishiro
*O	>	^ˉ oo
	>	_ˉ oo
PA		Kametsu
*O	>	oo
	>	oo]

Among the eight possible reconstructed forms, we choose (16ii) as our reconstruction because it accounts for the development of modern accentuation in the simplest and most natural ways. For example, under the hypothesis in (16ii), we would have the following processes for the development of accent in Naze, Kamishiro, and Kametsu. In Naze, proto categories merged into one by means of Final Accent Loss (F-loss) and became monosyllabic. Kametsu monosyllabic accentuation has retained the proto accent system. In Kamishiro, monosyllabic nouns underwent one change: Final Accent Loss.

(18) Development of modern accentuation from PA */oo/ and */oo]/
(hypothesis in (16ii))

(i) Naze monosyllabic accent

PA	F-loss
(a) *oo	> oo > O
(b) *oo]	

(ii) Kamishiro monosyllabic accent

PA	F-loss
(a) *oo	≈ ²⁹ [—] oo
(b) *oo]	> _— oo

(iii) Kametsu monosyllabic accent

PA	
(a) *oo	= oo
(b) *oo]	= oo]

Compared with our hypothesis, we demonstrate that under the other seven hypotheses the Amami dialects have to undergo more complex changes – some of the hypotheses suggest unnatural sound changes as well.

First, if the hypothesis in (16i) were correct, we would expect the following course of accentual development. In Naze, PA monosyllables lost their register distinctions; all PA monosyllabic nouns became atonic in the Naze line. Later these nouns underwent monosyllabification; i.e., /oo/ > /O/.

²⁹ Throughout this dissertation, the symbol “≈” means that word-initial pitch became distinctive without being directly affected by any of the sound change rules (i.e., Accent Shift, Initial Accent Gain, and Final Accent Loss). For example, in (22ii) the Final Accent Loss rule did not apply to PA */oo/ [LL(L)], but the change from a non-distinctive atonic /oo/ to low-register atonic took place due to the loss of the accent in the other category /oo]/ [HH(L)], becoming high-register atonic.

The merger of PA */^ˉoo/ and */_oo/ is due to Abductive Change.

This change merges accent categories when speakers of a language started to neutralize accent distinctions. Accent distinctions involved in a merger are phonetically similar to each other. Thus, we consider this change is natural.

(19) Development of modern accentuation from PA */^ˉoo/ and */_oo/ (hypothesis (16i))

(i) Naze monosyllabic accent

		abductive		
PA		change		
(a) */ ^ˉ oo				
	>	oo	>	O
(b) */_oo				

(ii) Kamishiro monosyllabic accent

PA		
(a) */ ^ˉ oo	=	^ˉ oo
(b) */_oo	=	_oo

(iii) Kametsu monosyllabic accent

PA	I-gain		shift
(a) */ ^ˉ oo	=	oo	= oo
(b) */_oo	>	o]o	> oo]

By contrast, in the Kamishiro line its monosyllables have kept PA accent system – there has been no change at all.

With regard to the Kametsu dialect, if the hypothesis in (16i) were correct, the accentuation of Kametsu monosyllabic nouns would have resulted from undergoing Initial Accent Gain (I-gain) and Accent Shift (shift).

Comparing our hypothesis with (16i), we claim that our hypothesis is more reasonable because our explanations for the development of all the three Amami accent systems as a whole are simpler than ones in (16i). In our hypothesis the development of Kametsu involves no sound-change rules, while in (16i) Kametsu resulted from Initial Accent Gain and Accent Shift.

If the hypothesis in (16iii) were correct, the development of the modern Amami Ryukyuan dialects shown below would follow. Unlike the hypothesis in (16i) and (16ii), none of the modern accent systems has kept PA accent system. In both Naze and Kamishiro, Accent Shift and Final Accent Loss took place. And in Kametsu, the Accent Shift rule converted the PA */o]o/ to /oo]/. According to this hypothesis, the register distinctions in modern Kamishiro are secondary.

(20) Development of modern accentuation from PA */oo/ and */o]o/
(hypothesis (16iii))

(i) Naze monosyllabic accent

PA	shift	F-loss			
(a) *oo	=	oo	>	oo	>
(b) *o]o	>	oo]			

(ii) Kamishiro monosyllabic accent

PA	shift	F-loss		
(a) *oo	=	oo	>	⁻ oo
(b) *o]o	>	oo]	>	₋ oo

(iii) Kametsu monosyllabic accent

PA	shift	
(a) *oo	=	oo
(b) *o]o	>	oo]

If we reconstructed the PA accent system as in (16iv), we would have a very complex process for the accentual development of the Amami dialects. The Naze and Kamishiro dialects would have had the same sound changes, but would have developed different accentual systems. More specifically, in Naze, PA accent categories would have merged into one, namely atonic. On the other hand, in Kamishiro, when the Final Accent Loss rule eliminated the accent from /oo]/ (< PA */o]o/), the language would have developed register distinctions according to the initial pitch height.

(21) Development of modern accentuation from PA */oo/ and */o]o/ (hypothesis (16iv))

(i) Naze monosyllabic accent

PA	shift	F-loss			
(a) */o]o	>	oo]	>	oo	> O
(b) */oo	=	oo			

(ii) Kamishiro monosyllabic accent

PA	shift	F-loss		
(a) */o]o	>	oo]	>	⁻ oo
(b) */oo	=	oo	≈	₋ oo

(iii) Kametsu monosyllabic accent

PA	shift	I-gain	F-loss	shift	
(a) */o]o	>	oo]	=	oo]	> oo = oo
(b) */oo	=	oo	>	o]o	= o]o > oo]

Similar to the discussion on the hypothesis in (16iii), the phonetic pitch shape of /oo/ and /oo]/ would have had to be LL(L) and HH(L) respectively at the time when the language developed the register distinctions. Kametsu would

have had the most complex course in its accentual development, undergoing four sound changes. The complexity involved in this hypothesis hinders our consideration of it.

If we chose to reconstruct a proto accent system as in (16v), the development of each accent system for the dialects as a whole is a little more complex than that of ours. Our hypothesis has one less sound change than (16v) for each dialect. As with the other hypotheses mentioned so far, in hypothesis (16v), accent merger occurred in Naze, but in Kamishiro the development of register resulted, as well. Needless to say, in Kamishiro PA */oo]/ and */oo/ would have been HH(L) and LL(L) respectively; otherwise we would not expect the Kamishiro dialect to develop register distinctions.

(22) Development of modern accentuation from PA */oo]/ and */oo/
(hypothesis (16v))

(i) Naze monosyllabic accent

PA	F-loss	
(a) */oo]	>	oo > O
(b) */oo		

(ii) Kamishiro monosyllabic accent

PA	F-loss
(a) */oo]	> ¯oo
(b) */oo	≈ _oo

(iii) Kametsu monosyllabic accent

PA	I-gain	F-loss	shift
(a) */oo]	= oo]	> oo	= oo
(b) */oo	> o]o	= o]o	> oo]

As shown in (23), if the hypothesis in (16vi) is correct, there would be more sound changes than in our hypothesis. Notice that Naze, Kamishiro, and Kametsu dialects would have developed totally different accent systems even though they would have had a sequence of the same sound changes, i.e., Accent Shift and Final Accent Loss.

(23) Development of modern accentuation from PA */o]o/ and */oo]/
(hypothesis (16vi))

(i) Naze monosyllabic accent

PA	shift	F-loss
(a) */o]o	> oo]	> oo > O
(b) */oo]		

(ii) Kamishiro monosyllabic accent

PA	shift	F-loss
(a) */o]o	> ¯oo]	> ¯oo
(b) */oo]	≈ _oo]	> _oo

(iii) Kametsu monosyllabic accent

PA	shift	F-loss
(a) */o]o	> ¯oo]	> oo
(b) */oo]	≈ _oo]	= oo]

In Naze, after the Accent Shift rule applied, the two PA accent categories would have merged into one. In Kamishiro, the PA categories would not have merged after Accent Shift, but instead developed register distinctions. Just like the Kamishiro dialect, Kametsu monosyllabic nouns would have developed register distinctions after Accent Shift. And then, the Final Accent Loss rule would have eliminated the accent of /¯oo]/ nouns, resulting in the following

two accent categories: /oo/ and /oǒ/ – the Final Accent Loss rule would have been applicable only to high-register nouns in Kametsu.

If the hypothesis in (16vii) were right, we would expect to have the following development of the modern accentuation of monosyllabic nouns.

(24) Development of modern accentuation from PA */ǒ/ and */oǒ/
(hypothesis (16vii))

(i) Naze monosyllabic accent

PA	shift	F-loss
(a) *oǒ	>	oǒ > oo > O
(b) *ǒo		

(ii) Kamishiro monosyllabic accent

PA	shift	F-loss
(a) *oǒ	≈	̄oǒ > ̄oo
(b) *ǒo	>	_oǒ > _oo

(iii) Kametsu monosyllabic accent

PA	shift	F-loss
(a) *oǒ	≈	_oǒ = oo
(b) *ǒo	>	̄oǒ > oǒ

After Accent Shift, Kamishiro accent categories would have developed register distinctions that kept the two categories from merging. As shown in (24ii), PA */oǒ/ would have evolved to high-register and PA */ǒo/ to low-register. However, these developments do not seem to be natural because PA */ǒo/ (initial-high) evolved to (/̄oǒ/ >) /̄oo/ (low-register atonic), not merging with PA */oǒ/. If this had really happened, PA */oǒ/ would have had to be HH(L), and the initial pitch of (PA */ǒo/ >) /̄oǒ/ would have

become low as soon as the accent shifted onto the final mora. Otherwise, both categories would have merged. However, it is natural to derive low register from low-initial pitch and high-register from high-initial pitch, e.g., PA */o]o/ > /[~]oo]/ > /[~]oo/, instead of PA */o]o/ > /_oo]/ > /_oo/.

Finally, regarding the hypothesis in (16viii), under this hypothesis, Naze, Kamishiro, and Kametsu underwent only one sound change, i.e., Final Accent Loss.

(25) Development of modern accentuation from PA*/[~]oo]/ and */_oo]/ (hypothesis (16viii))

(i) Naze monosyllabic accent

PA	F-loss	
(a) */ [~] oo]	>	oo [LH] > O H ~ L(H)
(b) */_oo]		

(ii) Kamishiro monosyllabic accent

PA	F-loss	
(a) */ [~] oo]	>	[~] oo
(b) */_oo]	>	_oo

(iii) Kametsu monosyllabic accent

PA	F-loss	
(a) */ [~] oo]	>	oo [HH(H)]
(b) */_oo]	≡ ³⁰	oo] [LF ~ HH(L)]

³⁰ The symbol "≡" indicates that a register distinction becomes non-distinctive, not because one of the sound changes (Accent Shift, Initial Accent Gain, or Final Accent Loss) directly had an effect on this category, but because a change had an effect on another category. In this case, when the Final Accent Loss rule turned /[~]oo]/ into /oo/, the initial low pitch of /_oo]/ became no longer distinctive; therefore, PA */_oo]/ was converted to /oo]/.

For Naze monosyllables, in addition to the sound change, they underwent shortening as well. In the Kamishiro line, two distinctions have been kept by means of register even after the sound change. In the Kametsu line, the Final Accent Loss rule affected only high-register nouns. Thus, PA */_oo]/ underwent the change, while PA */_oo]/ retains its final accent.

As a matter of fact, this hypothesis is a little more complex than one in (16ii). Therefore, we have rejected it.

The reconstruction of proto accentuation for disyllabic and trisyllabic nouns is also based on simplicity of explanation for the accentual development and naturalness of sound change. Since our methodology for a reconstruction of disyllabic and trisyllabic accent is in principle the same as for the monosyllabic nouns, we do not give full details for the processes involved in the reconstruction of disyllabic and trisyllabic accent.

5.2.4. Development of Accent from PA to Modern Amami Dialects

We have reconstructed the PA accent system as shown below. In this section we will explain how this system has evolved to the accent systems of the three Amami Ryukyuan, i.e., Naze, Kamishiro, and Kametsu. Typological accent change is not involved; i.e., a change in register or locus is not seen in the developments of Amami Ryukyuan.

(26) PA accent

Monosyllables	Disyllables	Trisyllables
(a) *oo [HH(H)]	(a) *OO [HH(H)]	(a) *OOO [HHH(H)]
(b) *oo] [LH(L)]	(b) *OO] [LH(L)]	(b) *OOO] [LLH(L)]
	(c) *O]O [HL(L)]	(c) *OOO\ [LHF ~ LHH(L)]
		(d) *OO]O [LHL(L)]

5.2.4.1. Development of Naze Accent

Although the development of Naze accent is not complex, it has turned out to be drastically different from PA accent. For instance, by undergoing Final Accent Loss and Vowel Shortening, Naze monosyllabic nouns lost characteristics of PA accent; PA accentual distinctions were lost and bimoraic nouns became monomoraic. In the following, we will explain the development of Naze monosyllabic, disyllabic, and trisyllabic accent.

Monosyllables: In the Naze line, with Final Accent Loss PA monosyllabic final-accent nouns lost their accent and merged with PA */oo/ as LH(H). And then later the length of nouns became short by Vowel Shortening (V-shrt) – two mora nouns became monomoraic.

(27) Development of Naze monosyllabic accent

PA	F-loss	V-shrt
(a) *oo	> oo [LH]	> O H ~ L(H)
(b) *oo]		

Disyllables: The development from PA accent to modern Naze accent involves Final Accent Loss only. Because of this sound change, PA */OO/ and

*/OO]/ merged as /OO/ [LH(H)]. PA initial-accent nouns have remained the same.

(28) Development of Naze disyllabic accent

PA	F-loss	
(a) *OO		
(b) *OO]	>	OO [LH ~ LL(H)]
(c) *O]O	=	O]O

Trisyllables: The development of Naze trisyllabic accent from PA is simple. Three sound changes contributed to its development. They are Final Accent Loss, Accent Shift, and Contour Pitch Simplification (C-smpl).

By means of the first change, PA */OOO]/ (29b) lost its accent. This change caused a merger into an atonic accent from two sources, namely PA */OOO/ (29a) and */OOO/ (< PA */OOO]/) (29b). The second change shifted the accent of PA */OO]O/ (29d) onto the final syllable. Finally, the Contour Pitch Simplification rule converted PA */OOO]/ (29c) to /OO]O/ (see 4.1.1).

(29) Development of Naze trisyllabic accent

PA	F-loss		shift		C-smpl
(a) *OOO					
(b) *OOO]	>	OOO	=	OOO	= OOO [LLH(H)]
[LLH(L)]					
(c) *OOO]	=	OOO]	=	OOO]	> OO]O [LHL(L)]
(d) *OO]O	=	OO]O	>	OOO]	= OOO] [LLH(L)]

5.2.4.2. Development of Kamishiro Accent

Among the Amami Ryukyuan dialects introduced in this dissertation, the development of Kamishiro accent is the most complex. However, Kamishiro has as many accentual distinctions as PA has. The following shows how Kamishiro nouns have developed their accent system.

Monosyllables: Compared with its disyllables and trisyllables, the development of Kamishiro monosyllabic accent is rather simple. It involves only one sound change, namely Final Accent Loss. And it is followed by a phonetic change (L-sprd). Final Accent Loss turned PA */oō/ [LH(L)] into /_oō/ [LH(H)], whose pitch shape eventually became LR ~ LL(H). This is because the L-pitch of the initial syllable influenced the pitch of the following syllable, i.e., LH(H) > LR ~ LL(H).

(30) Development of Kamishiro monosyllabic accent

PA	F-loss		L-sprd	
(a) *oō	≈	̄oō	=	̄oō
(b) *oō̄ [LH(L)]	>	̄oō̄ [LH(H)]	>	̄oō̄ [LR ~ LL(H)]

Disyllables: In the development of Kamishiro disyllabic accent from PA, there are two sound changes and three phonetic changes. The first change is Final Accent Loss, which converted PA */OŌ̄/ [LH(L)] (31b) to /_OŌ̄/ [LH(H)]. Along with this change, PA */OŌ/ (31a) became /̄OŌ/. As shown below, register distinctions came to exist at this point.

Second, undergoing Accent Shift, PA */OO]O/ (32d) became /OOO]/. At the third stage, the rule of Contour Pitch Simplification changed PA */OOO\ / (32c) to /OO]O/.

And the final two changes are phonetic, which caused changes to the pitch shape of some nouns. First, Low Pitch Spreading turned the pitch of /_OOO/ [LLH(H)] into LLR ~ LLL(H). And at the final stage, the initial pitch of /^OOO/ became low.

(32) Development of Kamishiro trisyllabic accent

PA	F-loss	shift	C-smpl	L-sprd	I-low
(a) *OOO	≈ ^OOO	= ^OOO	= ^OOO	= ^OOO [HHH(H)]	> ^OOO [LHH(H)]
(b) *OOO]	> _OOO [LLH(H)]	= _OOO	= _OOO	> _OOO [LLR ~ LLL(H)]	= _OOO
(c) *OOO\	= OOO\	= OOO\	> OO]O	= OO]O	= OO]O [LHL(L)]
(d) *OO]O	= OO]O	> OOO]	= OOO] [LHH(L)]	> OOO] [LLH(L)]	= OOO]

With regard to typology of accent, it is important to note that in the Kamishiro line, a locus system of PA accent became a locus-register system. When PA final accent was lost, register distinctions came to exist and were kept through the development of the Kamishiro accent system.

We should also note that Assimilation had no effect on monosyllables and trisyllables. This is because conditions for the rule to take place were not met. The conditions are two. First, the rule occurs towards the end of the development, between Low Pitch Spreading and Initial Pitch Lowering. Second,

the rule requires at least final two syllables in high pitch. For monosyllables, since Final Accent Loss made all final-accent monosyllables atonic before Assimilation, there were no words to which Assimilation could apply. Regarding trisyllables, because Low Pitch Spreading converted /OOO]/ [LHH(L)] (32d) into LLH(L), Assimilation did not take place.

5.2.4.3. Development of Kametsu Accent

The development of Kametsu accent is rather simple. Kametsu monosyllables underwent one change, disyllables two changes, and trisyllables three changes. Unlike Kamishiro, Kametsu did not involve the development of register distinctions; a locus system like that of PA has been retained.

Monosyllables: The development of Kametsu monosyllabic accent from PA involves only Assimilation. That is, PA */oo]/ became /oo]/ [LF ~ HH(L)]. PA */oo/ has remained the same.

(33) Development of Kametsu monosyllabic accent

PA		assml		
(a) *oo	[HH(H)]	=	oo	[HH(H)]
(b) *oo]	[LH(L)]	>	oo]	[LF ~ HH(L)]

Disyllables: As shown in (34), Assimilation and Initial Pitch Lowering contributed to the development of Kametsu disyllabic accent. First, by means of Assimilation, PA */OO]/ [LH(L)] (34b) has evolved to /OO]/ [LF ~ LH(L)]. And then, the next change lowered the initial pitch of PA */OO/ (34a), making it LH(H). Because of this phonetic rule, Kametsu nouns are generally low on the initial syllable except initial-accent nouns (i.e., /O]O/). This phenomenon is also seen in Tokyo.

(34) Development of Kametsu disyllabic accent

PA	assml	I-low
(a) *OO	=	OO > OO [LH(H)]
(b) *OO]	>	OO] = OO] [LF ~ LH(L)]
(c) *O]O	=	O]O = O]O [HL(L)]

Trisyllables: In the development of Kametsu trisyllabic nouns from PA, there are three changes: Contour Pitch Simplification, Assimilation, and Initial Pitch Lowering.

The first change converted PA */OOO\ (35c) into /OO]O/. As a result, it merged with PA */OO]O/ (35d). The second change turned PA */OOO]/ [LLH(L)] (35b) to /OOO]/ [LLF ~ LLH(L)]. And the final rule made the pitches of PA */OOO/ [HHH(H)] (35a) to LHH(H). That is, the rule lowered the height of the pitch of the first syllable.

(35) Development of Kametsu trisyllabic accent

PA	C-smpl	assml	I-low
(a) *OOO	=	OOO =	OOO > OOO [LHH(H)]
		[HHH(H)]	
(b) *OOO]	=	OOO]	> OOO] = OOO]
	[LLH(L)]	[LLF ~ LLH(L)]	
(c) *OOO\	>	OO]O	= OO]O = OO]O
(d) *OO]O			

5.3. OKINAWA RYUKYUAN

5.3.1. Description of Okinawa Ryukyuan

Our reconstruction involves three varieties of Okinawa Ryukyuan: Nakijin, Shuri, and Aguni dialects. The Nakijin and Shuri dialects are spoken on the island of Okinawa, and Aguni is spoken on the island of Aguni, which is located about 60 km offshore northwest from Naha. These dialects are carefully chosen in order to reflect characteristics of Okinawa Ryukyuan accent.

5.3.1.1. Nakijin Dialect

The Nakijin dialect is one of the northern Okinawa dialects spoken on the island of Okinawa. All Nakijin data used in this research are taken from Nakasone (1983).

There are three types of accentuation in Nakijin. They are high-register atonic, low-register atonic, and penultimate accent. Nakijin has a phonetic rule that lowers an initial-syllable pitch if it is not accented. Therefore, high-register atonic nouns have low pitch on the initial syllable, e.g., *ʔhusi*: LHH 'cow'. This does not apply to monosyllabic nouns, i.e., *ʔci*: HH 'blood'.

Low-register atonic nouns start, needless to say, low in pitch and end high in pitch. In Nakijin, a following enclitic takes the same pitch of its preceding mora. Thus, an enclitic of atonic nouns is always high in pitch.

The TBU of Nakijin accent is the mora. This is because the final mora of low-register atonic disyllables takes a H tone, e.g., *ʔyama*: LLH 'mountain'. If its TBU were the syllable, the expected word would be LHH. For trisyllabic nouns with two moras in the final syllable, the final syllable is high-pitched, e.g.,

kʰaga:mi: LLLHH ‘mirror’. A final long syllable can be high-pitched in longer words. That is, if there are at least two moras before a final long syllable, the long syllable can be high in pitch, e.g., *pʰasira*: LLHH ‘pillar’.

Monosyllables: Nakijin has two accent types for monosyllabic nouns: high-register and low-register. Monosyllabic nouns are distinguished only by register; there are no locus distinctions. Concerning the phonetic pitch shape of Nakijin monosyllables, the high-register monosyllables are HH(H), and the low-register, LH(H).

In a comparison of Nakijin monosyllabic accent with Myôgi-shô accent, there are regular correspondences. All Nakijin high-register monosyllabic nouns are 1.1-2 category-nouns in Myôgi-shô, and low-register nouns belong to Myôgi-shô category 1.3.

(36) Nakijin monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
̄oo	HH(H)	1.1	̄ <i>kʰi</i> : ‘hair’, ̄ <i>ci</i> : ‘blood’
		1.2	̄ <i>pʰa</i> : ‘leaf’, ̄ <i>na</i> : ‘name’
̄oo	LH(H)	1.3	̄ <i>kʰi</i> : ‘tree’, ̄ <i>mi</i> : ‘eye’, ̄ <i>pʰa</i> : ‘tooth’

Disyllables: There are three distinctive accent categories for Nakijin disyllabic nouns. Two of them are atonic: high-register and low-register, and the other is penultimate-accent.

With the exception of the word ̄*tʰui* HH(H) ‘bird’, nouns in the high-register category are phonetically LHH(H); the pitch begins in low pitch and rises after the first mora. The reason why the word ‘bird’ has high-level pitch is due to its internal structure; i.e., CVi. This structure often influences its pitch

shape (see also Ikema dialect in 5.4.1.1). Low-register disyllabic nouns are phonetically LLH(H); the first two moras are low pitch and the pitch rises at the end of words. The phonetic pitch shape of penultimate-accent nouns is HL(L). The Nakijin dialect lowers the pitch of the initial syllable if it is not accented and if it is not in CVV structure.³¹

(37) Nakijin disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
ˊOoo	LHH(H)	2.1	ˊp ^h ana: 'nose', ˊhusi: 'cow', ˊhusi: 'loins', ˊpizi: 'beard', ˊhazi: 'wind'
		2.2	ˊɿsi: ~ ˊhisi: 'stone', ˊhabi: 'paper', ˊp ^h asi: 'bridge'
		3.1	ˊp ^h ice: 'forehead'
	HH(H)	2.1	ˊt ^h ui 'bird'
_Ooo, _ooO	LLH(H)	2.3	_p ^h ana: 'flower', _yama: 'mountain', _kumu: 'cloud'
		2.4	_hata: 'shoulder', _hica: 'board'
		2.5	_ɿami: 'rain', _hasi: 'sweat' ³²
		3.4	_ɿo:zi 'fan'
		3.5	_ɿanda: LLHH 'fat', _nada: 'tears', _maQka: LLHH 'pillow'
		3.7	_gunza 'whale'
OɿO, ooɿO	HL(L),	2.3	p ^h u ɿni(:) 'bone'
	HHL(L)	2.4	p ^h u ɿni(:) 'boat', ɿu ɿni(:) 'sea', p ^h a ɿ 'needle', ɿu ɿi(:) 'mortar', ɿi ki(:) 'breath'
		2.5	hu ɿ 'voice', ha ɿgi(:) 'shadow', mu hu(:) 'bridegroom', hu k ^h i(:) 'bucket'
		3.2	ta: ki HHL 'two'

³¹ This phenomenon is also seen in Tokyo (McCawley 1968) and other Ryukyuan dialects discussed in this dissertation.

³² According to Nakasone (1973: 634), the change from /ɿa/ to [ha] occurs when followed by a voiceless obstruent. Therefore, the word *hasi* should be *ɿasi*: phonemically. Furthermore, this devoicing rule applies to /ɿu/ as well. Therefore, the noun *hu k^hi(:)* 'bucket' should be phonemically *ɿu k^hi(:)*.

Many Nakijin disyllables end with a long vowel. Atonic nouns are always with a long vowel in the final syllable, e.g., *_hata:* 'shoulder', *_hata:-nu* 'shoulder (Nom.)', but penultimate accent nouns lose the length when uttered in isolation, e.g., *ʔu ʔmi* 'sea', *ʔu ʔmi:-nu* 'sea (Nom.)'. To distinguish these two types of vowel length, the latter type of words are indicated with '(·:)' at the end of the words, e.g., *ʔu ʔmi(·:)* 'sea'.

Our data include not only historical disyllables but also historical trisyllables that have merged with disyllabic nouns. Most of the historically-disyllabic nouns have a long vowel at the end of the words, except for *ˉtʰui* 'bird' and *pʰa ʔi* 'needle'. The word final vowel length is predictable. In other words, Nakijin historical disyllabic nouns have a long vowel word-finally and the ones with CVV structure have a word-final short vowel, e.g., 'needle' and 'voice'. In our data, there are seven former trisyllables in the category of low-register disyllabic nouns: *_ʔo:zi* 'fan' (3.4), *_ʔanda:* 'fat' (3.5), *_nada:* 'tears' (3.5), *_maQka:* 'pillow' (3.5), *_gunza* 'whale' (3.7), and *ta: ʔi* 'two' (3.2). And the high-register disyllabic category has only one historical trisyllabic, namely *ˉpʰice:* 'forehead'. Except for the words meaning 'whale', 'tears', and 'forehead', those historically-trisyllabic nouns are structurally different from other disyllabic nouns in the same category. For example, the words meaning 'fat' and 'pillow' consist of four moras. The word 'fan' is composed of three moras, but, unlike other disyllables, the initial syllable is heavy, as is that of the word *ta: ʔi* 'two'.

According to Nakasone (1983: 634), in Nakijin, word-initial /ʔi/ becomes voiceless /hi/ when it is unaccented and followed by a voiceless obstruent

except /s/. However, he adds, the word for 'stone' has alternative forms, i.e.,

ʔisi: ~ ʔisi:, yet devoicing of the initial syllable is rare.

When it comes to correspondences between Nakijin disyllabic accent and Myôgi-shô accent, the correspondences are regular. Nakijin high-register atonic nouns correspond to Myôgi-shô categories 2.1-2, Nakijin low-register atonic nouns to Myôgi-shô categories 2.3-5, and Nakijin penultimate-accent to Myôgi-shô 2.3-5.

Trisyllables: Nakijin trisyllables have a two-way accent system: atonic and penultimate accent. For atonic nouns, the pitch begins low and rises at the end of the word. In penultimate-accent nouns, the pitch also begins low, but it rises on the second syllable and falls after the penultimate syllable.

(38) Nakijin trisyllabic accent³³

Phonemic	Phonetic	Myô	List of nouns
_OOO,	LLH(H)	3.2	_muka:zi 'centipede'
		3.4	_p ^h uku:ru 'bag', _t ^h aka:ra 'treasure', _k ^h aga:mi: 'mirror' ³⁴
		3.5	_p ^h asira: 'pillar', _ʔinuci: 'life'
		3.6	_gara:si 'crow', _ʔuna:zi 'eel', _miminza 'earthworm'
		3.7	_k ^h usui 'medicine'
OOʔo	LHL(L)	3.1	siru: ʔi 'mark', k ^h ibu: ʔi 'smoke', haku: ʔi 'yawn'
		3.3	cika: ʔa 'strength'

³³ In this analysis, /O/ in /OOO/ indicates a syllable, and phonetic pitch is given to each syllable, not to each mora. Thus, both *k^haga:mi:* 'mirror' and *k^husui* 'medicine' are LLH(H).

³⁴ According to Hattori (1979: 101 [#5]), the Nakijin word for 'mirror' is a loanword from Shuri. However, the accentuation of the word is regular; it has the same accentuation as other nouns in the same historical accent category, namely 3.4 (e.g., 'bag', 'treasure'). Therefore, we include the word 'mirror' in our reconstruction.

Concerning the word structure of trisyllabic nouns, there are four types. The first type has a long vowel in the second syllable (i.e., CVCV:CV). The second type has a long vowel in the final syllable (i.e., CVCVCV:). The third type has a long vowel in both second and third syllables (i.e., CVCV:CV:). And the fourth has no vowel length at all (i.e., CVCVCV). According to our data, most of the trisyllables are the first type. For the second type, there are two examples: *p^hasira*: 'pillar' and *ʔinuci*: 'life', and interestingly both correspond to Myôgi-shô category 3.5. The third and fourth types of word structure have only one example: *k^haga:mi*: 'mirror' for the third type, and *k^husui* 'drug' for the fourth type.

Comparing the accentuation of Nakijin trisyllabic nouns with their cognates in Myôgi-shô, we know that Nakijin atonic trisyllables correspond to Myôgi-shô categories 3.2 and 3.4-7, and Nakijin penultimate-accent trisyllables to Myôgi-shô categories 3.1 and 3.3. Finding another 3.2-noun *saku ʔa* 'cherry' (not on our word list), now we know that Nakijin penultimate-accent nouns regularly correspond to Myôgi-shô high-register categories 3.1-3. This correspondence of the noun *muka:zi* 'centipede' (3.2) to the same category as 3.4-7 nouns does not seem to be regular because in Myôgi-shô, 3.1-3 nouns are high-register (or high-initial) and 3.4-7 nouns are low-register (or low-initial). Myôgi-shô register distinctions are usually reflected in correspondences between Myôgi-shô accent categories and modern Ryukyuan accent categories. For example, in Shuri, trisyllabic high-register nouns correspond to Myôgi-shô high-register accent

categories 3.1-3, and trisyllabic low-register nouns to Myôgi-shô low-register categories 3.4-7.³⁵

(39) Accentual correspondences between Shuri trisyllabic nouns and their cognates in Myôgi-shô

Shuri	Myôgi-shô
high-register	high-register categories 3.1-3
low-register	low-register categories 3.4-7

In the Nakijin line, the word *muka:zi* 'centipede' which used to belong to the penultimate-accent category, might have merged with atonic nouns. Therefore, as we hypothesize, the correspondences used to be as in (40a), but they became the ones of (40b).

(40) Accentual correspondences between Nakijin trisyllabic nouns and their cognates in Myôgi-shô

(a)	Nakijin	Myôgi-shô
	penultimate	high-register categories 3.1-3
	atonic	low-register categories 3.4-7
(b)	Nakijin	Myôgi-shô
	penultimate	high-register categories 3.1-3
	atonic	low-register categories 3.2 and 3.4-7

To sum up, as shown below, in Nakijin, there are two accentual distinctions for monosyllables, three for disyllables, and two for trisyllables. Monosyllabic nouns are distinguished by register only. For disyllabic nouns, both register and locus play a crucial role to distinguish one word from another. Trisyllables are of two types: atonic and tonic (penultimate-accent). That is,

³⁵ In our Shuri data, no synchronically-trisyllabic tonic nouns corresponding to Myôgi-shô category 3.2 are listed because all those nouns have become disyllabic by losing a syllabic segment. However, the word *sakura* 'cherry' (3.2) in Shuri proves the Shuri trisyllabic tonic to Myôgi-shô 3.2 correspondence.

register does not play a role. We analyzed LHL(L)-nouns as penultimate, not high-register because nouns distinguished by register are atonic in both monosyllables and disyllables. Analyzing LHL(L) as high-register creates incoherence throughout the system. Therefore, Nakijin lacks high-register trisyllabic nouns.

(41) Summary of Nakijin accent system

H-register	/ːoo/ [HH(H)]	/ːOO/ [LHH(H)]	
L-register	/_oo/ [LH(H)]	/_OO/ [LLH(H)]	/_OOO/ [LLH(H)]
penultimate		/OːO/ [HL(L)]	/OOːO/ [LHL(L)]

5.3.1.2. Shuri Dialect

The Shuri dialect of southern Okinawan is a descendant of a dialect used by the Kings of the Ryukyus and the intellectuals, and also it has been used as 'a common language' throughout the Ryukyus. All Shuri data are from OGJ (1963).

The accentuation of Shuri monosyllabic, disyllabic, and trisyllabic nouns is a two-way system; nouns are either high-register or low-register. Phonetically low-register nouns are low-level throughout the words, and for high-register nouns the pitch falls after the first mora for two-mora nouns, but for three-mora nouns the pitch falls after the second mora.

Monosyllables: Shuri monosyllabic nouns have a two-way accentual distinction; nouns are either high- or low-register. In the former type of nouns, the pitch falls after the initial mora. The pitch shape of the latter type is low-level. It is the register that distinguishes one type from another in Shuri, because locus is not distinctive.

(42) Shuri monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
¯oo	HL(L)	1.1	¯ki: 'hair', ¯ci: 'blood'
		1.2	¯hwa: 'leaf', ¯na: 'name'
<hr/>			
_oo	LL(L)	1.3	_ki: 'tree', _mi: 'eye', _ha: 'tooth'
		2.3	_ʔin 'dog'
		2.5	_kwi: 'voice'

The nouns _ʔin 'dog' and _kwi: 'voice' are synchronically monosyllabic, but they are diachronically disyllabic. Their corresponding forms in Myôgi-shô are *inu* LL and *kowe* LH(L) respectively (Mochizuki 1974).

As shown above, the correspondences between Shuri accent categories and Myôgi-shô accent categories for monosyllabic nouns are regular. High-register nouns correspond to Myôgi-shô categories 1.1-2, and low-register nouns to Myôgi-shô category 1.3.

Disyllables: The accentuation of Shuri disyllabic nouns is very similar to that of its monosyllabic nouns; both have high-low register distinctions.

In low-register nouns the pitch shape of the words is low-level. In two-mora high-register nouns the pitch falls after the first syllable (e.g., ¯hana HL 'nose'), and in three-mora high-register nouns the pitch falls after the second mora (e.g., ¯hwice: HHL 'forehead').

As shown below, the list of disyllabic nouns includes formerly-trisyllabic nouns, which have become disyllabic by losing a syllabic segment. However, it is not known why some of the formerly-trisyllabic nouns are three-mora (e.g., ¯hwice: 'forehead') and others are two-mora (e.g., _nada 'tears').

(43) Shuri disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
ˊOO	HL(L)	2.1	ˊhana 'nose', ˊɯsi 'cow', ˊtui 'bird', ˊkusi 'loins', ˊhwizi 'beard', ˊkazi 'wind'
		2.2	ˊɯsi 'stone', ˊkabi 'paper', ˊhasi 'bridge'
		3.1	ˊhwice: 'forehead'
		3.2	ˊta:ci 'two'
_OO	LL(L)	2.3	_hana 'flower', _yama 'mountain', _kumu 'cloud', _huni 'bone'
		2.4	_huni 'boat', _ɯmi 'sea', _ha:i 'needle', _ɯ:si 'mortar', _ha(:)si 'chopsticks', _kata 'shoulder', _ɯ:ci 'breath', _ɯca 'board'
		2.5	_ka:gi 'shadow', _mu:ku 'bridegroom', _ɯami 'rain', _ɯasi 'sweat', _u:ki 'bucket'
		3.2	_nkazi 'centipede'
		3.4	_kagan 'mirror', _ɯo:zi 'fan'
		3.5	_ha:ya 'pillar', _ɯanda 'fat', _nuci 'life', _nada 'tears', _maQkwa 'pillow'
		3.6	_ɯnazi 'eel' ³⁶

Notice also that some of the originally-disyllabic low-register nouns are three-mora, with a long vowel in the initial syllable, e.g., *_ka:gi* 'shadow'. No originally-disyllabic high-register nouns show this phenomenon. Furthermore, those nouns with the length are in either category 2.4 or 2.5 in Myôgi-shô.

There are regular correspondences between Shuri historically-disyllabic nouns and Myôgi-shô disyllabic nouns. The Shuri low-register nouns correspond to Myôgi-shô accent categories 2.3-5, and the Shuri high-register nouns to Myôgi-shô categories 2.1-2.

³⁶ Just as a syllable-final nasal consonant in the structure of CVn (see Poser 1990 and Vance 1987), we consider a nasal consonant in the structure such as (ʔ)nCV- or (ʔ)mCV- in the word initial position as moraic, not syllabic. The reason for this analysis is that there is no evidence to support the claim that the initial nasal in question is syllabic.

Trisyllables: Shuri trisyllabic nouns also have two accent categories distinguishing high-register from low-register accentuation. High-register nouns are in HHL(L) pitch, and low-register nouns have the shape of LLL(L).

As far as our data are concerned, Shuri trisyllabic high-register nouns correspond to Myôgi-shô categories 3.1 and 3.3, and trisyllabic low-register nouns to Myôgi-shô categories 3.4 and 3.6-7.

(44) Shuri trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
ˉOOO	HHL(L)	3.1	ˉsirusi 'mark', ˉkibusi 'smoke', ˉʔakubi 'yawn'
		3.3	ˉcikara 'strength', ˉkugani 'gold'
_OOO	LLL(L)	3.4	_hukuru 'bag', _takara 'treasure',
		3.6	_garasi 'crow', _mimizi 'earthworm'
		3.7	_kusui 'medicine', _guzira 'whale', _hataki 'field'

In the data, all trisyllabic nouns corresponding to Myôgi-shô categories 3.2 and 3.5 merged with disyllabic nouns when they lost a syllabic segment.

However, from other Shuri nouns such as ˉsakura 'cherry blossom' (3.2), _ʔicuku 'cousin' (3.5), _cinuku 'mushroom' (3.5), and _waraba: 'child' (3.5), we are able to know to what accent category 3.2- and 3.5-nouns belong in Shuri. That is, nouns corresponding to Myôgi-shô categories 3.1-3 are high-register, and nouns corresponding to Myôgi-shô categories 3.4-7 are low-register in Shuri.

(45) Correspondences between Shuri trisyllabic accent and Myôgi-shô accent

Shuri accent	:	Myôgi-shô accent
high register	:	3.1-3
low register	:	3.4-7

5.3.1.3. Aguni Dialect

As a dialect of Aguni island, we will use Nishi dialect spoken on the western side of the Island of Aguni. All data of the language are extracted from Hirayama, et al. (1966: 196-8). In our data below, bold-faced words are written in either Japanese syllabary or Chinese characters in the original sources.

The Aguni accent is typologically a locus system -- words are distinguished by location of accent. In Aguni, there are three accentual distinctions: initial accent, second-mora accent,³⁷ and atonic.

Initial-accent nouns have a high pitch on the initial mora and other moras following it are low in pitch, e.g., *si* **ʔusi** HLL 'mark'.

For second-mora-accent nouns, their pitch shape depends on the number of syllables they consist of. Bimoraic disyllables are simply LH(L), e.g., *umi* ʔLH 'sea'. Three-mora disyllables are LHL(L), e.g., *ha:* ʔ LHL 'needle'. Three-mora trisyllables are HHL(L) when uttered with an enclitic, but low-level in isolation, e.g., *gara* ʔi LLL 'crow', *gara* ʔi-ga HHL-L 'crow (Nom.)'.

Aguni atonic nouns are simply low-level pitch throughout the words.

Monosyllables: There are two accentual patterns for monosyllabic nouns: initial accent and low atonic. Notice that we do not treat this accent system as a register system even though there are two accent categories; one is initial-high and the other is initial-low. The reason why we analyze Aguni monosyllabic

³⁷ 'Second-mora-accent' means that an accent is located on the second mora from the beginning of words. Throughout this dissertation, indicating the location of a specific mora or syllable using the words such as 'first' or 'initial', 'second', and 'third', we count moras or syllable from the left to the right.

accent as a system without register is that its disyllables and trisyllables function entirely on the basis of locus (see below).

In the initial-accent nouns, the pitch falls between the initial mora and the final mora. All monosyllabic nouns are composed of two moras, with a long vowel.

(46) Aguni monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
o ɔ	HL(L)	1.1	<i>ki</i> ɿ̌ 'hair'
		1.2	<i>ha</i> ɿ̌ 'leaf'
<hr/>			
oo	LL(L)	1.3	<i>ki</i> : 'tree', <i>ha</i> : 'tooth'

A comparison of Aguni monosyllabic nouns and their cognates in Myôgi-shô shows that Aguni initial-accent nouns correspond to 1.1-2 category nouns in Myôgi-shô, and Aguni atonic nouns to Myôgi-shô 1.3 nouns.

Disyllables: The Aguni accent system for disyllabic nouns is complex. There are three types of accentuation: atonic, initial accent, and second-mora accent. Atonic nouns are phonetically low-level pitch. Initial-accent nouns are HL or HLL pitch; pitch falls between the initial mora and the second mora from the beginning of the words. For second-mora accent nouns, pitch basically falls immediately after the second mora from the beginning of the words. There are two types of second-mora-accent nouns; one contains two moras and the other three moras with a long vowel. For the former type, the pitch falls at the word final position, i.e., /OǑ/, and for the latter, the pitch falls between the second and the final moras, e.g., *hice* ɿ̌ 'forehead'. Furthermore, of second-mora-accent, ones with three moras become low-level atonic in isolation, e.g., *ha:i-nu* LHL-L 'needle (Nom.)', *ha:i* LLL 'needle'.

With regard to accentual correspondences between Aguni disyllables and their cognates in Myôgi-shô, low-atonic nouns correspond to Myôgi-shô accent categories 2.3-5. Initial-mora-accent disyllables correspond to Myôgi-shô 2.1-2 nouns. And second-mora-accent cognates belong to accent categories 2.4-5 in Myôgi-shô. It should be noted that this description of accentual correspondences includes original disyllables only; thus synchronically-disyllabic nouns corresponding to Myôgi-shô trisyllables are excluded, e.g., *nkazi* 'centipede' (3.2), etc.

(47) Aguni disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OO	LL(L)	2.3	<i>hana</i> 'flower', <i>yama</i> 'mountain',
		2.4	<i>kata</i> 'shoulder',
		2.5	<i>?ame</i> 'rain', <i>?ase</i> 'sweat'
		3.2	<i>nkazi</i> 'centipede'
O|O	HL(L)	2.1	<i>ha</i> <i>na</i> 'nose'
		2.2	<i>xi</i> <i>si</i> 'stone', <i>ha</i> <i>bi</i> 'paper'
	HLL(L)	3.1	<i>kin</i> <i>si</i> 'smoke',
OO|, oo|O, Oo|o	LH(L)	2.4	<i>huni</i> | 'boat', <i>?umi</i> | 'sea'
		2.5	<i>muku</i> | 'bridegroom'
	LHL(L)	2.4	<i>ha:</i> <i>hi</i> 'needle', <i>?u:</i> <i>si</i> 'mortar', <i>ha:</i> <i>si</i> 'chopsticks'
		3.1	<i>hice</i> | 'forehead'
		3.5	<i>ha:</i> <i>hya</i> 'pillar'

In our synchronic analysis of Aguni disyllabic accent, there are nouns corresponding to historical trisyllabic accent, e.g., *kin* *si* 'smoke' (3.1), *hice* | 'forehead' (3.1), *ha:* *hya* 'pillar' (3.5), and *nkazi* 'centipede' (3.2). They are historically trisyllabic, but in the course of their development, they became disyllabic.

Trisyllables: For Aguni trisyllabic nouns, there are three accent categories: low atonic, initial accent, and second-mora accent. Because many Aguni trisyllabic cognates on our word list are not available -- also many trisyllables became disyllabic -- in (47) we have added two more words (i.e., *kuyumi* 'calendar' (3.4) and *usa* *gi* 'rabbit' (3.6)), which are not on the list. As shown below, there are only one or two examples for each category.

Regarding the pitch shape of words, atonic nouns are LLL(L). The initial-accent noun is HLL(L). And second-mora-accent nouns are phonetically HHL(L) when followed by a particle, but they are low-level in isolation, e.g., *gara* *ki* LLL 'crow', *gara* *ki-nu* HHL-L 'crow (Nom.)'

(48) Aguni trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OOO	LLL(L)	3.4	<i>kuyumi</i> 'calendar'
O ^ˊ OO	HLL(L)	3.1	<i>si</i> <i>rusi</i> 'mark'
OO ^ˊ O	LLL ~ HHL(L)	3.6	<i>gara</i> <i>ki</i> 'crow', <i>usa</i> <i>gi</i> 'rabbit'

Based on our data, it is difficult to know a general pattern of the correspondences between Aguni trisyllabic nouns and their cognates in Myôgi-shô because each category has only one or two examples. However, based on their larger data set, Hirayama et al. (1966: 197) states that our second-mora-accent nouns generally correspond to Myôgi-shô categories 3.4-7, and our initial-accent nouns to Myôgi-shô 3.1-3. Although Hirayama et al. claim regular correspondences, their data lack concrete examples to support their claim.

5.3.2. Correspondences and Reconstruction of Proto-Okinawan Accent

In this section, we will show sets of correspondences for monosyllabic, disyllabic, and trisyllabic accent. On the basis of the correspondence sets, we also set forth our reconstructed Proto-Okinawan (PO) accent system.

Monosyllables: Based on the following two sets of correspondences, we reconstruct tonic accent (i.e., */o]o/) and atonic accent (i.e., */oo/) categories for PO monosyllabic nouns. Specifically, for the correspondence in (48b), we can reconstruct low-atonic accent because all corresponding accent categories show low-atonic accentuation.

(48) Reconstructed PO accent for monosyllabic nouns

(a)		Nakijin oo [HH(H)]	Shuri oo [HL(L)]	Aguni o]o [HL(L)]	PO *o]o [HL(L)]
'hair'	(1.1)	k ^{hi} :	ki:	ki:]	*k ^{hi} :]
'blood'	(1.1)	ci:	ci:	—	*ci:]
'leaf'	(1.2)	p ^{ha} :	hwa:	ha:]	*p ^{ha} :]
'name'	(1.2)	na:	na:	—	*na:]

(b)		Nakijin oo [LH(H)]	Shuri oo [LL(L)]	Aguni oo [LL(L)]	PO *oo [LL(L)]
'tree'	(1.3)	k ^{hi} :	ki:	ki:	*k ^{hi} :
'eye'	(1.3)	mi:	mi:	—	*mi:
'tooth'	(1.3)	p ^{ha} :	ha:	ha:	*p ^{ha} :
'dog'	(2.3)	(?innukwa:)	?in	—	*?in

On the other hand, the correspondence in (48a) shows that phonetically, the Nakijin form is high-level atonic, and Shuri and Aguni are initial-high. We have to reflect this difference in our reconstruction. In other words, our

reconstruction has to be able to give explanations for the development of these different pitch shapes.

Notice that we reconstruct the historically-disyllabic noun **ʔin* 'dog' as monosyllabic in PO on the basis of only the Shuri cognate, because Nakijin and Aguni do not have a cognate form in our data. As far as the data are concerned, at the time of PO the word for 'dog' might have already become monosyllabic.

Disyllables: Our Okinawa Ryukyuan data show that there are three sets of correspondences for disyllabic nouns.

(49) Summary of accentual correspondences and reconstruction of PO accent for disyllabic nouns

	Nakijin	Shuri	Aguni	PO
(a)	\neg Ooo [LHH(H)]	\neg OO [HL(L)]	O]O [HL(L)]	*O]O [HL(L)]
(b)	\neg Ooo, \neg ooO [LLH(H)]	\neg OO [LL(L)]	OO [LL(L)]	*OO [LL(L)]
(c)	O]O [HL(L)]	\neg OO [LL(L)]	OO] [LH(L),	*OO] [HH(L)]

Correspondence sets in (50) lack a Nakijin cognate for 'chopsticks' and a number of Aguni cognates. In Nakijin, the word for 'chopsticks' is a compound noun, thus we excluded it from the data. For the correspondences where Aguni cognates are missing, we reconstructed PO accent forms simply based on Nakijin and Shuri forms.

With regard to the long vowel in the initial syllable of some of the Shuri and Aguni cognates in (50b), see our discussions in 5.3.3, where we revise the PO accent form in (50b) in relation to vowel length. For the time being, we leave the reconstruction in (50b) as it is.

(50) Reconstructed PO accent for disyllabic nouns

(a)		Nakijin Ooo [LHH(H)]	Shuri OO [HL(L)]	Aguni O|O [HL(L)]	PO *O|O [HL(L)]
'nose'	(2.1)	p ^h ana:	hana	ha|na	*p ^h a|na
'cow'	(2.1)	husi:	?usi	--	*?u|si
'bird'	(2.1)	t ^h ui	tui	--	*t ^h u|i
'loins'	(2.1)	husi:	kusi	--	*k ^h u|si
'beard'	(2.1)	pizi:	hwizi	--	*pi|zi
'wind'	(2.1)	hazi:	kazi	--	*k ^h a|zi
'stone'	(2.2)	?isi: ~ hisi:	?isi	?i|si	*?i|si ~ *hi|si
'paper'	(2.2)	habi:	kabi	ha|bi	*k ^h a|bi
'bridge'	(2.2)	p ^h asi:	hasi	--	*p ^h a|si
'forehead'	(3.1)	p ^h ice:	hwice:	hice|:	*p ^h i|ce: ³⁸

(b)		Nakijin O|O [HL(L)]	Shuri OO [LL(L)]	Aguni OO| [LH(L), LHL(L)]	PO *OO| [HH(L)]
'bone'	(2.3)	p ^h u|ni(:)	_huni	--	*p ^h uni|
'mortar'	(2.4)	?u|si(:)	_?u:si	?u:si|	*?u:si|
'chopsticks'	(2.4)	--	_ha(:)si	ha:si|	*p ^h a:si|
'needle'	(2.4)	p ^h a|i	_ha:i	ha:i|	*p ^h a:i|
'boat'	(2.4)	p ^h u|ni(:)	_huni	huni|	*p ^h uni|
'sea'	(2.4)	?u|mi(:)	_?umi	?umi|	*?umi|
'breath'	(2.4)	?i|ci(:)	_?i:ci	--	*?i:ci|
'shadow'	(2.5)	ha|gi(:)	_ka:gi	--	*k ^h a:gi|
'bucket'	(2.5)	hu|k ^h i(:)	_u:ki	--	*u:k ^h i|
'bridegroom'	(2.5)	mu|hu(:)	_mu:ku	muku|³⁹	*mu:ku|
'voice'	(2.5)	hu|i	_kwi:	--	*kui|

³⁸ The forms for 'forehead' in Shuri, Aguni, and PO are phonetically HHL(L).³⁹ Some speakers pronounce *mu ku* ~ *muku nu* (Hirayama, et al. 1966). Alternative forms are usually due to a transitional stage from one form to another. In this case, probably the form *mu ku* is shifting its accent onto the final syllable, i.e., *muku* |.

(c)		Nakijin	Shuri	Aguni	PO
		_Ooo, _ooO	_OO	OO	*OO
		[LLH(H)]	[LL(L)]	[LL(L)]	[LL(L)]
'flower'	(2.3)	_p ^h ana:	_hana	hana	*p ^h ana
'mountain'	(2.3)	_yama:	_yama	yama	*yama
'cloud'	(2.3)	_kumu:	_kumu	--	*kumu
'shoulder'	(2.4)	_hata:	_kata	kata	*k ^h ata
'board'	(2.4)	_hica:	_ʔica	--	*ʔica
'rain'	(2.5)	_ʔami:	_ʔami	ʔame	*ʔami
'sweat'	(2.5)	_hasi:	_ʔasi	ʔase	*ʔasi
'fan'	(3.4)	_ʔo:zi	_ʔo:zi	--	*ʔo:zi
'tears'	(3.5)	_nada:	_nada	--	*nada
'fat'	(3.5)	_ʔanda:	_ʔanda	--	*ʔanda
'pillow'	(3.5)	_maQka:	_maQkwa	--	*maQkwa

We do not reconstruct a PO form for 'two' (3.2) even though, as shown in (51), there are cognates in Nakijin and Shuri. The word for 'two' is originally trisyllabic, but has become disyllabic in Nakijin and Shuri by means of losing a syllabic segment. The reason why we exclude this correspondence is that the correspondence does not match any of the historically-disyllabic accentual patterns, although other former trisyllables fit in one of the disyllabic accentual correspondence patterns, e.g., see the correspondences for 'tears' (3.5), 'fat' (3.5), 'pillow' (3.5), 'fan' (3.4), and 'forehead' (3.1) in (50). Since none of the original disyllables show the same correspondence pattern as the one in (51), the correspondence may possibly be irregular. The following historically-trisyllabic noun meaning 'two' has an irregular accentuation in either Nakijin or Shuri. However, without an Aguni cognate, we are not able to determine which dialect has an irregular form. Erring on the side of caution, we do not include the correspondence for 'two' in our reconstruction.

(51)	Nakijin	Shuri	Aguni
	O]O	OO	--
	[HL(L)]	[HL(L)]	
'two' (3.2)	ta:]ci	ta:ci	—

As shown in (50), PO forms for the historically-trisyllabic nouns such as 'fan', 'tears', 'fat', 'pillow', and 'forehead' are disyllabic: *ʔo:zi 'fan', *nada 'tears', *ʔanda 'fat', *maQka 'pillow', and *p^{hi}ke: 'forehead', because there is no evidence that those words were trisyllabic in PO.

Finally, regarding the reconstructed word-final long vowel in the word 'forehead', we have to reconstruct the final-vowel length for the word, because it is not predictable. The final vowel of the word has been lengthened in order to compensate a syllabic segment that has been lost in the course of its development in Nakijin, Shuri, and Aguni (see also our discussion in 5.3.1.1).

Trisyllables: For Okinawa Ryukyuan trisyllabic nouns, there are three sets of correspondences. Based on this, we reconstruct three accent categories for PO trisyllabic nouns: initial-syllable accent, second-syllable accent, and low-level atonic.

(52) Summary of accentual correspondences and reconstruction of PO accent for trisyllabic nouns

	Nakijin	Shuri	Aguni	PO
(a)	OO]O [LHL(L)]	OOO [HHL(L)]	O]OO [HLL(L)]	*O]ooO [HLL(L)]
(b)	OOO [LLH(H)]	OOO [LLL(L)]	OO]O [HHL(L)]	*Ooo]O [LHL(L)]
(c)	OOO [LLH(H)]	OOO [LLL(L)]	OOO [LLL(L)]	*OOO [LLL(L)]

Notice that the Aguni and PO accent patterns are phonemically identical. That is to say, Aguni has retained the PO accentuation, and Nakijin and Shuri have undergone changes (see 5.3.4 for the development of their accentual system).

Although the Aguni dialect lacks many cognates in the data, we are still able to reconstruct PO accent. This is based on both the accentual patterns that Nakijin and Shuri dialects show and regular correspondences between Nakijin and Shuri trisyllabic accents in relation to Myôgi-shô accent categories (see above for the regular correspondences).

In (53a), notice that we reconstruct **mu 7ka:zi* ‘centipede’ for the correspondence because the Nakijin form has retained the initial syllable that Shuri and Aguni have lost. The information lost in one form can be recovered from its cognate form in other dialect(s).

Based on the Shuri form only, we have reconstructed PO **kʰu 7ga:ni* ‘gold’ in (53a), because in our data Nakijin and Aguni lack a cognate form for ‘gold’. Needless to say, we assume the Shuri form has regular accentuation.

As for (53c), we have reconstructed the PO form for the cognate ‘calendar’ on the basis of one correspondence. This is not on our word list, but we included it here in order to show that there is another accent category, which cannot be revealed by the limited amount of data. Our reconstruction for this correspondence is low-level atonic.

(53) Reconstructed PO accent for trisyllabic nouns

(a)		Nakijin	Shuri	Aguni	PO
		OO]O [LHL(L)]	—OOO [HHL(L)]	O]OO [HLL(L)]	*O]ooO [HLL(L)]
'mark'	(3.1)	siru:]si	—sirusi	si]rusi	*si]ru:si
'smoke'	(3.1)	k ^h ibu:]si	—kibusi	ki]nsi	*k ^h i]bu:si
'yawn'	(3.1)	haku:]bi	—?akubi	--	*ha]ku:bi
'centipede'	(3.2)	muka:]zi	—nkazi	nka]zi	*mu]ka:zi
'cherry'	(3.2)	saku:]ra	—sakura	--	*sa]ku:ra
'strength'	(3.3)	cika:]ra	—cikara	--	*ci]ka:ra
'gold'	(3.3)	--	—kugani	--	*k ^h u]ga:ni

(b)		Nakijin	Shuri	Aguni	PO
		—OOO [LLH(H)]	—OOO [LLL(L)]	OO]O [HHL(L)]	*Ooo]O [HHL(L)]
'bag'	(3.4)	_p ^h uku:ru	_hukuru	--	*p ^h uku:]ru
'treasure'	(3.4)	_t ^h aka:ra	_takara	--	*t ^h aka:]ra
'mirror'	(3.4)	_k ^h aga:mi:	_kagan	--	*k ^h aga:]mi:
'pillar'	(3.5)	_p ^h asira:	_ha:ya	ha:]ya	*p ^h asi:]ra:
'life'	(3.5)	_?inuci:	_nuci	--	*?inu:]ci:
'heart'	(3.5)	_k ^h uku:ru	_kukuru	--	*k ^h uku:]ru
'cousin'	(3.5)	_hici(:)ku:	_?icuku	--	*?icu:ku:
'crow'	(3.6)	_gara:si	_garasi	gara]si	*gara:]si
'eel'	(3.6)	_?una:zi	_?nnazi	--	*?una:]zi
'earthworm'	(3.6)	_miminza	_mimizi	--	*mimi:]zi ⁴⁰
'whale'	(3.7)	_gunza	_guzira	--	*guzi:]ra ⁴¹
'medicine'	(3.7)	_k ^h usui	_kusui	--	*k ^h usu:]i
'field'	(3.7)	--	_hataki	--	*p ^h ata:]ki

(c)		Nakijin	Shuri	Aguni	PO
		—OOO [LLH(H)]	—OOO [LLL(L)]	OOO [LLL(L)]	*OOO [LLL(L)]
'calendar'	(3.4)	_k ^h uyumi:	_kuyumi	kuyumi	*k ^h uyumi:

⁴⁰ We are assuming that a long vowel became short and a nasal segment came into existence in Nakijin form *_miminza* 'earthworm'. This is based on Martin's hypothesis that the Japonic voiced consonants are prenasalized in their earlier forms (see Martin 1987).

We have reconstructed a long vowel in the second syllable of PO trisyllabic nouns in (53a and b). This is entirely based on Nakijin cognates. We are hypothesizing that the length in PO was shortened in the Shuri and Aguni lines, but that it has been kept in Nakijin. The reason for it is that Ryukyuan dialects have a tendency to shorten segments; e.g., many disyllables and trisyllables became monosyllables and disyllables respectively (see our data above).

It should also be pointed out that although some Nakijin nouns do not have the length (e.g., *_kʰusui* 'medicine'), we propose a protoform with the length (e.g., PO **kʰusu: ɦ* 'medicine'). This is because we consider the length as a category feature. That is, nouns in the categories in (53a and b) had a long vowel, but nouns in (53c) do not. Based on this, we hypothesize that the Nakijin word for 'medicine' has probably shortened the second-syllable long vowel.

5.3.3. Accent and Vowel Length

Hattori (1979a) points out that in Ryukyuan there are two subcategories for disyllabic nouns corresponding to Myôgi-shô categories 2.3-5; namely, 2.3ab, 2.4ab, and 2.5ab (see also discussion on this matter in Chapter 2 of this dissertation). For convenience, we use the following examples shown earlier in (15) and (16) in Chapter 2.

⁴¹ In Ryukyuan, the syllable in a sequence of a consonant, the vowel /u/ or /i/, and /r/ (i.e., /Cur-/ or /Cir-/) often becomes /nd-/ or /nz-/, e.g., **abura* 'oil' > *anda* in Shuri, **gudira* 'whale' > *gunzya* in Shodon. Thus, we reconstruct **guzi:ra* for 'whale'.

(54) Subcategories 2.3-5a

	2.3a 'jar'	2.4a 'breath'	2.5a 'shadow'	
Shuri	_ka:mi	_ʔi:ci	_ka:gi	LLL(L)
Nakijin	ha ɭmi	ʔi ɭci	ha ɭgi	HL(L)

(55) Subcategories 2.3-5b

	2.3b 'hole'	2.4b 'board'	2.5b 'sweat'	
Shuri	_ʔana	_ʔica	_ʔasi	LL(L)
Nakijin	_ʔana:	_hica:	_hasi:	LLH(H)

In subcategories 2.3-5a, the initial accent in Nakijin regularly corresponds to initial vowel length in Shuri. On the other hand, in subcategories 2.3-5b, there is no such correspondence.

(56) Nakijin accent-Shuri vowel length correspondence

	Nakijin	Shuri	Myôgi-shô ⁴²
'mortar'	ʔu ɭsi(:)	_ʔu:si	2.4a
'chopsticks'	--	_ha(:)si	2.4a
'breath'	ʔi ɭci(:)	_ʔi:ci	2.4a
'shadow'	ha ɭgi(:)	_ka:gi	2.5a
'bucket'	hu ɭkʰi(:)	_u:ki	2.5a
'needle'	pʰa ɭi	_ha:i	2.5a
'bridegroom'	mu ɭhu(:)	_mu:ku	2.5a

(57) No accent-vowel length correspondence

	Nakijin	Shuri	Myôgi-shô
'flower'	_pʰana:	_hana	2.3b
'mountain'	_yama:	_yama	2.3b
'cloud'	_kumu:	_kumu	2.3b
'shoulder'	_hata:	_kata	2.4b
'board'	_hica:	_ʔica	2.4b
'rain'	_ʔami:	_ʔami	2.5b
'sweat'	_hasi:	_ʔasi	2.5b

⁴² (a)-(b) distinctions are added; Myôgi-shô does not show the distinctions in question.

Hattori's claim holds true in most of the data as well, except for the words meaning 'bone' (2.3), 'boat' (2.4), and 'sea' (2.4), which lack a long vowel in the corresponding initial syllable in Shuri.

(58) Irregular correspondence

	Nakijin	Shuri	Myôgi-shô
'bone'	p ^h u ŋi(:)	_huni	2.3a
'boat'	p ^h u ŋi(:)	_huni	2.4a
'sea'	ʔu ŋmi(:)	_ʔumi	2.4a

In Shuri the initial-syllable vowel of 'bone' (2.3), 'boat' (2.4), and 'sea' (2.4) must have been long earlier in its history, but it has been irregularly shortened. Many Ryukyuan dialects underwent shortening of the long vowel, but some Ryukyuan dialects have kept the length that Shuri has lost. Examples are below:

(59) Examples for initial-syllable vowel length lost in Shuri, but kept in other Ryukyuan dialects

- 'boat' (2.3) *hu:ni* in Kamishiro (Hirayama, et al. 1966)
pu:ni in Onna (Hattori 1979a)
hu:ni in Matsuda, Ginoza village (Ôyama 1962)
- 'bone' (2.4) *hu:ni* in Maja dialect, Nakazato village, Kumejima (Ôyama 1962)
- 'sea' (2.4) *ʔu:mi* in Maja dialect, Nakazato village, Kumejima (Ôyama 1962)

Furthermore, this initial-syllable vowel length in 'boat', 'bone', and 'sea' is also seen in some of the Kyushu dialects, implying that the length in historical accent categories 2.3-5a go back to an earlier stage than PR. We discuss this matter in Chapter 7.

Based on our hypothesis that Shuri nouns for 'bone', 'boat', and 'sea' have irregularly shortened a long vowel in the initial syllable, we reconstruct vowel length for historical categories 2.3-5a. Therefore, we revise our reconstruction of

PO accent as shown below. Changes are seen only in (60b). See below for explanations for the changes. For convenience, only Nakijin and Shuri forms are listed with PO forms.

(60) Revised PO disyllabic accent

(a)		Nakijin	Shuri	previous PO	revised PO
		$\overline{\text{OO}}$	$\overline{\text{OO}}$	$^*\text{O}\overline{\text{O}}$	$^*\text{O}\overline{\text{O}}$
		[LHH(H)]	[HL(L)]	[HL(L)]	[HL(L)]
'nose'	(2.1)	$\overline{\text{p}}^{\text{h}}\text{ana:}$	$\overline{\text{h}}\text{ana}$	$^*\text{p}^{\text{h}}\text{a}\overline{\text{h}}\text{a}$	$^*\text{p}^{\text{h}}\text{a}\overline{\text{h}}\text{a}$
'cow'	(2.1)	$\overline{\text{h}}\text{usi:}$	$\overline{\text{?}}\text{usi}$	$^*\text{?u}\overline{\text{si}}$	$^*\text{?u}\overline{\text{si}}$
'bird'	(2.1)	$\overline{\text{t}}^{\text{h}}\text{ui}$	$\overline{\text{t}}\text{ui}$	$^*\text{t}^{\text{h}}\text{u}\overline{\text{i}}$	$^*\text{t}^{\text{h}}\text{u}\overline{\text{i}}$
'loins'	(2.1)	$\overline{\text{h}}\text{usi:}$	$\overline{\text{k}}\text{usi}$	$^*\text{k}^{\text{h}}\text{u}\overline{\text{si}}$	$^*\text{k}^{\text{h}}\text{u}\overline{\text{si}}$
'beard'	(2.1)	$\overline{\text{p}}\text{izi:}$	$\overline{\text{h}}\text{wizi}$	$^*\text{p}^{\text{h}}\text{i}\overline{\text{zi}}$	$^*\text{p}^{\text{h}}\text{i}\overline{\text{zi}}$
'wind'	(2.1)	$\overline{\text{h}}\text{azi:}$	$\overline{\text{k}}\text{azi}$	$^*\text{k}^{\text{h}}\text{a}\overline{\text{zi}}$	$^*\text{k}^{\text{h}}\text{a}\overline{\text{zi}}$
'stone'	(2.2)	$\overline{\text{?}}\text{isi:} \sim \overline{\text{h}}\text{isi:}$	$\overline{\text{?}}\text{isi}$	$^*\text{?i}\overline{\text{si}} \sim ^*\text{hi}\overline{\text{si}}$	$^*\text{?i}\overline{\text{si}} \sim ^*\text{hi}\overline{\text{si}}$
'paper'	(2.2)	$\overline{\text{h}}\text{abi:}$	$\overline{\text{k}}\text{abi}$	$^*\text{k}^{\text{h}}\text{a}\overline{\text{bi}}$	$^*\text{k}^{\text{h}}\text{a}\overline{\text{bi}}$
'bridge'	(2.2)	$\overline{\text{p}}^{\text{h}}\text{asi:}$	$\overline{\text{h}}\text{asi}$	$^*\text{p}^{\text{h}}\text{a}\overline{\text{si}}$	$^*\text{p}^{\text{h}}\text{a}\overline{\text{si}}$
'forehead'	(3.1)	$\overline{\text{p}}^{\text{h}}\text{ice:}$	$\overline{\text{h}}\text{wice:}$	$^*\text{p}^{\text{h}}\text{i}\overline{\text{ce}}$	$^*\text{p}^{\text{h}}\text{i}\overline{\text{ce:}}$
(b)		Nakijin	Shuri	previous PO	revised PO
		$\text{O}\overline{\text{O}}$	$\overline{\text{OO}}$	$^*\text{OO}\overline{\text{}}$	$^*\text{oo}\overline{\text{O}}$
		[HL(L)]	[LL(L)]	[HH(L)]	[LHL(L)]
'bone'	(2.3)	$\text{p}^{\text{h}}\text{u}\overline{\text{ni}}(:)$	$\overline{\text{h}}\text{uni}$	$^*\text{p}^{\text{h}}\text{uni}\overline{\text{}}$	$^*\text{p}^{\text{h}}\text{u:}\overline{\text{ni}}$
'mortar'	(2.4)	$\text{?u}\overline{\text{si}}(:)$	$\overline{\text{?}}\text{u:si}$	$^*\text{?u:si}\overline{\text{}}$	$^*\text{?u:}\overline{\text{si}}$
'chopsticks'	(2.4)	—	$\overline{\text{h}}\text{a}(:)\text{si}$	$^*\text{p}^{\text{h}}\text{a:si}\overline{\text{}}$	$^*\text{p}^{\text{h}}\text{a:}\overline{\text{si}}$
'boat'	(2.4)	$\text{p}^{\text{h}}\text{u}\overline{\text{ni}}(:)$	$\overline{\text{h}}\text{uni}$	$^*\text{p}^{\text{h}}\text{uni}\overline{\text{}}$	$^*\text{p}^{\text{h}}\text{u:}\overline{\text{ni}}$
'sea'	(2.4)	$\text{?u}\overline{\text{mi}}(:)$	$\overline{\text{?}}\text{umi}$	$^*\text{?umi}\overline{\text{}}$	$^*\text{?u:}\overline{\text{mi}}$
'breath'	(2.4)	$\text{?i}\overline{\text{ci}}(:)$	$\overline{\text{?}}\text{i:ci}$	$^*\text{?i:ci}\overline{\text{}}$	$^*\text{?i:}\overline{\text{ci}}$
'shadow'	(2.5)	$\text{h}\overline{\text{a}}\overline{\text{gi}}(:)$	$\overline{\text{k}}\text{a:gi}$	$^*\text{k}^{\text{h}}\text{a:gi}\overline{\text{}}$	$^*\text{k}^{\text{h}}\text{a:}\overline{\text{gi}}$
'bucket'	(2.5)	$\text{h}\overline{\text{u}}\overline{\text{k}}^{\text{h}}\text{i}(:)$	$\overline{\text{u:ki}}$	$^*\text{u:k}^{\text{h}}\text{i}\overline{\text{}}$	$^*\text{u:}\overline{\text{k}}^{\text{h}}\text{i}$
'needle'	(2.5)	$\text{p}^{\text{h}}\overline{\text{a}}\overline{\text{i}}$	$\overline{\text{h}}\text{a:i}$	$^*\text{p}^{\text{h}}\text{a:i}\overline{\text{}}$	$^*\text{p}^{\text{h}}\text{a:}\overline{\text{i}}$
'bridegroom'	(2.5)	$\text{m}\overline{\text{u}}\overline{\text{h}}\text{u}(:)$	$\overline{\text{mu:ku}}$	$^*\text{mu:ku}\overline{\text{}}$	$^*\text{mu:}\overline{\text{ku}}$

(c)		Nakijin	Shuri	previous PO	revised PO
		<u>OO</u>	<u>OO</u>	*OO	*OO
		[LLH(H)]	[LL(L)]	[LL(L)]	[LL(L)]
'flower'	(2.3)	_p ^h ana:	_hana	*p ^h ana	*p ^h ana
'mountain'	(2.3)	_yama:	_yama	*yama	*yama
'cloud'	(2.3)	_kumu:	_kumu	*kumu	*kumu
'shoulder'	(2.4)	_hata:	_kata	*k ^h ata	*k ^h ata
'board'	(2.4)	_hica:	_ʔica	*ʔica	*ʔica
'rain'	(2.5)	_ʔami:	_ʔami	*ʔami	*ʔami
'sweat'	(2.5)	_hasi:	_ʔasi	*ʔasi	*ʔasi
'fan'	(3.4)	_ʔo:zi	_ʔo:zi	*ʔo:zi	*ʔo:zi
'tears'	(3.5)	_nada:	_nada	*nada	*nada
'fat'	(3.5)	_ʔanda:	_ʔanda	*ʔanda	*ʔanda
'pillow'	(3.5)	_maQka:	_maQkwa	*maQkwa	*maQkwa

Furthermore, there is another piece of independent evidence to support the hypothesis that Shuri initial-syllable vowel length is a remnant of an earlier form of Ryukyuan language. Comparing Shuri disyllabic nouns with those of Nakijin reveals that there are two sets of correspondences, as shown below. In (61), the Shuri initial-syllable #ʔV:-⁴³ corresponds to the syllable #ʔV- in Nakijin. By contrast, in (62), the Shuri syllable #ʔV- corresponds to #hV- in Nakijin. That is to say, when Shuri words contain a long vowel in the initial syllable, the corresponding Nakijin syllable has an initial glottal stop /ʔ/. On the other hand, when Shuri words have an initial-syllable short vowel, the corresponding Nakijin syllable has an initial /h/.

⁴³ The symbol '#' means a word boundary, and '-' indicates that there is a segment which follows.

(61) Correspondence between Nakijin #ʔV- and Shuri #ʔV:-

	Nakijin	Shuri
'mortar' (2.4)	ʔu ʔsi(:)	_ʔu:si
'breath' (2.4)	ʔi ʔci(:)	_ʔi:ci

(62) Correspondence between Nakijin #hV- and Shuri #ʔV-

	Nakijin	Shuri
'board' (2.4)	_hica:	_ʔica
'sweat' (2.5)	_hasi:	_ʔasi
'cow' (2.1)	ʔhusi:	ʔusi
'stone' (2.2)	ʔisi: ~ ʔhisi:	ʔisi

What is significant is that Nakijin words corresponding Shuri words with an initial short vowel underwent devoicing (i.e., #ʔV- > #hV-); by contrast, a Nakijin noun corresponding to a Shuri noun with an initial long vowel has remained the same. That is, the initial-syllable long vowel, which existed in earlier forms in Nakijin, did not allow the syllable to undergo vowel devoicing in 'mortar' (*ʔu: ʔsi(:) > ʔu ʔsi(:)) and 'breath' (*ʔi: ʔci(:) > ʔi ʔci(:)). On the other hand, words in (61) underwent it, because their earlier forms did not have a long vowel in the initial syllable (e.g., *ʔasi: > _ʔasi: 'sweat').

Notice that in (60b) we reconstructed /OOʔ/ first, and then we revised it to /ooʔO/. We consider that both are second-mora accent because PO puts an accent on the second mora. When the second mora is part of a long syllable (i.e., -CV: or -CVn, pitch falls immediately after the syllable, e.g., *gara: ʔi* HHHL 'crow'.

5.3.4. Development of Modern Okinawan accent from PO accent

In (63) we have summarized the PO accent system reconstructed in the previous section. There are two categories for monosyllables, three for disyllables and trisyllables. We will explain how this PO accent system has evolved into Nakijin, Shuri, and Aguni dialects below.

(63) PO accent

Monosyllables	Disyllables	Trisyllables
(a) *o]o [HL(L)]	(a) *O]O [HL(L)]	(a) *O]ooO [HLLL(L)]
(b) *oo [LL(L)]	(b) *oo]O [LHL(L)]	(b) *Ooo]O [HHHL(L)]
	(c) *OO [LL(L)]	(c) *OOO [LLL(L)]

5.3.4.1. Development of Nakijin Accent

Monosyllables: In the development of Nakijin monosyllabic accent, PO monosyllabic accent has undergone two sound changes: Accent Shift and Final Accent Loss. First, Accent Shift turned PO */o]o/ into /oo]/; the locus shifted from the initial mora to the second mora. Second, Final Accent Loss deleted the locus of /oo]/ [HH(L)], resulting in /_oo/. Along with this change, PO */oo/ [LL(L)] became /_oo/.

In addition, regarding phonetic pitch shape of words, Nakijin dialect has a phonetic rule, which raises word-final pitch of low-level words. This rule raised the pitch of the final mora, namely LL(L) > LH(H).

(64) Development of Nakijin monosyllabic accent

PO	shift	F-loss
(a) *o]o [HL(L)]	>	oo] [HH(L)]
		>
		⁻ oo [HH(H)]
(b) *oo [LL(L)]	=	oo
		≈
		⁻ oo [LH(H)]

When it comes to ordering of the changes, Accent Shift must have preceded Final Accent Loss. And the rule of final pitch rising must have taken place towards the end of the development.

Disyllables: The development of Nakijin disyllabic accent is complex. As shown in (65), there are five changes: Accent Shift, Final Accent Loss, Vowel Shortening, Vowel Lengthening (V-length), and Initial Pitch Lowering. They took place as listed.

First, Accent Shift, applicable only for high-initial nouns, shifted the accent of PO */O]O/ (65a) onto the final syllable, and then it underwent Final Accent Loss, resulting in /⁻OO/. In addition to this, PO */OO/ (65c) underwent a secondary change, i.e., */OO/ > /_OO/. Notice that PO */oo]O/ (65b) did not undergo Accent Shift, because its initial pitch is low.

As for Vowel Shortening and Vowel Lengthening, the former must have taken place some time after Accent Shift occurred; otherwise, PO */oo]O/ would have been affected by the Accent Shift rule. Concerning Vowel Lengthening, it is not ordered in relation to other changes. However, for convenience, we place it as shown in (65).

(65) Development of Nakijin disyllabic accent

	PO	shift		F-loss		V-shrt		V-lngth		I-low	
(a)	*O]O	>	OO] [HH(L)]	>	⁻ OO	=	⁻ OO	>	⁻ Ooo	>	⁻ Ooo [LHH(H)]
(b)	*oo]O [LHL(L)]	=	oo]O	=	oo]O	>	O]O	>	O]o(o)	=	O]o(o)
(c)	*OO [LL(L)]	=	OO	≈	₋ OO	=	₋ OO	>	₋ Ooo	=	₋ Ooo [LLH(H)]

Undergoing Vowel Shortening, PO */oo]O/ (65b) became /O]O/. And finally, PO disyllabic nouns underwent Vowel Lengthening. As we mentioned earlier, Nakijin dialect raises the word-final pitch. Therefore, /_ˉOoo/ has raised its pitch toward the end of the word, i.e., /_ˉOoo/ [LLH(H)]. In addition, in Nakijin there is another characteristic in pitch shape. In short, unaccented initial syllable becomes low-pitch. Thus, /^ˉOoo/ (65a) has LHH(H) pitch. This phonetic rule is also seen in Tokyo dialect (see Chapter 6).

Trisyllables: In Nakijin trisyllabic nouns, there are two sound changes (Accent Shift and Final Accent Loss) and one phonetic rule (I-low). First, undergoing Accent Shift, PO */O]OO/ (66a) and */OO]O/ (66b) became /OO]O/ [HHL(L)] and /OOO]/ [LLH(L)] respectively. At the second stage, /OOO]/ was converted into /OOO/ by means of Final Accent Loss. This caused a merger of the /OOO/ and the already-existing atonic category, i.e., PO */OOO/ (66c). Finally, an Initial Pitch Lowering rule lowered the initial pitch of /OO]O/ [HHL(L)], resulting in LHL(L).

(66) Development of Nakijin trisyllabic accent

	PO	shift		F-loss		I-low	
(a)	*O ^{PO} ooO [HLLL(L)]	>	oo ^{oo} O [HHL(L)]	=	oo ^{oo} O	>	oo ^{oo} O [LHL(L)]
(b)	*Ooo ^{oo} O	>	ooo ^{oo}]				
(c)	*OOO [LLL(L)]	=	ooo	>	ooo [LLL(L)]	=	ooo [LLH(H)]

Regarding the ordering of the two sound changes contributing to the development of Nakijin trisyllabic accent, Accent Shift has to precede Final Accent Loss. The phonetic pitch rule could have occurred before or after Final Accent Loss, but it must have taken place after Accent Shift.

5.3.4.2. Development of Shuri Accent

Considering an accent system as a whole, Shuri has a complex history in developing its accent system (although the development of Nakijin disyllabic accent is the most complex one in and of itself). In the development of Shuri accent, there is a series of three changes, but in trisyllables only two took place because one of the changes is conditioned (i.e., Initial Accent Gain is applicable only to high-initial).

From the point of view of accent typology, in the Shuri line, the locus system of PO accent evolved into a register system. The shift from locus to register took place when final-accent nouns lost their accent.

Monosyllables: The accent system of Shuri monosyllabic nouns has resulted from undergoing three sound changes: Accent Shift, Final Accent Loss, and Initial Accent Gain. Accent Shift converted PO */o^{PO}o/ (67a) to /oo^{oo}]/, and

the next change (Final Accent Loss) canceled the accent of the /oõ]/, resulting in /̃oo/. Finally, Initial Accent Gain, applicable only to high-initial, made the /̃oo/ [HH(H)] phonetically initial-accent, i.e., /̃oo/ [HH(H)] became /̃oo/ [HL(L)].

Shuri monosyllabic accent nouns are phonetically either HL(L) or LL(L). Instead of analyzing them as initial-accent and low-atomic accent, we analyze them as high-register and low-register because of the predictability of their pitch patterns by initial pitch height, and also because of coherence in our analysis (see 5.3.1.2).

(67) Development of Shuri monosyllabic accent

PO	shift		F-loss		I-gain	
(a) *o]o	>	oo]	>	$\begin{smallmatrix} \text{--oo} \\ \text{[HH(H)]} \end{smallmatrix}$	>	$\begin{smallmatrix} \text{--oo} \\ \text{[HL(L)]} \end{smallmatrix}$
(b) *oo	=	oo	≈	$\begin{smallmatrix} \text{--oo} \\ \text{[LL(L)]} \end{smallmatrix}$	=	$\begin{smallmatrix} \text{--oo} \\ \text{[LL(L)]} \end{smallmatrix}$

Disyllables: In the Shuri line, PO disyllables underwent three sound changes: Accent Shift, Final Accent Loss, and Initial Accent Gain. By these changes, the PO three-way accent system has become a two-way system.

First, undergoing Accent Shift, both PO */ÕO/ (68a) and */oõO/ (68b) became final-accent: /OÕ]/ and /ooÕ]/ respectively. Second, the Final Accent Loss rule eliminated the accent of the /OÕ]/ and the /ooÕ]/, and then the latter merged with PO */OO/ [LL(L)] (68c). At this point there are two accent categories. As indicated below, the low-atomic category includes nouns with initial-syllable long vowel and ones without it.

(68) Development of Shuri disyllabic accent

PO	shift		F-loss		I-gain	
(a) *O]O	>	OO]	>	^ˉ OO [HH(H)]	>	^ˉ OO [HL(L)]
(b) *oo]O [LH(L)]	>	ooO]				
(c) *OO [LL(L)]	=	OO	>	_{oo} O/_OO [LLL(L)]	=	_{oo} O/_OO

Third, Initial Accent Gain took place. This is a conditioned change; that is, it is applicable only to high-initial nouns. Thus, the /OO/ (< PO */O]O/) became phonetically initial-high, but low-atomic nouns did not undergo the change. It should be pointed out that Initial Accent Gain converted /^ˉOO/ into initial-accent at the phonetic level. This is because we analyze Shuri accent as a register system.

In the Shuri line, by losing locus distinctions, the accent system has become simpler than that of PO for disyllabic nouns. Typologically speaking, PO only had locus distinctions, but the locus became nondistinctive when PO */oo]O/ lost its accent, resulting in Shuri developing a register system.

In the Shuri line, most of the PO initial vowel length has been retained. Exceptions are *_ɽumi* (< PO *ɽu: ɽmi) 'sea', *_huni* (< PO *p^hu: ɽni) 'boat', and *_huni* (< PO *p^hu: ɽni) 'bone' (see also (60)). We assume PO */ooO/ (68b) sporadically underwent Vowel Shortening in the Shuri line.

Trisyllables: Although its monosyllables and disyllables underwent three sound changes, Shuri's trisyllables underwent only two: Accent Shift and Final Accent Loss. This is because the third change (i.e., Initial Accent Gain) is not

applicable. This rule is applicable only to high-initial nouns. Therefore, it had no effect on PO */OOO/ [LLL(L)].

In the development, Accent Shift shifted the accent of PO */O^hooO/ (69a) and PO */Ooo^hO/ (69b) onto the following syllable, resulting in /Ooo^hO/ and /OooO^h/ respectively. PO */OOO/ (69c) remained the same. At the next stage, long vowels underwent Vowel Shortening, i.e., /Ooo^hO/ > /OO^hO/ and /OooO^h/ > /OOO^h/). Finally, Final Accent Loss eliminated the accent of the /OOO^h/. As a result, it merged with PO */OOO/ (69c), becoming /_OOO/ in contrast with /^hOOO/ (69a).

(69) Shuri trisyllabic accent

PO	shift		V-shrt		F-loss	
(a) *O ^h ooO [HLLL(L)]	>	Ooo ^h O	>	OO ^h O	≈	^h OOO [HHL(L)]
(b) *Ooo ^h O [HHHL(L)]	>	OooO ^h	>	OOO ^h		
(c) *OOO [LLL(L)]	=	OOO	=	OOO	>	_h OOO [LLL(L)]

As shown in (69), we analyzed the Shuri /OO^hO/ and /OOO^h/ as initial-high register and initial-low register respectively, because of the reason mentioned above (see the description of Shuri monosyllables and disyllables and see also 5.3.1.2).

5.3.4.3. Development of Aguni Accent

Among the Okinawan dialects in this dissertation, Aguni accent is the most similar to PO accent. Aguni monosyllabic and trisyllabic accent did not

undergo any change at all. That is, both types of nouns are identical to those of PO. As for Aguni disyllabic accent, compared with other Okinawan dialects, it underwent rather simple development.

Monosyllables: In Aguni monosyllabic nouns, there are two accent categories: initial accent and low atonic, which are identical both phonemically and phonetically to the corresponding accent categories of PO monosyllabic nouns. In other words, PO monosyllabic accent has not changed at all in the Aguni line.

(70) Development of Aguni monosyllabic accent

PO

- | | | |
|------------------|---|-------------|
| (a) *o]o [HL(L)] | = | o]o [HL(L)] |
| (b) *oo [LL(L)] | = | oo [LL(L)] |

Disyllables: In the development of Aguni disyllabic accent, PO underwent Accent Shift and Vowel Shortening. First, Accent Shift shifted the accent of PO */oo]O/ (71b) onto the final syllable. Since this rule is applicable only to low-initial nouns, it had no effect on PO */O]O/ (71a). At the following stage, by the vowel shortening rule, /ooO]/ became /OO]/. In fact, not all PO nouns in this category underwent the change. The PO nouns **p^hu:*]*ni* 'boat', **ʔu:*]*mi* 'sea', and **mu:*]*ku* 'bridegroom' became *huni*], *umi*], and *muku*] respectively, but other PO nouns such as **ʔu:*]*si* 'mortar', **p^ha:*]*si* 'chopsticks',

and *p^ha: *ḥ* 'needle' did not undergo the change. We, at present, do not know why some words did not undergo the change and others did.⁴⁴

(71) Development of Aguni disyllabic accent

PO	shift	V-shrt
(a) *O]O	= O]O	= O]O
(b) *oo]O [LHL(L)]	> ooO]	= OO]
(c) *OO [LL(L)]	= OO	= OO

Trisyllables: As shown below, the accent system of PO trisyllabic nouns and that of Aguni trisyllabic nouns are almost identical. The only difference is in vowel length. In the Aguni line, PO trisyllabic nouns underwent Vowel Shortening.

(72) Development of Aguni trisyllabic accent

PO	V-shrt
(a) *O]ooO [HLLL(L)]	> O]OO
(b) *Ooo]O [HHHL(L)]	> OO]O
(c) *OOO [LLL(L)]	= OOO

In Aguni disyllables, Accent Shift took place, but it did not occur in monosyllables and trisyllables. The reason is that the rule is applicable only to

⁴⁴ A possible analysis on this is that disyllabic nouns with high vowels in both syllables underwent the change. However, the word PO *_*ḥu: ḥi* has high vowels in both syllables. This may be considered as an exception. Without having enough data, it is difficult to draw a conclusion. We need to investigate more in this matter in our future studies.

low-initial nouns. In the disyllables and trisyllables, all accented nouns are high-initial, and thus it did not apply.

According to our reconstruction of Okinawa Ryukyuan accent, the accent system of the Aguni dialect preserves most of the PO accentuation, and the Nakijin dialect preserves the characteristics of the PO accent least. Like the Aguni dialect, the Shuri dialect has kept PO monosyllabic accent, but PO disyllabic and trisyllabic nouns underwent changes.

5.4. MIYAKO RYUKYUAN

5.4.1. Description of Miyako Ryukyuan Accent

In this section, we will compare the Ikema, Ôura, and Uechi dialects of Miyako Ryukyuan and reconstruct Proto-Miyako (PM) accent. To reflect the characteristics of Miyako accent, the three dialects are carefully chosen from available data according to the complexity of their accent systems. All Miyako data are extracted from Hirayama, et al. (1967).

5.4.1.1. Ikema Dialect

The Ikema dialect is spoken on the island of Ikema, which is located approximately 1.5 km to the northwest of Miyako-island.

The accent system of the Ikema dialect is a simple two-way system, namely a system with tonic-atonic distinctions. One of the accent categories is tonic. Ikema tonic monosyllables, disyllables, and trisyllables behave in the same way when followed by a particle (pitch falls between the final mora and a following particle). However, in isolation the monosyllables are high-level, the disyllables are LH, and the trisyllables are LHL. In Ikema, there is a phonetic

rule which lowers the pitch of the initial syllable if it is not accented and also if it consists of one mora.

The other accentual category in Ikema is atonic. This is phonetically low level in isolation, but high-level when followed by a particle.

Monosyllables: In Ikema, all monosyllabic nouns have two moras; their word structure is either CV: or (C)Vn. There are two types of accentuation; tonic and atonic. The former type of nouns are phonetically LH(L) when followed by a particle, but they are high-level pitch in isolation.

(73) Ikema monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
oo]	HH ~ LH(L) ⁴⁵	1.1	ki:]'hair', hu:]'sail', Qfa]'child'
		1.2	ha:]'leaf', na:]'name'
		1.3	ki:]'tree', mi:]'eye', ha:]'tooth'
		2.3	in]'dog', hmu] ⁴⁶ 'cloud'
<hr/>			
oo	LL ~ HH(H)	2.4	in 'sea'

The form *in*]'dog' (2.3) is derived from *inu; it lost its final vowel and /n/ became moraic. The word for 'sea' is identical to the form meaning 'dog', but *in* 'sea' developed by losing the final vowel /i/, changing /m/ to /n/, and converting the initial vowel /u/ to /i/ (cf. Mochizuki 1974 for attested Myôgi-shô forms for 'dog' and 'sea').

⁴⁵ To describe accent of Miyako dialects, Hirayama, et al. (1967) uses a nominative particle *nudu*, which is comparable to the particle *nu* in Okinawa Ryukyuan. Since pitch does not change within the particle, for convenience we use (H) to indicate that the following particle is high-pitch and (L) to show that the particle is low-pitch, even though the particle consists of two syllables.

⁴⁶ /m/ preceded by /h/ becomes voiceless, e.g., /hmu/ [m̥u] 'cloud', /hna/ [n̥a] 'rope' (Hirayama, et al. 1967: 105). Although PJ */ku/ and */pu/ normally correspond to /fu/ in Miyako Ryukyuan, the word for 'cloud' is /hmu/ in Ikema < *fumu.

The word *hmmu* ʔ 'cloud' (2.3) is another historically-disyllabic noun.

The loss of a vowel in the initial syllable led to the compensatory lengthening of the following /m/, cf. *kumo* in Japanese.

Disyllables: Ikema disyllabic nouns have two types of accentuation: final accent and atonic.

(74) Ikema disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OO ⁴⁷	LH(L)	2.1	<i>hana</i> ʔ 'nose', <i>usi</i> ʔ 'cow', <i>tui</i> ʔ HL 'bird', <i>kusi</i> ʔ 'loins', <i>higi</i> ʔ 'beard', <i>kadi</i> ʔ 'wind'
		2.2	<i>isi</i> ʔ 'stone', <i>hasi</i> ʔ 'bridge'
		2.3	<i>hana</i> ʔ 'flower', <i>yama</i> ʔ 'mountain'
		2.4	<i>icya</i> ʔ 'board'
		2.5	<i>ami</i> ʔ 'rain', <i>asi</i> ʔ 'sweat'
		3.5	<i>nada</i> ʔ 'tears'
	LHL ~ LHH(L)	2.2	<i>kabi</i> : ʔ 'paper'
		3.2	<i>nkadi</i> ʔ 'centipede'
		3.4	<i>kagan</i> ʔ 'mirror'
	HHL ~ HHH(L)	3.1	<i>kyu:sî</i> ʔ 'smoke'
		3.5	<i>aQva</i> ʔ 'fat', <i>maQfa</i> ʔ 'pillow'
		3.7	<i>fuQza</i> ʔ 'whale'
OO	LL ~ HH(H)	2.3	<i>puni</i> 'bone'
		2.4	<i>funi</i> 'boat', <i>pai</i> 'needle', <i>usi</i> 'mortar', <i>ici</i> 'breath'
		2.5	<i>kui</i> 'voice', <i>kagi</i> 'shadow', <i>muku</i> 'bridegroom', <i>wu:ki</i> 'bucket'
		3.5	<i>hara</i> 'pillar', <i>nnuci</i> 'life'
		3.7	<i>Qfui</i> 'medicine'

In general, final-accent nouns are phonetically LH(L), e.g., *hana* ʔ LH(L)

'nose' (2.1) for two-mora nouns. If a word consists of three moras, it is either

⁴⁷ According to Hirayama, et al. (1967), nouns with a locus on the final syllable are either LH(L) or HL ~ LH(L). Depending on their internal structure, those nouns are realized as LH(L) or HL ~ LH(L) at the phonetic level. Words with LH(L) pitch have a (C)VCV structure, and ones with HL ~ LH(L) have a structure of CVi, e.g., *kui* 'this'.

LHL ~ LHH(L) (e.g., *nkadi* 7 'centipede') or HHL ~ HHH(L) (e.g., *kyu:sĩ* 7 'smoke') depending on its internal structure.

Each accentual category contains historical disyllables and trisyllables. Historical disyllabic nouns are generally in (C)VCV structure. As for historical trisyllables, there are two types. The first type consists of two moras (e.g., *nada* 7 'tears' (3.5)), and the second is three moras long (e.g., *maQfa* 7 'pillow' (3.5)).

A comparison of those original trisyllables and their cognate forms in other Japonic languages shows that the word *kagan* 7 has lost its final vowel and that the nasal in the final syllable became moraic. In the course of their development, the words for 'fat', 'pillow', and 'whale' have lost a syllabic segment and eventually they geminated the intermediate consonant to compensate a disappeared syllabic segment.

(75) Comparison between Ikema second-mora-accent nouns and their corresponding Tokyo, Kyoto, and Myôgi-shô forms⁴⁸

		Ikema	Tokyo	Kyoto	Myôgi-shô
'mirror'	(3.4)	<i>kagan</i>	<i>kagami</i>	<i>kagami</i>	<i>kagami</i>
'fat'	(3.5)	<i>aQva</i>	<i>abura</i>	<i>abura</i>	<i>afura</i> ⁴⁹
'pillow'	(3.5)	<i>maQfa</i>	<i>makura</i>	<i>makura</i>	<i>makura</i>
'whale'	(3.7)	<i>fuQza</i>	<i>kuzira</i>	<i>kuzira</i>	<i>kuzira</i>

There are more nouns, which are of trisyllabic origin in our data. For instance, the words *hara* 'pillar' (3.5), *nada* 7 'tears' (3.5), and *Qfui* 'medicine' (3.7), cf. *fasira* LLH 'pillar', *namida* LLH 'tears', and *kusuri* LHL 'medicine' in Myôgi-shô (Mochizuki 1974).

⁴⁸ Because here our focus is segmental, accent is not indicated.

⁴⁹ Regarding /f/ in the Myôgi-shô cognate, since modern Japanese has a /b/ and since all Ryukyuan dialects point to */b/, the voiceless consonant of the Myôgi-shô form is to be taken as simply the tendency of older texts not to always write a voiced consonant. It is therefore not to be trusted as literally phonologically true.

The word *kabi*: ʔ'paper' (2.2) has a long vowel in the final syllable, different from other historical disyllabic nouns. The vowel length may be secondary. In Japonic languages the cognate form with 'paper' normally has a CVCV structure, except in Nakijin *habi*: 'paper'.⁵⁰ In Tokyo, Kyoto, and Myôgi-shô, their corresponding forms are respectively *kami* ʔLH(L), *ka* ʔmi HL(L), and *kami* LL 'paper'.

Excluding trisyllabic-origin words, according to our data, the correspondence between Ikema and Myôgi-shô disyllabic nouns are generally as in (75): Ikema atonic nouns to Myôgi-shô 2.3-5 nouns and Ikema tonic nouns to 2.1-5 in Myôgi-shô. Notice that there is an overlap; some nouns corresponding to Myôgi-shô 2.3-5 categories are also /OOʔ/ in Ikema.

(76) Correspondence between Ikema disyllabic accent and Myôgi-shô accent

Ikema	Myôgi-shô
/OOʔ/	2.1-5
/OO/	2.3-5

With detailed examination of this correspondence pattern, we have found that among those Ikema disyllables, atonic nouns systematically correspond to PO cognates with initial-syllable vowel length (see (77)), and tonic nouns to PO cognates without the vowel length (see (78)).

⁵⁰ In Nakijin, many disyllabic nouns have a long vowel in the final syllable. This vowel length may also be secondary.

(77)	Ikema	PO	Myôgi-shô
'bone'	puni	*p ^h u:ɿni	2.3
'boat'	funi	*p ^h u:ɿni	2.4
'needle'	pai	*p ^h a:ɿli	2.4
'mortar'	usī	*ʔu:ɿsi	2.4
'breath'	ici	*ʔi:ɿci	2.4
'shadow'	kagi	*k ^h a:ɿgi	2.5
'bridegroom'	muku	*mu:ɿk ^h u	2.5
'bucket'	wu:ki	*u:ɿk ^h i	2.5

(78)	Ikema	PO	Myôgi-shô
'flower'	hanaɿ	*p ^h ana	2.3
'mountain'	yamaɿ	*yama	2.3
'board'	icyaɿ	*ʔica	2.4
'rain'	amiɿ	*ʔami	2.5
'sweat'	asiɿ	*ʔasi	2.5

This implies that in their earlier forms Ikema nouns in (77) might have been distinguished from ones in (78) by initial-syllable vowel length. We will discuss this matter below in relation to the vowel length in other Ryukyuan dialects.

Trisyllables: For Ikema trisyllables there are two accent categories: final accent and atonic. They are phonetically LHL ~ LHH(L) and low-level respectively.

(79) Ikema trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OOOɿ	LHL ~ LHH(L)	3.1	<i>sirusi</i> ɿ 'mark', <i>futai</i> ɿ 'forehead', <i>afuzi</i> ɿ 'yawn'
		3.2	<i>futa:ci</i> ɿ 'two'
		3.3	<i>kugani</i> ɿ 'gold'
		3.4	<i>fukuru</i> ɿ 'bag', <i>takara</i> ɿ 'treasure'
OOO	LLL ~ HHH(H)	3.4	<i>auzi</i> 'fan'
		3.6	<i>garasa</i> 'crow', <i>unazi</i> 'eel'

The word *futa:ci* ɿ 'two' (3.2) is trisyllabic, but contains four moras. As far as our Ikema data are concerned, this is the only one consisting of four moras.

Although we are not certain how it came into existence, the vowel length in the second syllable might have been secondary. Many of the Miyako and Yaeyama dialects have a trisyllabic form with a long vowel in the second syllable for the word meaning 'two', e.g., *futa:ci* 'two'. However, its cognate word in many other Ryukyuan dialects, Japanese dialects, and Myôgi-shô do not show the length. Furthermore, the Northern Ryukyuan word for 'two' usually has a disyllabic form with a long vowel in the initial syllable, i.e., *ta:ci*; the vowel might have become long after dropping the original initial syllable *fu* (cf. *futatu* in Tokyo and *futa tu* in Kyoto and *futa tu* HHL 'two' in Myôgi-shô).

(80) Correspondences in numerals

gloss	Tokyo	Shuri	Ikema	Ôura	Ishigaki
'one'	hito tu	_ti:ci	sîsîci	pit:ci	pîti:zi
'two'	futatu	_ta:ci	futa:ci	futa:ci	huta:zi
'three'	mittu	_mi:ci	mi:ci	mi:ci	mi:ci
'four'	yottu	_yu:ci	yu:ci	yu:ci	yu:ci
'five'	itu tu	_ici	ici	ici	ici
'six'	muttu	_mu:ci	nnci	mmci	nn ci
'seven'	nana tu	_nanaci	nanaci	nana ci	nanaci
'eight'	yattu	_ya:ci	ya:ci	ya:ci	ya:ci
'nine'	kokono tu	_kukunuci	Qkunuci	kuku tu	kukunuci

In (80), we list Ryukyuan cognates for 'one' through 'nine' in comparison with Tokyo cognates. This suggests that Miyako and Yaeyama dialects lengthen the penultimate vowel if a word meets templates, namely either /CVCVCV/ or /CVCV/ where vowels in the initial and final syllables are high vowels.

Although Ryukyuan dialects in general do not show the length for the word

'five', there are some exceptions. The Yaeyama dialects of Ôhama and Sonai have the length: *ici:ci* in Ôhama and *ici:ci* in Sonai (Hirayama, et al. 1967: 227).

Turning now to the accentual correspondence between Ikema and Myôgi-shô trisyllables, as far as our data are concerned, Ikema atonic nouns correspond to Myôgi-shô categories 3.4 and 3.6, and its tonic nouns to Myôgi-shô categories 3.1-4. The category 3.4 overlaps the tonic and atonic categories in Ikema. Our data lack examples for trisyllabic nouns that correspond to Myôgi-shô category 3.5. According to Hirayama, et al. (1967), Myôgi-shô category 3.5 nouns are atonic in Ikema, e.g., *icyufu* 'cousin' (3.5).

5.4.1.2. Ôura Dialect

The Ôura dialect is spoken in the northern part of Miyako island. It is 4.5 km from the central city (Hirara-shi) of Miyako-island.

Like Ikema, Ôura accent has a locus system – distinctions are penultimate accent and final accent. In penultimate-accent nouns, the pitch falls after the second mora from the end of words. In final-accent nouns, the pitch falls at the end of words. When penultimate-accent nouns are followed by a particle, they become identical to final-accent nouns (see below for detail). Ôura also has a phonetic rule that lowers the pitch of the initial syllable unless it consists of two moras.

Hirayama, et al. (1967) gives two different descriptions using two different particles: *mai*, which is equivalent to *mo* 'too, as well' in Tokyo Japanese, and *nudu*, which is equivalent to *ga* (nominative marker) in Tokyo Japanese. Since

other Miyako dialects are described with the particle *nudu*, we use his Ôura data with the same particle in order to be consistent in our analysis.

Monosyllables: Ôura monosyllabic nouns distinguish penultimate and final accent. The former is phonetically HL without a particle (e.g., *pa* ɿ HL 'tooth') and HH(L) with a particle following (e.g., *pa* ɿ-*nudu* HH-LL 'tooth').

In (81), nouns in bold-faced letters are not on our word list. We have added them in order to fill in missing spots in our data so that we can capture general patterns of Ôura monosyllabic accent.

As our data show, there are three historical disyllables, i.e., *pa*: ɿ 'nose' (2.1), *i* ɿm 'sea' (2.4), and *in* ɿ 'dog' (2.3). The word *pa*: 'nose' is historically a disyllabic noun; cf., *hana* LH(H) in Tokyo and *fana* HH 'nose' in Myôgi-shô. It presumably lost the syllable *na* and lengthened the vowel /a/. For the cognates for 'sea' and 'dog', see discussions above.

(81) Ôura monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
o ɿo	HL(L)	1.3	<i>pa</i> ɿ 'tooth'
		2.4	<i>i</i> ɿm 'sea'
oo ɿ	HH(L)	1.1	<i>pu</i> : ɿ 'sail', <i>fa</i> : ɿ 'child'
		1.2	<i>pa</i> : ɿ 'leaf', <i>na</i> : ɿ 'name'
		1.3	<i>ki</i> : ɿ 'tree', <i>mi</i> : ɿ 'eye', ⁵¹ <i>ti</i> : ɿ 'hand', <i>Qsî</i> ɿ 'nest', <i>pi</i> : ɿ 'fart', <i>yu</i> : ɿ 'hot water', <i>pa</i> : ɿ 'blade'
		2.1	<i>pa</i> : ɿ 'nose'
		2.3	<i>in</i> ɿ 'dog'

Excluding those historically-disyllabic nouns, the word *pa* ɿ 'tooth' (1.3) is the only cognate that is penultimate-accent. Other monosyllables are final-accent

⁵¹ Hirayama, et al. (1967: 361) also gives another form for 'eye', namely *mi* ɿ, but this must be irregular or a typographical error.

in Ôura. The accentuation of the word for 'tooth' (1.3) must be irregular because as shown in (81), nouns corresponding to Myôgi-shô accent category 1.3 are normally final-accent.

A syllable-final nasal consonant is moraic. That is to say, the words such as *in* 'dog' and *i ɺm* 'sea' are monosyllabic. They became monosyllables when the final vowel was dropped, cf. *inu* ɺ 'dog' and *u ɺmi* 'sea' in Tokyo and *inu* LL 'dog', *umi* LH 'sea' in Myôgi-shô (Mochizuki 1974).

Disyllables: There are also penultimate and final accent for Ôura disyllabic nouns. Final-accent nouns are either LH(L), LHH(L), or HH(L). They are HH(L) when their word structure is CVV (e.g., *tui* ɺ 'bird'); otherwise, they are LH(L) for two-mora (e.g. *usi* ɺ 'cow'), and LHH(L) for three-mora nouns (e.g., *kiQfu* ɺ 'smoke'). In nouns with penultimate accent, the pitch falls after the penultimate mora in nouns with two moras (e.g., *pu* ɺ*hi* 'bone', *u:* ɺ*ki* 'bucket').

The synchronic analysis of Ôura disyllabic nouns includes not only original disyllabic nouns but also historical trisyllabic nouns. The former type is normally composed of two moras, and the latter consists of three moras. There are some exceptions to both types. The noun *u:* ɺ*ki* 'bucket' (2.5) is historically-disyllabic, but is composed of three moras. Furthermore, the words *nada* ɺ 'tears' (3.5) and *para* ɺ 'pillar' (3.5) are historically-trisyllabic, but they are two moras long.

(82) Ôura disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OŋO	HL ~ LH(L)	2.3	<i>pu</i> ʔi 'bone'
		2.4	<i>fu</i> ʔi 'boat', <i>pi</i> ʔi 'needle', <i>u</i> ʔi 'mortar', <i>i</i> ʔi 'breath'
		2.5	<i>ku</i> ʔi 'voice', <i>ka</i> ʔi 'shadow', <i>mu</i> ʔu 'bridegroom'
	HHL(L)	2.5	<i>u:</i> ʔi 'bucket'
		3.4	<i>o:</i> ʔi 'fan'
		3.5	<i>maQ</i> ʔa 'pillow', <i>nnu</i> ʔi 'life'
		3.7	<i>Qsu</i> ʔi 'medicine'
	LH(L)	2.1	<i>usi</i> ʔ 'cow', <i>kusi</i> ʔ 'loins', <i>pigi</i> ʔ 'beard', <i>kazi</i> ʔ 'wind'
		2.2	<i>isi</i> ʔ 'stone', <i>kabi</i> ʔ 'paper', <i>pasi</i> ʔ 'bridge'
		2.3	<i>pana</i> ʔ 'flower', <i>yama</i> ʔ 'mountain', <i>fumu</i> ʔ 'cloud'
		2.4	<i>icya</i> ʔ 'board'
		2.5	<i>ami</i> ʔ 'rain', <i>asi</i> ʔ 'sweat'
		3.5	<i>nada</i> ʔ 'tears', <i>para</i> ʔ 'pillar'
	LHH(L)	3.1	<i>kiQfu</i> ʔ 'smoke'
		3.2	<i>nkazi</i> ʔ 'centipede'
		3.4	<i>kagan</i> ʔ 'mirror'
		3.5	<i>aQva</i> ʔ 'fat' ⁵²
	HH(L)	2.1	<i>tui</i> ʔ 'bird'

When it comes to the correspondences between Ôura historically-disyllabic nouns and their Myôgi-shô cognates, we can generalize the pattern as follows. Ôura final-accent nouns correspond to Myôgi-shô 2.1-5 categories, and Ôura penultimate-accent nouns to Myôgi-shô categories 2.3-5. Investigating why some of Ôura disyllabic nouns corresponding to Myôgi-shô 2.3-5 categories are penultimate-accent and others are final-accent, we have found out that the

⁵² There is a discrepancy in Ôura data in Hirayama, et al. (1976). On page 70, the pitch of the word for 'fat' is LHH(L), but on page 272 it is HHH(L).

pattern of the correspondences is parallel to that of corresponding Ikema cognates. See (83) and (84) below.

(83)	Ôura	Ikema	Myôgi-shô
'bone'	pu ^h ni	puni	2.3
'boat'	fu ^h ni	funi	2.4
'needle'	pa ^h li	pai	2.4
'mortar'	u ^h si	usi	2.4
'breath'	i ^h ci	ici	2.4
'shadow'	ka ^h gi	kagi	2.5
'bridegroom'	mu ^h ku	muku	2.5
'bucket'	wu: ^h ki	wu:ki	2.5

(84)	Ôura	Ikema	Myôgi-shô
'flower'	pana ^h	hana ^h	2.3
'mountain'	yama ^h	yama ^h	2.3
'board'	icya ^h	icya ^h	2.4
'rain'	ami ^h	ami ^h	2.5
'sweat'	asi ^h	asi ^h	2.5

As shown in (83) and (84), there are two groups of words corresponding to Myôgi-shô 2.3-5 categories in both Ôura and Ikema, and each group contains the same cognates in both Ôura and Ikema. Furthermore, this phenomenon is also seen in Nakijin and Shuri Okinawan (see 5.3.3). This distinction is reflected in our reconstruction of PO, Proto-Ryukyuan, and Proto-Japonic accent.

Trisyllables: In the Ôura trisyllabic nouns, there are two types of accentuation, i.e., penultimate accent and final accent. Final-accent nouns are phonetically LHH(L). Penultimate-accent nouns are phonetically LHL and they are LHH(L) when followed by a particle. It should be noted that the pitch shape of penultimate nouns is identical to that of final-accent nouns when used in a phrase. Penultimate nouns with four moras are HHLL(L).

A word with the initial-syllable long vowel such as *mi:ma^hzi* 'earthworm' has four moras. This vowel length is found in Miyako and Yaeyama dialects; it is

not seen in Amami dialects, Okinawa dialects, or Mainland Japanese dialects (see Hirayama, et al. 1967: 71).

(85) Ôura trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OO]o	LHL	3.6	<i>gara</i> ʃa 'crow', <i>una</i> ʃi 'eel'
	~ LHH(L)	3.7	<i>kuzi</i> ʃa 'whale', <i>pata</i> ʃi 'field' ⁵³
	HHLL(L)	3.6	<i>mi:ma</i> ʃi 'earthworm'
OOO]	LHH(L)	3.1	<i>sirusi</i> ʃ 'mark', <i>futai</i> ʃ 'forehead', <i>afuki</i> ʃ 'yawn'
		3.2	<i>futa:ci</i> ʃ 'two'
		3.3	<i>cikara</i> ʃ 'strength', <i>kugani</i> ʃ 'gold'
		3.4	<i>fukuru</i> ʃ 'bag', <i>takara</i> ʃ 'treasure'

Just like in Ikema, the word *futa:ci* ʃ 'two' may have a secondary vowel length. See the discussion in 5.4.1.1.

Concerning accentual correspondences of Ôura trisyllabic nouns to their Myôgi-shô cognates, they are systematic. Ôura final-accent nouns regularly correspond to 3.1-4 category nouns in Myôgi-shô, and the penultimate-accent nouns to Myôgi-shô 3.5-7 categories. Our data lack nouns corresponding to Myôgi-shô category 3.5, but the word *ici* ʃu 'cousin' (3.5) indicates that there is a correspondence between Ôura penultimate-accent trisyllables and Myôgi-shô category 3.5.

5.4.1.3. Uechi Dialect

The Uechi dialect is spoken in the southwestern area of Miyako island, approximately 6 km from the central Hirara city.

⁵³ Hirayama, et al. (1967) list two Ôura forms for 'field': *pata* ʃi (page 69) and *pa* ʃi (page 309). The latter is not cognate with Japonic word *hatake* 'field'.

Typologically speaking, Uechi accent is a locus system. In Uechi there are three accentual patterns: atonic, penultimate accent, and final accent. Atonic nouns are low-level throughout the words. Penultimate-accent nouns have an accent on the penultimate syllable. And, for final-accent nouns, the pitch falls word-finally. A phonetic rule lowers the pitch height of an unaccented initial syllable. Interestingly, the domain for penultimate-accent and final-accent nouns differ. Penultimate-accent nouns generally shift the location of the accent depending on whether they are uttered with or without an enclitic, e.g., *fukuru* LHL 'bag', *fukuru-nudu* LHH-LL 'bag (Nom.)'. On the other hand, final-accent nouns normally keep an accent on the final syllable of words, e.g., *pana* /LH(L) 'flower'.⁵⁴

Monosyllables: In Uechi, there are two accent categories for monosyllabic nouns: final accent and atonic. The tonic nouns, excluding historical disyllables, correspond to their cognates in Myôgi-shô categories 1.1 and 1.3, and its atonic nouns to Myôgi-shô category 1.2. As far as our word list is concerned, there is no Uechi nouns corresponding to Myôgi-shô category 1.1. In order to determine what accent Uechi 1.1-nouns have and to what Myôgi-shô category they correspond, we have added other nouns, which are not on our original word list, to the data in (86). Those words are boldfaced.

⁵⁴ Final-accent disyllables consisting of three moras are HHL(L). This is completely predictable by their internal word structure (see the description of Uechi disyllabic accent in this section).

(86) Uechi monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
oo	LL(L)	1.2	<i>pa</i> : 'leaf', <i>na</i> : 'name'
		2.1	<i>pa</i> : 'nose'
<hr/>			
oo̤	HH(L)	1.1	<i>pu</i> : ̤'sail', <i>Qfa</i> ̤'child'
		1.3	<i>ki</i> : ̤'tree', <i>mi</i> : ̤'eye', <i>pa</i> : ̤'tooth'
		2.3	<i>in</i> ̤'dog'
		2.4	<i>im</i> ̤'sea'

Our list of monosyllabic nouns also includes historical disyllables which have become monosyllabic in the course of their development from earlier forms, e.g., *pa*: 'nose' (2.1), *in* ̤'dog' (2.3), and *im* ̤'sea' (2.4).

The word *pa*: 'nose', originally disyllabic, became monosyllabic, cf. *hana* LH 'nose' in Tokyo and *fana* HH 'nose' in Myôgi-shô (Mochizuki 1974). The word lost the final syllable *na* and lengthened the initial-syllable vowel. For 'dog' and 'sea', see discussions in 5.2.1.

Disyllables: For Uechi disyllabic nouns, there are also two accentual categories: final accent and atonic. The phonetic pitch shape of the tonic nouns with two moras is LH(L), but ones with three moras are HHL. By contrast, atonic nouns are simply low-level.

Just like Ikema and Ôura nouns meaning 'pillar' (3.5) and 'tears' (3.5), in Uechi the corresponding nouns also became disyllabic (see 5.4.1.1 and 5.4.1.2). They are two moras long, different from other historically-trisyllabic nouns that have become three-mora disyllabic.

(87) Uechi disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OO	LL(L)	2.1	<i>usi</i> 'cow', <i>tui</i> 'bird', <i>kusi</i> 'loins', <i>pigi</i> 'beard', <i>kazi</i> 'wind'
		2.2	<i>isi</i> 'stone', <i>kabi</i> 'paper', <i>pasi</i> 'bridge'
		3.1	<i>kiQfu</i> 'smoke'
		3.2	<i>mmkazi</i> 'centipede'
		3.4	<i>kagam</i> 'mirror'
OO]	LH(L)	2.3	<i>pana</i>]'flower', <i>yama</i>]'mountain', <i>fumu</i>] 'cloud', <i>puni</i>]'bone'
		2.4	<i>funi</i>]'boat', <i>püi</i>]'needle', <i>usi</i>]'mortar', <i>iki</i>] 'breath', <i>icya</i>]'board'
		2.5	<i>kui</i>]'voice', <i>kagi</i>]'shadow', <i>muku</i>] 'bridegroom', <i>ami</i>]'rain', <i>asi</i> ⁵⁵ 'sweat'
		3.5	<i>para</i>]'pillar', <i>nada</i>]'tears'
	HHL	2.5	<i>u:ki</i>]'bucket'
		3.4	<i>wa:gi</i>]'fan'
		3.5	<i>aQva</i>]'fat', <i>maQfa</i>]'pillow', <i>mnuci</i>]'life'

There are words that look like monosyllabic, such as *tui* 'bird' (2.1), *kui*] 'voice' (2.5), *püi*] 'needle' (2.4). We consider those words as disyllabic. For 'bird' and 'voice', see discussions in 5.4.1.1 above. We also treat the word *püi* 'needle' as disyllabic. There are two reasons. Firstly, the word contains a rearticulated vowel; i.e., the word is not CV: or CVn, which is a typical Uechi monosyllabic form. Secondly, the word is attested as not only disyllabic in modern Japonic languages but also historically disyllabic, e.g., *ha* *ri* 'needle' in Tokyo and *fari* LH 'needle' in Myôgi-shô (Mochizuki 1974).

Words with a heavy syllable containing a geminate consonant /Q/, moraic nasal, or vowel length are also treated as disyllabic, e.g., *kiQfu* 'smoke'

⁵⁵ According to Hirayama, et al. (1967), it is *as*, which is irregular in comparison with other disyllabic nouns in the language because it lacks a final vowel. However, it may be *as̥i* where the final vowel is devoiced; thus, it sounds like there is no vowel at the end.

(3.1), *kagam* 'mirror' (3.4), *mmkazi* 'centipede' (3.2), *wa: k̄i* 'fan' (3.4), *aQ ɓa* 'fat' (3.5), *maQ ɓa* 'pillow' (3.5), and *mnu k̄i* 'life' (3.5). Moreover, all of those nouns are attested as trisyllabic in other Japonic cognates including Myôgi-shô. It is likely the case that the nouns have lost a segment or segments in the course of the development of their accentuation, and some resyllabified a nasal consonant as moraic and others lengthened a vowel or consonant in order to compensate the loss of (a) segment(s). This phenomenon is commonly seen in Ryukyuan dialects.

With the exclusion of historically-trisyllabic nouns, a comparison of Uechi trisyllabic nouns with their Myôgi-shô cognates reveals that atonic disyllables regularly correspond to Myôgi-shô categories 2.1-2, and tonic nouns to Myôgi-shô categories 2.3-5.

Trisyllables: In Uechi trisyllabic nouns, there are also two accentuation types: tonic and atonic. The former type of nouns are mostly LHL ~ LHH(L), except the noun *mi:mizi* ʔHHHL(L) 'earthworm' (3.6), where the initial syllable contains two moras. Similar to other Miyako dialects, Uechi dialect has a phonetic rule that lowers the initial pitch of nouns, if the syllable does not carry a locus and if the syllable does not contain two moras. As for atonic nouns, they are phonetically low-level pitch.

With the exception of the word *mi:mizi* ʔ 'earthworm', Uechi trisyllabic nouns are generally in (C)VCV(C)V structure. A corresponding form for 'earthworm' in other Japonic dialects and in Myôgi-shô is in CVCVCV structure. The initial-syllable vowel length might be secondary.

(88) Uechi trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OOO	LLL(L)	3.1	<i>sirusi</i> 'mark', <i>futai</i> 'forehead', <i>afugi</i> 'yawn'
		3.2	<i>futa:ci</i> 'two'
		3.3	<i>kugani</i> 'gold'
OOO]	LHL	3.4	<i>fukuru</i>]'bag'
	~ LHH(L)	3.6	<i>garasa</i>]'crow', <i>unagi</i>]'eel'
		3.7	<i>fusui</i>]'drug', <i>kuzira</i>]'whale'
	HHHL	3.6	<i>mi:mizi</i>]'earthworm'

Comparing Uechi trisyllabic nouns with corresponding Myôgi-shô nouns, Uechi atonic nouns correspond to accent categories 3.1-3 in Myôgi-shô, and tonic nouns correspond to Myôgi-shô categories 3.4 and 3.6-7. Based on our data, it is not possible to know to which category Uechi nouns corresponding to Myôgi-shô category 3.5 belong because our data simply do not have those words. However, according to Hirayama, et al. (1967), the noun *icufu*]'cousin' (3.5) is tonic. Hence, we can state that Uechi trisyllabic tonic nouns correspond to Myôgi-shô categories 3.4-7.

5.4.2. Correspondences and Reconstruction of Proto-Miyako Accent

Based on the descriptions of the Miyako dialects in the previous section, in this section we will show all correspondences among the dialects and reconstruct Proto-Miyako (PM) accent categories for monosyllabic, disyllabic, and trisyllabic nouns. We will also reconstruct PM nouns belonging to each category.

Monosyllables: There are two sets of accentual correspondences among Ikema, Ôura, and Uechi monosyllabic nouns. On the basis of the

correspondences, we have reconstructed low-register final accent and high-register final accent for PM monosyllabic nouns. As far as accent typology is concerned, PM accent is a locus-register system as a whole. However, for PM monosyllables, only register is distinctive.

(89) Reconstructed PM accent for monosyllabic nouns

(a)		Ikema	Ôura	Uechi	PM
		oo]	oo]	oo]	*_oo]
		[LH(L)]	[HH(L)]	[HH(L)]	[RH(L)]
'sail'	(1.1)	hu:]	pu:]	pu:]	*_pu:]
'child'	(1.1)	Qfa]	fa:]	Qfa]	*_fa:]
'hair'	(1.1)	ki:]	—	—	*_ki:]
'tree'	(1.3)	ki:]	ki:]	ki:]	*_ki:]
'eye'	(1.3)	mi:]	mi:]	mi:]	*_mi:]
'tooth'	(1.3)	ha:]	pa:]	pa:]	*_pa:]
'dog'	(2.3)	in]	in]	in]	*_in]
'sea'	(2.4)	in]	i]m	im]	*_in]

(b)		Ikema	Ôura	Uechi	PM
		oo]	oo]	oo	*_oo]
		[LH(L)]	[HH(L)]	[LL(L)]	[HH(L)]
'leaf'	(1.2)	ha:]	pa:]	pa:	*_pa:]
'name'	(1.2)	na:]	na:]	na:	*_na:]

Correspondences between Miyako and Myôgi-shô accent are regular.

However, the correspondences in (89) show an interesting phenomenon. Unlike Amami and Okinawa monosyllables, Miyako nouns corresponding to Myôgi-shô accent 1.1 and 1.3 are in the same correspondence set (89a), and Miyako nouns to Myôgi-shô accent 1.2 are independently in (89b).

In our correspondence sets, there are some irregular accentual patterns. The accentuation of Ôura nouns for 'tooth' and 'sea' in (89a) is irregular; these two are initial-accent, whereas others are final-accent in this correspondence set.

As discussed earlier, on our original word list, there are no cognates that correspond to Myôgi-shô 1.1 nouns. Therefore, we added other 1.1-nouns such as for 'sail' and 'child' in order to reconstruct PM nouns that correspond to Myôgi-shô accent category 1.1. Moreover, we have reconstructed PM **_kǐ* 'hair' entirely based on the Ikema form, *kǐ*, because Ôura and Uechi lack equivalent cognates.

Miyako nouns for 'dog' (2.3), i.e., *iň* (Ikema), *iň* (Ôura), and *iň* (Uechi) became monosyllabic after losing a syllabic segment (cf. *inu* 'dog' in Myôgi-shô).⁵²

Disyllables: As far as our data are concerned, for Miyako disyllabic nouns there are three sets of correspondences; therefore, we are able to reconstruct three accent categories for PM disyllabic nouns. The following is an overview of accentual correspondences among Miyako disyllables along with our reconstructed forms.

(90) Overview of disyllabic accent correspondences in Miyako dialects

	Ikema	Ôura	Uechi	PM
(a)	OǑ [LH(L)]	OǑ [LH(L)]	OO [LL(L)]	*OǑ [HH(L)]
(b)	OǑ [LH(L)]	OǑ [LH(L)]	OǑ [LH(L)]	*OǑ [ĽH(L)]
(c)	OO [LL ~ HH(H)]	ǑO [HL ~ LH(L)]	OǑ [LH(L)]	*OO [LL(L)]

⁵² We are not suggesting that Miyako dialects are direct descendants of the language described in Myôgi-shô. We are just giving a disyllabic example for 'dog' from Myôgi-shô, with which the Ryukyuan language is related.

Based on the correspondences, the PM categories that we have reconstructed are high-register tonic, low-register tonic, and low atonic. Our reconstructed nouns for each accent category are listed under (91) below.

We are able to reconstruct PM $*_{-}pana]$ 'nose' in (91a) because the Ikema form has retained the segment that Ôura and Uechi have lost.

(91) Reconstructed PM accent for disyllabic nouns

(a)		Ikema	Ôura	Uechi	PM
		OO]	OO]	OO	$*_{-}OO]$
		[LH(L)]	[LH(L)]	[LL(L)]	[HH(L)]
'nose'	(2.1)	hana]	pa:]	pa:	$*_{-}pana]$
'cow'	(2.1)	usi]	usi]	usi	$*_{-}usi]$
'bird'	(2.1)	tui]	tui]	tui	$*_{-}tui]$
'loins'	(2.1)	kusi]	kusi]	kusi	$*_{-}kusi]$
'beard'	(2.1)	higi]	pigi]	pigi	$*_{-}pigi]$
'wind'	(2.1)	kadi]	kazi]	kazi	$*_{-}kadi]$
'stone'	(2.2)	isi]	isi]	isi	$*_{-}isi]$
'paper'	(2.2)	kabi:]	kabi]	kabi	$*_{-}kabi:]$
'bridge'	(2.2)	hasi]	pasi]	pasi	$*_{-}pasi]$
'centipede'	(3.2)	nkadi]	nkazi]	m:kazi	$*_{-}m:kazi]$
'mirror'	(3.4)	kagan]	kagan]	kagam	$*_{-}kagam]$

(b)		Ikema	Ôura	Uechi	PM
		OO]	OO]	OO]	$*_{-}OO]$
		[LH(L)]	[LH(L)]	[LH(L)]	[LH(L)]
'flower'	(2.3)	hana]	pana]	pana]	$*_{-}pana]$
'mountain'	(2.3)	yama]	yama]	yama]	$*_{-}yama]$
'cloud'	(2.3)	hm:u]	fumu]	fumu]	$*_{-}fumu]$
'board'	(2.4)	icya]	icya]	icya]	$*_{-}icya]$
'rain'	(2.5)	ami]	ami]	ami]	$*_{-}ami]$
'sweat'	(2.5)	asi]	asi]	asi]	$*_{-}asi]$
'calendar'	(3.4)	kuyun]	kuyun]	kuyum]	$*_{-}kuyum]$
'tears'	(3.5)	nada]	nada]	nada]	$*_{-}nada]$
'fat'	(3.5)	aQva]	aQva]	aQva]	$*_{-}aQva]$
'pillow'	(3.5)	maQfa]	maQ]fa	maQfa]	$*_{-}maQfa]$

(c)		Ikema	Ôura	Uechi	PM
		OO	O]O	OO]	*OO
		[LL	[HL	[LH(L)]	[LL(L)]
		~ HH(H)]	~ LH(L)]		
'bone'	(2.3)	puni	pu]ni	puni]	*puni
'boat'	(2.4)	funi	fu]ni	funi]	*funi
'needle'	(2.4)	pai	pi]i	püi]	*pai
'mortar'	(2.4)	usi	u]si	usi]	*usi
'breath'	(2.4)	ici	i]ki	iki]	*iki
'voice'	(2.5)	kui	ku]i	kui]	*kui
'shadow'	(2.5)	kagi	ka]gi	kagi]	*kagi
'bridegroom'	(2.5)	muku	mu]ku	muku]	*muku
'bucket'	(2.5)	wu:ki	u:]ki	u:]ki]	*wu:ki
'pillar'	(3.5)	hara	pa]ra	para]	*para
'life'	(3.5)	n:uci	n:]u]ci	mnuci]	*n:uci

Our reconstruction of disyllabic nouns includes not only historically disyllabic nouns but also historically trisyllabic nouns such as 'pillow', 'pillar', 'life', 'tears', 'fat', 'mirror', and 'centipede'. On the basis of our data, they were already disyllabic at the time of PM. Among those historically trisyllabic nouns which have become disyllabic in the line of PM, the word for 'pillow' shows an irregular correspondence; *maQ ʃa* in Ôura (91b).

Trisyllables: For PM trisyllabic nouns, we have reconstructed three accent categories on the basis of the correspondence sets shown in (92).

(92) Summary of accentual correspondences and reconstruction of PM accent for trisyllabic nouns

	Ikema	Ôura	Uechi	PM
(a)	OO]O [LHL ~ LHH(L)]	OOO] [LHH(L)]	OOO [LLL(L)]	*~OOO] [HHH(L)]
(b)	OO]O [LHL ~ LHH(L)]	OOO] [LHH(L)]	OOO] [LHL ~ LHH(L)]	*_OOO] [LHH(L)]
(c)	OOO [LLL ~ HHH(H)]	OO]O [LHL ~ LHH(L)]	OOO] [LHL ~ LHH(L)]	*OOO [LLL(L)]

Our reconstructed categories are high-register tonic, low-register tonic, and falling accent. Reconstructed trisyllabic nouns for each category are listed in (93).

As for cognates for 'fan' in (93b), the Ikema noun has kept three syllables, while Ôura and Uechi became disyllabic. Notice also that the accentuation of Ikema and Ôura cognates is aberrant; they differ from the accentuation of other 3.4-nouns in their correspondence set.

(93) Reconstructed PM accent for trisyllabic nouns

(a)		Ikema OO]O [LHL ~ LHH(L)]	Ôura OOO] [LHH(L)]	Uechi OOO [LLL(L)]	PM * ⁻ OOO] [HHH(L)]
'mark'	(3.1)	siru]sĩ	sĩrusĩ]	sĩrusĩ	* ⁻ sĩrusĩ]
'forehead'	(3.1)	futa]li	futai]	futai	* ⁻ futai]
'smoke'	(3.1)	kyu:]sĩ	kiQfu]	kiQfu	* ⁻ kifusĩ]
'yawn'	(3.1)	afu]zi	afuki]	afugi	* ⁻ afugi]
'two'	(3.2)	futa:]ci	futa:ci]	futa:ci	* ⁻ futa:ci]
'gold'	(3.3)	kuga]ni	kugani]	kugani	* ⁻ kugani]
(b)		Ikema OO]O [LHL ~ LHH(L)]	Ôura OOO] [LHH(L)]	Uechi OOO] [LHL ~ LHH(L)]	PM * ₋ OOO] [LHH(L)]
'bag'	(3.4)	fuku]ru	fukuru]	fukuru]	* ₋ fukuru]
'treasure'	(3.4)	taka]ra	takara]	—	* ₋ takara]
'fan'	(3.4)	auzi	o:]gi	wa:gi]	* ₋ augi]
(c)		Ikema OOO [LLL ~ HHH(H)]	Ôura OO]O [LHL ~ LHH(L)]	Uechi OOO] [LHL ~ LHH(L)]	PM *OOO [LLL(L)]
'cousin'	(3.5)	icyufu	ici]fu	icufu]	*icufu
'crow'	(3.6)	garasa	gara]sa	garasa]	*garasa
'eel'	(3.6)	unazi	una]gi	unagi]	*unagi
'earthworm'	(3.6)	—	mi:]mazi	mi:mizi]	*mi:mizi
'medicine'	(3.7)	Qfui	Qsu]i	fusui]	*fusui
'whale'	(3.7)	fuQza]	kuzi]ra	kuzira]	*kuzira
'field'	(3.7)	--	pata]gi	--	*patagi

In (93c), there is no Ikema cognate for 'earthworm'. Hirayama, et al. (1967) list *zīmizi* for 'earthworm', however the initial consonant /z/ corresponds to an /m/ in both Ôura and Uechi, which is not a regular correspondence because an /m/ in both Ôura and Uechi regularly corresponds to /m/ in Ikema. Therefore, the word *zīmizi* probably is not cognate with the Japonic word *mimizu* 'earthworm'. It is possibly a contamination from *zīi* 'earth, dirt'.

In Ikema and Ôura, the cognate for 'medicine' listed under (93a) is disyllabic. Only Uechi has kept the original trisyllabic form. The Ikema noun for 'whale' is also disyllabic and its accentuation is irregular.

Regarding the correspondence for 'field' in (93c), Ikema and Uechi dialects do not have a cognate word; the Ikema form for 'field' is *hai* and the Uechi form is *pari* ɿ, which are not cognate with the Ôura form *pata* ɿgi. Only Ôura has retained a Japonic cognate form. Thus, the PM word for 'field' is entirely based on the Ôura form.

It should be noted that we reconstruct PM **kifusi* ɿ for 'smoke', even though all corresponding cognates are three-mora disyllabic. This trisyllabic form is reconstructable on the basis of the correspondence because the Ikema form has kept the final syllable (i.e., *si*) that Ôura and Uechi lost.

The word meaning 'treasure' (3.4) is not available for Uechi dialect, but available for Ikema (*taka* ɿra) and Ôura (*takara* ɿ). Without an Uechi cognate, it seems difficult to determine whether this cognate belongs to a correspondence in (93b) or (93c), since we do not know the accentuation of the Uechi cognate. However, on the basis of accentual correspondence patterns in our data, it is reasonable for us to assume that the Uechi cognate for 'treasure' be high-register,

unless it has irregular accent, because another Uechi noun corresponding to Myôgi-shô accent 3.4 (e.g., *fukuru* 'bag') is high-register accent. Furthermore, Miyako nouns corresponding to Myôgi-shô accent 3.4 must have developed from the same proto accent form. We exclude the following correspondences because some items are compounds, non-cognate with other Japonic words, or unavailable in our data.

(94) Indeterminable correspondences

	Ikema	Ôura	Uechi
'hair'	ki: |	pīgi	pīgi LL
'blood'	aka |cī	ha: |cī	akacī
'chopsticks'	umasī	m:ya |sī	umi |sī
'shoulder'	kata |musī	kata |musī	kata |musī
'strength'	taya	cikara	taya |

The form *pīgi* in Ôura and Uechi originally meant 'beard', but semantic shift occurred and it became 'hair', cf. *fige* HH 'bread' in Myôgi-shô. Words for 'blood', 'chopsticks', and 'shoulder' are compounds in Ikema, Ôura, and Uechi. In the three dialects, the form for 'blood' consists of an adjective *aka* 'red' and a noun *cī* 'blood'. The form for 'chopsticks' is made up of an honorific morpheme plus a noun for 'chopsticks'. And for the word for 'shoulder' is also composed of two morphemes, i.e., *kata* 'shoulder' and *musī* '?'. Because they are compounds, we exclude them from our reconstruction.

In Miyako, there are two different forms for 'strength': *taya* and *cikara*. They are not cognate. The form *cikara* is cognate with other Japonic words, but the form *taya* is not. It is not known that the origin of *taya* and how it came into the Miyako dialects.

5.4.3. Development of Modern Miyako from PM

As we have summarized below, not only is locality of accent distinctive but also register is distinctive in PM accent. In this section, we will account for the development of modern Miyako Ryukyuan accent systems from the PM accent system.

(95) PM accent

Monosyllables	Disyllables	Trisyllables
(a) *_oo] [RH(L)]	(a) * ⁻ OO] [HH(L)]	(a) * ⁻ OOO] [HHH(L)]
(b) * ⁻ oo] [HH(L)]	(b) *_OO] [LH(L)]	(b) *_OOO] [LHH(L)]
	(c) *OO [LL(L)]	(c) *OOO [LLL(L)]

5.4.3.1. Development of Ikema Accent

In the development of Ikema accent, Abductive Change played a crucial role. Due to the occurrence of this change, in the Ikema line PM register lost its distinction. Eventually the Ikema accent system makes use of a tonic-atonic distinction, except that monosyllables do not have distinctive accent categories.

Monosyllables: In the Ikema line, PM monosyllabic accent categories merged into one as /oo]/ when word-initial pitch became no longer distinctive to the speakers. Interestingly, the pitch shape of the merged category reflects the pitch shapes of PM accent categories, i.e., the pitch is HH in isolation, but it becomes LH when uttered with an enclitic.

(96) Development of Ikema monosyllabic accent

PM	abductive change	
(a) *_oo]		
	>	oo]
(b) * ⁻ oo]		[HH ~ LH(L)]

Regarding Abductive Change, it causes a merger of accent categories that are phonetically similar. We consider the change natural because it is phonetically driven.

Disyllables: The development of Ikema disyllabic accent is very simple. It evolved from PM by undergoing only Abductive Change. Like its monosyllables, PM */^ˉOO]/ (97a) and */_OO]/ (97b) merged as /OO]/ [LH(L)] when the register distinction was lost. The pitch shape of the /OO]/ is LH(L) except for nouns with two moras in the initial syllable, where the initial syllable is high pitch (e.g., *kyu:si*]/HHH(L) 'smoke'). Regarding PM */OO/ (97c), it phonemically has remained the same. However, at the phonetic level, the pitch has become high-level when uttered with a particle; it is low-level without a particle.

(97) Development of Ikema disyllabic accent

PM	abductive change	
(a) */ ^ˉ OO]/	>	OO]/ [LH(L)]
(b) */_OO]/		
(c) */OO/	=	OO [LL ~ HH(H)]

Trisyllables: The development of Ikema trisyllabic nouns involves Abductive Change, Assimilation, and Contour Pitch Simplification. At the first stage, with the loss of the register distinction, PM */^ˉOOO]/ (98a) and */_OOO]/ (98b) became one, namely /OOO]/ [LHH(L)]. By means of the second change, the pitch of the category /OOO]/ [LHH(L)] became LHF ~ LHH(L). And then the application of Contour Pitch Simplification turned

/OOO]/ [LHF ~ LHH(L)] into /OO]O/ [LHL ~ LHH(L)]. Notice that PM

*/OOO/ (98c) did not undergo any change.

(98) Development of Ikema trisyllabic accent

PM	abductive change	assml	C-smpl
(a) * [~] OOO]			
(b) * ₋ OOO]	> OOO] [LHH(L)]	> OOO] [LHF ~ LHH(L)]	> OO]O [LHL ~ LHH(L)]
(c) *OOO	= OOO	= OOO	= OOO

Assimilation played a role in the development of Ikema trisyllabic accent. However, it did not affect its monosyllabic and disyllabic accent. This is because the conditions for the rule were not met. Assimilation takes place when there are at least two high pitches at the end of a lexical word. Because of the pitch shape of /OO]/ (97ab) (i.e., LH(L)), Assimilation had no effect on it.

5.4.3.2. Development of Ôura Accent

Like Ikema, Ôura also lost the PM register distinction by Abductive Change. In the development of Ôura accent, there are in total four changes. They are either phonetic or phonemic. Monosyllables underwent one, disyllables underwent two, and trisyllables went through three changes. We reveal below how those changes were effected.

Monosyllables: Ôura monosyllabic accent resulted from PM by undergoing Abductive Change. Since PM, this is the only change that took place in the development of the Ôura monosyllabic accent system. As a result of the change, the two accent categories of PM merged as /oo]/ [HH(L)].

(99) Development of Ôura monosyllabic accent

PM	abductive change	
(a) * ₋ oo] [RH(L)]	>	oo] [HH(L)]
(b) * ⁻ oo] [HH(L)]		

Disyllables: There are two crucial stages in the development of Ôura disyllabic accent from PM accent. At the first stage, PM */⁻OO]/ (100a) and */₋OO]/ (100b) merged into one as /OO]/ by means of Abductive Change. Because of the change, in the Ôura line the register distinction of PM was lost. At the second stage, PM */OO/ (100c) gained an accent on its initial syllable.

We should point out that /O]O/ is HL ~ LH(L); the form keeps an accent on the penultimate syllable. Due to this, the penultimate-accent nouns have the same accentuation as final-accent nouns when uttered with enclitics.

(100) Development of Ôura disyllabic accent

PM	abductive change	I-gain
(a) * ⁻ OO]	>	OO] [LH(L)]
(b) * ₋ OO]		
(c) *OO	=	OO
		> O]o [HL ~ LH(L)]

Trisyllables: Like monosyllables and disyllables, PM trisyllables also underwent Abductive Change, which put PM */⁻OOO]/ (101a) and */₋OOO]/ (101b) into one category, i.e., /OOO]/. At this point, the PM register distinction was lost. The next change (Initial Accent Gain) changed PM */OOO/ (101c) to

/O]OO/. And finally, Accent Shift shifted the accent of /O]OO/ onto the following syllable.

(101) Development of Ōura trisyllabic accent

PM	abductive change		I-gain	shift		
(a) * ⁻ OOO]	>	OOO]	=	OOO]	=	OOO]
(b) *_OOO]		[LHH(L)]	=	OOO]	=	OOO]
(c) *OOO	=	OOO	>	O]OO	>	OO]O

With regard to Accent Shift, this caused a change to trisyllables, but there was no effect on disyllables. This may be due to a high vowel in the second syllable; i.e., the vowel prevented the accent from shifting.

5.4.3.3. Development of Uechi Accent

In the history of Uechi Accent, four types of changes played roles. Those changes applied to Uechi nouns when conditions for them were met. Speaking of accent typology, like the other Miyako Ryukyuan dialects, Uechi also lost a register system. In the following, we will explain in detail how the Uechi accent system evolved from PM accent.

Monosyllables: In the development of Uechi monosyllabic accent, there are three types of changes: Final Accent Loss, Contour Pitch Simplification, and Pitch Leveling. The first sound change, applicable only to high-initial words, canceled out the accent of PM */⁻oo]/, making it high-level atonic. And then, by Pitch Leveling, it eventually became low-level. The other category (i.e., */₋oo]/) did not undergo Final Accent Loss and Pitch Leveling. However,

Contour Pitch Simplification changed the initial pitch of the /oo]/ [RH(L)], resulting in HH(L) pitch (see (4ii) in 4.1.1).

(102) Development of Uechi monosyllabic accent

PM	F-loss		C-smpl		Leveling	
(a) $\begin{smallmatrix} *_{-oo}] \\ [RH(L)] \end{smallmatrix}$	\equiv	$\begin{smallmatrix} oo] \\ [RH(L)] \end{smallmatrix}$	$>$	$\begin{smallmatrix} oo] \\ [HH(L)] \end{smallmatrix}$	$=$	$\begin{smallmatrix} oo] \\ \end{smallmatrix}$
(b) $\begin{smallmatrix} *^{-}oo] \\ [HH(L)] \end{smallmatrix}$	$>$	$\begin{smallmatrix} oo \\ [HH(H)] \end{smallmatrix}$	$=$	$\begin{smallmatrix} oo \\ \end{smallmatrix}$	$>$	$\begin{smallmatrix} oo \\ [LL(L)] \end{smallmatrix}$

Disyllables: Three accentual changes took place in the development of Uechi disyllabic nouns: Final Accent Loss, Abductive Change, and Pitch Leveling. First, undergoing Final Accent Loss, PM */⁻OO]/ (103a) became /⁻OO/. Along with this change, the initial pitch of PM */_{OO}]/ (103b) lost its distinctiveness and, by contrast, the initial pitch of PM */OO/ [LL(L)] (103c) became distinctive. The second change is Abductive Change. This change united the two low-initial categories (i.e., /OO]/ (103b) and PM */OO/ (103c)) into /OO]/. Finally, Pitch Leveling changed the pitch of /OO/ [HH(H)] (< PM */⁻OO]/) to low-level.

(103) Development of Uechi disyllabic accent

PM	F-loss		abductive change		Leveling	
(a) * ⁻ OO]	>	⁻ OO	≡	OO [HH(H)]	>	OO [LL(L)]
(b) * _{OO}]	≡	OO]				
			>	OO]	=	OO]
(c) *OO	≈	_{OO}				

Trisyllables: Uechi trisyllabic accent resulted from the same sequence of the changes as its disyllabic accent did. The first change, Final Accent Loss,

converted PM */ $\bar{\text{OOO}}$]/ (104a) to $\bar{\text{OOO}}$ /. When the change took place, the initial pitch of PM */ $_ \text{OOO}$]/ (104b) became no longer distinctive. However, the initial pitch of PM */ OOO / [LLL(L)] (104c) became distinctive in contrast with $\bar{\text{OOO}}$ / [HHH(H)] (104a). At the second stage, OOO]/ (< PM */ $_ \text{OOO}$]/) and $_ \text{OOO}$ / (104c) merged as OOO]/. Notice that Abductive Change merged low-initial categories. The final change is a phonetic change that made the high-level pitch of OOO / into low-level.

(104) Development of Uechi trisyllabic accent

PM	F-loss		abductive change		Leveling	
(a) $\bar{\text{OOO}}$]	>	$\bar{\text{OOO}}$	\equiv	OOO [HHH(H)]	>	OOO [LLL(L)]
(b) $_ \text{OOO}$]	\equiv	OOO]				
			>	OOO]	=	OOO]
(c) OOO	\approx	$_ \text{OOO}$				

The change took place in the order listed. However, Contour Pitch Simplification affected monosyllables even though it did not cause any change to disyllables and trisyllables. Moreover, Abductive Change did not take place in monosyllables, but it did in disyllables and trisyllables. When it comes to the ordering of these two changes, Abductive Change must have taken place before Contour Pitch Simplification because the former merges accent categories depending on their initial pitch height. If Abductive Change had taken place after Contour Pitch Simplification, PM monosyllables would have lost their accent distinctions by merging the categories (i.e., oo]/ [HH(L)] (102a) and oo / [HH(H)] (102b)).

Concerning typology of accent, in the Uechi line, the locus-register system of PM became a locus system. This is a result of a merger of accent distinctions caused by Abductive Change.

5.5. YAEYAMA RYUKYUAN

5.5.1. Description of Yaeyama Ryukyuan Accent

We will use three dialects of Yaeyama Ryukyuan in order to reconstruct Proto Yaeyama (PY). They are Ishigaki dialect (spoken in Ishigaki City, Ishigaki Island), Sonai dialect (spoken in Sonai, Iriomote Island), and Kuroshima dialect (spoken in Nakamoto, Kuroshima). All data on the accent of those Yaeyama dialects used in this dissertation are taken from Hirayama, et al. (1967).

5.5.1.1. Ishigaki Dialect

The accent system of Ishigaki nouns is simple -- nouns are either high-register or low-register. In high-register nouns, the pitch falls after the initial mora for two-mora nouns, and for three-mora nouns the pitch falls after the second mora. In low-register nouns, the pitch is low-level throughout the nouns.

Monosyllables: All monosyllables are two moras long; they consist of either a long vowel or a sequence of a vowel and a nasal consonant.

(105) Ishigaki monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
̄oo	HL(L)	1.1	̄ki: 'hair', ̄ci: 'blood'
		1.2	̄pa: 'leaf', ̄na: 'name'
_oo	LL(L)	1.3	_ki: 'tree', _pa: 'tooth', _mi: 'eye'
		2.3	_in 'dog'

The noun *_in* 'dog' is originally disyllabic, but it merged with monosyllabic low-register nouns after dropping the final vowel /u/, cf. *inu* 'dog' in Tokyo and *inu* LL 'dog' in Myôgi-shô (Mochizuki 1974).

Putting the original disyllabic nouns aside, it is clear that Myôgi-shô category 1.1-2 nouns correspond to Ishigaki high-register nouns, and also that Myôgi-shô 1.3 nouns are low-register in Ishigaki.

Disyllables: Just like monosyllabic nouns, there are two accentual types as well. They are high-register nouns are phonetically HL(L), but the phonetic locus shifts one mora to the right when the first mora is devoiced; they phonetically become LH(L), e.g., *̥p̥itu* 'person'. However, none of the cognates that we use for a reconstruction show this phenomenon.

Ishigaki disyllabic nouns are in general two moras long in the (C)V(C)V structure. There are also three-mora disyllabic nouns with a long vowel in the initial syllable, e.g., *_a:mi* 'rain', *_u:ki* 'bucket'.

(106) Ishigaki disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
̥OO	HL(L)	2.1	̥pana 'nose', ̥usi 'cow', ̥turi 'bird', ̥kusi 'loins', ̥pini 'beard', ̥kazi 'wind'
		2.2	̥isi 'stone', ̥kabi 'paper', ̥pasi 'bridge'
_OO	LL(L)	2.3	_pana 'flower', _yama 'mountain', _humu 'cloud', _puni 'bone'
		2.4	_huni 'boat', _pari 'needle', _usi 'mortar', _pasi 'chopsticks', _kata 'shoulder', _iki 'breath', _ita 'board'
		2.5	_kui 'voice', _kai 'shadow', _muku 'bridegroom', _a:mi 'rain', _asi 'sweat', _u:ki 'bucket'
		3.4	_kangan 'mirror', _ongi 'fan'
		3.5	_para: 'pillar', _aba 'fat', _nuci 'life', _nada 'tears', _mahwa 'pillow'

As explained in 5.2.1, the noun *_kui* ‘voice’ is treated as disyllabic.

Similarly, we also treat the word *_kai* ‘shadow’ as disyllabic. This word is historically disyllabic, i.e., *kage* LH ‘shadow’ in Myôgi-shô (Mochizuki 1974).

Some Ishigaki disyllabic nouns are originally trisyllabic. They are listed below in comparison with their Myôgi-shô cognates.

(107)	Ishigaki	Myôgi-shô		
	<i>_kangan</i>	<i>kagami</i>	‘mirror’	(3.4)
	<i>_ongi</i>	<i>afuki</i>	‘fan’	(3.4)
	<i>_para:</i>	<i>hasira</i>	‘pillar’	(3.5)
	<i>_aba</i>	<i>abura</i>	‘fat’	(3.5)
	<i>_nuci</i>	<i>inoti</i>	‘life’	(3.5)
	<i>_nada</i>	<i>namida</i>	‘tears’	(3.5)
	<i>_mahwa</i>	<i>makura</i>	‘pillow’	(3.5)

All the Ishigaki words listed above have lost at least a syllabic segment in the course of their development; as a result, they became disyllabic. Specifically, the noun *_kangan* has lost the final vowel and the final nasal became moraic, but the word also gained another moraic nasal in the initial syllable. The word for ‘fan’ also gained a nasal consonant. When words for ‘fat’, ‘life’, ‘tears’, and ‘pillow’ lost one syllable, they simply became two-mora disyllabic nouns, but others such as ‘pillar’ compensated for the loss and became three-mora.

The correspondences between Ishigaki disyllabic low-register nouns and their cognates in Myôgi-shô are systematic. Put simply, the Ishigaki low-register nouns correspond to Myôgi-shô low-initial nouns, and the Ishigaki high-register nouns are high-initial nouns in Myôgi-shô.

Trisyllables: Ishigaki low-register nouns are phonetically low-level, and high-register nouns are either HHL(L) or LHL(L). When the initial syllable contains a devoiced vowel,⁵³ the word is LHL(L); otherwise HHL(L).

Some Ishigaki trisyllabic nouns show vowel length in either the initial or second syllable, e.g., *huta:zi* 'two', *u:nai* 'eel', *mi:mizi* 'earthworm'. They are *futatu* HHL 'two', *munagi* LHH 'eel', and *mimizu* LHH 'earthworm' in Myôgi-shô (Mochizuki 1974). The reason why those words have the vowel length in Ishigaki is unknown.

(108) Ishigaki trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
ˉOOO	HHL(L)	3.1	ˉsirusi 'mark', ˉkibusī 'smoke', ˉakubī 'yawn'
		3.3	ˉkugani 'gold'
		<hr/>	
	LHL(L)	3.1	ˉhutai 'forehead'
		3.2	ˉhuta:zi 'two' LHLL(L)
		3.3	ˉcikara 'strength'
	<hr/>		
_OOO	LLL(L)	3.4	_hukuru 'bag', _takara 'treasure'
		3.6	_garasi 'crow', _u:nai 'eel', _mi:mizi 'earthworm'
		3.7	_husiri 'medicine', _kuzira 'whale', _patagi 'field'

We will now turn to the correspondences of trisyllabic cognates between Ishigaki and Myôgi-shô accentuation. Ishigaki low-register nouns regularly correspond to Myôgi-shô categories 3.4-7, and Ishigaki high-register nouns to Myôgi-shô categories 3.1-3.

⁵³ In Ishigaki, high vowels become devoiced between two voiceless consonants.

5.5.1.2. Sonai Dialect

As far as available Yaeyama data are concerned, the accent system of Sonai (Iriomote) dialect is the most complex one. There are three accentual categories in the language: atonic, penultimate accent, and final-rising accent. Monosyllabic nouns have a two-way distinction in accent: tonic (penultimate-accent) and atonic. Disyllabic and trisyllabic nouns distinguish three types of accentuation. To distinguish one word from another, the accent system of the Sonai dialect utilizes locus, not register. It is possible to analyze Sonai monosyllabic accent as a register system, which leads to a conclusion that only monosyllabic nouns have register, but that disyllables and trisyllables make use of only locus. However, when we take an accent system as a whole into account, it is natural to consider that accent functions in a uniform system. Considering the accent system of the Sonai dialect as a whole, it is better to analyze monosyllabic accent as a locus system than as a register system.

All Sonai words are taken from Hirayama, et al. (1967). However there is a discrepancy in the data. According to the description in Hirayama, et al. (1967: 45-9), the language has /O[̄]O/ [LH ~ LL(H)] and /OO[̄]O/[LLH ~ LLL(H)] categories, but on the word lists (1967: 60-75 and 193-504) the /O[̄]O/ and /OO[̄]O/ are described as /OO[̄]/ and /OOO[̄]/ respectively. We adopt the categories /O[̄]O/ and /OO[̄]O/ throughout this dissertation because they are clearly described as such in the description of Sonai dialect.⁵⁴

⁵⁴ It is possible to assume the accentuation in the word list is mistaken because a number of people other than the authors are involved in collecting data and in making the word list. In a process of making a word list, /OO[̄]/ [LH(L)] and /OOO[̄]/ [LLH(L)] might have been mistaken for /O[̄]O/ and /OO[̄]O/ respectively. However, the description of the dialect is written by the authors.

Monosyllables: For Sonai Monosyllabic nouns, there are two phonemic accent categories: penultimate-accent and low-atonic. They are phonetically HL(L) and LL(L) respectively. Sonai monosyllabic nouns are composed normally of two moras with a long vowel.

(109) Sonai monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
oo	LL(L)	1.1	<i>ki</i> : 'hair', <i>ci</i> : 'blood'
		1.2	<i>pa</i> : 'leaf', <i>na</i> : 'name'
o]o	HL(L)	1.3	<i>ki</i> ɿ: 'tree', <i>pa</i> ɿ: 'tooth'

Accentual correspondences between Sonai monosyllables and their cognates in Myôgi-shô are very systematic. Penultimate-accent nouns regularly correspond to Myôgi-shô accent category 1.3, and low-atonic nouns to Myôgi-shô 1.1-2.

Disyllables: For Sonai disyllabic nouns, there are three accentual distinctions, namely low-level atonic (/OO/), penultimate-accent (/O]O/), and final-rising accent (/O[↑]O/). As shown below, our disyllabic data include nouns corresponding to Myôgi-shô trisyllabic accentuation. Those nouns are originally trisyllabic, but became disyllabic when they lost a syllabic segment in their development from earlier forms. Not taking the historically-trisyllabic nouns into account, generally atonic nouns correspond to Myôgi-shô accent categories 2.1-2. As for tonic nouns, the data show that penultimate-accent nouns correspond to Myôgi-shô accent categories 2.4-5 and final-rising accent nouns to Myôgi-shô categories 2.3-5.

Words for 'centipede', 'fan', and 'pillar' are described as final-accent in Hirayama, et al. (1967: 67-70). This contradicts their analysis in Hirayama, et al.

(1967: 45-9). As listed in (110), we write them as final-rising because of the reason mentioned earlier.

(110) Sonai disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OO	LL(L)	2.1	<i>pana</i> 'nose', <i>usi</i> 'cow', <i>kusi</i> 'loins', <i>pini</i> 'beard', <i>kazi</i> 'wind'
		2.2	<i>isi</i> 'stone', <i>kabi</i> 'paper', <i>pasi</i> 'bridge'
		3.1	<i>hute</i> 'forehead'
O ^h O	HL(L)	2.4	<i>pa</i> ^h <i>ri</i> ~ <i>pa</i> ^h <i>ri</i> 'needle', <i>u</i> ^h <i>bi</i> 'mortar', <i>pa</i> ^h <i>bi</i> 'chopsticks', <i>i</i> ^h <i>ki</i> 'breath',
		2.5	<i>ku</i> ^h 'voice'
		3.4	<i>kaga</i> ^h LHL 'mirror'
O ^h O	LH ~ LL(H)	2.3	<i>pa</i> ^h <i>na</i> 'flower', <i>hu</i> ^h <i>mu</i> 'cloud', <i>i</i> ^h <i>nu</i> 'dog', <i>pu</i> ^h <i>ni</i> 'bone'
		2.4	<i>ka</i> ^h <i>ta</i> 'shoulder', <i>i</i> ^h <i>ta</i> 'board', <i>fu</i> ^h <i>ni</i> 'boat'
		2.5	<i>a</i> ^h <i>mi</i> 'rain', <i>a</i> ^h <i>si</i> 'sweat', <i>mu</i> ^h <i>ku</i> 'bridegroom', <i>u</i> ^h <i>gi</i> 'bucket'
		3.2	<i>mo</i> ^h <i>za</i> 'centipede'
		3.4	<i>on</i> ^h <i>gi</i> 'fan'
		3.5	<i>pa</i> ^h <i>ra</i> 'pillar', <i>na</i> ^h <i>da</i> 'tears', <i>mo</i> ^h <i>ra</i> 'pillow'
		3.6	<i>o</i> ^h <i>ni</i> 'eel'

As seen in Nakijin, Shuri, Ikema, and Ôura, Sonai also has subcategories in disyllabic nouns corresponding to Myôgi-shô accent categories 2.3-5, namely 2.3-5a and 2.3-5b distinctions that we discussed earlier. Nouns belonging to subcategory 2.3-5a are /O^hO/ in Sonai, and ones belonging to subcategory 2.3-5b are /O^hO/.

Turning now to formerly-trisyllabic nouns, there are two types. One type is two-mora disyllabic; they did not compensate for the length of the lost segment. The other type is three-mora disyllabic, resulting from compensatory lengthening. Examples for the former type are *hute* 'forehead' and *pa* ^h*ra* 'pillar', and for the latter type, *kaga* ^h 'mirror', *mo* ^h*za* 'centipede', *on* ^h*gi* 'fan', *na* ^h*da*

'tears', *mo:ɽra* 'pillow', *o:ɽni* 'eel'. In Myôgi-shô, those examples are attested as trisyllabic (see discussion on Miyako Ryukyuan above).

As we discussed earlier, words with CVV structure such as *ku ɿ* 'voice' are treated as disyllabic, not monosyllabic (see discussion in Miyako Ryukyuan). According to Hirayama, et al. (1967), characteristics of penultimate-accent nouns are that (i) they are generally in (C)VV structure (e.g., *ku ɿ* 'voice', *fu ɿ* 'pole') and (ii) they have a devoiced vowel in the final syllable (e.g., *u ɿ̥* 'mortar').

Trisyllables: According to Hirayama, et al. (1967: 45-9), the accentuation of Sonai trisyllabic nouns is a three-way system. More specifically, nouns are either low-level atonic, penultimate-accent, or final-rising accent. The atonic nouns are phonetically LLL(L) and the penultimate-nouns are LHL(L). It should be noted that among the penultimate-accent nouns, many 3.5-6 nouns have a devoiced vowel in the final syllable. For the final-rising accent nouns, their pitch shape is LLH in isolation, but they are LLL(H) when followed by a particle – the final syllable of a phrase is high.

In (111), what we write as *hukuɽru* 'bag', *takaɽra* 'treasure', and *usaɽgi* 'rabbit' are taken from Hirayama et al. (1967: 68-9) where final-rising accent (i.e., /OOɽO/) is analyzed as final-falling accent (i.e., /OOOɽ/). Because Hirayama et al. clearly describe Sonai as having final-rising accent and also because those "final-falling accent" nouns regularly correspond to final-rising accent, we will assume that final-falling accent nouns have been mistakenly listed.

(111) Sonai trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OOO	LLL(L)	3.1 3.2	<i>sirusi</i> 'mark', <i>kibusi</i> 'smoke', <i>aburi</i> 'yawn', <i>huta:ci</i> 'two'
OOŋO	LHL(L)	3.3 3.5 3.6	<i>cika ŋa</i> 'strength', <i>kuga ŋi</i> 'gold' ⁵⁵ <i>inu ki</i> 'life' <i>gara bi</i> 'crow', <i>mimin ki</i> 'earthworm'
OOŋO	LLH ~ LLL(H)	3.4 3.5 3.6 3.7	<i>hukuŋru</i> 'bag', <i>takaŋra</i> 'treasure' <i>abuŋra</i> 'fat', <i>kukuŋru</i> 'heart' <i>usaŋgi</i> 'rabbit' <i>husiŋri</i> 'medicine', <i>kuziŋra</i> 'whale'

Our data show that Sonai atonic nouns correspond to Myôgi-shô accent categories 3.1-2, the penultimate-accent to Myôgi-shô accent category 3.3 and 3.5-6, and the final-rising accent to Myôgi-shô categories 3.4-7.

Although most Sonai trisyllabic nouns are three moras long, there are two exceptional forms in our data. They are *huta:ci* 'two', *miminci* 'earthworm'. By contrast with earlier forms for those words attested in Myôgi-shô (i.e., *futatu* HHL 'two' and *mimizu* LHH 'earthworm' (Mochizuki 1974)), the former has a long vowel in the second syllable, and the latter has a moraic nasal in the second syllable. See the discussion on the word *huta:ci* 'two' in 5.4.1.1. For the word for 'earthworm', see 5.3.2 for our discussion on the origin of the nasal in relation to the PO form for 'earthworm'. Moreover, note that the word for 'earthworm' shows irregular vowel length in other Ryukyuan dialects.

As discussed above, there are three types of accentuation in the Sonai dialect: atonic, penultimate, and final-rising accent. Among the three accent

⁵⁵ This word is *kugani* LHL in isolation, but it is *kugani ndu* LLL-LH when followed by a particle (Hirayama, et al. 1967: 47).

types, in monosyllables, only two (i.e., atonic and penultimate) are distinctive, while in disyllables and trisyllables there are all the three types. This may be because rising accent is sensitive to the syllable, not the mora. In other words, the locus of rising accent is on the syllable, not on the mora.

(112) Summary of Sonai accent

	Monosyllables	Disyllables	Trisyllables
Atonic	/oo/ [LL(L)]	/OO/ [LL(L)]	/OOO/ [LLL(L)]
Penultimate	/o ^o / [HL(L)]	/O ^o O/ [HL(L)]	/OO ^o O/ [LHL(L)]
Final-rising	---	/O ^o O/ [LH ~ LL(H)]	/OO ^o O/ [LLH ~ LLL(H)]

5.5.1.3. Kuroshima Dialect

The accent of Kuroshima nouns is relatively simple. Disyllabic and trisyllabic nouns are contrastive in two ways, but monosyllabic nouns do not have any phonemic accentual distinction. We have analyzed the two-way distinctions of Kuroshima disyllables and trisyllables as a tonic-atonic system.

Monosyllables: The Kuroshima accent system is simpler than that of other Yaeyama dialects. Kuroshima monosyllabic nouns are atonic; phonetically either LH(H) or HH(H). In the data below, the latter phonetic shape is found only in the word *in* 'dog', which is originally disyllabic. In Kuroshima, syllable structure affects the phonetic pitch shape of words. That is, if a noun is composed of the (C)Vn syllable structure, the syllable will have high-level pitch instead of low on the first mora and high on the second, e.g., in HH 'dog', cf. *pana* LH 'nose'. See also the trisyllabic noun *han ɰari* HHLL(L) 'mirror'.

(113) Kuroshima monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
oo	LH(H)	1.1	<i>ki</i> : 'hair', <i>si</i> : 'blood'
		1.2	<i>pa</i> : 'leaf', <i>na</i> : 'name'
		1.3	<i>ki</i> : 'tree', <i>pa</i> : 'tooth', <i>mi</i> : 'eye'
	HH(H)	2.3	<i>in</i> 'dog'

Disyllables: Kuroshima disyllabic nouns are either tonic or atonic. Tonic nouns are phonetically HL(L), and atonic disyllables are phonetically LH(H).

When it comes to correspondences in accent between Kuroshima original disyllabic nouns and Myôgi-shô cognates, the Kuroshima atonic nouns correspond to all of the Myôgi-shô accent categories, i.e., categories 2.1-5, and tonic nouns to Myôgi-shô categories 2.3-5. Note that some of the historical accent categories correspond to both tonic and atonic nouns in Kuroshima.

(114) Kuroshima disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OO	LH(H)	2.1	<i>pana</i> 'nose', <i>usi</i> 'cow', <i>turi</i> 'bird', <i>kusi</i> 'loins', <i>pini</i> 'beard', <i>kazi</i> 'wind'
		2.2	<i>isi</i> 'stone', <i>habi</i> 'paper', <i>pasi</i> 'bridge'
		2.3	<i>pana</i> 'flower', <i>yama</i> 'mountain', <i>fumu</i> 'cloud'
		2.4	<i>hata</i> 'shoulder', <i>ica</i> 'board'
		2.5	<i>ami</i> 'rain', <i>asi</i> 'sweat'
		3.5	<i>aQva</i> 'fat', <i>nada</i> 'tears'
O ^o O	HL(L)	2.3	<i>pu</i> ^{hi} 'bone'
		2.4	<i>fu</i> ^{hi} 'boat', <i>pa</i> ^{ri} ⁵⁶ 'needle', <i>u</i> ^{si} 'mortar', <i>pa</i> ^{si} 'chopsticks', <i>i</i> ^{ki} 'breath'
		2.5	<i>ku</i> ^{hi} 'voice', <i>ha</i> ^{hi} 'shadow', <i>mu</i> ^{ku} 'bridegroom', <i>u:</i> ^{ki} HHL 'bucket'
		3.2	<i>nka</i> ^{za} LHL 'centipede'
		3.4	<i>on</i> ^{gi} HHL 'fan'
		3.5	<i>pa</i> ^{ra} 'pillar', <i>nu</i> ^{ki} 'life', <i>maQ</i> ^{fa} HLL 'pillow'

⁵⁶ According to Hirayama, et al. (1967: 126), in Kuroshima, the vowel /i/ is on its way out. However, it appears after /s/ and /r/, and they are devoiced (e.g., *pari* 'needle', *turi* 'bird', *sikara* 'strength').

Furthermore, as shown in (115) and (116), excluding historically-trisyllabic nouns, there are two subcategories among Kuroshima disyllabic nouns corresponding to the historical accent categories 2.3-5. Nouns in (115) are tonic in Kuroshima and the ones in (116) are atonic. These two groups exist in Ikema and Ôura Miyako dialects as well (see (83) and (84) above). For historical perspective on this matter, see historical explanations below.

(115)	Kuroshima	Myôgi-shô
'bone'	pu̯ni	2.3
'boat'	fu̯ni	2.4
'needle'	pa̯ri	2.4
'mortar'	u̯si	2.4
'breath'	i̯ki	2.4
'shadow'	ha̯li	2.5
'bridegroom'	mu̯ku	2.5
'bucket'	u:̯ki	2.5

(116)	Kuroshima	Myôgi-shô
'flower'	pana	2.3
'mountain'	yama	2.3
'board'	ica	2.4
'rain'	ami	2.5
'sweat'	asi	2.5

Most of the historical disyllabic nouns are two-mora in Kuroshima. The noun *u:̯ki* 'bucket' is the only one that has a long vowel in the initial syllable. This vowel length might have existed in earlier forms in relation to accentuation (see 5.3.3.).

Some of the trisyllabic nouns have become disyllabic after losing one syllable, and now have disyllabic accentuation, e.g., *pa̯ka* 'pillar' (3.5), *nu̯ki* 'life' (3.5), and *nada* 'tears' (3.5). There are also historically-trisyllabic nouns that have disyllabic accent categories, but are three moras long, e.g., *nka̯za* 'centipede' (3.2), *aQva* 'fat' (3.5), *maQ̯fa* 'pillow' (3.5), and *on̯gi* 'fan' (3.4).

For the words with CVV structure (e.g., *ku* \bar{h} 'voice', *ha* \bar{h} 'shadow'), see the discussion on Miyako Ryukyuan, where we argue for the treatment of those words as disyllabic.

Trisyllables: Phonetically atonic trisyllabic nouns are LHH(H), and tonic nouns are either LHL(L) or HHL(L); the nouns are HHL(L) when the initial syllable is CVn-, otherwise LHL(L). In other words, Kuroshima has a phonetic rule that lowers the initial syllable of high-register nouns if the pitch does not fall immediately after the syllable.

(117) Kuroshima trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OOO	LHH(H)	3.1	<i>sirusi</i> 'mark', <i>kibusi</i> 'smoke', <i>aubi</i> 'yawn', <i>futai</i> 'forehead'
		3.2	<i>futa:ci</i> 'two'
		3.3	<i>sikara</i> 'strength', <i>kugani</i> 'gold'
		3.4	<i>takara</i> 'treasure'
<hr/>			
OO \bar{O}	LHL(L)	3.4	<i>huku</i> \bar{h} i 'bag', <i>pata</i> \bar{k} i 'field', <i>ici:</i> \bar{k} i 'five'
		3.5	<i>kuku</i> \bar{h} u 'heart', <i>yara</i> \bar{h} i 'child'
		3.6	<i>gara</i> \bar{h} i 'crow', <i>una</i> \bar{g} i 'eel', <i>mi:ma</i> \bar{z} i 'earthworm'
		3.7	<i>fusi</i> \bar{h} i 'medicine', <i>kuzi</i> \bar{h} a 'whale', <i>pata</i> \bar{k} i 'field'
		<hr/>	
	HHL(L)	3.4	<i>hanga</i> \bar{h} i 'mirror'

The description of Kuroshima trisyllabic accent in (117) includes nouns that are not on our original word list. In order to see a whole picture of corresponding patterns between Kuroshima and Myôgi-shô accentuation, we have added more words. They are *pata* \bar{k} i 'field' (3.4), *ici:* \bar{k} i 'five' (3.4), *kuku* \bar{h} u 'heart' (3.5), and *yara* \bar{h} i 'child' (3.5).

According to (117), Kuroshima atonic trisyllabic nouns correspond to Myôgi-shô 3.1-4 nouns, and trisyllabic tonic nouns correspond to Myôgi-shô

categories 3.4-3.7. Some of the Kuroshima nouns overlap Myôgi-shô categories -- which implies the occurrence of irregular sound change. Because Kuroshima nouns corresponding to Myôgi-shô category 3.4 are normally tonic (*huku* ɿ̃ 'bag', *pata* ɿ̃ 'field', *hanga* ɿ̃ 'mirror', *ici*: ɿ̃ 'five'), the word 'treasure' (3.4) must be irregular. Therefore, the correspondence between Kuroshima and Myôgi-shô accent is systematic. That is, Kuroshima atonic corresponds to Myôgi-shô categories 3.1-3, and Kuroshima high-register corresponds to Myôgi-shô categories 3.4-7.

Among trisyllabic nouns listed above, there are two which have vowel length, e.g., *futa:ci* 'two' and *mi:ma* ɿ̃ 'earthworm'. The length might have been secondary because of its irregularity. That is to say, in Kuroshima tonic trisyllables, the pitch falls after the second mora. However, for the word *mi:ma* ɿ̃, the pitch falls after the syllable *ma*, which is the third mora from the left, because the pitch regularly falls after the second mora in Kuroshima trisyllables, except for 'earthworm'. This implies that the word might have lengthened the initial-syllable vowel in its evolution, but the reason for the lengthening is not known.

There is another noun that has four moras in our data. The noun is *hanga* ɿ̃ HHLL 'mirror', where there is a nasal in the initial syllable. This is not rare in Ryukyuan; it is also seen in some other Ryukyuan dialects (cf. *kagami* 'mirror' in Myôgi-shô, Tokyo, and Kyoto). Kuroshima dialect is one of those Ryukyuan dialects, but it is not clear how the moraic nasal came into existence.

5.5.2. Correspondences and Reconstruction of Proto-Yaeyama Accent

This section contributes to a reconstruction of PY accent. The reconstruction is straightforward; the number of accentual distinctions reflects the number of correspondence sets. Concerning typology of accent, the system of PY accent utilizes locus and register. For more detail, see the following discussions.

Monosyllables: In Yaeyama monosyllabic nouns there are two sets of accentual correspondences. Notice that there is a systematic correspondence between Myôgi-shô accent categories and PY accent categories. This regularity of accent patterns suggests that there should be two accent categories in PY. Based on the correspondence sets in (118), we propose $*/\bar{\text{oo}}/$ and $*/_oo/$ for PY monosyllabic accent. They are phonetically HH(L) and LH(L) respectively. PY monosyllabic nouns are distinguished by register.

(118) Reconstructed PY accent for monosyllabic nouns

(a)		Ishigaki	Sonai	Kuroshima	PY
		$\bar{\text{oo}}$	oo	oo	$*/\bar{\text{oo}}/$
		[HL(L)]	[LL(L)]	[LH(H)]	[HH(L)]
'hair'	(1.1)	$\bar{\text{ki:}}$	ki:	ki:	$*/\bar{\text{ki:}}/$
'blood'	(1.1)	$\bar{\text{ci:}}$	ci:	si:	$*/\bar{\text{ci:}}/$
'leaf'	(1.2)	$\bar{\text{pa:}}$	pa:	pa:	$*/\bar{\text{pa:}}/$
'name'	(1.2)	$\bar{\text{na:}}$	na:	na:	$*/\bar{\text{na:}}/$
(b)		Ishigaki	Sonai	Kuroshima	PY
		$_oo$	$\text{o}|\text{o}$	oo	$*/_oo/$
		[LL(L)]	[HL(L)]	[LH(H)]	[LH(L)]
'tree'	(1.3)	$_ki:$	ki|:	ki:	$*/_ki:|/$
'tooth'	(1.3)	$_pa:$	pa|:	pa:	$*/_pa:|/$
'eye'	(1.3)	$_mi:$	--	mi:	$*/_mi:|/$

A Sonai cognate for 'eye' is not available; Hirayama, et al. (1967) gives *min ki* for 'eye' in Sonai, but this is probably a compound.

Disyllables: On the basis of the following correspondences, we are able to reconstruct four accent categories for PY. The reconstructed categories are */^ˉOO]/, */_OO]/, and */OO/. See the following summary of our correspondence sets and reconstruction. For reconstructed nouns for each category, see (120).

(119) Summary of accentual correspondences and reconstruction of PY accent for disyllabic nouns

	Ishigaki	Sonai	Kuroshima	PY
(a)	^ˉ OO [HL(L)]	OO [LL(L)]	OO [LH(H)]	* ^ˉ OO] [HH(L)]
(b)	_OO [LL(L)]	O[O [LH ~ LL(H)]	OO [LH(H)]	*_OO] [LH(L)]
(c)	_OO [LL(L)]	O]O [HL(L)]	O]O [HL(L)]	*OO [LL(L)]

PY disyllabic accent makes use of register and locus to distinguish one word from another. In the Ishigaki line, this has become a register system. In the Sonai and Kuroshima lines, it became a locus system.

In the matter of cognates in the correspondences in (120), the words meaning 'tears' (3.5), 'fan' (3.4), and 'pillar' (3.5) are historically trisyllabic nouns, but we reconstruct them as disyllabic, i.e., PY **na:da*] 'tears' (120b), **ongi* 'fan' (120c), and PY **para* 'pillar' (120c), because none of our cognate forms are trisyllabic. At the time of PY, these words were probably disyllabic.

In the correspondences in (120c), Sonai cognates for 'boat', 'bucket', 'bridegroom', 'fan', and 'pillar' have irregular accentuation; they are final-rising while most of cognates in the correspondence set are initial-accent.

As discussed earlier, it appears that there are two subcategories for 2.3-5 words, and they are seen in Shuri, Nakijin, Ikema, Ôura, and Kuroshima Ryukyuan. Cognates belonging to each subcategory are identical among these other Ryukyuan dialects (see 5.3.3, 5.4, and 5.5.1.4).

(120) Reconstructed PY accent for disyllabic nouns

(a)		Ishigaki	Sonai	Kuroshima	PY
		$\overline{\text{OO}}$ [HL(L)]	OO [LL(L)]	OO [LH(H)]	$^*\overline{\text{OO}}$ [HH(L)]
'nose'	(2.1)	$\overline{\text{pana}}$	pana	pana	$^*\overline{\text{pana}}$
'cow'	(2.1)	$\overline{\text{usi}}$	usi	usi	$^*\overline{\text{usi}}$
'bird'	(2.1)	$\overline{\text{turi}}$	—	turi	$^*\overline{\text{turi}}$
'loins'	(2.1)	$\overline{\text{kusi}}$	kusi	kusi	$^*\overline{\text{kusi}}$
'beard'	(2.1)	$\overline{\text{pini}}$	pini	pini	$^*\overline{\text{pini}}$
'wind'	(2.1)	$\overline{\text{kazi}}$	kazi	kazi	$^*\overline{\text{kazi}}$
'stone'	(2.2)	$\overline{\text{isi}}$	isi	isi	$^*\overline{\text{isi}}$
'paper'	(2.2)	$\overline{\text{kabi}}$	kabi	habi	$^*\overline{\text{kabi}}$
'bridge'	(2.2)	$\overline{\text{pasi}}$	pasi	pasi	$^*\overline{\text{pasi}}$

(b)		Ishigaki	Sonai	Kuroshima	PY
		$\overline{\text{OO}}$ [LL(L)]	$\text{O}^{\text{f}}\text{O}$ [LH ~ LL(H)]	OO [LH(H)]	$^*\overline{\text{OO}}$ [LH(L)]
'flower'	(2.3)	$\overline{\text{pana}}$	pa ^f na	pana	$^*\overline{\text{pana}}$
'mountain'	(2.3)	$\overline{\text{yama}}$	(yamana)	yama	$^*\overline{\text{yama}}$
'cloud'	(2.3)	$\overline{\text{humu}}$	hu ^f mu	fumu	$^*\overline{\text{fumu}}$
'dog'	(2.3)	$\overline{\text{in}}$	i ^f nu	in	$^*\overline{\text{inu}}$
'board'	(2.4)	$\overline{\text{ita}}$	i ^f ta	ica	$^*\overline{\text{ita}}$
'shoulder'	(2.4)	$\overline{\text{kata}}$	ka ^f ta	hata	$^*\overline{\text{kata}}$
'rain'	(2.5)	$\overline{\text{a:mi}}$	a ^f mi	ami	$^*\overline{\text{a:mi}}$
'sweat'	(2.5)	$\overline{\text{asi}}$	a ^f si	asi	$^*\overline{\text{asi}}$
'tears'	(3.5)	$\overline{\text{nada}}$	na: ^f da	nada	$^*\overline{\text{na:da}}$

(c)		Ishigaki	Sonai	Kuroshima	PY
		<u>OO</u>	O <u>l</u> O	O <u>l</u> O	*OO
		[LL(L)]	[HL(L)]	[HL(L)]	[LL(L)]
'bone'	(2.3)	<u>p</u> uni	pu <u>f</u> ni	pu <u>f</u> ni	*puni
'needle'	(2.4)	<u>p</u> ari	pa <u>l</u> ri, pa <u>l</u> :ri	pa <u>l</u> ri	*pa:ri
'mortar'	(2.4)	<u>u</u> si	u <u>l</u> si	u <u>l</u> si	*usi
'chopsticks'	(2.4)	<u>p</u> asi	pa <u>l</u> si	pa <u>l</u> si	*pasi
'boat'	(2.4)	<u>h</u> uni	hu <u>f</u> ni	fu <u>f</u> ni	*funi
'breath'	(2.4)	<u>i</u> ki	i <u>l</u> ki	i <u>l</u> ki	*iki
'shadow'	(2.5)	<u>k</u> ai	ka <u>l</u> i	ha <u>l</u> i	*kai
'voice'	(2.5)	<u>k</u> ui	ku <u>l</u> i	ku <u>l</u> i	*kui
'bucket'	(2.5)	<u>u</u> :ki	u <u>l</u> gi	u: <u>l</u> ki	*u:ki
'bridegroom'	(2.5)	<u>m</u> uku	mu <u>l</u> ku	mu <u>l</u> ku	*muku
'fan'	(3.4)	<u>o</u> ngi	on <u>l</u> gi	on <u>l</u> gi	*ongi
'pillar'	(3.5)	<u>p</u> ara:	pa <u>l</u> ra	pa <u>l</u> ra	*para:

Trisyllables: In a comparison of the trisyllabic nouns of Yaeyama Ryukyuan, we can establish four accentual categories. The following is a summary of correspondences and reconstructed accent categories for PY trisyllables.

(121) Summary of accentual correspondences and reconstruction of PY accent for trisyllabic nouns

	Ishigaki	Sonai	Kuroshima	PY
(a)	<u>OOO</u> [HHL(L)/ LHL(L)]	OOO [LLL(L)]	OOO [LHH(H)]	*OOO [HHH(H)]
(b)	<u>OOO</u> [HHL(L)/ LHL(L)]	OO <u>l</u> O [LHL(L)]	OOO [LHH(H)]	* <u>OOO</u>) [HHF ~ HHH(L)]
(c)	<u>OOO</u> [LLL(L)]	OO <u>l</u> O [LHL(L)]	OO <u>l</u> O [LHL(L)]	*OO <u>l</u> O [LHL(L)]
(d)	<u>OOO</u> [LLL(L)]	OO <u>l</u> O [LLH ~ LLL(H)]	OO <u>l</u> O [LHL(L)]	* <u>OOO</u>) [LHF ~ LHH(L)]

According to the reconstruction, the PY trisyllabic accent is a system utilizing both register and locus distinctions. Register distinguishes high-initial final falling accent from low-initial final falling accent.

The following list of correspondences includes disyllabic nouns, e.g., *_mahwa* 'pillow' in Ishigaki (122d), *kagan* 'mirror' in Sonai (122c), and *nu ki* 'life' in Kuroshima (122c), which are historically trisyllabic. (See 5.5.1 above for detailed discussions on those historical trisyllables.) Because they can be reconstructed as trisyllabic in PY in comparison with other cognate forms in Yaeyama dialects, we list them in (122) below.

When it comes to irregular correspondences, the accentuation of the word *takara* 'treasure' (122d) in Kuroshima must be irregular; it must have been tonic. That is to say, it must be the same as other nouns corresponding to Myôgi-shô category 3.4. A group of words sharing the same historical accentuation generally undergoes the same line of changes, thus those words should share the same accentuation in their modern forms, unless there have been external influence on the language, such as language contact. Between Ishigaki trisyllabic nouns and their corresponding Myôgi-shô nouns, there are systematic correspondences, e.g., Myôgi-shô 3.1-3 nouns are high-register in Ishigaki, and Myôgi-shô 3.4-7 nouns are low-register in Ishigaki. On the other hand, in Kuroshima, some trisyllabic nouns corresponding to Myôgi-shô 3.4 are tonic and others are atonic, e.g., *huku ri* 'bag' (3.4), *takara* 'treasure' (3.4), and *aQva* 'fat' (3.4). The fact that Myôgi-shô 3.4 nouns correspond to both tonic and atonic suggests the occurrence of irregular sound change(s) in Kuroshima.

(122) Reconstructed PY accent for trisyllabic nouns

(a)		Ishigaki	Sonai	Kuroshima	PY
		$\overline{\text{OOO}}$ [HHL(L)/ LHL(L)]	OOO [LLL(L)]	OOO [LHH(H)]	$^*\text{OOO}$ [HHH(H)]
'mark'	(3.1)	$\overline{\text{sirusi}}$	sirusi	sirusi	$^*\text{sirusi}$
'forehead'	(3.1)	$\overline{\text{hutai}}$	hute	futai	$^*\text{futai}$
'yawn'	(3.1)	$\overline{\text{akubi}}$	aburi	aubi	$^*\text{akubi}$
'smoke'	(3.1)	$\overline{\text{kibusi}}$	kibusi	kibusi	$^*\text{kibusi}$
'two'	(3.2)	$\overline{\text{huta:zi}}$	huta:ci	futa:ci	$^*\text{futa:ci}$
(b)		Ishigaki	Sonai	Kuroshima	PY
		$\overline{\text{OOO}}$ [HHL(L)/ LHL(L)]	$\text{OO} \overline{\text{O}}$ [LHL(L)]	OOO [LHH(H)]	$^*\overline{\text{OOO}}$ [HHF ~ HHH(L)]
'strength'	(3.3)	$\overline{\text{cikara}}$	cika $\overline{\text{ra}}$	sikara	$^*\overline{\text{cikara}}$
'gold'	(3.3)	$\overline{\text{kugani}}$	kuga $\overline{\text{ni}}$	kugani	$^*\overline{\text{kugani}}$
(c)		Ishigaki	Sonai	Kuroshima	PY
		$\overline{\text{OOO}}$ [LLL(L)]	$\text{OO} \overline{\text{O}}$ [LHL(L)]	$\text{OO} \overline{\text{O}}$ [LHL(L)]	$^*\text{OO} \overline{\text{O}}$ [LHL(L)]
'mirror'	(3.4)	$\overline{\text{kangan}}$	kaga $\overline{\text{ni}}$	hanga $\overline{\text{ri}}$	$^*\text{kaga} \overline{\text{ni}}$
'life'	(3.5)	$\overline{\text{nuci}}$	inu $\overline{\text{ci}}$	nu $\overline{\text{ci}}$	$^*\text{inu} \overline{\text{ci}}$
'earthworm'	(3.6)	$\overline{\text{mi:mizi}}$	mimin $\overline{\text{ci}}$	mi:ma $\overline{\text{zi}}$	$^*\text{mi:mi} \overline{\text{zi}}$
'crow'	(3.6)	$\overline{\text{garasi}}$	gara $\overline{\text{si}}$	gara $\overline{\text{si}}$	$^*\text{gara} \overline{\text{si}}$
'field'	(3.7)	$\overline{\text{patagi}}$	—	pata $\overline{\text{ki}}$	$^*\text{pata} \overline{\text{ki}}$
(d)		Ishigaki	Sonai	Kuroshima	PY
		$\overline{\text{OOO}}$ [LLL(L)]	$\text{OO} \overline{\text{O}}$ [LLH ~ LLL(H)]	$\text{OO} \overline{\text{O}}$ [LHL(L)]	$^*\overline{\text{OOO}}$ [LHF ~ LHH(L)]
'centipede'	(3.2)	$\overline{\text{ngaza}}$	mo: $\overline{\text{za}}$	nka $\overline{\text{za}}$	$^*\overline{\text{mukaza}}$
'bag'	(3.4)	$\overline{\text{hukuru}}$	huku $\overline{\text{ru}}$	huku $\overline{\text{ri}}$	$^*\overline{\text{hukuru}}$
'treasure'	(3.4)	$\overline{\text{takara}}$	taka $\overline{\text{ra}}$	<i>takara</i>	$^*\overline{\text{takara}}$
'fat'	(3.5)	$\overline{\text{aba}}$	abu $\overline{\text{ra}}$	aQva	$^*\overline{\text{abura}}$
'pillow'	(3.5)	$\overline{\text{mahwa}}$	mo: $\overline{\text{ra}}$	ma $\overline{\text{Qfa}}$	$^*\overline{\text{mafura}}$
'heart'	(3.5)	$\overline{\text{kukuru}}$	kuku $\overline{\text{ru}}$	kuku $\overline{\text{ru}}$	$^*\overline{\text{kukuru}}$
'cousin'	(3.5)	$\overline{\text{icihu}}$	icihu	isiku LHH	$^*\overline{\text{iciku}}$
'eel'	(3.6)	$\overline{\text{u:nai}}$	o: $\overline{\text{ni}}$	una $\overline{\text{gi}}$	$^*\overline{\text{u:nagi}}$
'drug'	(3.7)	$\overline{\text{husiri}}$	husi $\overline{\text{ri}}$	fusi $\overline{\text{ri}}$	$^*\overline{\text{fusuri}}$
'whale'	(3.7)	$\overline{\text{kuzira}}$	kuzi $\overline{\text{ra}}$	kuzi $\overline{\text{ra}}$	$^*\overline{\text{kuzira}}$

Regarding Yaeyama nouns corresponding to Myôgi-shô accent category 3.2, there are two patterns, namely ‘two’ in (122a) and ‘centipede’ in (122d). The former has the same pattern as nouns corresponding to Myôgi-shô category 3.1, and the latter to Myôgi-shô categories 3.4-7. On the basis of merging patterns of accent categories in Ryukyuan, it is natural to assume that a correspondence set for ‘two’ is regular and the one for ‘centipede’ (3.2) is irregular. In the three Yaeyama dialects above, a cognate for ‘centipede’ have somehow come to have the same accent as nouns corresponding to Myôgi-shô accent categories 3.4-7.

We are not able to determine the accent type for the word for ‘sea’ because the Ishigaki and Kuroshima forms are not cognate with the Japonic word for ‘sea’, and the Sonai word for ‘sea’ also does not seem to be cognate; it is possibly a compound form.

(123) Indeterminable correspondence

	Ishigaki	Sonai	Kuroshima
‘sea’	tumo:rî	Qsuna	tumaŋrî

5.5.3. Development of Modern Yaeyama Dialects from Proto-Yaeyama

We have proposed a reconstruction of PY accent in the previous section. In this section, we explain how the modern Yaeyama dialects (i.e., Ishigaki, Sonai, and Kuroshima) have developed their accent systems from the proto accentual system. (124) contains a summary of our reconstructed PY accent system.

(124) PY accent system

Monosyllabic	Disyllabic	Trisyllabic
(a) * ⁻ oo] [HH(L)]	(a) * ⁻ OO] [HH(L)]	(a) *OOO [HHH(H)]
(b) * ₋ oo] [LH(L)]	(b) * ₋ OO] [LH(L)]	(b) * ⁻ OOO] [HHF ~ HHH(L)]
	(c) *OO [LL(L)]	(c) *OO]O [LHL(L)]
		(d) * ₋ OOO] [LHF ~ LHH(L)]

5.5.3.1. Development of Ishigaki Accent

Although the developments of Ishigaki monosyllabic and disyllabic accent are simple, involving only two accent changes, its trisyllables underwent a complex course of development. From the typological point of view, the word-initial register system existing in PY has been kept in the Ishigaki line.

Monosyllables: As (125) illustrates, Final Accent Loss and Initial Accent Gain rules contributed to the development of Ishigaki monosyllabic accent. The application of the first rule made PY monosyllables atonic (i.e., /⁻oo/ and /₋oo/). By the following sound change, /⁻oo/ [HH(H)] (< PY */⁻oo]/) became /⁻oo/ [HL(L)]. This rule does not apply to low-initial words.

(125) Development of Ishigaki monosyllabic accent

PY	F-loss	I-gain
(a) * ⁻ oo] [HH(L)]	>	⁻ oo > ⁻ oo [HL(L)]
(b) * ₋ oo] [LH(L)]	>	₋ oo = ₋ oo [LL(L)]

Disyllables: The development of Ishigaki disyllabic accent involves two sound changes, i.e., Final Accent Loss and Initial Accent Gain. At the first stage, by the Final Accent Loss rule, PY */^ˉOO]/ (126a) and */_OO]/ (126b) lost their final accent -- they became /^ˉOO/ and /_OO/ respectively. And the latter resulted in merging with PY */OO/ [LL(L)] (126c). In other words, the rule converted a three-way system of PY to a two-way system: high-register atonic and low-register atonic.

At the next stage, the Initial Accent Gain rule, applicable only to high-initial nouns, made high-register nouns HL(L) at the phonetic level. Therefore, PY register has remained in the Ishigaki line, even though their phonetic pitch shapes are *different*.

(126) Development of Ishigaki disyllabic accent

PY	F-loss	I-gain
(a) */ ^ˉ OO]	> ^ˉ OO	> ^ˉ OO [HL(L)]
(b) */_OO]	> _OO	= _OO
(c) */OO		

Trisyllables: As shown below, there are four stages in the development of Ishigaki trisyllabic accent. At the first stage, Accent Shift turned PY */OO]O/ (127c) into /OOO]/. Speakers in the Ishigaki line began to lose the distinction between PY */OOO/ [HHH(H)] (127a) and */^ˉOOO]/ [HHF ~ HHH(L)] (127b), and also between /OOO]/ [LHH(L)] (127c) and */_OOO]/ [LHF ~ LHH(L)] because of similarity in their pitch shapes. Notice that high-initial categories

merged together and low-initial categories merged as one. Furthermore, when this merger took place, the PY register distinction was completely lost.

At the third stage, Contour Pitch Simplification affected /OOO\ / [HHF ~ HHH(L)] and it became /OO]O / [HHL(L)].

And finally, /OOO] / (127cd) lost its accent by undergoing Final Accent Loss, becoming /_OOO / [LLL(L)]. This caused the change from /OO]O / to /_OOO / [HHL(L)].

(127) Development of Ishigaki trisyllabic accent

	PY	shift	abductive change	C-smpl	F-loss
(a)	*OOO	=	OOO		
			> OOO\	> OO]O	≈ ⁻ OOO
(b)	* ⁻ OOO\	=	⁻ OOO\		[HHL(L)]
(c)	*OO]O	>	OOO]		
			> OOO]	= OO]O	> _OOO
(d)	*_OOO\	=	_OOO\		

Regarding ordering of the changes in the Ishigaki line, there are five changes in total. Basically the changes occur as listed in (127). Since Initial Accent Gain takes place after Final Accent Loss as shown in (125) and (126), it is ordered at the end in the development of Ishigaki accent.

5.5.3.2. Development of Sonai Accent

The development of Sonai accent involves in total five different types of changes, including both phonemic and phonetic ones. Earlier in the development, PY register was lost, and Sonai accent became a locus system. Furthermore, unlike Ishigaki, a merger of accent categories is rare; one merger is

seen in trisyllables. The following section will reveal how Sonai accent came into existence.

Monosyllables: The accent system of Sonai monosyllabic nouns has resulted from undergoing Final Accent Loss, Initial Accent Gain, and Pitch Leveling. All PY monosyllabic nouns lost their final accent by means of Final Accent Loss. All the nouns became atonic. At this point, distinctions are made by register, i.e., /^ˉoo/ and /_oo/. When the next change (I-gain) took place, /_oo/ (128b) was converted into /o^ˉo/. This is a conditioned rule, applying only to low-initial words. Thus, /^ˉoo/ (128a) did not undergo the change. However, its initial pitch became no longer distinctive; the change from /^ˉoo/ to /oo/ occurred.

In addition to those sound changes, there is a phonetic change as well. Notice that PY */^ˉoo/ [HH(H)] (128a) became low-level in the Sonai line. This is because PY high-level nouns underwent lowering in pitch after register became no longer distinctive.

(128) Development of Sonai monosyllabic accent

PY	F-loss		I-gain		Leveling	
(a) * ^ˉ oo] [HH(L)]	>	^ˉ oo	≡	oo	>	oo [LL(L)]
(b) *_oo] [LH(L)]	>	_oo	>	o ^ˉ o	=	o ^ˉ o

Disyllables: In the development of Sonai accent, PY disyllables underwent the same series of accent changes as monosyllables did. The first change deleted the final accent of PY */^ˉOO]/ (129a) and */_OO]/ (129b). The

former became /^ˉOO/ and the latter /O^ˈO/. It also caused a change to PY */OO/, although it is secondary. PY */OO/ became /_OO/ in contrast with /^ˉOO/ (129a).

In the development, the register distinction was lost when the Initial Accent Gain rule turned /_OO/ into /O^ˈO/; the initial pitch of /^ˉOO/ became nondistinctive. The rule is not applicable to high-initial nouns, thus the high-initial atonic accent stayed the same. Finally, the application of Pitch Leveling lowered the pitch shape of /OO/. That is, HH(H) became LL(L).

(129) Development of Sonai disyllabic accent

PY	F-loss		I-gain		Leveling	
(a) * ^ˉ OO ^ˈ	>	^ˉ OO	≡	OO [HH(H)]	>	OO [LL(L)]
(b) *_OO ^ˈ	>	O ^ˈ O	=	O ^ˈ O	=	O ^ˈ O
(c) *OO	≈	_OO	>	O ^ˈ O	=	O ^ˈ O

Trisyllables: In the history of Sonai trisyllabic accent, there were three changes: Low Tone Spreading (L-sprd), Contour Pitch Simplification, and Pitch Leveling.

(130) Development of Sonai trisyllabic accent

PY	L-sprd	C-smpl	Leveling			
(a) *OOO [HHH(H)]	=	OOO	=	OOO [LLL(L)]		
(b) * ⁻ OOO ^ˈ	=	⁻ OOO ^ˈ	>	OO ^ˈ O	=	OO ^ˈ O [LHL(L)]
(c) *OO ^ˈ O	=	OO ^ˈ O				
(d) *_OOO ^ˈ [LHF ~ LHH(L)]	>	_OOO ^ˈ [LLF ~ LLH(L)]	>	OO ^ˈ O	=	OO ^ˈ O

First, the initial pitch of PY */_OOO\ (130d) had an influence at the phonetic level, and turned H-pitch to low. Therefore, LHF ~ LHH(L) became LLF ~ LLH(L). Second, Contour Pitch Simplification changed PY */^OOO\ (130b) and */_OOO\ (130d) to /OO]O/ and /OO[O/ respectively. As a result, the former merged with PY */OO]O/ (130c). Furthermore, the register system of PY was lost as well. At the final stage of the development, PY */OOO/ (130a) lowered its pitch from HHH(H) to LLL(L).

As introduced, in the Sonai line there are five changes. They are Final Accent Loss, Initial Accent Gain, Pitch Leveling, Low Tone Spreading, and Contour Pitch Simplification. The first three had an effect on both monosyllables and disyllables, but the other two did not. For trisyllables, the last three took place, but the first two did not. Some changes did not occur because conditions for the changes were not met. As a whole, considering the developments in (128 - 130), the changes seen in the Sonai line must have been ordered as follows: Low Tone Spreading > Final Accent Loss > Initial Accent Gain > Contour Pitch Simplification > Leveling. Note that Low Tone Spreading does not have any effect on accented syllables; thus, for example, /OO]/ [LH(L)] would not become LL(L) or LL(H).

5.5.3.3. Development of Kuroshima Accent

As Kuroshima accent evolved, its monosyllables underwent two change, disyllables three changes, and trisyllables three changes. The three changes that took place in the development of the trisyllabic accent are very different from the sound changes involved in the monosyllabic and disyllabic accents. We will

show how those changes played roles in the development of Kuroshima accent below.

Monosyllables: In the development of Kuroshima monosyllabic accent from PY, Final Accent Loss and Abductive Change played a crucial role. By the first rule, PY */ $\bar{\text{oo}}$]/ and */ _oo]/ became / $\bar{\text{oo}}$ / and / _oo / respectively. And then Abductive Change merged them into one category, namely / oo / [LH(H)]. As a result, the PY register distinction was lost.

(131) Development of Kuroshima monosyllabic accent

PY	F-loss	abductive change
(a) */ $\bar{\text{oo}}$] [HH(L)]	>	$\bar{\text{oo}}$
		> oo [LH(H)]
(b) */ _oo] [LH(L)]	>	_oo

Disyllables: With the applications of Initial Accent Gain and Final Accent Loss, Kuroshima disyllabic accent evolved from PY. When the first rule was applied, PY */ OO / (132c) became initial accent. The second rule made an accent on the final syllable nondistinctive. That is to say, PY */ $\bar{\text{OO}}$]/ and */ _OO]/ became / $\bar{\text{OO}}$ / and / _OO / respectively. And they merged as / OO / [LH(H)] at the final stage by means of Abductive Change. Due to this change, the PY register system was lost.

(132) Development of Kuroshima disyllabic accent

PY	I-gain		F-loss		abductive change
(a) * ^ˉ OO]	=	^ˉ OO]	>	^ˉ OO	> OO [LH(H)]
(b) * _ˉ OO]	=	_ˉ OO]	>	_ˉ OO	
(c) *OO	>	O]o	=	O]o	= O]o

Trisyllables: In the Kuroshima line, PY accent underwent a rather drastic change by undergoing Abductive Change, Contour Pitch Simplification, and Initial Pitch Lowering. The four accent categories of PY trisyllables have been reduced in half, and the PY register distinction has been lost.

Undergoing Abductive Change, PY */OOO/ (133a) and */^ˉOOO\ (133b) merged as /OOO/. Because of similarity in pitch shapes, speakers of the Kuroshima line lost the distinction between them. At this point, the register was not distinctive any more.

(133) Development of Kuroshima trisyllabic accent

PY	abductive change		C-smpl		I-low
(a) *OOO	>	OOO	=	OOO	> OOO [LHH(H)]
(b) * ^ˉ OOO\					
(c) *OO]o	=	OO]o	>	OO]o	= OO]o
(d) * _ˉ OOO\	=	OOO\			

The second change (namely, Contour Pitch Simplification) converted PY */_ˉOOO\ (133d) to /OO]O/, and it merged with PY */OO]o/ [LHL(L)] (133c).

Finally, /OOO/ [HHH(H)] (133a and b) became LHH(H). Low pitch on unaccented initial syllables is commonly seen in Yaeyama Ryukyuan.

Looking into the changes that took place in the development of Kuroshima accent as a whole, it should be pointed out that Initial Accent Gain follows Initial Pitch Lowering. If the ordering is reversed, Kuroshima /OOO/ [LHH(H)] might have become initial accent.

5.6. YONAGUNI RYUKYUAN

5.6.1. Description of Yonaguni Ryukyuan Accent

The Yonaguni dialect that we are going to analyze is Sonai dialect of Yonaguni island. Yonaguni is geographically much closer to Taiwan (approximately 90 km) than to the island of Okinawa (approximately 340 km), where the capital city of Okinawa Prefecture is located.

As far as the Ryukyuan language is concerned, the accent system of Yonaguni Ryukyuan is one of the most complex systems. In its accent system, there are three accentual categories and they are distinguished by register and locus. One of the accentual categories is high register, with its initial syllable in low pitch. The second category is low register; it is low-level throughout. The last category is final accent. Nouns with this accent start in low pitch and the pitch falls within the final mora, e.g., *huni* LF 'boat'. However, the pitch falls immediately after the final mora when uttered with a particle, e.g., *huni* ga LH-L. See the following description for more examples.

Monosyllables: Yonaguni monosyllabic nouns have two accent categories: high-register atonic and low-register atonic. The high-register nouns

are phonetically high-level. And all the low-register nouns are low-level pitch. As for the structure of the monosyllables, they are all comprised of two moras.

(134) Yonaguni monosyllabic nouns

Phonemic	Phonetic	Myô	List of nouns
ˉoo	HH(H)	1.1	ˉkʰi: 'hair', ˉci: 'blood'
		1.2	ˉha: 'leaf', ˉna: 'name'
<hr/>			
ˌoo	LL(L)	1.3	ˌkʰi: 'tree', ˌha: 'tooth', ˌmi: 'eye'

When it comes to accentual correspondences between Yonaguni monosyllables and their Myôgi-shô cognates, Yonaguni high-register monosyllables correspond to Myôgi-shô categories 1.1-2, and low-register nouns to Myôgi-shô category 1.3.

Disyllables: In Yonaguni disyllabic nouns, there are three distinctive accent patterns: high-register atonic, low-register atonic, and final-falling accent.

Yonaguni disyllables are distinguished by not only register but also by locus. The high-register nouns are phonetically either LH(H) or HH(H). They are generally LH(H), but HH(H) when they have CVi word structure. The low-register nouns are low-level throughout the words. In final-falling accent nouns, there are two types of phonetic pitch shapes; one is LF and the other HL in their citation form. The latter type of nouns is in the CVi structure, e.g., *hai* } 'needle', as opposed to (C)VCV or CCV structure of the former type. Furthermore, the pitch shape of those final-falling accent nouns changes when they are used in a phrase; LF-nouns become LH(H), and HL-nouns become HH(H) when followed by a particle.

(135) Yonaguni disyllabic nouns

Phonemic	Phonetic	Myô	List of nouns
¯OO	LH(H)	2.1	¯uci 'cow', ¯k ^h uci 'loins', ¯k ^h adi 'wind', ¯ŋgi 'beard'
		2.2	¯haci 'bridge', ¯k ^h abi 'paper'
		3.2	¯ta:ci 'two'
	HH(H)	3.1	¯tai 'forehead'
_OO	LL(L)	2.3	_hana 'flower', _dama 'mountain', _inu 'dog', _mmu 'cloud'
		2.4	_kata 'shoulder', _ita 'board'
		2.5	_ami 'rain', _asi 'sweat'
		3.4	_ku:ru 'bag', _kaŋan 'mirror'
		3.5	_anda 'fat', _nuda 'tears'
OO)	LF	2.3	huni } 'bone'
	~ LH(H)	2.4	uci } 'mortar', haci } 'chopsticks', iti } 'breath', nni } 'boat'
		2.5	k ^h aŋi } 'shadow', mugu } 'bridegroom', ugi } 'bucket'
		3.5	hira } 'pillar', nuti ꞑ 'life'
		3.7	cu:ri } 'medicine'
	HL	2.4	hai } 'needle'
	~ HH(H)	2.5	k ^h ui } 'voice'

Notice that we analyze nCV-words such as ¯ŋgi 'beard' (2.1), _mmu 'cloud' (3.4), and nni) 'boat' (2.4) as disyllabic. This is because they behave as disyllabic and they do not act like other monosyllables do. If we analyzed nni) 'boat' (2.4) as monosyllabic, we would have to establish another accent category only for this word. In addition, the nCV-words are disyllabic in Japanese (e.g., *hige* 'beard', *kumo* 'cloud', and *fune* 'boat' in Tokyo and Kyoto), and they are historically disyllabic, as well.

The list of disyllabic nouns in (135) includes not only original disyllabic nouns but also historically trisyllabic nouns such as $\bar{t}ai$ 'forehead', $\bar{t}a:ci$ 'two', $\bar{k}u:ru$ 'bag', $\bar{k}a\eta an$ 'mirror', $\bar{a}nda$ 'fat', $\bar{n}uda$ 'tears', $hira$ 'pillar', $nuti$ 'life', and $cu:ri$ 'medicine'. These formerly-trisyllabic nouns are attested in Myôgi-shô as displayed in (136) (see Mochizuki 1974). The formerly-trisyllabic nouns lost a syllable in the course of their development in the dialect.

A comparison of Yonaguni disyllabic nouns with their corresponding Myôgi-shô cognates makes it clear that there is a systematic accent correspondence in accent between them. Yonaguni high-register atonic disyllables correspond to Myôgi-shô high-initial accent categories, and Yonaguni low-register atonic and final-falling accent disyllables to Myôgi-shô low-initial accent categories.

(136) Historical trisyllabic nouns

	Yonaguni	Myôgi-shô
'forehead'	$\bar{t}ai$	fitafi HHH/HHL
'two'	$\bar{t}a:ci$	futatu HHL
'bag'	$\bar{k}u:ru$	fukuro LLL
'mirror'	$\bar{k}a\eta an$	kagami LLL
'fat'	$\bar{a}nda$	afura LLH
'tears'	$\bar{n}uda$	namida LLH
'pillar'	$hira$	fasira LLH
'life'	$nuti$	inoti LLH
'medicine'	$cu:ri$	kusuri LHL
'centipede'	$\eta kadi$	mukade HHL

Trisyllables: The accent system of Yonaguni trisyllabic nouns is nearly identical to that of its disyllabic nouns -- the only difference between them is in the number of syllables. In the system of the trisyllables, high-register nouns are

⁵⁷ This is taken from Hirayama, et al. (1967).

phonetically LHH(H), low-register nouns LLL(L), and final-falling accent nouns LHF ~ LHH(H). It should be noted that Yonaguni has a rule that lowers the initial-syllable pitch of words if the syllable is not accented.

Note that the word *ŋkadi* } 'centipede' is analyzed as trisyllabic because it acts as trisyllabic (see also our discussion on nCV-words above). The accentuation of the word seems irregular. In general, words belonging to historical high-register accent categories 3.1-3 and words to historical low-register categories 3.4-7 systematically develop their accent; they do not generally ignore register distinction. However, the word for 'centipede' seems to be irregular in Ryukyuan dialects – it is not listed with nouns corresponding to historical accent categories 3.1 and 3.2. Its accent might have become irregular earlier than PR. For the time being, we leave this matter as it is, for our future research.

(137) Yonaguni trisyllabic nouns

Phonemic	Phonetic	Myô	List of nouns
ˉOOO	LHH(H)	3.1	ˉ <i>ciruci</i> 'mark', ˉ <i>k^hibunci</i> 'smoke', ˉ <i>agui</i> 'yawn'
		3.3	ˉ <i>sikara</i> 'strength', ˉ <i>k^huŋani</i> 'gold'
		3.7	ˉ <i>hatagi</i> 'field' ⁵⁸
_OOO	LLL(L)	3.4	_ <i>tagara</i> 'treasure', _ <i>kuyumi</i> 'calendar'
		3.5	_ <i>icici</i> 'five' _ <i>magura</i> 'pillow'
OOO }	LHF ~ LHH(H)	3.2	<i>ŋkadi</i> } 'centipede' ⁵⁹
		3.6	<i>garaci</i> } 'crow'
		3.7	<i>k^hudira</i> } 'whale', <i>tarai</i> } 'basin'

⁵⁸ In contrast, Hirayama, et al. (1967) list the word with different accentuation: *hatagi* } 'field'.

⁵⁹ In Hirayama, et al. (1967), the word for 'centipede' is *ŋkadi*.

Regarding the accentual correspondences between Yonaguni trisyllabic nouns and their Myôgi-shô cognates, Yonaguni high-register trisyllabic nouns correspond to Myôgi-shô categories 3.1, 3.3, and 3.7, Yonaguni low-register nouns to Myôgi-shô categories 3.4-5, and Yonaguni tonic nouns to 3.6-7 accent categories of Myôgi-shô. The accentuation of the word *hatagi* 'field' (3.7) must be irregular because Yonaguni nouns corresponding to Myôgi-shô category 3.7 are normally final-falling accent (e.g., *k^hudira* 'whale', *tarai* 'basin').

5.7. CORRESPONDENCES AND RECONSTRUCTION OF PROTO RYUKYUAN ACCENT

Our main goals are twofold for this section. The first one is to present accentual correspondences for monosyllables, disyllables, and trisyllables among PA, PO, PM, PY, and Yonaguni. And the second goal is to reconstruct the PR accent system on the basis of the correspondences. We also reveal the individual PR nouns belonging to each accent category.

As noticed, there is no proto Yonaguni. This is because a reconstruction of it is not possible at present due to a lack of data on other Yonaguni dialects; only Sonai data are available. Therefore, we directly compare the Sonai data with PO, PA, PM, and PY data in order to reconstruct PR accent.

Monosyllables: As shown in (138), there are three sets of accentual correspondences for Ryukyuan monosyllabic nouns. This enables us to hypothesize three PR accentual distinctions for PR monosyllabic nouns. The distinctions that we propose are high-level atonic (**/oo/* [HH(H)]), high-register final accent (**/^ˉoo/* [HH(L)]), and low-register final accent (**/_oo/* [LH(L)]).

(138) Reconstructed PR accent for monosyllabic nouns

(a)	PA	PO	PM	PY	Yonaguni
	*oo	*o]o	*_oo]	*_oo]	_oo
	[HH(H)]	[HL(L)]	[LH(L)]	[HH(L)]	[HH(H)]
'hair'	*k ^h i:	*k ^h i:]	*_ki:]	*_ki:]	_k ^h i:
'blood'	*ci:	*ci:]	--	*_ci:]	_ci:
	PR				
	*oo		Myô		
	[HH(H)]				
	*k ^h i:	'hair'	(1.1)		
	*ci:	'blood'	(1.1)		
(b)	PA	PO	PM	PY	Yonaguni
	*oo	*o]o	*_oo]	*_oo]	_oo
	[HH(H)]	[HL(L)]	[HH(L)]	[HH(L)]	[HH(H)]
'leaf'	*ha:	*p ^h a:]	*_pa:]	*_pa:]	_ha:
'name'	*na	*na:]	*_na:]	*_na:]	_na:
	PR				
	*_oo]		Myô		
	[HH(L)]				
	*_p ^h a:]	'leaf'	(1.2)		
	*_na:]	'name'	(1.2)		
(c)	PA	PO	PM	PY	Yonaguni
	*oo]	*oo	*_oo]	*_oo]	_oo
	[LH(L)]	[LL(L)]	[HL(L)]	[LH(L)]	[LL(L)]
'tree'	*k ^h i:]	*k ^h i:	*_ki:]	*_ki:]	_k ^h i:
'tooth'	*ha:]	*p ^h a:	*_pa:]	*_pa:]	_ha:
'eye'	*mi:]	*mi:	*_mi:]	*_mi:]	_mi:
	PR				
	*_oo]		Myô		
	[LH(L)]				
	*_k ^h i:]	'tree'	(1.3)		
	*_p ^h a:]	'tooth'	(1.3)		
	*_mi:]	'eye'	(1.3)		

Compared with Myôgi-shô accentuation, which is thought to retain archaic accentual distinctions, each correspondence set in (138) regularly corresponds to Myôgishô accent categories 1.1, 1.2, and 1.3. Furthermore, from the viewpoint of word-initial pitch height, most of the cognates in the correspondence sets and Myôgishô cognates match.

Disyllables: A comparison of PA, PO, PM, PY, and Yonaguni disyllabic accent gives us three correspondences, which lead us to reconstruct three accent categories for PR disyllabic nouns. The correspondence sets and the reconstructed accent categories are shown in (139). Reconstructed individual nouns for each category are listed in (140) below.

(139) Summary of accentual correspondences and reconstruction of PR accent for disyllabic nouns

	PA	PO	PM	PY	Yonaguni	PR
(a)	*OO [HH(H)]	*O]O [HL(L)]	* [~] OO] [HH(L)]	* [~] OO] [HH(L)]	[~] OO [LH(H)]	* [~] OO] [HH(L)]
(b)	*OO] [LH(L)]	*OO [LL(L)]	* _~ OO] [LH(L)]	* _~ OO] [LH(L)]	_~ OO [LL(L)]	* _~ OO] [LH(L)]
(c)	*O]O [HL(L)]	*oo]O [LHL(L)]	*OO [LL(L)]	*OO [LL(L)]	OO] [LF ~ LH(H)]	*ooO) [LHF ~ LHH(L)]

On the basis of the correspondences, we have reconstructed three accent categories for PR disyllabic nouns, i.e., */[~]OO]/ [HH(L)], */_~OO]/ [LH(L)], and */ooO)/ [LHF ~ LHH(L)]. PR */[~]OO]/ corresponds to Myôgishô categories 2.1-2, and both PR */_~OO]/ and */ooO)/ correspond to Myôgishô categories 2.3-5.

PR */[~]OO]/ (139a) is identical to that of PM and PY. PR */_~OO]/ (139b) shares the same accent form with PA, PM, and PY (although the PA form does

not involve register distinctions). And PR */ooO/ (139) is similar to both the PO and Yonaguni forms.

As shown in (140), correspondences lack some cognates. A number of missing cognates is seen especially in Yonaguni Ryukyuan. This is either because our sources lack those cognates or because they have been replaced by another word. Despite the lack of those cognates, a reconstruction has been pursued on the basis of other Ryukyuan cognates.

In (140), there are some irregular forms. First, there are some monosyllables in the correspondence. The PA, PO, and PM cognates for 'dog' are monosyllabic, but in PY and Yonaguni the cognates are disyllabic.

Second, in (140b), the PY words *_a:mi/ 'rain' (2.5) and *_na:da/ 'tears' (3.5) contain a long vowel in the initial syllable; none of words in this correspondence set has this feature. The length in 'tears' can be explained by compensatory lengthening. That is, the word used to be trisyllabic, but it lost a syllable in its development. When the syllable was lost, the vowel in the initial syllable became long. The vowel length of the word for 'rain' is aberrant because no other words in this correspondence have this feature.⁶⁰ Thus, we consider the length as innovation.

For the correspondence in (140c), we have reconstructed vowel length in the initial syllable. PO cognates have a long vowel in the initial syllable; on the other hand, nouns in PA, PM, PY, and Yonaguni generally do not show initial-syllable vowel length. Exceptions to this are PA *_hu: /hi/ 'boat' and *_ha:ri/ 'needle',

⁶⁰ In fact, no other Ryukyuan dialects have a long vowel in the cognate for 'rain'.

PM **wu:ki* 'bucket', and PY **u:ki* 'bucket'. They are remnants of PR vowel length. We thoroughly discuss the vowel length in relation to accentuation below.

(140) Reconstructed PR accent for disyllabic nouns

(a)	PA	PO	PM	PY	Yonaguni
	*OO	*O]O	*⁻OO]	*⁻OO]	⁻OO
	[HH(H)]	[HL(L)]	[HH(L)]	[HH(L)]	[LH(H)]
'nose'	*hana	*p ^h a]na	* ⁻ pana]	* ⁻ pana]	–
'cow'	*ʔusi	*ʔu]si	* ⁻ usi]	* ⁻ usi]	⁻ uci
'bird'	*t ^h uri	*t ^h u]i	* ⁻ tui]	* ⁻ turi]	–
'loins'	*k ^h usi	*ku]si	* ⁻ kusi]	* ⁻ kusi]	⁻ k ^h uci
'beard'	*higi	*pi]zi	* ⁻ pigi]	* ⁻ pini]	⁻ ŋgi
'wind'	*k ^h azi	*ka]zi	* ⁻ kadi]	* ⁻ kazi]	⁻ k ^h adi
'stone'	*ʔisi	*ʔi]si ~ *hi]si	* ⁻ isi]	* ⁻ isi]	–
'bridge'	*hasi	*p ^h a]si	* ⁻ pasi]	* ⁻ pasi]	⁻ haci
'paper'	*k ^h abi	*ka]bi	* ⁻ kabi:]	* ⁻ kabi:]	⁻ k ^h abi

PR		Myô
*⁻OO]		
[HH(L)]		
* ⁻ p ^h ana]	'nose'	(2.1)
* ⁻ ʔusi]	'cow'	(2.1)
* ⁻ t ^h uri]	'bird'	(2.1)
* ⁻ k ^h usi]	'loins'	(2.1)
* ⁻ pigi]	'beard'	(2.1)
* ⁻ k ^h azi]	'wind'	(2.1)
* ⁻ ʔisi]	'stone'	(2.2)
* ⁻ p ^h asi]	'bridge'	(2.2)
* ⁻ k ^h abi:]	'paper'	(2.2)

(b)	PA	PO	PM	PY	Yonaguni
	*OO]	*OO	*_OO]	*_OO]	_OO
	[LH(L)]	[LL(L)]	[LH(L)]	[LH(L)]	[LL(L)]
'flower'	*hana]	*p ^h ana	*_pana]	*_pana]	_hana
'mountain'	*yama]	*yama	*_yama]	*_yama]	_dama
'cloud'	*k ^h umu]	*kumu	*_fumu]	*_fumu]	_mmu
'dog'	*ʔin]	*ʔin	*_in]	*_inu]	_inu
'shoulder'	*k ^h ata]	*k ^h ata	--	*_kata]	_kata
'board'	*ʔita]	*hica	*_icya]	*_ita]	_ita
'rain'	*ʔami]	*ami	*_ami]	*_a:mi]	_ami
'sweat'	*ʔasi]	*hasi	*_asi]	*_asi]	_asi
'tears'	*nada]	*nada	*_nada]	*_na:da]	_nuda

PR		Myô
*_OO]		
[LH(L)]		
*_p ^h ana]	'flower'	(2.3)
*_yama]	'mountain'	(2.3)
*_kumu]	'cloud'	(2.3)
*_ʔinu]	'dog'	(2.3)
*_k ^h ata]	'shoulder'	(2.4)
*_ʔita]	'board'	(2.4)
*_ʔami]	'rain'	(2.5)
*_ʔasi]	'sweat'	(2.5)
*_na:da]	'tears'	(3.5)

(c)	PA	PO	PM	PY	Yonaguni
	*O]O	*oo]O	*OO	*OO	OO]
	[HL(L)]	[LHL(L)]	[LL(L)]	[LL(L)]	[LF ~ LH(H)]
'bone'	*hu]ni	*p ^h u:]ni	*puni	*puni	huni)
'breath'	*ʔi]ki	*ʔi:]ci	*iki	*iki	iti)
'sea'	*ʔu]mi	*ʔu:]mi	*i]m	--	--
'boat'	*hu:]ni	*p ^h u:]ni	*funi	*funi	nni)
'mortar'	*ʔu]si	*ʔu:]si	*usi	*usi	uci)
'chopsticks'	*ha]si	*p ^h a:]si	--	*pasī	haci)
'needle'	*ha:]ri	*p ^h a:]i	*pai	*parī	hai)
'shadow'	*k ^h a]gi	*k ^h a:]gi	*kagi	*kai	k ^h aŋi)
'bridegroom'	*mu]kwa	*mu:]ku	*muku	*muku	mugu)
'bucket'	*wu]k ^h i	*ʔu:]k ^h i	*wu:ki	*u:ki	ugi)
'voice'	*k ^h u]i	--	*kui	*kui	k ^h ui)

PR		Myô
$*\text{ooO}$		
[LHF ~ LHH(L)]		
$*\text{p}^{\text{h}}\text{u}:\text{n}\ddot{\text{i}}$	'bone'	(2.3)
$*\text{?i}:\text{k}\ddot{\text{i}}$	'breath'	(2.4)
$*\text{?u}:\text{m}\ddot{\text{i}}$	'sea'	(2.4)
$*\text{p}^{\text{h}}\text{u}:\text{n}\ddot{\text{i}}$	'boat'	(2.4)
$*\text{?u}:\text{s}\ddot{\text{i}}$	'mortar'	(2.4)
$*\text{p}^{\text{h}}\text{a}:\text{s}\ddot{\text{i}}$	'chopsticks'	(2.4)
$*\text{p}^{\text{h}}\text{a}:\text{r}\ddot{\text{i}}$	'needle'	(2.4)
$*\text{k}^{\text{h}}\text{a}:\text{g}\ddot{\text{i}}$	'shadow'	(2.5)
$*\text{mu}:\text{k}\ddot{\text{u}}$	'bridegroom'	(2.5)
$*\text{u}:\text{k}^{\text{h}}\ddot{\text{i}}$	'bucket'	(2.5)
$*\text{k}^{\text{h}}\text{u}:\text{i}$	'voice'	(2.5)

In this correspondence set, there are two irregular forms. First, the accentuation of PM $*i$ *m* 'sea' is irregular. This is initial accent, but other PM words in the same correspondence set are low-atonic. Moreover, the word is monosyllabic.

As discussed earlier, Hattori (1979a) points out that the distinctions of the subcategories (i.e., 2.3-5a and 2.3-5b) corresponding to traditional accent categories 2.3-5 need to be reconstructed in PR (see 5.3.3). As shown, we have reconstructed two accent categories (PR $*\text{/_OO}$ [LH(L)] and $*\text{/ooO}$ [LHF ~ LHH(L)]) which correspond to Myôgishô accent categories 2.3-5. More importantly, the reconstructed two categories correspond to Hattori's subcategories 2.3-5a and 2.3-5b.

According to our data, the subcategories in traditional accent categories 2.3-5 that Hattori (1979a) discovered are also seen in Kamishiro, Kametsu, Ikema, Ôura, and Kuroshima. (141) gives examples of Kametsu, Ôura, and Kuroshima cases along with Shuri and Nakijin. With the exception of *?uki* 'bucket',

Kametsu words in (141a) are initial accent and ones in (141b) are final accent.

Similar to the case of Kametsu, Ôura nouns in (141a) are initial-accent and ones in (141b) are final-accent. Kuroshima 2.3-5 nouns contrast in register; high register in (141a) and low register in (141b). Nakijin 2.3-5 nouns in (141a) are initial accent and the ones in (141b) are low-register. Unlike Nakijin, Shuri distinguishes the subgroups by means of vowel length. That is, nouns in (141a) generally contain a long vowel in the initial syllable except for *_huni* 'bone' and *_huni* 'boat', while ones in (141b) do not show the length at all.

(141) Correspondence sets for 2.3-5 subcategories in Kametsu, Ôura, Kuroshima, Shuri, and Nakijin

(a)	Kametsu	Ôura	Kuroshima	Shuri	Nakijin
'bone' (2.3)	hu]ni	pu]ni	̄puni	_huni	p ^h u]ni(:)
'boat' (2.4)	hu]ni	fu]ni	̄funi	_huni	p ^h u]ni(:)
'needle' (2.4)	ha]i	pi]i	̄pari	_ha:i	p ^h a]i
'mortar' (2.4)	?u]si	u]si	̄usi	_?u:si	?u]si(:)
'breath' (2.4)	?i]k ^h i	i]ki	̄iki	_?i:ci	?i]ci(:)
'shadow' (2.5)	k ^h a]gi	ka]gi	̄hai	_ka:gi	ha]gi(:)
'bride-groom' (2.5)	--	mu]ku	̄muku	_mu:ku	mu]hu(:)
'bucket' (2.5)	?uki]	u:]ki	̄u:ki	_u:ki	hu]k ^h i(:)
(b)	Kametsu	Ôura	Kuroshima	Shuri	Nakijin
'flower' (2.3)	hana]	pana]	_pana	_hana	_p ^h ana:
'mountain' (2.3)	yama]	yama]	_yama	_yama	_yama:
'board' (2.4)	--	icya]	_ica	_?ica	_hica:
'rain' (2.5)	?ami]	ami]	_ami	_?ami	_?ami:
'sweat' (2.5)	?asi]	asi]	_asi	_?asi	_hasi:

The data in (141) suggests that the subcategories 2.3-5ab existed in PR.

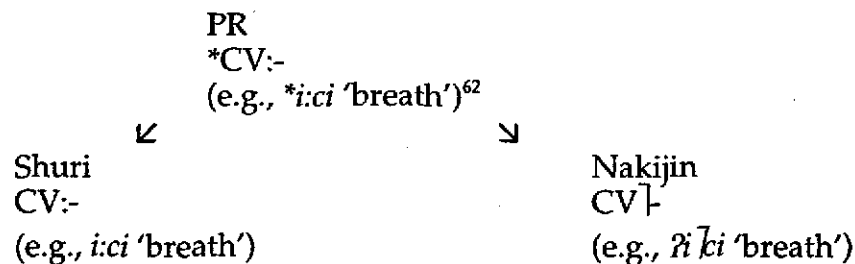
The distinctions have been retained in some modern Ryukyuan dialects even though what distinguishes one subcategory from the other differs in each case. With regard to the vowel length in PR, Hattori (1959 and 1979) hypothesizes that vowel-length distinctions in the initial syllable in Shuri nouns are inherited from PR. In other words, Shuri has retained PR vowel length, while in Nakijin the PR vowel length distinctions were lost and Nakijin developed its initial accent in corresponding cognates. However, Hattori does not touch upon a fundamental question why this is so. In other words, Hattori's hypothesis is given without explanation why the initial vowel length has to be original and the initial-syllable accent is secondary.

Moreover, with relation to his vowel length hypothesis, Hattori mentions that a similar phenomenon is also seen in Ainu, and contends that the vowel length is original.⁶¹ This argument is not sound because it is based on his hypothesis on the development of Ainu accent in relation to vowels, where he does not explain why it is so.

⁶¹ According to Hattori (1959 and 1979), initial-syllable vowel length in Sakhalin Ainu corresponds to an accent in Hokkaidô Ainu. He claims that the vowel length in Sakhalin is original and it has developed to the word initial accent in Hokkaidô. The following examples are extracted from Hattori (1959: 85).

	'thin'	'taste'	'hot'	'laugh'	'red'
Sakhalin	a ^l ne	ke ^l ra	se ^l sek	mi ^l na	hu ^l re
Hokkaidô	aane	keera	seeseh	miina	huure

(142) Hattori's hypothesis on the initial-syllable vowel length



As far as a reconstruction of PR vowel length is concerned, we certainly agree with Hattori. However, different from Hattori, we hypothesize a correlation between the vowel length and initial-syllable low register in earlier forms. There are four reasons for this. First, a systematic correspondence exists between the vowel length of some dialects (e.g., Shuri) and the initial accent of other dialects (e.g., Nakijin). Second, a number of disyllabic nouns belonging to traditional accent categories 2.3-5 has a long vowel in the initial syllable and those nouns begin in low pitch. More specifically, as far as we know, it is Martin (1987) that has suggested first a correlation between initial-syllable vowel length and initial low pitch by pointing out that Ryukyuan disyllabic nouns with the initial vowel length belong to historical accent categories 2.3-5. He also suggests that this vowel length be a reflex of original vowel length in Japonic languages and that it might have been retained in some Ryukyuan dialects. Martin has not developed an actual reconstruction of the initial vowel length of PJ and PR. With regard to a reconstruction of PJ or PR vowel length, following Martin,

⁶² Based on Hattori's claim, we have reconstructed a proto form for 'breath', because Hattori does not provide us with reconstructed proto forms. Forms for Shuri and Nakijin are taken from Hattori (1979).

Shimabukuro (1997) reconstructs Proto-Japonic initial-syllable vowel length in relation to initial-low register. The third reason is that a long vowel tends to have lower intrinsic pitch in comparison with its short vowel (Shimabukuro 1998b). This characteristic supports a correlation between a word-initial low pitch and a word-initial vowel length. Finally, it is due to accountability of the vowel length in relation with Whitman's Law (see below for detail).

With regard to a correlation between initial-syllable vowel length and low pitch, Shimabukuro (1997) has examined Okinawan disyllabic nouns containing an initial long vowel and has found that in general they are initially low in pitch. Examples are as follows.

(143)

	Shuri	Nakijin	Onna	Ô
'tortoise'	_ka:mi:	_ka:mi:	--	_ka:mi:
'ax'	_u:n	_u:nu:	--	_u:n
'relations'	_na:ka	na |ha(:)	_na:ka	--

There are few exceptions, but they are accounted for as compounds, borrowed words, or words with secondary vowel length (see also Serafim 1994). The following Shuri examples, taken from Shimabukuro (1997), show some examples of secondary vowel length.

(144) Shuri examples for exceptions to a correlation between vowel length and low pitch

- ┐ku:ri 'ice' : This is a borrowed word. The Ryukyus are located in a semi-tropical area. No natural 'ice' is found. The word for 'ice' in Japanese is *ko:ri* HHH 3.1.
- ┐ki:musi 'caterpillar' : This word is composed of the words *ki*: 'hair' and *musi* 'bug'.
- ┐ka:ra 'river' : The initial-syllable vowel length is due to a /w/ deletion between the vowels in the syllable; *katwara* > *ka:ra*.

With some exceptions, there are in general no 2.1 and 2.2 nouns with initial-syllable vowel length in Shuri. The initial-syllable vowel length found in 2.1 and 2.2 categories is monosyllabic, e.g., *ta*: 'who, someone'. Nouns with original initial-syllable vowel length are found only in categories 2.3, 2.4, and 2.5 in Shuri as well as in Onna and Nakijin.

As we mentioned above, Whitman's Law may account for a phenomenon of Ryukyuan vowel length. Whitman's /-r-/ deletion rule (Whitman 1985: 21-23) and 1991) deletes /-r-/ when a preceding vowel is short. However, there are a number of initially low-pitched nouns with the syllable structure (C)Vr- in the Japonic line. If Whitman's hypothesis is correct, it is possible that those nouns originally had a long vowel before the /-r-/ and that somehow the long vowel has gotten shortened but kept the word-initial low register. Therefore, the word *doro* LL 'mud', for example, was **do:ro* LLL in PJ. The following are Japonic nouns belonging to the historical accent class 2.3, taken from Martin (1987) and compared with Okinawan cognates.

(145)

	Tokyo	Shuri	Nakijin	PJ
'color'	iro	_ʔiru	_ʔiru:	*i:ro
'black'	kuro	_kuru:	_kuru:	*ku:ro
'paste'	nori	_nui	_nui	*no:ri
'mud'	doro	_duru	_duru:	*do:ro/*nto:ro

A problem of this analysis is that cognates of this type in Ryukyuan do not contain the expected initial long vowel. Further research needs to be done regarding the lack of vowel length where expected in the given subset of Okinawan examples. In addition, in both Ôhama and Ishigaki, the word for 'mud' is *du:ru*. This is the only evidence to support the form PJ **do:ro* / **nto:ro*.

Trisyllables: Our reconstruction of PR accent is based on five sets of correspondences.

(146) Summary of accentual correspondences and reconstruction of PR accent for trisyllabic nouns

	PA	PO	PM	PY	Yonaguni	PR
(a)	*OOO [HHH(H)]	*O]ooO [HLL(L)]	* ⁻ OOO] [HHH(L)]	*OOO [HHH(L)]	⁻ OOO [LHH(H)]	* ⁻ OooO] [HHH(H)]
(b)	*OOO [HHH(H)]	*O]ooO [HLL(L)]	* ⁻ OOO] [LHH(L)]	* ⁻ OOO\ [HHF ~ HHH(L)]	⁻ OOO [LHH(H)]	* ⁻ OooO] [HHH(L)]
(c)	*OOO] [LLH(L)]	*Ooo]O [LFL(L)]	* ₋ OOO] [LHH(L)]	* ₋ OOO\ [HHF ~ HHH(L)]	₋ OOO [LLL(L)]	* ₋ OooO] [LRH(L)]
(d)	* ₋ OOO] [LLH(L)]	*OOO [LLL(L)]	* ₋ OO] [LH(L)]	*OO [LLL(L)]	₋ OOO [LLL(L)]	* ₋ OOO [LLH(H)]
(e)	*OO]O [LHL(L)]	*Ooo]O [LFL(L)]	*OOO [LLL(L)]	*OO]O [LHL(L)]	OOO\ [LHF ~ LHH(L)]	*Ooo]O [LFL(L)]
(f)	*OOO\ [LHF ~ LHH(L)]	*OO]O [LHL(L)]	*OOO [LLL(L)]	* ₋ OOO\ [LHF ~ LHH(L)]	OOO\ [LHF ~ LHH(H)]	*OOO\ [LHF ~ LHH(L)]

In (146), we have summarized the accentual correspondences and reconstructed accent categories for PR trisyllables. The reconstructed categories are */⁻OooO/ (146a), */⁻OooO]
/ (146b), */₋OooO]
/ (146c), */₋OOO/ (146d), */Ooo]O/ (146e), and */OOO\
/ (146f). Reconstructed individual nouns for each category are listed in (147).

In the correspondences in (147), there are a number of disyllables. They are historically trisyllabic, but became disyllabic at some point in their development. Most of those words are found in (147c), and there are six in (147a). There are also words with irregular accent in (147). For instance, in

(147a), the PA form for 'centipede' is *⁻muka ʔzi, which is different from other

PA nouns listed.

(147) Reconstructed PR accent for trisyllabic nouns

(a)	PA	PO	PM	PY	Yonaguni
	*OOO [HHH(H)]	*O ʔooO [HLL(L)]	* ⁻ OOO ʔ [HHH(L)]	*OOO [HHH(H)]	⁻ OOO [LHH(H)]
'mark'	*sirusi	*si ʔru:si	* ⁻ sirusi ʔ	*sirusi	⁻ ciruci
'smoke'	*k ^h ibusi	*k ^h i ʔbu:si	* ⁻ kifusi ʔ	*kibusi	⁻ k ^h ibunci
'yawn'	*ʔakubi	*ʔa ʔku:bi	* ⁻ afugi ʔ	*akubi	⁻ agui
'forehead'	--	*p ^h i ʔce:	* ⁻ futai ʔ	*pitai	⁻ tai
'two'	*ta:ci HHH	--	* ⁻ futa:ci ʔ	*futa:ci	⁻ ta:ci
'centipede'	* ⁻ muka ʔzi	*mu ʔka:zi	* ⁻ m:kazi ʔ	*_mukaza ʔ	ŋkadi ʔ
'cherry'	*sakura	*sa ʔku:ra	--	--	--

PR

*⁻OooO

[HHH(H)]

Myô

*⁻siru:si

'mark'

(3.1)

*⁻k^hibu:si

'smoke'

(3.1)

*⁻ʔaku:bi

'yawn'

(3.1)

*⁻p^hita:i

'forehead'

(3.1)

*⁻futa:ci

'two'

(3.2)

*⁻muka:di

'centipede'

(3.2)

*⁻saku:ra

'cherry'

(3.2)

(b)	PA	PO	PM	PY	Yonaguni
	*OOO [HHH(H)]	*O ʔooO [HLL(L)]	* ⁻ OOO ʔ [HHH(L)]	* ⁻ OOO ʔ [HHF ~ HHH(L)]	⁻ OOO [LHH(H)]
'strength'	*cikyara	*ci ʔka:ra	--	* ⁻ cikara ʔ	⁻ sikara
'gold'	*k ^h ugani	*k ^h u ʔga:ni	* ⁻ kugani ʔ	* ⁻ kugani ʔ	⁻ k ^h uŋani

PR

*⁻OooO ʔ

[HHH(L)]

Myô

*⁻cika:ra ʔ

'strength'

(3.3)

*⁻k^huga:ni ʔ

'gold'

(3.3)

(c)	PA * <u>OOO</u> [LLH(L)]	PO * <u>Ooo</u> | O [LHHL(L)]	PM * <u>_OOO</u> [LHH(L)]	PY * <u>_OOO</u>) [LHF ~ LHH(L)]	Yonaguni _ <u>OOO</u> [LLL(L)]
'mirror'	*k ^h agami]	*k ^h aga:] mi:	* <u>kagam</u>]	* <u>kaga</u>] nĩ	_kaŋan
'treasure'	*t ^h akara]	*t ^h aka:] ra	* <u>takara</u>]	* <u>takara</u>)	_tagara
'fan'	*ʔo:] gi	*ʔo:zi LLL	* <u>augi</u>]	*o:gi	—
'bag'	* <u>huku</u>] ru	*p ^h uku:] ru	* <u>fukuru</u>]	* <u>hukuru</u>)	_ku:ru
'pillow'	*makura]	*maQkwa	* <u>maQfa</u>]	* <u>mafura</u>)	_magura
'life'	*ʔinu:ci]	*ʔinu:] ci	*n:uci	* <u>inu</u>] ci	nuti]
'fat'	*ʔabura]	*ʔanda LLL	* <u>aQva</u>]	* <u>abura</u>)	_anda
'pillar'	* <u>hasi</u>] ra	*p ^h asi:] ra	*para	*para:	hira]
'cousin'	*ʔitoko]	*hicu:] ku	*icufu	* <u>iciku</u>)	itigu]
'heart'	—	*k ^h uku:] ru	—	* <u>kukuru</u>)	_kuguru

PR		Myô
* <u>_OooO</u> [LRH(L)]		
* <u>k^haga:mi</u>]	'mirror'	(3.4)
* <u>t^haka:ra</u>]	'treasure'	(3.4)
* <u>au:gi</u>]	'fan'	(3.4)
* <u>puk^huru</u>]	'bag'	(3.4)
* <u>maku:ra</u>]	'pillow'	(3.5)
* <u>ʔinu:ci</u>]	'life'	(3.5)
* <u>ʔabu:ra</u>]	'fat'	(3.5)
* <u>p^hasi:ra</u>]	'pillar'	(3.5)
* <u>ʔito:ko</u>]	'cousin'	(3.5)
* <u>k^huk^hu:ru</u>]	'heart'	(3.5)

(d)	PA * <u>OOO</u> [LLH(L)]	PO * <u>OOO</u> [LLL(L)]	PM * <u>_OO</u> [LH(L)]	PY * <u>OO</u> [LLL(L)]	Yonaguni _ <u>OOO</u> [LLL(L)]
'calendar'	*kuyumi]	*k ^h uyumi	* <u>kuyum</u>]	*kuyun	kuyumi

PR		Myô
* <u>_OOO</u> [LLH(H)]		
* <u>k^huyumi</u>	'calendar'	(3.4)

(e)	PA	PO	PM	PY	Yonaguni
	*OO]O	*Ooo]O	*OOO	*OO]O	OOO]
	[LHL(L)]	[LHL(L)]	[LLL(L)]	[LHL(L)]	[LHF~LHH(H)]
'eel'	*_?una]gi	*?una:]zi	*unagi	*_unagi]	--
'crow'	*_gara]si	*gara:]si	*garasa	*_gara]si	garaci]
'earthworm'	*_më(C)ë]za	*mimin]zi	*mi:mizi	*_mi:mi]zi	--

PR		Myô
*Ooo]O		
[LFL(L)]		
*?una:]gi	'eel'	(3.6)
*gara:]si	'crow'	(3.6)
*mi:min]zi	'earthworm'	(3.6)

(f)	PA	PO	PM	PY	Yonaguni
	*OOO]	*OO]O	*OOO	*_OOO]	OOO]
	[LHF ~	[LHL(L)]	[LLL(L)]	[LHF ~	[LHF~LHH(H)]
	LHH(L)]			LHH(L)]	
'whale'	*kuzira]	*gunzi]ra	*kuzira	*_kuzira]	k ^h udira]
'field'	--	*hata]ki	*patagi	*_pata]ki	hatagi]
'medicine'	*k ^h usuri]	*k ^h usu]i	*fusui	*_fusuri]	cu:ri]

PR		Myô
*OOO]		
[LHF ~		
LHH(L)]		
*k ^h udira]	'whale'	(3.7)
*hataki]	'field'	(3.7)
*k ^h usuri]	'medicine'	(3.7)

In addition, our data lack PA cognates for 'forehead' and 'field', a PO cognate for 'two', a PM cognate for 'strength', or Yonaguni cognates for 'fan', 'eel', and 'earthworm'. They are simply not found in our sources.

Looking into the PR accent system as a whole, there are five types of accentuation. They are high- and low-register atonic, high- and low-register final accent, final-falling accent, and penultimate accent. Among those, monosyllables

and disyllables make use of only three types. All the accentual types are seen in Trisyllables.

Typologically, PR accent is a locus-register system. As illustrated below, register distinguishes two types of final-accent nouns throughout the system. However, in trisyllables, register also distinguishes high-register from low-register atonic nouns.

(148) List of PR accent patterns according to their types

	Monosyllable	Disyllable	Trisyllable
high atonic	*oo	--	*~OooO
low atonic	--	--	*_OOO
high-initial final	*~oo]	*~OO]	*~OooO]
low-initial final	*_oo]	*_OO]	*_OooO]
final falling		*ooO\	*OOO\
penultimate			*Ooo]O

Also characteristic of PR nouns is that a number of nouns have a long vowel. As in most of the Ryukyuan dialects, monosyllables are bimoraic. For disyllables, nouns with final-falling accent have a long vowel in the initial syllable, namely */ooO\/. And unlike its monosyllables and disyllables, PR trisyllables can have a long vowel (or two-mora-long syllable) in the second syllable of words. Nouns with low-register atonic and with penultimate accent do not have the length.

5.8. DEVELOPMENT OF PROTO AMAMI, PROTO OKINAWA, PROTO MIYAKO, PROTO YAEYAMA, AND YONAGUNI ACCENT FROM PROTO RYUKYUAN

This section reveals how the PA, PO, PM, PY, and Yonaguni accent systems evolved from PR accent. As a summary of PR accent shows below, there are three distinctions for monosyllables, three for disyllables, and six for

trisyllables. From the viewpoint of accent typology, PR in general utilizes locus and register. Some modern Ryukyuan dialects have retained the locus distinctions, some have lost the register distinctions, and others have still kept both the locus and register features.

(149) PR accent

Monosyllables	Disyllables	Trisyllables
(a) *oo [HH(H)]	(a) * [~] OO] [HH(L)]	(a) * [~] OooO [HHH(H)]
(b) * [~] oo] [HH(L)]	(b) * _~ OO] [LH(L)]	(b) * [~] OooO] [HHH(L)]
(c) * _~ oo] [LH(L)]	(c) *ooO \ [LHF ~ LHH(L)]	(c) * _~ OooO] [LRH(L)]
		(d) * _~ OOO [LLH(H)]
		(e) *Ooo]O [LFL(L)]
		(f) *OOO \ [LHF ~ LHH(L)]

5.8.1. Development of Proto Amami Accent

The development of PA accent is quite simple -- one change took place in monosyllables, two in disyllables, and three trisyllables.

From the viewpoint of typology of accent, PA lost the PR register distinctions and vowel length. The loss of the register distinctions was due to mergers of accent categories. The following discussion will present the development of PA accent in detail.

Monosyllables: In the development of PA accent, PR monosyllables underwent Final Accent Loss, applicable only to high-initial words. This sound change made a three-way distinction of PR accent a two-way system in the PA line by merging PR */oo/ (150a) and */[~]oo]/ (150b) as /oo/. Because of this, the register distinction of PR was lost.

(150) Development of Proto-Amami monosyllabic accent

	PR	F-loss	
(a)	*oo		
		>	oo
(b)	* ⁻ oo]		
(c)	*_oo]	≡	oo]

Disyllables: By undergoing Final Accent Loss and Vowel Shortening (V-shrt), PR disyllabic accent evolved to PA accent. First, Final Accent Loss, applicable only to words with high initial pitch, cancelled the accent of PR */⁻OO]/ (151a). At the same time, the PR register distinction was lost. At the next stage, PR */ooO\ (151c) became /O]O/ by the rule of Vowel Shortening. When it took place, final-falling accent became (/ooO\)) became penultimate accent (/O]O/). This is probably because the final falling pitch is possible only for longer words (at least three-moras long). Since /ooO\ became bimoraic, the final-falling pitch was lost.

(151) Development of Proto-Amami disyllabic accent

	PR	F-loss		V-shrt	
(a)	* ⁻ OO]	>	OO	=	OO
(b)	*_OO]	≡	OO]	=	OO]
(c)	*ooO\	=	ooO\	>	O]O

Trisyllables: As our hypothesis on the development of PA trisyllabic accent in (152) suggests, PR accent underwent three changes, i.e., Final Accent Loss, Vowel Shortening, and Abductive Change.

The first rule that had effect on PA trisyllabic accent was Final Accent Loss. As mentioned earlier, it is applicable to high-initial words, but not to low-

initial words. Thus, PA */^ˉOooO]/ (152b) underwent the change, and merged with PR */^ˉOooO/ (152a). Because of this change, the initial pitch of PR */_OooO]/ (152c) became nondistinctive.

At the next stage, words with a long vowel in the medial syllable underwent Vowel Shortening. Therefore, /^ˉOooO/ (152a), /OooO]/ (152b), and PR */Ooo]O/ (152e) became /^ˉOOO/, /OOO]/, and /OO]O/ respectively.

(152) Development of Proto-Amami trisyllabic accent

PR	F-loss	V-shrt	abductive change
(a) * ^ˉ OooO	> ^ˉ OooO	= ^ˉ OOO	≡ OOO
(b) * ^ˉ OooO]			
(c) * _[LRH(L)] OooO]	≡ OooO]	= OOO]	
(d) * _[LLH(H)] OOO	= _OOO	= _OOO	> OOO]
(e) *Ooo]O [LFL(L)]	= Ooo]O	= OO]O	= OO]O
(f) *OOO\	= OOO\	= OOO\	= OOO\

Finally, /OOO]/ (152c) and PR */_OOO/ (152d) merged as /OOO]/[LLH(L)]. This also made the initial pitch of /^ˉOOO/ no longer distinctive. At the time of the change, speakers of the PA line must have considered these two categories in (152c) and (152d) as one because they are very similar at the phonetic level. With this change, the PR register system was completely lost.

5.8.2. Development of Proto Okinawa Accent

Compared with the PR accent system, PO accent is much simpler. PR has more distinctions than PO. The complex system of PR evolved into that of PO by a series of five changes. From the point of view of accentual typology, the locus-register system of PR became simplified to a locus system in the PO line. We will account for the development of PO accent from PR below.

Monosyllables: There are two sound changes contributing to the development of PO monosyllabic accent. They are Final Accent Loss and Initial Accent Gain. The former made the three-way distinction of PR monosyllabic accent a two-way system by merging PR */oo/ (153a) and */^ˉoo/ (153b) as /^ˉoo/. Simultaneously, PR */_oo/ (153c) also lost its final accent, becoming low-atonic. And the other change, Initial Accent Gain, gave an accent on the initial syllable of high-register nouns (/^ˉoo/). This rule is not applicable to low-initial words, and thus /_oo/ did not undergo the change. However, its initial pitch became no longer distinctive.

(153) Development of Proto-Okinawa monosyllabic accent

	PR	F-loss		I-gain
(a) *	oo			
		>	^ˉ oo	>
(b) *	^ˉ oo			o ^ˉ
(c) *	_oo			
		>	_oo	≡
				oo

Disyllables: From PR, PO disyllabic accent evolved by undergoing Final Accent Loss, Contour Pitch Simplification, and Initial Accent Gain. The first rule converted PR */^ˉOO/ (154a) and */_OO/ (154b) into /^ˉOO/ and /_OO/ respectively. Undergoing the second change, PR */ooO/ became /oo^ˉO/.

Finally, the third rule created an accent on the initial syllable of /^ˉOO/, resulting in /O^ˉO/. When this happened, /_OO/ was indirectly affected by the rule. Its initial pitch became nondistinctive; the PR register system was lost.

(154) Development of Proto-Okinawa disyllabic accent

	PR	F-loss		C-smpl		I-gain	
(a)	* ^ˉ OO ^ˉ	>	^ˉ OO	=	^ˉ OO	>	O ^ˉ O
(b)	*_OO ^ˉ	>	_OO	=	_OO	=	OO
(c)	*ooO ^ˉ	=	ooO ^ˉ	>	oo ^ˉ O	=	oo ^ˉ O

Trisyllables: As shown in (155), PO trisyllabic accent evolved from PR by undergoing Abductive Change, Assimilation, Contour Pitch Simplification, and Initial Accent Gain.

First, PR */^ˉOooO/ (155a) and */^ˉOooO^ˉ/ (155b) merged as /^ˉOooO/. Along with the change, the initial pitch of PR */_OooO^ˉ/ (155c) became nondistinctive. And the following rule turned /OooO^ˉ/ (155c) into /OooO^ˉ/. As a result, it merged with PR */OOO^ˉ/ (155f) merged as /OooO^ˉ/.

When Contour Pitch Simplification converted /OooO^ˉ/ (155cf) to /Ooo^ˉO/, it merged with PR */Ooo^ˉO/ (155e).

Finally, with the Initial Accent Gain rule, /^ˉOooO/ became /O^ˉooO/. The rule does not apply to low-initial words; thus, /_OOO/ did not undergo the change. However, it lost its word-initial register distinction.

(155) Development of Proto-Okinawa trisyllabic accent

- | | abductive
PR change | assml | C-smpl | I-gain |
|--------------------------|---------------------------|---------------------|---------------------|---------|
| (a) * ⁻ OooO | > ⁻ OooO | = ⁻ OooO | = ⁻ OooO | > O]ooO |
| (b) * ⁻ OooO] | | | | |
| (c) *_OooO] | ≡ OooO] | | | |
| (f) *OOO\ | = OOO\ | > OooO\ | | |
| (e) *Ooo]O | = Ooo]O | = Ooo]O | > Ooo]O | = Ooo]O |
| (d) *_OOO
[LLH(H)] | = _OOO | = _OOO | = _OOO | ≡ OOO |

We should pay attention to the ordering of the changes. As stated, there are in total five types of changes in the PO line. Ordering of some of the changes is critical to account for the development of PO accent. First, Final Accent Loss must precede Initial Accent Gain. Second, Assimilation has to precede Final Accent Loss. Third, Abductive Change must have taken place before Assimilation. Finally, Contour Pitch Simplification must have occurred after Assimilation. The changes took place when conditions were met. Therefore, some types of nouns underwent a change and others did not undergo the same change.

5.8.3. Development of Proto-Miyako Accent

Unlike PA and PO, PM has kept the register distinctions of PR, although it underwent a complex development as the other two did. We will account for the

development of PM monosyllabic, disyllabic, and trisyllabic accent in detail below.

Monosyllables: By undergoing Initial Pitch Lowering, PR */oo/ [HH(H)] (156a) became LH(H). Because of its pitch shape, it merged with PR */_oo]/ (156c). The Initial Pitch Lowering rule did not affect PR */^oo]/ (156b) because its initial pitch is distinctive.

(156) Development of Proto-Miyako monosyllabic accent

PR		I-low		abductive change
(a) *oo [HH(H)]	>	oo [LH(H)]	>	_oo]
(c) *_oo]	=	_oo]		
(b) *^oo]	=	^oo]	=	^oo]

Disyllables: The development of PM disyllabic accent is quite simple. As noticed, PR */ooO\ (157c) is the only one that underwent changes, while other PR categories retained their accent. First, PR */ooO\ underwent Vowel Shortening. As a result, it became /OO\ [LF ~ LH(L)]. Following that change, Contour Pitch Simplification turned /OO\ to /OO/ [LH(H)] (see 4.1.1). Finally, its pitch became low-level.

With regard to accent typology, in the PM line, the PR register system has been kept.

(157) Development of Proto-Miyako disyllabic accent

PR		V-shrt		C-smpl		Leveling
(a) * ^ˉ OO]	=	^ˉ OO]	=	^ˉ OO]	=	^ˉ OO]
(b) * _ˉ OO]	=	_ˉ OO]	=	_ˉ OO]	=	_ˉ OO]
(c) *ooO\	>	oo\	>	oo	>	oo
[LHF ~ LHH(L)]		[LF ~ LH(L)]		[LH(H)]		[LL(L)]

Trisyllables: Unlike the development of its monosyllabic and disyllabic accent, the development of PM trisyllabics is complex. There are five changes: Abductive Change, Vowel Shortening, again, Abductive Change, Contour Pitch Simplification, and Leveling. Note that Abductive Change took place twice, but they affected different categories at different stages.

(158) Development of Proto-Miyako trisyllabic accent

PR	abductive change	V-shrt	abductive change	C-smpl	Leveling
(a) * ^ˉ OooO	= ^ˉ OooO	>	^ˉ OOO		
			>	^ˉ OOO]	= ^ˉ OOO]
(b) * ^ˉ OooO]	= ^ˉ OooO]	>	^ˉ OOO]		= ^ˉ OOO]
(c) * _ˉ OooO]	= _ˉ OooO]	>	_ˉ OOO]		= _ˉ OOO]
			>	_ˉ OOO]	= _ˉ OOO]
(d) * _ˉ OOO	= _ˉ OOO	=	_ˉ OOO		= _ˉ OOO]
[LLH(H)]					
(e) *Ooo]O					
	>	OooO\	>	OOO\	= OOO\
(f) *OOO\		[LLF ~			>
		LLH(L)]		OOO	>
				[LLH(H)]	OOO
					[LLL(L)]

First, Abductive Change took place. It merged two categories with falling pitch, i.e., PM */Ooo]O/ (158e) and */OOO\ (158f).

The second development was shortening of long vowels in PM

/ $\bar{\text{OooO}}$ / (158a), **/ $\bar{\text{OooO}}$]/ (158b), **/ _OooO]/ (158c), and */OooO\]/ (158ef).**

At third stage, another Abductive Change occurred. This time it put */ $\bar{\text{OOO}}$ / (158a) and */ $\bar{\text{OOO}}$]/ (158b) into one category, namely */ $\bar{\text{OOO}}$]/. The change also caused a merger of */ _OOO]/ (158c) and */ _OOO / (158d).*****

Contour Pitch Simplification brought a change to */OOO\]/ [LLF ~ LLH(L)], making it */OOO/ [LLH(H)]. And it underwent the final change Leveling, resulting in */OOO/ [LLL(L)]***

In PR, there were six accent distinctions for trisyllables, but in PM there are three. Half of the distinctions were lost in the PM line. Although PM lost some of PR characteristics, PM has still retained some of the PR register distinctions even though they are not identical to that of PR.

5.8.4. Development of Proto Yaeyama Accent

Compared with PA, PO, and PM, PY underwent one of the simplest developments as a whole system. Although the PY trisyllabic accent system is drastically different from that of PR, PY monosyllables and disyllables largely preserved the PR accentual distinctions. In addition, it should be pointed out that not only is the PY disyllabic accentual system identical to that of PM but also the developments of PY and PM disyllabic accent are identical.

Monosyllables: There is only one change in the development of PY monosyllabic accent, Abductive Change. This caused a merger of PR **/oo/ (159a) and **/ $\bar{\text{oo}}$]/ (159b) as */ $\bar{\text{oo}}$]/. PR _oo]/ (159c) stayed the same.***

Although the high-atonic accent was lost, the PR register distinction remained the same.

(159) Development of Proto-Yaeyama monosyllabic accent

PR	abductive change
(a) *oo	> $\bar{\text{oo}}$
(b) * $\bar{\text{oo}}$	
(c) * oo	= oo

Disyllables: As (160) shows, there are three stages that contributed to the development of PY accent. Interestingly, PR */ooO\ (160c) is the only one that underwent the changes, while PR */ $\bar{\text{OO}}$] (160a) and */ OO] stayed unchanged.

At the first stage, PR */ooO\ became /OO\ [LF ~ LH(L)]. The following rule turned it to /OO/ [LH(H)]. And finally, it became /OO/ [LL(L)].

(160) Development of Proto-Yaeyama disyllabic accent

PR	V-shrt	C-smpl	Leveling
(a) * $\bar{\text{OO}}$	= $\bar{\text{OO}}$	= $\bar{\text{OO}}$	= $\bar{\text{OO}}$
(b) * OO	= OO	= OO	= OO
(c) *ooO\	> OO	> OO	> OO
[LHF ~ LHH(L)]	[LF ~ LH(L)]	[LH(H)]	[LL(L)]

Trisyllables: PR trisyllabic accent has evolved to PY accent by undergoing Initial Accent Gain, Accent Shift, Vowel Shortening, and Assimilation. Except for Vowel Shortening, most of these changes did not have any effect on monosyllables and disyllables.

First, PR */_OOO/ (161d) underwent Initial Accent Gain, resulting in /O]OO/. And the following change shifted its accent onto the second syllable, making it /OO]O/.

(161) Development of Proto-Yaeyama trisyllabic accent

- | | I-gain | | shift | | V-shrt | | assml |
|-----|----------------------|---|--------------------|---|--------------------|---|--|
| (a) | * ⁻ OooO | ≡ | OooO | = | OooO | > | OOO = OOO |
| (b) | * ⁻ OooO] | = | ⁻ OooO] | = | ⁻ OooO] | > | ⁻ OOO] > ⁻ OOO\ |
| | | | | | | | [HHH(L)] [HHF ~ HHH(L)] |
| (c) | *_OooO] | = | _OooO] | = | _OooO] | > | _OOO] |
| (f) | *OOO\ | = | OOO\ | = | OOO\ | = | OOO\ > _[LHF ~ LHH(L)] ⁻ OOO\ |
| (d) | *_OOO | > | O]OO | > | OO]O | | |
| (e) | *Ooo]O | = | Ooo]O | = | Ooo]O | > | OO]O = OO]O |

When Vowel Shortening took place, the second-syllable long vowel became short. Along with this, a merger of /OO]O/ (161d) and /Ooo]O/ (161e) occurred.

Finally, under the effect of Assimilation, /⁻OOO]/ [HHH(L)] (161b) and /_OOO]/ [LHH(L)] (161c) became /⁻OOO\ [HHF ~ HHH(L)] and /_OOO\ [LHF ~ LHH(L)] respectively. Furthermore, the latter then merged with /OOO\ [LHF ~ LHH(L)] (161f).

Ordering of some changes is crucial to the development of PY. The changes seen in the development of PY trisyllabic accent took place as shown in (161). Contour Pitch Simplification must have been followed by Assimilation. If they were ordered in the other direction, /⁻OOO\ (161b) and /_OOO\ (161cf)

would have become /^ˉoo]o/ and /_oo]o/ respectively. And Abductive Change is ordered after Assimilation. In this way, trisyllabic high-register atonic and high-register final accent would not be able to merge, as they did in monosyllables.

PY has a tendency to avoid an accent on the third syllable, cf. This phenomenon is also seen in the developments of Myôgi-shô and of Kyoto dialects (see Chapter 6). Assimilation occurred only in trisyllables.

5.8.5. Development of Yonaguni Accent

The development of Yonaguni accent as a whole involves relatively complex stages of changes. While monosyllables underwent only one sound change, disyllables underwent three changes and trisyllables underwent four changes, including phonetic changes. From the point of view of accent typology, PR register was kept in the Yonaguni line, although the register distinction is among atonic nouns after the loss of final accent.

Monosyllables: Yonaguni monosyllables developed their accent system from PR accent in a simple manner. When Final Accent Loss canceled the final accent of both PR */^ˉoo]/ (162b) and */_oo]/ (162c), the former merged with PR */oo/, becoming /^ˉoo/ in contrast with /_oo/ (< PR */_oo]/).

(162) Development of Yonaguni monosyllabic accent

PR		F-loss
(a) *oo		
	>	^ˉ oo
(b) * ^ˉ oo]		
(c) *_oo]	>	_oo

Disyllables: Comparing Yonaguni accent with PR accent

below, differences are seen in categories in (163a) and (163b). That is, PR final-accent ($*/\text{¯OO}]/$ and $*/\text{_OO}]/$) became atonic under the effect of Final Accent Loss. Notice that the register distinction remains unchanged. Moreover, $/\text{¯OO}/$ ($<$ PR $*/\text{¯OO}]/$ [HH(L)]) lowered the pitch of the initial syllable by Initial Pitch Lowering.

As far as accentuation is concerned, both PR $*/\text{ooO}\backslash/$ and Yonaguni $/*\text{OO}\backslash/$ are final-falling accent, that is, identical. In both systems, the length is not distinctive. In the development of Yonaguni accent, it underwent Vowel Shortening.

(163) Development of Yonaguni disyllabic accent

PR		V-shrt		F-loss		I-low
(a) $*/\text{¯OO}]/$	=	$\text{¯OO}]/$	>	¯OO [HH(H)]	>	¯OO [LH(H)]
(b) $*/\text{_OO}]/$	=	$\text{_OO}]/$	>	_OO	=	_OO
(c) $*/\text{ooO}\backslash/$	>	$\text{OO}\backslash/$	=	$\text{OO}\backslash/$	=	$\text{OO}\backslash/$ LF ~ LH(H)

Trisyllables: In the development of its trisyllabic accent, Yonaguni underwent four changes. With these changes, six distinctive accent categories of PR became three in the Yonaguni line. Despite this drastic change, Yonaguni has kept the original PR register distinction in atonic nouns.

The first change that took place was Vowel Shortening. Because of this, PR trisyllables with a two-mora-long second syllable no longer existed. The next change (Final Accent Loss) caused a merger of $/\text{¯OOO}/$ (164a) and $/\text{¯OOO}]/$

(164b) as /^ˉOOO/, and also another merger of /_OOO]/ (164c) and /_OOO/ (164d) as /_OOO/.

(164) Development of Yonaguni trisyllabic accent

	PR	V-shrt	F-loss	shift	assml
(a)	* ^ˉ OooO	>	^ˉ OOO		
(b)	* ^ˉ OooO]	>	^ˉ OOO]	=	^ˉ OOO] = ^ˉ OOO]
(c)	*_OooO]	>	_OOO]		
(d)	*_OOO [LLH(H)]	=	_OOO	>	_OOO = _OOO = _OOO
(e)	*Ooo]O	>	Oo]O	=	Oo]O > OOO]
(f)	*OOO\	=	OOO\	=	OOO\ = OOO\ > $\begin{matrix} \text{OOO} \\ \text{[LHF ~ LHH(H)]} \end{matrix}$

The last two stages in the development are Accent Shift and Assimilation. Undergoing Accent Shift, /OO]O/ (164e) became final-accent (i.e., /OOO]/). And finally, Assimilation changed it to /OOO\ [LHF ~ LHH(H)]. As a result, it merged with PR */OOO\.

It should be pointed out that there are no final-accent nouns in Yonaguni, although there are final-falling nouns. That is, PR final-accent categories were eliminated in the development. This is similar to PY trisyllabic accent. In PY, there are final-accent monosyllables and disyllables, but there are no final-accent trisyllables.

5.9. CONCLUSION

In this chapter, we have discussed the accentuation of modern Ryukyuan dialects. Based on that, we have attempted to reconstruct the PA, PO, PM, and

PY accent systems. Then, on the basis of these reconstructions, we have presented our reconstruction of PR accent (see (149) above). The PR accent system utilizes locus and register distinctions. PR has falling accent, such as /ooO\/. There are three distinctions for monosyllables and disyllables, and six distinctions for trisyllables in the system. Regarding word structure, monosyllables are bimoraic. As for disyllables, nouns with falling-accent have a long vowel in the initial syllable. Of the six accent categories of the trisyllables, four have a long syllable (consisting of either a long vowel or syllable-final nasal).

We have also shown how PA, PO, PM, PY, and Yonaguni accent systems evolved from PR accent. As they evolved, some of the PR accent categories underwent changes; others remained the same. For example, in the PY line, PR */ooO\/* became /OO/, but the other two categories */_OO\/* and */_OO\/* stayed unchanged. Compared with the number of accentual distinctions in PR, the five descendants have fewer distinctions than those of PR, except for disyllabic accent. Interestingly there is no merger in the development of the descendant disyllabic accent.

With regard to accentual typology, similar to PR accent, the accent system of PM, PY, and Yonaguni is basically a locus-register system. By contrast, the accent system of PR evolved to a locus system in PA and PO. Furthermore, there are no descendant proto languages that evolved into a pure register system.

One of the characteristics seen in PR is a 'long syllable', either a long vowel or two-mora-long syllable. As far as monosyllables are concerned, all the

proto descendants kept their monosyllables bimoraic. However, PO is the only one that retained the PR length in disyllables and trisyllables as well.

As for final falling-accent, it is seen in PA, PM, PY, and Yonaguni. However, PO does not have the feature. The difference is reflected in the ordering of Contour Pitch Simplification and Assimilation. That is, due to the application of Contour Pitch Simplification preceded by Assimilation, there is no final-falling accent. Moreover, in PM and PY, the rule of Assimilation did not apply to shorter nouns such as monosyllables and disyllables; the rule affected trisyllables. Therefore, final-falling accent is seen only in trisyllables.

Finally, in the developments of PA, PO, PM, PY, and Yonaguni, some of the changes are conditioned. For example, in PA, Final Accent Loss is applicable only to high-initial nouns. Looking into those conditioned changes, there is an interesting characteristic among the descendant languages. As mentioned above, in PA, Final Accent Loss is conditioned to high-initial nouns. In PO, Initial Accent Gain is applicable only to high-initial nouns. On the other hand, Initial Accent Gain is applicable only to low-initial nouns in PY. In both PM and Yonaguni, Accent Shift affects low-initial nouns. (It should be noted that there are no high-initial tonic nouns. Therefore, we do not know whether the change is applicable to high-initial. However, it is certain that the rule is at least applicable to low-initial nouns). That is, it seems that, as far as application of rules is concerned, PA and PO are conditioned to high-initial pitch, and that PM, PY, and Yonaguni are sensitive to low-initial pitch.

CHAPTER 6

RECONSTRUCTION OF PROTO MAINLAND JAPANESE ACCENT

6.1. INTRODUCTION

This chapter discusses a reconstruction of Proto Mainland Japanese (PMJ) accent and explains how PMJ accent evolved into its descendants. ‘Mainland Japanese’ basically means Japanese dialects spoken on the islands of Hokkaidô, Honshû, Shikoku, and Kyûshû, excluding the islands of Amami and the islands belonging to Okinawa Prefecture. Mainland Japanese dialects can be grouped into three types in terms of accent. These three types are Eastern-type (or Tokyo-type) accent, Western-type (or Kyoto-type) accent, and Southwestern-type (or Kagoshima-type) accent. We have pursued our reconstruction of PMJ using Tokyo dialect for Eastern-type, Kyoto dialect for Western-type and Kagoshima for Southwestern-type.

In section 6.2, we synchronically analyze accent systems of modern Tokyo, Kyoto, and Kagoshima. In section 6.3, we list all correspondences among the dialects and reconstruct an accent category for each correspondence set. The following section, 6.4, reveals how the accent systems of the mainland Japanese dialects have evolved from the reconstructed PMJ accent.

All data are basically taken from Hirayama (1960). However, accent patterns in NHK Hôshô Bunka Kenkyûjo, ed. (1971) are also mentioned when they are different from those of Hirayama’s.

6.2. MAINLAND JAPANESE

Following a widely-accepted classification of mainland Japanese accent, in this dissertation we discuss three types: 'Tokyo-type', 'Kyoto-type', and 'Kagoshima-type'. This classification is mainly based on the number of accent categories, the merging patterns of accent categories corresponding to Myôgi-shô accent, and phonological or phonetic rules (e.g., lowering high pitch on the unaccented word-initial mora in Tokyo-type accent).

In Tokyo-type accent, traditional accent categories for disyllables, for example, have merged as follows: 2.1/2.2-3/2.4-5. That is, there are three accent categories for Tokyo disyllabic nouns. Another characteristic is, as mentioned earlier, in Tokyo-type accent, there is a rule that lowers high pitch on an unaccented word-initial mora. We mainly make use of Tokyo dialect as an example for Eastern-type accent, yet other Tokyo-type dialects such as Hiroshima dialect are also mentioned when necessary.

A number of Kyoto-type dialects have four accent categories for disyllabic nouns.¹ In this dissertation, we focus on Kyoto dialect for Western-type accent. In the Kyoto dialect, there are four accent categories for disyllabic nouns, and they correspond to traditional accent categories as follows: 2.1/2.2-3/2.4/2.5; the second category resulted from a merger of Myôgi-shô accent categories 2.2 and 2.3.

Kagoshima dialect, whose accent is Southwestern-type, is another of our foci. This dialect has only two accent categories. Referring to Myôgi-shô accent categories, in Kagoshima, one category has been derived from a merger of

¹ Ibuki-island dialect has five distinctions for disyllabic nouns (Wada 1966a and 1966b).

Myôgi-shô categories 2.1 and 2.2, and the other category has resulted from a merger of Myôgi-shô categories 2.3, 2.4, and 2.5. The Kagoshima accent system can be analyzed as a register system: word-initial high and low register. (See below for details)

6.2.1. Description of Tokyo Japanese Accent

Tokyo nouns are distinguished by locus only. Another characteristic of Tokyo dialect is that it has a synchronic phonetic rule that lowers the word-initial high pitch when the mora is not accented.

Monosyllables: In Tokyo, monosyllabic nouns are either tonic or atonic. Tonic monosyllables are phonetically H(L); high on the noun itself and low on a following particle. The phonetic pitch shape of atonic monosyllabic nouns is L(H). Compared with Myôgi-shô monosyllabic nouns, Tokyo tonic nouns regularly correspond to Myôgi-shô accent category 1.3, and Tokyo atonic nouns to Myôgi-shô accent categories 1.1-2. In addition, Tokyo monosyllabic nouns are generally monomoraic.

(1) Tokyo monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
O]	H(L)	1.3	<i>ki</i>]'tree', <i>ha</i>]'tooth', <i>me</i>]'eye'
O	L(H)	1.1	<i>ke</i> 'hair', <i>ti</i> 'blood'
		1.2	<i>ha</i> 'leaf', <i>na</i> 'name'

Disyllables: There are three distinctive accent patterns in Tokyo disyllabic nouns. They are atonic (/OO/), initial-accent (/O]O/), and final-accent (/OO]/). Phonetically atonic nouns are LH(H), initial-accent nouns are HL(L), and final-accent nouns are LH(L). In Tokyo, the initial syllable is always low pitch unless the syllable is accented.

(2) Tokyo disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OO	LH(H)	2.1	<i>hana</i> 'nose', <i>usi</i> 'cow', <i>tori</i> 'bird', <i>kosi</i> 'loins', <i>kaze</i> 'wind', <i>hige</i> 'beard'
O|O	HL(L)	2.3	<i>ku</i> <i>mo</i> 'cloud'
		2.4	<i>hu</i> <i>he</i> 'boat', <i>u</i> <i>mi</i> 'sea', <i>ka</i> <i>ta</i> 'shoulder', <i>i</i> <i>ki</i> 'breath', <i>i</i> <i>ta</i> 'board', <i>u</i> <i>ku</i> 'mortar', <i>ha</i> <i>si</i> 'chopsticks', <i>ha</i> <i>ri</i> 'needle'
		2.5	<i>a</i> <i>ke</i> 'sweat', <i>a</i> <i>me</i> 'rain', <i>mu</i> <i>ko</i> 'bridegroom', <i>ko</i> <i>ke</i> 'voice', <i>ka</i> <i>ge</i> 'shadow', <i>o</i> <i>ke</i> 'bucket'
OO|	LH(L)	2.2	<i>isi</i> | 'stone', <i>kami</i> | 'paper', <i>hasi</i> | 'bridge'
		2.3	<i>hana</i> | 'flower', <i>yama</i> | 'mountain', <i>hone</i> | 'bone', <i>inu</i> | 'dog', <i>doro</i> | 'mud'
		3.4	<i>o:gi</i> | 'fan'

My synchronic analysis of Tokyo disyllabic nouns reveals that disyllables include not only historical disyllables but also a historical trisyllabic noun; *o:gi* | 'fan', which belongs to Myôgi-shô accent category 3.4. However, it has become disyllabic by losing a syllabic segment. It resulted in having three moras.

When it comes to correspondences between Tokyo disyllabic nouns and their corresponding Myôgi-shô nouns, Tokyo atonic nouns regularly correspond to Myôgi-shô category 2.1. Tokyo initial-accent disyllables seem to correspond to 2.3-5 in Myôgi-shô. However, the accent of *kumo* 'cloud' (2.3) is irregular because Myôgi-shô 2.3 nouns generally correspond to Tokyo final-accent. Based on the data in (2), except for *kumo* 'cloud', Tokyo initial accent in general corresponds to Myôgi-shô 2.4-5. Tokyo final-accent disyllables correspond to Myôgi-shô accent categories 2.2-3. In other words, accentual correspondences between Tokyo disyllables and their corresponding Myôgi-shô nouns are systematic. See below.

(3) Correspondences between Tokyo accent and that of Myôgi-shô

Tokyo disyllables	Myôgi-shô
Atonic accent	2.1
Final accent	2.2-3
Initial accent	2.4-5

Trisyllables: Tokyo trisyllabic nouns can be grouped into four distinctive accent categories: atonic (/OOO/), initial-accent (/O]OO/), second-syllable accent (/OO]O/), and final-accent (/OOO]/). The phonetic pitch shapes of these accent categories are respectively LHH(H), HLL(L), LHL(L), and LHH(L).

Our analysis of Tokyo trisyllabic accent in (4) includes not only nouns on our original word list but also words not on the list. We added more trisyllabic nouns in order to generalize the accentual patterns. In (4), the additional words are bold-faced. With the additional data, we are able to determine that *hutatu* 'two' (3.2) is irregular because Tokyo nouns corresponding to Myôgi-shô accent category 3.2 are normally atonic (i.e., /OOO/) in Tokyo.

Adding more nouns corresponding to Myôgi-shô accent category 3.5, it is clear that there is a second-syllable accent category (i.e., /OO]O/) in Tokyo. This category contains only 3.5-nouns. Additional nouns corresponding to Myôgi-shô accent category 3.7 also makes clear that 3.7-nouns are either atonic or initial-syllable accent in Tokyo.

(4) Tokyo trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
OOO	LHH(H)	3.1	<i>sirusi</i> 'mark', <i>kemuri</i> 'smoke', <i>hitai</i> 'forehead', <i>akubi</i> 'yawn'
		3.2	<i>mukade</i> 'centipede', <i>tubasa</i> 'wing', <i>tokage</i> 'lizard', <i>turube</i> 'well-bucket', <i>ibara</i> 'thorn'
		3.5	<i>hasira</i> 'pillar', ² <i>abura</i> 'fat', <i>keyaki</i> 'zelkova', <i>tuzura</i> 'wicker'
		3.6	<i>unagi</i> 'eel', <i>mimizu</i> 'earthworm', <i>usagi</i> 'rabbit', <i>suzume</i> 'sparrow', <i>nezumi</i> 'mouse'
		3.7	<i>kusuri</i> 'medicine', <i>kuzira</i> 'whale', <i>hatake</i> 'field', <i>usiro</i> 'behind', <i>tarai</i> 'washtub'
<hr/>			
o|oo	HLL(L)	3.3	<i>ko kane</i> 'gold', ³ <i>ha itati</i> '20 years old', <i>a lwabi</i> 'abalone', <i>sa lzae</i> 'top shell'
		3.5	<i>i hoti</i> 'life', <i>na mida</i> 'tears', <i>ma kura</i> 'pillow', <i>su gata</i> 'figure', <i>a hware</i> 'pity', <i>ho itaru</i> 'firefly'
		3.6	<i>ka rasu</i> 'crow'
		3.7	<i>hi itori</i> 'one person', <i>hi totu</i> 'one', <i>ka buto</i> 'helmet', <i>ka hiko</i> 'silkworm', <i>ma buta</i> 'eyelid', <i>o itona</i> 'adult', <i>si zuka</i> 'quiet', <i>ho hoka</i> 'faint'
<hr/>			
oo|o	LHL(L)	3.5	<i>ito ko</i> 'cousin', <i>koko ro</i> 'heart', <i>nana itu</i> 'seven', <i>itu itu</i> 'five'
<hr/>			
ooo|	LHH(L)	3.2	<i>hutatu</i> | 'two'
		3.3	<i>tikara</i> | 'strength'
		3.4	<i>hukuro</i> | 'bag', <i>takara</i> | 'treasure', <i>kagami</i> | 'mirror'

Among nouns corresponding to Myôgi-shô accent category 3.3, *tikara* | 'strength' (3.3) does not share its accentuation with other 3.3-nouns. And also *ka rasu* 'crow' (3.6) has aberrant accentuation among 3.6-nouns in Tokyo. The accentual patterns of 'strength' and 'crow' are probably irregular.

² NHK Hôshô Bunka Kenkyûjo, ed., says that the word for 'pillar' can be either *hasira* or *hasira* |. However, according to Hirayama (1935), the word can only be atonic: *hasira*.

³ According to Hirayama (1960), the word for 'gold' is *ko kane* 'gold'. However, NHK Hôshô Bunka Kenkyûjo, ed. lists not only *ko kane* but also *kogane* for 'gold'.

6.2.2. Description of Kyoto Japanese Accent

Kyoto accent is more complicated than that of Tokyo or of Kagoshima, because it makes use of two typologically different accent types: locus and word-initial register; thus it has more accent categories than any other type of accent system in Japonic languages.

Monosyllables: In Kyoto, monosyllabic nouns can be analyzed as being one of either high-register, low-register, or tonic. Kyoto monosyllables are composed of two moras; there are no monomoraic nouns in Kyoto.

(5) Kyoto monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
\bar{oo}	HH(H)	1.1	\bar{ti} : 'blood'
$_oo$	LH ~ LL(H)	1.3	$_ki$: 'tree', $_me$: 'eye'
$oo\bar{}$	HL(L)	1.1	ke : $\bar{}$ 'hair'
		1.2	ha : $\bar{}$ 'leaf', na : $\bar{}$ 'name'
		1.3	ha : $\bar{}$ 'tooth'

Thus, the phonetic pitch shapes of those accent categories are HH(H) for high-register, LH ~ LL(H) for low-register, and HL(L) for tonic accent. Low-register nouns are LH in isolation, but LL(H) when followed by a particle.

Compared with Myôgi-shô accent categories, at first glance, the accentuation of Kyoto monosyllables does not seem to systematically correspond to Myôgi-shô accent categories. Looking into more data on Kyoto monosyllables, we are sure that Kyoto monosyllabic accent regularly corresponds to Myôgi-shô accent. Specifically, the accentuation of the word ke : $\bar{}$ 'hair' (1.1) is irregular because Kyoto nouns corresponding to Myôgi-shô accent category 1.1 are usually high-register, e.g., \bar{e} : 'a handle', \bar{ka} : 'mosquito', \bar{ko} :

'child', \bar{to} : 'door', \bar{ho} : 'sail', \bar{mi} : 'fruit'. And the accent of the word $ha:$ 'tooth' (1.3) is also irregular. It is certain based on the regular accentuation of other nouns which correspond to Myôgi-shô accent 1.3, e.g., \bar{o} : 'tail', \bar{te} : 'hand', \bar{hi} : 'fire'.

In summary, with some exceptions, Kyoto high-register nouns in general correspond to Myôgi-shô accent category 1.1, Kyoto low-register nouns to Myôgi-shô accent category 1.3, and Kyoto tonic-accent nouns to Myôgi-shô accent category 1.2.

(6) General correspondences between Kyoto monosyllabic accent and that of Myôgi-shô

Kyoto accent	Myôgi-shô accent
High-register	1.1
tonic-accent	1.2
Low-register	1.3

Disyllables: Kyoto disyllabic nouns have four distinct accent categories:

high-register, low-register, initial-accent, and final-accent.

(7) Kyoto disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
\bar{OO}	HH(H)	2.1	\bar{hana} 'nose', \bar{usi} 'cow', \bar{tori} 'bird', \bar{kosi} 'loins', \bar{kaze} 'wind', \bar{hige} 'beard'
\bar{OO}	LH ~ LL(H)	2.4	\bar{hune} 'boat', \bar{umi} 'sea', \bar{kata} 'shoulder', \bar{iki} 'breath', \bar{ita} 'board', \bar{usu} 'mortar', \bar{hasi} 'chopsticks', \bar{hari} 'needle'
$O\bar{o}$	HL(L)	2.2 2.3 3.4	$i\bar{ki}$ 'stone', $ka\bar{mi}$ 'paper', $ha\bar{ki}$ 'bridge' $ha\bar{na}$ 'flower', $ya\bar{ma}$ 'mountain', $ku\bar{mo}$ 'cloud', $ho\bar{ne}$ 'bone', $i\bar{nu}$ 'dog', $do\bar{ro}$ 'mud' $o:\bar{gi}$ 'fan'
$OO\bar{}$	LF ~ LH(L)	2.5	$ase\bar{}$ 'sweat', $ame\bar{}$ 'rain', $muko\bar{}$ 'bridegroom', $koe\bar{}$ 'voice', $kage\bar{}$ 'shadow', $oke\bar{}$ 'bucket'

High-register nouns are phonetically high-level in pitch. Low-register nouns are LH in isolation, but LL(H) when used with a particle. Initial-accent nouns are simply HL(L). In final-accent nouns, the pitch begins low and falls on the second syllable (i.e., LF) when uttered by itself, but LH(L) when followed by a particle.

As noticed, the synchronic data for disyllables include a historical trisyllabic noun, namely *o: ŭi* 'fan'. As *afuki* LLL in Myôgi-shô indicates, the earlier Japanese form for 'fan' must have been trisyllabic as well (see Section 6.3).

With regard to correspondences between Kyoto and Myôgi-shô disyllables, they correspond to each other in a systematic way. That is, Kyoto high-register disyllables regularly correspond to Myôgi-shô category 2.1, Kyoto low-register nouns to Myôgi-shô category 2.4, Kyoto initial-accent words to both Myôgi-shô categories 2.2 and 2.3, and Kyoto final-accent nouns to Myôgi-shô category 2.5.

Trisyllables: In Kyoto, there are four accentual types for trisyllabic nouns. They are as follows: high-register-atonal, low-register-atonal, initial-accent, and second-syllable-accent.

High-register-atonal nouns are phonetically high level, but low-register-atonal nouns are final high; i.e., LLH in isolation and LLL(H) when followed by a particle. As for tonic nouns, initial-accent nouns have HLL(L) pitch shape. Second-syllable-accent nouns are LHL(L).

(8) Kyoto trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
ˉOOO	HHH(H)	3.1	ˉsirusi 'mark', ˉkemuri 'smoke', ˉhitai 'forehead', ˉakubi 'yawn'
		3.2	ˉaida 'interval', ˉsakura 'cherry', ˉenoki 'hackberry', ˉtobari 'curtain'
		3.3	ˉkogane 'gold'
_OOO	LLH ~ LLL(H)	3.6	_karasu 'crow', _unagi 'eel', _mimizu 'earthworm'
OˊOO	HLL(L)	3.2	a ˊzuki 'red beans', to ˊbira 'door', hi ˊgasi 'east', ne ˊdoko 'alcove'
		3.3	ti ˊkara 'strength', ha ˊtati '20 years old', ko ˊmugi 'wheat', a ˊwabi 'abalone'
		3.4	hu ˊkuro 'bag', ta ˊkara 'treasure', ka ˊgami 'mirror'
		3.5	ma ˊkura 'pillow', a ˊbura 'fat', i ˊnoti 'life', na ˊmida 'tears', ha ˊbira 'pillar', ko ˊkoro 'heart', i ˊtoko 'cousin'
OOˊO	LHL(L)	3.2	muka ˊde 'centipede', huta ˊtu 'two', tuba ˊsa 'wing', huta ˊri 'two people', turu ˊbe 'well-bucket', toka ˊge 'lizard', iba ˊra 'thorn'
		3.7	kusu ˊri 'medicine', hito ˊri 'one person', hito ˊtu 'one', kabu ˊto 'helmet', kuzi ˊra 'whale', hata ˊke 'field'

A comparison of Kyoto trisyllabic nouns and their corresponding Myôgi-shô cognates in general shows systematic correspondences in accent forms, except for an irregular correspondence of the word for 'gold' (3.3). Kyoto high-register accent corresponds to Myôgi-shô accent category 3.1-3, Kyoto low-register accent to Myôgi-shô accent 3.6, Kyoto initial-accent to Myôgi-shô accent 3.2-5, and second-syllable accent to Myôgi-shô 3.2 and 3.7. The Kyoto word ˉkogane 'gold' is probably irregular because nouns corresponding to Myôgi-shô category 3.3 are normally initial-accent (/OˊOO/) in Kyoto, e.g., a ˊwabi 'abalone', ha ˊtati '20 years old'.

Finally, we should mention that in (8) there are additional nouns that are not on our original word list. They are bold-faced. With the additional data, it became clear that nouns corresponding to Myôgi-shô accent category 3.2 correspond to / \neg OOO/, /O]OO/, and /OO]O/ in Kyoto.

6.2.3. Description of Myôgi-shô Accent

Compared with other Japonic languages, the accent system of Myôgi-shô is more complex. It has more accent distinctions than any other dialects of the Japonic languages known to us. There are three distinctions for monosyllables, five for disyllables, and seven for trisyllables. These distinctions are made by means of word-initial register and locus. As far as typology of accent system is concerned, register and locus distinctions are very different from each other. In Myôgi-shô, these two different systems coexist.

Monosyllables: There are three types of accentuation for Myôgi-shô monosyllabic nouns: / \neg O/ [H(H)], /O]/ [H(L)], and /_O/ [L(H)]. Following Martin (1987), in this dissertation we call them, in order, category 1.1, category 1.2, and category 1.3. In this accent system, word-initial register and locus are distinctive.

(9) Myôgi-shô monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
\neg O	H(H)	1.1	\neg ke 'hair', \neg ti 'blood'
O]	H(L)	1.2	fa] 'leaf', na] 'name'
_O	L(H)	1.3	_ki 'tree', _me 'eye', \neg fa ⁴ 'tooth'

⁴ The symbol " \neg " indicates a rising pitch. For monosyllables, pitch rises within a syllable. For disyllables and trisyllables, syllables before " \neg " are low and syllables following the symbol are high pitch; e.g., / \neg O/ [R ~ L(H)], /O]OO/ [LHH(H)], /OO]O/ [LLH(H)] or [LLH ~ LLL(H)].

Notice that the word *fa* 'tooth' has rising pitch, different from other nouns in the same category. The word is phonetically R in isolation, but L(H) when uttered with a particle. Because this type of words are rare in Myôgi-shô, they are treated as 1.3-nouns. Following a traditional analysis, we put the word *fa* 'tooth' in category 1.3, but with the rising pitch symbol "f".

Disyllables: Myôgi-shô disyllabic accent is a five-way system. The accent categories are / $\overline{\text{OO}}$ / (2.1), / $\text{O}\overline{\text{O}}$ / (2.2), / $\underline{\text{OO}}$ / (2.3), / O^fO / (2.4), and / $\text{OO}\overline{\text{ }}$ / (2.5). As its monosyllables do, Myôgi-shô disyllabic nouns also utilize two different types of accent systems: register (word-initial-high and word-initial-low register) and locus accent.

(10) Myôgi-shô disyllabic accent

Phonemic	Phonetic	Myô	List of nouns
$\overline{\text{OO}}$	HH(H)	2.1	\overline{fana} 'nose', \overline{usi} 'cow', \overline{tori} 'bird', \overline{kosi} 'loins', \overline{kaze} 'wind', \overline{fige} 'beard'
$\text{O}\overline{\text{O}}$	HL(L)	2.2	$i\overline{ki}$ 'stone', $ka\overline{mi}$ 'paper', $fa\overline{ki}$ 'bridge'
$\underline{\text{OO}}$	LL(L)	2.3	\underline{fana} 'flower', \underline{yama} 'mountain', \underline{kumo} 'cloud', \underline{fone} 'bone', \underline{inu} 'dog', \underline{doro} 'mud'
O^fO	LH(H)	2.4	fu^fne 'boat', u^fmi 'sea', ka^fta 'shoulder', i^fki 'breath', i^fta 'board', u^fsu 'mortar', fa^fsi 'chopsticks', fa^fri 'needle'
$\text{OO}\overline{\text{ }}$	LH(L) ⁵	2.5	$ase\overline{}$ 'sweat', $ame\overline{}$ 'rain', $muko\overline{}$ 'bridegroom', $kowe\overline{}$ 'voice', $kage\overline{}$ 'shadow', $woke\overline{}$ 'bucket'

Regarding locus accent, there are two types: falling accent (indicated by " $\overline{\text{ }}$ ") and rising pitch (indicated by " f "). Both types of locus accent change pitch between syllables/moras.

⁵ Kindaichi (1975: 52) says category 2.5 nouns had LH(L), but Kamei says LF. I have to check what is right.

Initial-high register words are high pitch throughout the words. Initial-low register words are low-level pitch. Words with initial-accent are phonetically HL(L). Words with final-syllable rising accent are LH(H) pitch. Finally, words with final-accent are LH(L).

Trisyllables: In Myôgi-shô there are seven distinctive accent types for trisyllabic nouns: / \neg OOO/, / \neg OO]O/, /O]OO/, /_OOO/, /OO]O/, /O]OO/, and /_OO]O/. Adopting Martin's terminology (see Martin 1987), we call these accent categories Myôgi-shô accent categories 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7 respectively.

(11) Myôgi-shô trisyllabic accent

Phonemic	Phonetic	Myô	List of nouns
\neg OOO	HHH(H)	3.1	\neg sirusi 'mark', \neg kemuri 'smoke', \neg fitafi 'forehead', \neg akubi 'yawn'
\neg OO]O	HHL(L)	3.2	\neg muka]de 'centipede', \neg futa]tu 'two'
O]OO	HLL(L)	3.3	ko]gane 'gold', ti]kara 'strength'
_OOO	LLL(L)	3.4	_fukuro 'bag', _takara 'treasure', _kagami 'mirror', _afuki 'fan'
OO]O	LLH(H)	3.5	maku]ra 'pillow', abu]ra 'fat', ino]ti 'life', nami]da 'tears', fasi]ra 'pillar', koko]ro 'heart', ito]ko 'cousin'
O]OO	LHH(H)	3.6	ka]rasu 'crow', u]nagi 'eel', mi]mizu 'earthworm'
_OO]O	LHL(L)	3.7	_kusu]ri 'medicine', _kuzi]ra 'whale', _fata]ke 'field'

Trisyllabic nouns belonging to Myôgi-shô accent category 3.1 are high-register, phonetically high-level throughout the words. Nouns with / \neg OO]O/ accent are, so-called 3.2 nouns, phonetically HHL(L). Initial-accent trisyllables

(3.3) have HLL(L) pitch. Nouns in accent category 3.4 are low-register, phonetically low-level. Nouns belonging to accent categories 3.5 and 3.6 make use of 'rising pitch' (i.e., "↑"), instead of falling pitch (i.e., "↓"). 3.5- and 3.6-nouns are /OO↑O/ [LLH(H)] and /O↑OO/ [LHH(H)] respectively; that is, the location of the rising pitch is crucial in distinguishing 3.5-nouns from 3.6-nouns. And finally, low-register second-syllable-accent nouns (i.e., /_OO↑O/) are phonetically LHL(L) and they are called 3.7 nouns. In addition, interestingly there are no final-accent trisyllables in the Myôgi-shô dialect.⁶

6.2.4. Description of Kagoshima Japanese Accent

Kagoshima accent for nouns is very simple. There are two types of accent: high-register and low-register. In the former type of nouns, a phonetic locus is on a penultimate syllable in a prosodic word,⁷ e.g., *hana* HL 'nose', *hana ga* LHL 'nose (Nom.)'. Notice that the domain of the accent is not a word itself, but it is a prosodic word, namely a word and a following particle. Because a phonetic rule lowers the pitch of unaccented syllables in high-register nouns, they are LH(L) in disyllables and LLH(L) in trisyllables when followed by a particle.

With regard to rising accent nouns, they begin in low and end in high within the domain, e.g., *hana* LH 'flower', *hana ga* LLH 'flower (Nom.)'. The final syllable of a prosodic word is always high in pitch and the rest of the syllables are low.

⁶ Martin (1987) suggests that some of LHL-nouns have been derived from the earlier final-accent nouns. That is, the change *LHH(L) > LHL took place.

⁷ Following McCarthy and Prince (1995), we use the term 'prosodic word' to indicate a phrase consisting of a word and a particle.

Typologically the accent system of Kagoshima is very different from a locus system (e.g., Tokyo accent, where locus distinguishes one word from another).

All Kagoshima data are taken from Hirayama (1951), Hirayama, et al. (1967), and Hirayama, et al. ed. (1992).

Monosyllables: Kagoshima monosyllabic nouns are either high-register or low-register. As (12) shows, modern Kagoshima monosyllables include not only historical monosyllables but also historical disyllables. The former type is monomoraic, but the latter consists of two moras. High-register monomoraic nouns are phonetically F when uttered alone, but H(L) when followed by a particle. Two-mora high-register nouns are HL ~ HH(L).

For low-register nouns, monomoraic words are R in isolation, but they are L(H) when uttered with a particle, e.g., *_ki* R 'tree', *_ki ga* L-H 'tree (Nom.)'. Two-mora nouns with low-register accent have high-level pitch when uttered alone, but otherwise they are in low pitch with high pitch on the following particle, e.g., *_in* HH 'dog', *_in ga* LL-H 'dog (Nom.)'.

(12) Kagoshima monosyllabic accent

Phonemic	Phonetic	Myô	List of nouns
◌O	F ~ H(L)	1.1	<i>◌ke</i> 'hair', <i>◌ti</i> 'blood'
		1.2	<i>◌ha</i> 'leaf', <i>◌na</i> 'name'
	HL ~ HH(L)	2.2	<i>◌kan</i> ⁸ 'paper'
◌O	R ~ L(H)	1.3	<i>_ki</i> 'tree', <i>_ha</i> 'tooth', <i>_me</i> 'eye'
		2.3	<i>_in</i> 'dog'
	HH ~ LL(H)	2.4	<i>_un</i> ⁹ 'sea', <i>_iQ</i> 'breath'

⁸ This is *kan* HH(L) in Hirayama, ed. (1992).

⁹ According to Hirayama, ed. (1992), the noun for 'sea' is *un* HH(L).

Regarding correspondences between Kagoshima and Myôgi-shô accentual categories, putting historical disyllables aside, Kagoshima high-register monosyllables regularly correspond to Myôgi-shô accent categories 1.1-2, and its low-register monosyllables to Myôgi-shô category 1.3.

Disyllables: In Kagoshima disyllabic nouns, just like in monosyllables, there are two accentual distinctions: high-register and low-register. High-register nouns have a phonetic pitch fall immediately after the penultimate syllable within a prosodic word. Low-register nouns always keep high pitch on the final syllable in their domain; thus, they are pronounced LH without a particle and LL(H) with a particle. In the data, some nouns are historically trisyllabic, e.g., *hutaQ* 'two'. They consist of three moras while original disyllables are two moras long.

Compared with their corresponding Myôgi-shô disyllabic nouns, Kagoshima disyllables systematically correspond to Myôgi-shô accent types. Kagoshima high-register nouns are accent categories 2.1-2 in Myôgi-shô, and low-register disyllabic nouns correspond to Myôgi-shô accent categories 2.3-5.

In the Kagoshima dialect, the word-final syllables such as /si/, /zi/, /su/, and /zu/ become voiceless. And the word-final /Q/ is phonetically implosive [t], e.g., *hutaQ* 'two'. Word-final syllables corresponding to Tokyo syllables /ki/, /gi/, /ku/, /gu/, /ti/, /di/, /tu/, /zu/, /bi/, and /bu/ are /Q/ in Kagoshima (Hirayama 1951). There is one exception for this, i.e., *o:gi* 'fan'.

(13) Kagoshima disyllabic accent

Phonemic	Phonetic ¹⁰	Myô	List of nouns
ˉOO	HL ~ LH(L)	2.1	ˉhana 'nose', ˉusi 'cow', ˉtoi 'bird', ˉkosi 'loins', ˉkaze 'wind', ˉhige 'beard'
		2.2	ˉisi 'stone', ˉhasi 'bridge'
		3.2	ˉhutaQ 'two'
<hr/>			
_OO	LH ~ LL(H)	2.3	_hana 'flower', _yama 'mountain', _kumo 'cloud', _hone 'bone', _doro 'mud'
		2.4	_hune 'boat', _kata 'shoulder', _ita 'board', _usu 'mortar', _hasi 'chopsticks', _hai 'needle'
		2.5	_ase 'sweat', _ame 'rain', _muko 'bridegroom', _koe 'voice', _kage 'shadow', _oke 'bucket'
		3.1	_akuQ ¹¹ 'yawn'
		3.4	_o:gi 'fan', _kagan 'mirror' ¹²
		3.5	_inoQ 'life', _nanda 'tears'
		3.6	_unaQ 'eel', _mimiQ 'earthworm'

Kagoshima disyllabic low-register category includes the word *_o:gi* 'fan', which was historically trisyllabic. Unlike other Kagoshima disyllabic nouns, it has a long vowel in the initial syllable. Monophthongization and compensatory lengthening can account for the shape of the word, i.e., **apukyī > *aukyī > o:gi*.

Trisyllables: Like its monosyllables and disyllables, Kagoshima trisyllabic nouns have two accent patterns. They are high-register and low-register. Within its domain of accent (i.e., prosodic word), high-register nouns have high pitch on a penultimate-syllable. Thus, they are LHL in isolation and LLH(L) with a particle. 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., LLH ~ LLL(H)).

¹⁰ Each letter (H or L) represents pitch height of one syllable. This is the same for nouns with three moras such as ˉhutaQ 'two' – high pitch on the first syllable (/hu/) and low pitch on the second syllable (/taQ/).

¹¹ The word for 'yawn' is *akut* ˉLHH(L) in Hirayama, ed. (1992).

¹² According to Hirayama, et al. (1967), Kagoshima nouns corresponding to traditional accent category 3.4 are final-accent.

When it comes to corresponding patterns between Kagoshima trisyllabic accent and Myôgi-shô accent, their correspondences are in general systematic. Kagoshima high-register nouns regularly correspond to Myôgi-shô accent categories 3.1-3 and Kagoshima low-register nouns generally to Myôgi-shô accent categories 3.4-7.

(14) Kagoshima trisyllabic accent

Phonemic	Phonetic ¹³	Myô	List of nouns
ˉOOO	LHL ~ LLH(L)	3.1	ˉsirusi 'mark', ˉkemui 'smoke', ˉhitai 'forehead'
		3.2	ˉmukade 'centipede'
		3.3	ˉtikara 'strength', ˉkogane 'gold'
_OOO	LLH ~ LLL(H)	3.4	_hukuro 'bag', _takara 'treasure',
		3.5	_makura 'pillow', _abura 'fat', _hasita 'pillar', _kokoro 'heart', _itoko 'cousin'
		3.6	_karasu 'crow'
		3.7	_kusui 'medicine', _kuzira 'whale', _hatake 'field'

6.3. CORRESPONDENCES AND PRECONSTRUCTION OF PROTO MAINLAND JAPANESE ACCENT

In this section, we reconstruct a PMJ accent system on the basis of accentual correspondences among Tokyo, Kyoto, Myôgi-shô, and Kagoshima dialects. In the reconstructed PMJ, there are four accent distinctions for monosyllables, five for disyllables, and twelve for trisyllables. With regard to typology of accent system, in PMJ two different types of accentuation (i.e., locus accent and register) coexist in PMJ.

Monosyllables: For monosyllabic nouns, there are four sets of accentual correspondences among Tokyo, Kyoto, Myôgi-shô, and Kagoshima. This leads us to a reconstruction of four PMJ accent categories for monosyllables. The

¹³ Each letter (H or L) represents pitch height of one syllable.

categories that we have reconstructed are high-register atonic (* / ̄oo /), final accent (* / oo ̄ /), low-register atonic (* / _oo /), and rising accent (* / ̄oo /). The accent system of PMJ monosyllables is identical to that of Myôgi-shô, with variation of phonetic pitch shape in some categories.

Regarding phonetic pitch shapes of the reconstructed accent categories, the high-register and final accent are HH(H) and HH(L) respectively. For low-register atonic, its pitch shape is LL(L). And for the rising accent, pitch goes from L to H, and it is LH(H) when uttered with a particle.

Our PMJ monosyllables are bimoraic. That is to say, we consider that vowel length in Kyoto is a remnant of PMJ vowel length because shortening of segments is one of the characteristics of the Japonic languages, e.g., monophthonzation (see Martin 1987). From our Kagoshima data above, it is obvious that Kagoshima has a general tendency of shortening words. In Myôgi-shô, some monosyllabic nouns are recorded as bimoraic, e.g., *ka*: 'mosquito', although there are not many. This suggests that there were bimoraic monosyllables in Myôgi-shô. The reason why there are not many bimoraic monosyllables in Myôgi-shô may be that they were on their way out; shortening of a long vowel was taking place.

(15) Correspondences and reconstructed PMJ accent for monosyllabic nouns

(a)	Tokyo	Kyoto	Myôgi-shô	Kagoshima	PMJ ¹⁴
	<u>O</u>	<u>oo</u>	<u>O</u>	<u>O</u>	* <u>oo</u>
	[L(H)]	[HH(H)]	[H(H)]	[F ~ H(L)]	[HH(H)]
'hair' (1.1)	ke	ke:]	ke	ke	*ke:y
'blood' (1.1)	ti	ti:	ti	ti	*ti:y

(b)	Tokyo	Kyoto	Myôgi-shô	Kagoshima	PMJ
	<u>O</u>	<u>o|o</u>	<u>O|</u>	<u>O</u>	* <u>oo|</u>
	[L(H)]	[HL(L)]	[H(L)]	[F ~ H(L)]	[HL(L)]
'leaf' (1.2) ¹⁵	ha	ha:]	fa|	ha	*pa:]
'name' (1.2)	na	na:]	na|	na	*na:]

(c)	Tokyo	Kyoto	Myôgi-shô	Kagoshima	PMJ
	<u>O|</u>	<u>oo</u>	<u>O</u>	<u>O</u>	* <u>oo</u>
	[H(L)]	[LL(H)]	[L(H)]	[R ~ L(H)]	[LL(H)]
'tree' (1.3)	ki|	ki:	ki	ki	*ki:y
'eye' (1.3)	me|	me:	me	me	*me:y

(d)	Tokyo	Kyoto	Myôgi-shô	Kagoshima	PMJ
	<u>O|</u>	<u>o|o</u>	<u>O</u>	<u>O</u>	* <u>oo</u>
	[H(L)]	[HL(L)]	[R ~ L(H)]	[R ~ L(H)]	[LH(H)]
'tooth' (1.3)	ha|	ha:]	fa	ha	*pa:

Disyllables: As shown in (16), there are five sets of correspondences for mainland Japanese disyllabic accent. Based on that, we have reconstructed five accentual categories for PMJ disyllabic nouns. The reconstructed accent categories are high-register (*/OO/), initial accent (*/O|O/), low-register (*/_OO/), rising accent (*/O|O/), and final accent (*/OO|/). These categories

¹⁴ Our reconstruction also reflects characteristics of Old Japanese seen in the writings of the late seventh century and the eighth century, although Old Japanese cognates are not listed. For example, the phoneme /h/ is /f/ in Old Japanese. And Old Japanese had two variants for the vowels /i/, /e/, and /o/, and they are indicated /yi/, /iy/, /ye/, /ey/, /wo/, and /ə/. (Regarding the symbols, we mostly adopt Martin's (1987), except for the distinction between /o/ and /ə/.

¹⁵ Numbers in parentheses indicate traditional accent categories.

are identical to that of Myôgi-shô. Reconstructed nouns for each accent category are listed in (17).

(16) Synopsis of reconstructed accent categories

	Tokyo	Kyoto	Myôgi-shô	Kagoshima	PMJ
(a)	\overline{OO} [LH(H)]	\overline{OO} [HH(H)]	\overline{OO} [HH(H)]	\overline{OO} [HL ~ LH(L)]	\overline{OO} [HH(H)]
(b)	$O\overline{O}$ [LH(L)]	$O\overline{O}$ [HL(L)]	$O\overline{O}$ [HL(L)]	\overline{OO} [HL ~ LH(L)]	$\overline{O}\overline{O}$ [HL(L)]
(c)	$O\overline{O}$ [LH(L)]	$O\overline{O}$ [HL(L)]	\overline{OO} [LL(L)]	\overline{OO} [LH~ LL(H)]	\overline{OO} [LL(L)]
(d)	$O\overline{O}$ [HL(L)]	\overline{OO} [LH ~ LL(H)]	$O\overline{O}$ [LH(H)]	\overline{OO} [LH~ LL(H)]	$\overline{O}\overline{O}$ [LH(H)]
(e)	$O\overline{O}$ [HL(L)]	\overline{OO} [LF ~ LH(L)]	\overline{OO} [LH(L)]	\overline{OO} [LH~ LL(H)]	\overline{OO} [LH(L)]

PMJ initial-high register accent is phonetically high level; there is no fall in pitch. The second category for PMJ disyllables is initial-syllable accent; high pitch on the initial syllable and low on both the second syllable and a following particle. Our third category, low-register accent, is phonetically low level. The fourth PMJ disyllabic accent is rising accent. Its pitch pattern is LH(H). Finally, the fifth accentuation that we have reconstructed for PMJ disyllables is final-accent, where pitch starts in low and high on the second syllable, and then pitch falls after the second syllable – it falls between the final syllable and a following particle when the words are followed by a particle.

In the correspondences, most forms are regular, except for the accentuation of the Tokyo word *ku⁷mo* ‘cloud’ (2.3) in (17c) -- In Tokyo, nouns corresponding to the historical accent category 2.3 are generally final-accent. Kindaichi (1971: 7 and 10) claims that the word for ‘cloud’ underwent an

analogical change and resulted in having the identical accentuation to *ku mo*

'spider' (2.5) because they are homophonic.

(17) Reconstructed PMJ accent for disyllabic nouns

(a)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OO	OO	OO	OO
		[LH(H)]	[HH(H)]	[HH(H)]	[HL ~ LH(L)]
'nose'	(2.1)	hana	hana	fana	hana
'cow'	(2.1)	usi	usi	usi	usi
'bird'	(2.1)	tori	tori	tori	toi
'loins'	(2.1)	kosi	kosi	kosi	kosi
'wind'	(2.1)	kaze	kaze	kaze	kaze
'beard'	(2.1)	hige	hige	fige	hige

PMJ	
*OO	
[HH(H)]	
*pana ¹⁶	'nose'
*usi	'cow'
*tôri	'bird'
*kəsi	'loins'
*kazey	'wind'
*pyigey	'beard'

(b)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OO]	O]O	O]O	OO
		[LH(L)]	[HL(L)]	[HL(L)]	[HL ~ LH(L)]
'stone'	(2.2)	isi]	i]si	i]si	isi
'paper'	(2.2)	kami]	ka]mi	ka]mi	kan
'bridge'	(2.2)	hasi]	ha]si	fa]si	hasi

PMJ	
*O]O	
[HL(L)]	
*i]si	'stone'
*ka]byi	'paper'
*pa]si	'bridge'

¹⁶ The Modern Japanese phoneme /h/ corresponds to /f/ in Old Japanese.

(c)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OO|	O|O	_OO	_OO
		[LH(L)]	[HL(L)]	[LL(L)]	[LH~ LL(H)]
'flower'	(2.3)	hana|	ha|na	_fana	_hana
'mountain'	(2.3)	yama|	ya|ma	_yama	_yama
'cloud'	(2.3)	ku|mo	ku|mo	_kumo	_kumo
'bone'	(2.3)	hone|	ho|ne	_fone	_hone
'dog'	(2.3)	inu|	i|nu	_inu	_in
'mud'	(2.3)	doro|	do|ro	_doro	_doro

PMJ
 *_OO
 [LL(L)]
 *_pana 'flower'
 *_yama 'mountain'
 *_kumwo¹⁷ 'cloud'
 *_poney 'bone'
 *_inu 'dog'
 *_doro 'mud'

(d)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		O|O	_OO	O|O	_OO
		[HL(L)]	[LH ~ LL(H)]	[LH(H)]	[LH~ LL(H)]
'board'	(2.4)	i|ta	_ita	i|ta	_ita
'sea'	(2.4)	u|mi	_umi	u|mi	_un
'shoulder'	(2.4)	ka|ta	_kata	ka|ta	_kata
'breath'	(2.4)	i|ki	_iki	i|ki	_iQ
'boat'	(2.4)	hu|ne	_hune	fu|ne	_hune
'mortar'	(2.4)	u|su	_usu	u|su	_usu
'chopsticks'	(2.4)	ha|si	_hasi	fa|si	_hasi
'needle'	(2.4)	ha|ri	_hari	fa|ri	_hai

PMJ
 *_O|O
 [LH(H)]
 *_i|ta 'board'
 *_u|myi 'sea'
 *_ka|ta 'shoulder'
 *_i|kyi 'breath'
 *_pu|ney 'boat'
 *_u|su 'mortar'
 *_pa|siy 'chopsticks'
 *_pa|riy 'needle'

¹⁷ An Old Japanese cognate for 'cloud' is *kumwo* (Martin 1987).

(e)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		O]O	OO]	OO]	_OO
		[HL(L)]	[LF ~ LH(L)]	[LH(L)]	[LH~ LL(H)]
'sweat'	(2.5)	a]se	ase]	ase]	_ase
'rain'	(2.5)	a]me	ame]	ame]	_ame
'bridegroom'	(2.5)	mu]ko	muko]	muko]	_muko
'voice'	(2.5)	ko]e	koe]	kowe]	_koe
'shadow'	(2.5)	ka]ge	kage]	kage]	_kage
'bucket'	(2.5)	o]ke	oke]	woke]	_oke

PMJ	
*OO]	
[LH(L)]	
*asey]	'sweat'
*amey]	'rain'
*mwokwo]	¹⁸ 'bridegroom'
*kəwey]	'voice'
*kagey]	'shadow'
*wokey]	'bucket'

Trisyllables: Among trisyllabic nouns, there are twelve sets of correspondences among the mainland Japanese dialects. These twelve sets of correspondences are listed below in (18a) through (18l). On the basis of these correspondence sets, we have reconstructed twelve PMJ accent categories. They are */ \neg OOO/ (18a), */ \neg OOO\ / (18b), */ \neg OOO]/ (18c), */O]O[O/ (18d), */O[OO]/ (18e), */OO[O]/ (18f), */OO[O/ (18g), */OO(O/ (18h), */_OOO/ (18i), */O[OO/ (18j), */O[OO\ / (18k), and */OO[O\ / (18l).

¹⁸ In Old Japanese the word for 'bridegroom, son-in-law' is *mwokwo* (Martin 1987).

(18) Synopsis of reconstructed accent categories

	Tokyo	Kyoto	Myôgi-shô	Kagoshima	PMJ
(a)	000 [LHH(H)]	$\overline{000}$ [HHH(H)]	$\overline{000}$ [HHH(H)]	$\overline{000}$ [LHL ~ LLH(L)]	* $\overline{000}$ [HHH(H)]
(b)	000 [LHH(H)]	00]0 [LHL(L)]	$\overline{00}$]0 [HHL(L)]	$\overline{000}$ [LHL ~ LLH(L)]	* $\overline{000}$] [HHF ~ HHH(L)]
(c)	000 [LHH(H)]	$\overline{000}$ [HHH(H)]	$\overline{00}$]0 [HHL(L)]	$\overline{000}$ [LHL ~ LLH(L)]	* $\overline{000}$] [HHH(L)]
(d)	0]00 [HLL(L)]	0]00 [HLL(L)]	0]00 [HLL(L)]	$\overline{000}$ [LHL ~ LLH(L)]	*0]0[0 [HLH(H)]
(e)	000] [LHH(L)]	0]00 [HLL(L)]	$\overline{000}$ [LLL(L)]	$\overline{000}$ [LLH ~ LLL(H)]	*0[00] [LHH(L)]
(f)	000] [LHH(L)]	$\overline{000}$ [HHH(H)]	$\overline{000}$ [LLL(L)]	$\overline{000}$ [LLH ~ LLL(H)]	*00[0] [LLH(L)]
(g)	0]00 [HLL(L)]	0]00 [HLL(L)]	00[0 [LLH(H)]	$\overline{000}$ [LLH ~ LLL(H)]	*00[0 [LLH(H)]
(h)	00]0 [LHL(L)]	0]00 [HLL(L)]	00[0 [LLH(H)]	$\overline{000}$ [LLH ~ LLL(H)]	*00[0 [LLR ~ LLL(H)]
(i)	000 [LHH(H)]	0]00 [HLL(L)]	00[0 [LLH(H)]	$\overline{000}$ [LLH ~ LLL(H)]	* $\overline{000}$ [LLL(L)]
(j)	000 [LHH(H)]	$\overline{000}$ [LLH ~ LLL(H)]	0[00 [LHH(H)]	$\overline{000}$ [LLH ~ LLL(H)]	*0[00 [LHH(H)]
(k)	000 [LHH(H)]	00]0 [LHL(L)]	$\overline{00}$]0 [LHL(L)]	$\overline{000}$ [LLH ~ LLL(H)]	*0[00] [LHF ~ LHH(L)]
(l)	0]00 [HLL(L)]	00]0 [LHL(L)]	$\overline{00}$]0 [LHL(L)]	$\overline{000}$ [LLH ~ LLL(H)]	*00[0] [LLF ~ LLH(L)]

Just as with its monosyllabic and disyllabic nouns, in PMJ trisyllables two typologically different accent systems (namely, locus and register) coexist to

distinguish one word from another. Furthermore, within the locus system there are two different types, i.e., falling accent ("̂") and rising accent ("̇"). For falling accent, the pitch falls immediately after an accented syllable or mora, while for rising accent the pitch rises immediately before an accented syllable or mora in nouns. There are also accent types shown with "̂" and "̇". They indicate a falling or rising pitch within the syllable or mora, e.g., /_OOÔ/ [LHF ~ LHH(L)], /_OȮO/ [LLR ~ LLL(H)].

In (18) we have summarized accentual correspondences and also have listed our reconstructed accent categories. In (20), reconstructed PMJ trisyllabic nouns for each category are listed. Of those reconstructed nouns, there are also cognates that are not on our original word list. We have added them in order to compensate for lack of data.

Our data in (20) generally show regular correspondences between each correspondence set and traditional accent categories. However, not all cognates show regular accentuation. There are some cognates with irregular accent. For example, in (20d), the accent of the Tokyo form for 'strength' (i.e., *tikara* ̂) is irregular because Tokyo nouns corresponding to Myōgi-shō category 3.3 are generally HLL(L). Examples in (19) elucidate this.

(19) Examples for Tokyo trisyllabic nouns corresponding to Myōgi-shō 3.3 accent category (Hirayama 1960)

'abalone'	awabi (3.3)	HLL(L)	(prototonic)
'wreath shell'	sazae (3.3)	HLL(L)	(prototonic)
'20 years old'	hatati (3.3)	HLL(L)	(prototonic)
'cape, promontory'	misaki (3.3)	LHH(H) ~ HLL(L) ¹⁹	(atonic ~ prototonic)

¹⁹ According to Hirayama (1960), the accent of the word 'promontory' is LHH(H). However, Akinaga ed. (1997) lists LHH(H) and HLL(L) for the word.

Regarding our reconstructed PMJ form for 'fan' in (20e), Tokyo and Kagoshima cognates are disyllabic while the Myôgi-shô form is trisyllabic. It is apparent that the Tokyo and the Kagoshima forms underwent monophthorization (see 6.2.2). Based on the Myôgi-shô form, we are able to reconstruct a trisyllabic form for 'fan'.

(20) Reconstructed PMJ accent for trisyllabic nouns

(a)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OOO	OOO	OOO	OOO
		[LHH(H)]	[HHH(H)]	[HHH(H)]	[LHL ~ LLH(L)]
'mark'	(3.1)	sirusi	sirusi	sirusi	sirusi
'smoke'	(3.1)	kemuri	kemuri	kemuri	kemuri
'forehead'	(3.1)	hitai	hitai	fitai	hitai
'yawn'	(3.1)	akubi	akubi	akubi	akubi

PMJ
 *OOO
 [HHH(H)]
 *syirasyi 'mark'
 *keyburyi 'smoke'
 *pyitapyi 'forehead'
 *akubi 'yawn'

(b)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OOO	OO|O	OO|O	OOO
		[LHH(H)]	[LHL(L)]	[HHL(L)]	[LHL ~ LLH(L)]
'centipede'	(3.2)	mukade	muka|de	muka|de	mukade
'two'	(3.2)	hutatu|	huta|tu	futa|tu	hutatu
'wing'	(3.2)	tubasa	tuba|sa	tuba|sa	tubasa
'lizard'	(3.2)	tokage	toka|ge	toka|ge	kokage

PMJ
 *OOO|
 [HHF ~ HHH(L)]
 *mukadey| 'centipede'
 *putatu| 'two'
 *tubasa| 'wing'
 *tokage| 'lizard'

(c)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OOO	OOO	OO|O	OOO
		[LHH(H)]	[HHH(H)]	[HHL(L)]	[LHL~ LLH(L)]
'interval'	(3.2)	aida	aida	afi|da	aida
'cherry'	(3.2)	sakura	sakura	saku|ra	sakura
'hackberry'	(3.2)	enoki	enoki	eno|ki	enoki
'curtain'	(3.2)	tobari	tobari	toba|ri	tobari

PMJ
 *-OOO]
 [HHH(L)]
 *-apyida| 'interval'
 *-sakura| 'cherry'
 *-eynakiy| 'hackberry'
 *-tobari| 'curtain'

(d)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		O|OO	O|OO	O|OO	OOO
		[HLL(L)]	[HLL(L)]	[HLL(L)]	[LHL ~ LLH(L)]
'strength'	(3.3)	tikara|	ti|kara	ti|kara	tikara
'gold'	(3.3)	ko|gane	ko|gane	ko|gane	kogane

PMJ
 *O|O|O
 [HLH(H)]
 *ti|ka|ra 'strength'
 *kwo|ga|ney 'gold'

(e)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OOO|	O|OO	OOO	OOO
		[LHH(L)]	[HLL(L)]	[LLL(L)]	[LLH ~ LLL(H)]
'bag'	(3.4)	hukuro|	hu|kuro	_hukuro	_hukuro
'treasure'	(3.4)	takara|	ta|kara	_takara	_takara
'mirror'	(3.4)	kagami|	ka|gami	_kagami	_kagami
'fan'	(3.4)	o:gi|	o:|gi	_afuki	_o:gi

PMJ
 *O|OO]
 [LHH(L)]
 *pu|kurwo| 'bag'
 *ta|kara| 'treasure'
 *ka|gami| 'mirror'
 *a|pukyi| 'fan'

(f)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OOO]	OOO	OOO	OOO
		[LHH(L)]	[HHH(H)]	[LLL(L)]	[LLH ~ LLL(H)]
'calendar'	(3.4)	koyomi]	koyomi	koyomi	--
'forest'	(3.4)	hayasi]	hayasi	fayasi	hayasi

PMJ
 *_OO[O]
 [LLH(L)]
 *_kəyə[myi] 'calendar'
 *_payə[syi] 'forest'

(g)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		O|OO	O|OO	OO|O	OOO
		[HLL(L)]	[HLL(L)]	[LLH(H)]	[LLH ~ LLL(H)]
'pillow'	(3.5)	ma|kura	ma|kura	maku|ra	_makura
'life'	(3.5)	i|noti	i|noti	ino|ti	_inoti
'tears'	(3.5)	na|mida	na|mida	nami|da	_namida
'firefly'	(3.5)	ho|taru	ho|taru	--	_hotaru
'figure'	(3.5)	su|gata	su|gata	suga|ta	_sugata

PMJ
 *_OO|O
 [LLH(H)]
 *_maku|ra 'pillow'
 *_inə|ti 'life'
 *_namyi|ta 'tears'
 *_pota|ru 'firefly'
 *_suga|ta 'figure'

(h)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OO|O	O|OO	OO|O	OOO
		[LHL(L)]	[HLL(L)]	[LLH(H)]	[LLH ~ LLL(H)]
'heart'	(3.5)	koko|ro	ko|koro	koko|ro	_kokoro
'cousin'	(3.5)	ito|ko	i|toko	ito|ko	_itoko

PMJ
 *_OO(O
 [LLH ~ LLL(H)]
 *_kəkə|rə 'heart'
 *_itwo|kwo 'cousin'

(i) ²⁰		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OOO	O|OO	OO|O	_OOO
		[LHH(H)]	[HLL(L)]	[LLH(H)]	[LLH ~ LLL(H)]
'fat'	(3.5)	abura	a|bura	abu|ra	_abura
'pillar'	(3.5)	hasira	ha|sira	fasi|ra	_hasira
		PMJ			
		*_OOO			
		[_LL(L)]			
		*_abura	'fat'		
		*_pasira	'pillar'		
(j)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OOO	_OOO	O|OO	_OOO
		[LHH(H)]	[LLH	[LHH(H)]	[LLH ~ LLL(H)]
			~ LLL(H)]		
'crow'	(3.6)	ka|rasu	_karasu	ka|rasu	_karasu
'eel'	(3.6)	unagi	_unagi	u|nagi	_unagi
'earth-worm'	(3.6)	mimizu	_mimizu	mi|mizu	_mimizu
		PMJ			
		*O|OO			
		[LHH(H)]			
		*ka|rasu	'crow'		
		*mu|nagi ²¹	'eel'		
		*mi|mizu	'earthworm'		

²⁰ There are more examples: *sudare* LHH(H), *keyaki* LHH(H). These are from Hirayama (1960).

²¹ An Old Japanese cognate for 'eel' is *munagyi* (Martin 1987).

(k)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		OOO	OO|O	_OO|O	_OOO
		[LHH(H)]	[LHL(L)]	[LHL(L)]	[LLH ~ LLL(H)]
'medicine'	(3.7)	kusuri	kusu|ri	_kusu|ri	_kusuri
'whale'	(3.7)	kuzira	kuzi|ra	_kuzi|ra	_kuzira
'field'	(3.7)	hatake	hata|ke	_fata|ke	_hatake
'behind'	(3.7)	usiro	usi|ro	--	_usiro
'washtub'	(3.7)	tarai	tara|i	_tara|fi	_tarai

PMJ
 *O[OO]
 [LHF ~ LHH(L)]
 *ku[suri] 'medicine'
 *ku[di]ra 'whale'
 *pa[ta]ke 'field'
 *u[sirə] 'behind'
 *ta[ra]pyi 'washtub'

(l)		Tokyo	Kyoto	Myôgi-shô	Kagoshima
		O|OO	OO|O	_OO|O	_OOO
		[HLL(L)]	[LHL(L)]	[LHL(L)]	[LLH ~ LLL(H)]
'one person'	(3.7)	hi|tori	hito|ri	_fito|ri	_hitori
'helmet'	(3.7)	ka|buto	kabu|to	_kabu|to	_kabuto
'adult'	(3.7)	o|tona	oto|na	_oto|na	_otona
'silkworm'	(3.7)	ka|iko	kai|ko	_kafi|ko	_kaiko
'reply'	(3.7)	ta|yori	tayo|ri	_tayo|ri	_tayori
'camellia'	(3.7)	tu|baki	tuba|ki	_tuba|ki	_tubaki
'sickness'	(3.7)	ya|mai	yama|i	_yama|fi	_yamai

PMJ
 *OO[O]
 [LLF ~ LLH(L)]
 *pyitə[ri] 'one person'
 *kabu[to] 'helmet'
 *oto[na] 'adult'
 *kapyi[kwo]²² 'silkworm'
 *tuba[kyi] 'camellia'
 *yama[pyi]²³ 'sickness'

²² In Old Japanese, the cognate for 'silkworm' is *kafyikwo*, consisting of two morphemes (*kafyi* and *kwo*) (Martin 1987).

²³ In Old Japanese, for 'sickness' its cognate is *yamafyi*.

In (20b), the Tokyo cognates for 'centipede' (3.2) and 'two' (3.2) have different accent patterns. Looking into accentuation of other 3.2-nouns such as *sakura* 'cherry', *tubasa* 'wing', *tokage* 'lizard', *aida* 'interval', and many more, we have found that they are atonic, namely /OOO/, which is identical to that of 'centipede'. Therefore, the accent of the word for 'two' must be irregular.²⁴ In addition, in Hiroshima dialect (which has Tokyo-type accent), the accentuation of the word for 'two' is /OOO/ [LHH(H)]. This also confirms the irregularity of the Tokyo accent for 'two'.

As for (20a), Kagoshima cognates are normally high-register; only 'yawn' is low-register. Kagoshima high-register nouns systematically correspond to traditional accent categories 3.1-3, and Kagoshima low-register nouns to traditional accent categories 3.4-7. Therefore, the accentuation of 'yawn' in Kagoshima must be irregular.

In (20j), the Tokyo word *ka rasu* 'crow' (3.6) is irregular. According to Hirayama (1960), Tokyo nouns corresponding to Myôgi-shô accent category 3.6 are in general LHH(H). (21) shows some examples.

(21) Some Tokyo nouns corresponding to Myôgi-shô accent 3.6

'fox'	kitune	LHH
'sparrow'	suzume	LHH
'rat'	nezumi	LHH
'naked'	hadaka	LHH

In short, the accent /OOO/ [LHH(H)] in Tokyo systematically corresponds to /O̠OO/ in Myôgi-shô. Moreover, these three cognates in (20j) show identical

²⁴ Note that the noun *azuki* 'red beans' (3.2) has identical accentuation to *hutatu* 'two'.

accentuation in other Tokyo-type dialects; e.g., *karasu* 'crow' is low atonic in Yamaguchi.

In addition, regarding the relationship between modern Tokyo and Edo dialects,²⁵ accentual correspondences suggest that the Tokyo dialect is not a direct descendant of the Edo dialect.

As illustrated in (22), in Edo both 3.2- and 3.4-nouns have the same accent, i.e., / $\bar{O}O\bar{O}$ /, but in Tokyo 3.2-nouns are / OOO / and 3.4-nouns are / $OOO\bar{O}$ /. If we were to propose that Tokyo developed from Edo, we would have to account for the split: how 3.2-nouns became / OOO / and 3.4-nouns became / $OOO\bar{O}$ /. As far as phonological conditions are concerned, there are no reasons for the split. In addition, there are also other splits that we cannot explain; e.g., some of 3.5- and 3.7-nouns also show aberrant correspondences in Tokyo.

(22) Comparison of Edo and Tokyo trisyllabic accent

(a) Edo trisyllabic accent (Martin 1987)

Edo accent	Corresponding Myôgi-shô accent categories
/ OOO /	3.1
/ $\bar{O}O\bar{O}$ /	3.2 and 3.4
/ $O\bar{O}OO$ /	3.3 and 3.5
/ $O\bar{O}OO$ /	3.6
/ $\bar{O}O\bar{O}$ /	3.7

(b) Tokyo trisyllabic accent

Tokyo accent	Corresponding Myôgi-shô accent categories
/ OOO /	3.1, 3.2, 3.6, 3.7
/ $O\bar{O}OO$ /	3.3, 3.5, 3.7
/ $OOO\bar{O}$ /	3.4
/ $OO\bar{O}$ /	3.5

²⁵ Edo is an old name for Tokyo. The Edo dialect refers to a dialect which was spoken during the era of Edo (1600 – 1867 A.D.).

6.4. DEVELOPMENT OF THE ACCENT SYSTEM OF MAINLAND JAPANESE DIALECTS FROM PROTO MAINLAND JAPANESE

In the previous section, we have proposed a reconstruction of PMJ accent as shown in (23). This section reveals how the accent systems of the modern mainland Japanese dialects (Tokyo, Kyoto, and Kagoshima) as well as that of Myôgi-shô have developed from the PMJ accent.

(23) PMJ accent system

Monosyllabic	Disyllabic	Trisyllabic
(a) * ^ˉ oo [HH(H)]	(a) * ^ˉ OO [HH(H)]	(a) * ^ˉ OOO [HHH(H)]
(b) *oo ^ˊ [HL(L)]	(b) *O ^ˊ O [HL(L)]	(b) * ^ˉ OOO ^ˊ [HHF ~ HHH(L)]
(c) *_oo [LL(H)]	(c) *_OO [LL(L)]	(c) * ^ˉ OOO ^ˊ [HHH(L)]
(d) * ^ˊ oo [LH(H)]	(d) *O ^ˊ O [LH(H)]	(d) *O ^ˊ O ^ˊ O [HLH(H)]
	(e) *OO ^ˊ [LH(L)]	(e) *O ^ˊ OO ^ˊ [LHH(L)]
		(f) *OO ^ˊ O ^ˊ [LLH(L)]
		(g) *OO ^ˊ O [LLH(H)]
		(h) *OO ^ˊ O [LLH ~ LLL(H)]
		(i) *_OOO [LLL(L)]
		(j) *O ^ˊ OO [LHH(H)]
		(k) *O ^ˊ OO ^ˊ [LHF ~ LHH(L)]
		(l) *OO ^ˊ O ^ˊ [LLF ~ LLH(L)]

In this dissertation we have claimed that the Kyoto accent did not develop directly from the Myôgi-shô accent, although it is widely believed that Kyoto dialect has developed from the Myôgi-shô. It is obvious from their correspondences that Kyoto dialect is not a direct descendant of the Myôgi-shô dialect. Therefore, we will account for the development of Kyoto accent directly from PMJ, not from the Myôgi-shô. Regarding Tokyo accent, we consider it a direct descendant of PMJ; it did not develop from Myôgi-shô. Thus, we will

explain the development of Tokyo accent directly from PMJ. The Kagoshima accent system may also have developed directly from PMJ accent, because there is no evidence or indication for its development from Myôgi-shô.

6.4.1 Development of Myôgi-shô Accent from PMJ

In the Myôgi-shô line, most of the PMJ accent distinctions have been retained. Myôgi-shô and PMJ monosyllabic accents are very similar, and Myôgi-shô disyllabic accent is identical to those of PMJ. For trisyllables, PMJ underwent some changes.

Monosyllables: According to our hypothesis, the PMJ monosyllabic accent system and that of Myôgi-shô are almost identical. The only difference is in vowel length. In the Myôgi-shô line, the PMJ long vowel became short by undergoing Vowel Shortening.

(24) Myôgi-shô monosyllabic accent

	PMJ	V-shrt
(a)	* ^ˉ oo	> ^ˉ O
(b)	*oo ^ˉ	> O ^ˉ
(c)	*_oo	> _O
(d)	* ^ˈ oo	> ^ˈ O

Disyllables: Just like its monosyllabic accent, the accent system of PMJ disyllabic nouns remained the same in the Myôgi-shô line. It did not undergo any changes at all.

(25) Myôgi-shô disyllabic accent

- PMJ
- (a) * $\bar{\text{OO}}$ = $\bar{\text{OO}}$
- (b) * $\text{O}\bar{\text{O}}$ = $\text{O}\bar{\text{O}}$
- (c) * $_ \text{OO}$ = $_ \text{OO}$
- (d) * $\text{O}^{\text{f}}\text{O}$ = $\text{O}^{\text{f}}\text{O}$
- (e) * $\text{OO}\bar{\text{O}}$ = $\text{OO}\bar{\text{O}}$

Trisyllables: Unlike monosyllabic and disyllabic accent, Myôgi-shô trisyllabic accent evolved by undergoing four changes; i.e., Abductive Change, Contour Pitch Simplification (C-smpl), Final Accent Deletion (F-dltn), Double Accent Simplification (D-smpl).

The first change, Abductive Change, caused a drastic change by merging accent categories. There are four mergers caused by Abductive Change in the development of Myôgi-shô trisyllabic accent. The first one merged PMJ */ $\bar{\text{OOO}}\backslash$ / (26b) and */ $\bar{\text{OOO}}\bar{\text{O}}$ / (26c) as */ $\bar{\text{OOO}}\backslash$ /. The second one is a merger of PMJ */ $\text{O}^{\text{f}}\text{OO}\bar{\text{O}}$ / (26e) and */ $\text{OO}^{\text{f}}\text{O}\bar{\text{O}}$ / (26f) as */ $\text{OOO}\bar{\text{O}}$ /. The third merger involves PMJ */ $\text{OO}^{\text{f}}\text{O}$ / (26g), */ $\text{OO}^{\text{f}}\text{O}$ / (26h), and */ $_ \text{OOO}$ / (26i). All became */ $\text{OO}^{\text{f}}\text{O}$ /. And the last one put two categories with final-falling into one; i.e., PMJ */ $_ \text{O}^{\text{f}}\text{OO}\backslash$ / and */ $_ \text{OO}^{\text{f}}\text{O}\backslash$ / became */ $_ \text{OOO}\backslash$ /. As a result, with Abductive Change, the twelve distinctions of PMJ became seven.

(26) Myôgi-shô trisyllabic accent

	PMJ	abductive change	C-smpl	F-dltn	D-smpl
(a) * ⁻ 000	≡	000	=	000	≈ ⁻ 000 = ⁻ 000
(b) * ⁻ 000)					
(c) * ⁻ 000]					
(d) *0]0[0	=	0]0[0	=	0]0[0	= 0]0[0 > 0]00
(e) *0[00]					
(f) *00[0]					
(g) *00[0					
(h) *00(0	>	00[0	=	00[0	= 00[0 = 00[0
(i) *_000					
(j) *0[00	=	0[00	=	0[00	= 0[00 = 0[00
(k) *_0[00)					
(l) *_00[0)					

After Abductive Change, Contour Pitch Simplification follows. This rule of accent change turned /_000)/ into /_00]0/ (26k and l).

After the application of Contour Pitch Simplification, /000]/ (26e and f) underwent Final Accent Deletion and lost its accent. This rule deletes an accent on the final syllable of trisyllabic words. In other words, it is not applicable to monosyllables and disyllables. Because this rule was developed in the Kyoto-type Japanese line, there are no final-accent trisyllabic nouns in Kyoto-type Japanese.

Finally, PMJ */O]O[O/ (26d) became /O]OO/ by undergoing Double Accent Simplification. This rule simply deletes the final rising accent.

6.4.2. Development of Modern Kyoto Accent from PMJ

Based on the proposal that Kyoto dialect developed from PMJ, not from the dialect described in Myôgi-shô, we reveal the development of Kyoto accent from PMJ. Its development is more complex than that of Myôgi-shô. There are more stages of accentual changes involved in the Kyoto line.

Monosyllables: In its evolvement, Kyoto monosyllables underwent one change: Abductive Change. With Abductive Change, the four-way system of PMJ accent has evolved into three-way by merging PMJ */oo]/ (27b) and */[oo/ (27d) as /oo]/. The Abductive Change affected only tonic nouns. In addition, although Initial Accent Gain plays a role in the development of Kyoto disyllabic and trisyllabic accent (see below), it did not affect its monosyllables.

(27) Kyoto monosyllabic accent

PMJ	abductive change	
(a) * ^ˉ oo	=	^ˉ oo
(b) *oo]		
(d) *[oo	>	oo]
(c) * _{oo}	=	_{oo}

Disyllables: Kyoto disyllabic accent developed from PMJ by undergoing Initial Accent Gain and Assimilation. First, by the rule of Initial Accent Gain, PMJ */_OO/ (28c) became /O]O/, resulting in merging with PMJ */O]O/ (28b).

When this happened, PMJ */O[↑]O/ (28d) became /_OO/ in contrast with */[↑]OO/ (28a). At this point, the rising accent ("↑") was no longer distinctive. Later in the development, /_OO/ expanded its domain for accent from the word to the phrase. Thus, its pitch shape changed from LH(H) to LH ~ LL(H).

The next change, Assimilation, turned PMJ */OO[↑]/ into /OO[↓]/. This rule occurs at the end of words. Since none of the Kyoto monosyllables and trisyllables is final-accent, this rule did not take place in the monosyllables and trisyllables.

(28) Kyoto disyllabic accent

PMJ	I-gain		assml	
(a) * [↑] OO	=	[↑] OO	=	[↑] OO
(b) *O [↑] O	>	O [↑] O	=	O [↑] O
(c) *_OO				
(d) *O [↑] O	≈	_OO	=	_OO [LH ~ LL(H)]
(e) *OO [↑] [LH(L)]	=	OO [↑]	>	OO [↓] [LF ~ LH(L)]

Trisyllables: In the development of the Kyoto trisyllabic accent, there are five changes: Abductive Change, Contour Pitch Simplification (C-smpl), Final Accent Deletion (F-dltn), Initial Accent Gain (I-gain), and Double Accent Simplification (D-smpl). They take place in order as listed.

In (29), under Abductive Change, there are three mergers. By this change, the number of PMJ accent distinctions was reduced to seven. The first one involves PMJ */[↑]OOO[↓]/ (29b), */O[↑]OO[↓]/ (29k), and */OO[↑]O[↓]/ (29l). They

all became /OOO\ / [LHF ~ LHH(L)]. The second group of accent categories that underwent Abductive Change includes PMJ */O[OO \ / (29e) and */OO[O] / (29f). Both of them merged as /_OOO\ / [LHH(L)]. The last group involves PMJ */OO[O / (29g), */OO(O / (29h), and */_OOO / (29i). They merged as /OO[O /.

At the second stage of the development, Contour Pitch Simplification converted /OOO\ / to /OO]O/[LHL(L)]. This change is followed by Final Accent Deletion, which deletes the final accent of PMJ */^OOO\ / (29c) and /_OOO\ / (29e and f). The former merged with PMJ */^OOO / (29a) and the latter became /_OOO /. As mentioned earlier, this rule is not applicable to monosyllables or disyllables.

(29) Kyoto trisyllabic accent

	PMJ	abductive change	C-smpl	F-dltn	I-gain	D-smpl
(a)	*^OOO	=	OOO	=	OOO	
(c)	*^OOO]	=	^OOO]	=	^OOO]	
(b)	*^OOO\					
(k)	*O[OO\	>	OOO\	>	OO]O	=
(l)	*OO[O\					
(e)	*O[OO]					
(f)	*OO[O]					
(d)	*O]O[O	=	O]O[O	=	O]O[O	=
(g)	*OO[O					
(h)	*OO(O	>	OO[O	=	OO[O	=
(i)	*_OOO					
(j)	*O[OO	=	O[OO	=	O[OO	=

Another change contributing to the development of Kyoto trisyllabic accent is Initial Accent Gain. This changed /_OOO/ (29e and f) and /OO[̄]O/ (29g, h, and i) to /O[̄]OO/ and /O[̄]O[̄]O/ respectively. The latter then merged with PMJ */O[̄]O[̄]O/ (29d). Furthermore, the change of /_OOO/ to /O[̄]OO/ caused PMJ */O[̄]OO/ (29j) to become /_OOO/ in contrast to /[̄]OOO/.

At the final stage of the development, /O[̄]O[̄]O/ merges with /O[̄]OO/ when it loses its rising accent by the Double Accent Simplification rule. Kyoto trisyllables eventually have four distinctive accent categories.

Finally, PMJ has locus and register systems, which are typologically different from each other. Similarly, Kyoto accent has both systems as well, although the number of accentual distinctions is fewer than that of PMJ. In short, typologically speaking, both the PMJ and Kyoto accent systems are very much alike.

6.4.3. Development of Modern Tokyo Accent from PMJ

In this section, we will account for the development of Tokyo accent directly from PMJ. Compared with the developments of Myôgi-shô and Kyoto accents, Tokyo accent involves a rather complex process of changes. In the Tokyo line, there are six changes in total, including phonemic and phonetic changes. But they do not apply to all nouns -- they apply when conditions are met for the changes. Monosyllables underwent four of the changes, disyllables five, and trisyllables five. We will show how the Tokyo accent system evolved with the changes.

Monosyllables: As shown below, a series of four changes contributed to the development of Tokyo monosyllabic accent. The first change was Abductive

Change, which merged PMJ */ $\bar{\text{oo}}$ / (30a) and */ $\text{oo}\bar{\text{}}$ / (30b) as high-register atonic, and also put PMJ */ $_oo$ / (30c) and */ $\bar{\text{oo}}$ / (30d) into one category, i.e., / $_oo$ /. Thus, at this point, the four-way distinctions of PMJ became two-way, and distinctions were made by register only.

The second change is Initial Accent Gain, which is applicable only to low-initial nouns. Therefore, / $_oo$ / became / $\text{o}\bar{\text{lo}}$ /. / $\bar{\text{oo}}$ / did not undergo Initial Accent Gain, but its initial pitch became no longer distinctive; thus it became / oo / [HH(H)] at this point.

At the third stage, Tokyo dialect developed a phonetic rule that lowers the pitch of the initial syllable when the pitch is not distinctive. Thus, / oo / [HH(H)] resulted in LH(H).

Towards the end of its development from PMJ, Vowel Shortening took place. It made PMJ bimoraic monosyllables monomoraic, namely / oo / > / O / and / $\text{o}\bar{\text{lo}}$ / > / $\text{O}\bar{\text{}}$ /.

(30) Tokyo monosyllabic accent

PMJ	abductive change	I-gain	I-low	V-shrt
(a) */ $\bar{\text{oo}}$	>	$\bar{\text{oo}}$ \equiv	oo >	oo >
(b) */ $\text{oo}\bar{\text{}}$		[HH(H)]		[LH(H)] > [L(H)]
(c) */ $_oo$	>	$_oo$ >	$\text{o}\bar{\text{lo}}$ =	$\text{o}\bar{\text{lo}}$ >
(d) */ $\bar{\text{oo}}$				[H(L)]

Disyllables: As revealed below, there are five changes in the development of Tokyo disyllabic nouns: Abductive Change, Initial Accent Gain, Accent Shift, again, Initial Accent Gain, and Initial Pitch Lowering.

By Abductive Change, PMJ */O[̄]O/ (31d) and /OO[̄]/ [LH(L)] (31e) merged as /O[̄]O/. Similarity in their pitch shapes triggered the merger.

At the second stage, the application of the Initial Accent Gain rule on PMJ */_OO/ resulted in merging with PMJ */O[̄]O/. When this happened, the initial pitch of /O[̄]O/ (31d and e) became distinctive; i.e., /O[̄]O/ > /_OO/. By the time of the change, the number of accent distinctions was reduced to three.

The third stage, Accent Shift, turned /O[̄]O/ (31b and c) into /OO[̄]/. And by the following change (Initial Accent Gain), /_OO/ (31d and e) became /O[̄]O/. Due to this, the initial pitch of PMJ */_OO/ became no longer distinctive.

Finally, the following phonetic rule, Initial Pitch Lowering, lowered the initial pitch of /OO/ [HH(H)] (31a).

(31) Tokyo disyllabic accent

PMJ	abductive change	I-gain	shift	I-gain	I-low
(a) * [̄] OO	=	[̄] OO	=	[̄] OO	≡ OO > OO [LH(H)]
(b) *O [̄] O	=	O [̄] O	>	O [̄] O	> OO [̄] = OO [̄] = OO [̄] [LH(L)]
(c) *_OO	=	_OO			
(d) *O [̄] O	>	O [̄] O	≈	_OO	= _OO > O [̄] O = O [̄] O
(e) *OO [̄]					

Trisyllables: As with disyllabic, Tokyo trisyllabic accent evolved with five changes. They are Abductive Change, Initial Accent Gain, Accent Shift, Double Accent Simplification, and Initial Pitch Lowering. As noticed, the changes in disyllables are not identical to those of trisyllables because Initial Accent Gain

did not take place twice in trisyllables. Instead, Double Accent Simplification took place.

(32) Tokyo trisyllabic accent

	PMJ	abductive change	I-gain	shift	D-smpl	I-low
(a)	* \neg 000					
(b)	* \neg 000\					
(c)	* \neg 000]	> 000	\equiv 000	= 000	= 000	> 000
(i)	*_000				[HHH(H)]	[LHH(H)]
(j)	*0[00					
(k)	*0[00\					
(d)	*0]0[0	= 0]0[0				
			> 0]0[0	= 0]0[0	> 0]00	= 0]00
(g)	*00[0					
		> 00[0				
(l)	*00[0\					
(e)	*0[00]					
(f)	*00[0]	> 000]	= 000]	= 000]	= 000]	= 000]
(h)	*00[0	= 00[0	> 0]0[0	> 00]0	> 00]0	> 00]0
				[HHL(L)]	[LHL(L)]	

First, Abductive Change caused three mergers of accent categories. The following six accent categories: */ \neg 000/ (32a), */ \neg 000\ (32b), */ \neg 000]/ (32c), */_000/ (32i), */0[00/ (32j), and */0[00\ (32k) merged as high-level atonic. PMJ */00[0/ (32g) and */00[0\ (32l) also merged. They became /00[0/. Lastly PMJ */0[00]/ (32e) and */00[0]/ (32f) merged, becoming /000]/ [LHH(L)]. Because of the mergers, the number of original PMJ distinctions was reduced to five.

At the second stage of the development, /OO[̄]O/ (32g and l) gained an initial accent, resulting in merger with PMJ */O[̄]O[̄]O/ (32d). PMJ */OO[̄]O/ (32h) also gained the initial accent, i.e., /O[̄]O[̄]O/. The rule of Initial Accent Gain is applicable only to low-initial nouns, thus /OOO/ [HHH(H)] did not undergo the change.

The next sound change, Accent Shift, converted /O[̄]O[̄]O/ (32h) to /OO[̄]O/. However, /O[̄]O[̄]O/ (32d, g, and l) did not undergo the change because the final-rising accent prevents the initial accent from shifting. On the other hand, /O[̄]O[̄]O/ is phonetically HLR ~ HLL(H). Therefore, when the shift took place, it was probably HHL(H) or HHR ~ HHL(H).

At the fourth stage, Double Accent Simplification deletes the rising accent of /O[̄]O[̄]O/ and /OO[̄]O/. They eventually became /O[̄]OO/ and /OO[̄]O/ respectively.

Finally, the Initial Pitch Lowering rule lowered the initial pitch of /OOO/ [HHH(H)] and /OO[̄]O/ [HHL(L)].

With regard to ordering of changes, Abductive Change precedes any other changes. Initial Accent Gain occurs before and after Accent Shift. Double Accent Simplification should be placed after Accent Shift. And Initial Pitch Lowering should take place towards the end of the development.

Concerning typology of accent, as shown above, Tokyo accent lost PMJ register system in the course of its development. By the time the second application of Initial Accent Gain occurred, the register distinctions completely disappeared from the whole system -- trisyllables lost the register distinction at the beginning of the development.

6.4.4. Development of Modern Kagoshima Accent from PMJ

In the Kagoshima line, the distinctions of PMJ accent were reduced to only two. This drastic change resulted from an application of a series of four changes (see below for details); while disyllables and trisyllables underwent four, monosyllables underwent only two of them. Referring to those changes, this section explains how Kagoshima Japanese developed a simple accent system from the complex system of PMJ.

Monosyllables: As said, the development of Kagoshima monosyllabic accent is simpler than that of disyllabic and of trisyllabic accents. The accent system of Kagoshima monosyllables evolved from PMJ accent by undergoing Abductive Change and Vowel Shortening. What they did in the development is as follows.

(33) Kagoshima monosyllabic accent

PMJ	abductive change	V-shrt
(a) $\ast^{-}\text{oo}$	$>$	oo
(b) $\ast\text{oo}]$ [HL(L)]	$>$	O [F ~ H(L)]
(c) \ast_{oo}	$>$	oo
(d) $\ast[\text{oo}$ [LH(H)]	$>$	O [R ~ L(H)]

First, Abductive Change merged PMJ */^ˉoo/ [HH(H)] (33a) and */oo]/ [HL(L)] (33b) as /^ˉoo/ [HL(L)], and it also put PMJ */_{oo}/ [LL(H)] (33c) and */^ˈoo/ [LH(H)] (33d) into one, namely /_{oo}/ [LH(H)]. Notice that Kagoshima has only register distinctions; words are either high- or low-register. Due to this change, a four-way system of PMJ became two-way. At the following stage,

under the effect of Vowel Shortening, /^ˉoo/ [HL(L)] and /_ˉoo/ became F ~ H(L) and R ~ L(H) respectively.

Disyllables: The development of Kagoshima disyllabic accent involves Accent Shift, Abductive Change, Domain Change (D-chng), and Initial Pitch Lowering (I-low). They took place in order as listed. First, Accent Shift shifted the accent of the initial-accent nouns; /O^ˉO/ became /^ˉOO/ [HH(L)]. Due to this change, a merger of PMJ */^ˉOO/ [HH(H)] (34a) and */O^ˉO/ (34b) resulted.

While all PMJ high-initial nouns have become high-register accent, all PMJ low-initial nouns were merged into /_ˉOO/ [LH(H)] by Abductive Change.

Towards the end of the development, /^ˉOO/ [HH(L)] and /_ˉOO/ [LH(H)] were considered phonetically penultimate-accent and final-high rising accent respectively by the speakers of the language. That is to say, the former became /^ˉOO/ [HL ~ HH(L)] and the latter /_ˉOO/ [LH ~ LL(H)]. And finally, /^ˉOO/ underwent Initial Pitch Lowering, which turned it into HL ~ LH(L).

(34) Kagoshima disyllabic accent

PMJ	shift	abductive change	D-chng	I-low
(a) * ^ˉ OO	= ^ˉ OO			
(b) *O ^ˉ O	> ^ˉ OO ^ˉ	> ^ˉ OO [HH(L)]	> ^ˉ OO [HL ~ HH(L)]	> ^ˉ OO [HL ~ LH(L)]
(c) * _ˉ OO	= _ˉ OO			
(e) *OO ^ˉ	≈ _ˉ OO ^ˉ	> _ˉ OO [LH(H)]	> _ˉ OO [LH ~ LL(H)]	= _ˉ OO
(d) *O ^ˉ O	= O ^ˉ O			

Trisyllables: Exactly the same changes seen in the development of disyllabic accent also affected trisyllabic accent. First, PMJ */O^ˉOO/ (35d)

became $/\text{ˊ}000\text{ˊ}/$ by the application of Accent Shift. And it merged with PMJ

$*/\text{ˊ}000\text{ˊ}/$ (35b) and $*/\text{ˊ}000\text{ˊ}/$ (35c). Low-initial words remained the same.

At the second stage, Abductive Change merged PMJ $*/\text{ˊ}000\text{ˊ}/$ (35a) and $/\text{ˊ}000\text{ˊ}/$ (35b, c, and d) merged as $/\text{ˊ}000\text{ˊ}/$ [HHH(L)]. And all low-initial words were also put into one, i.e., $/\text{ˊ}000\text{ˊ}/$ [LLH ~ LLL(H)].

Following Abductive Change, Domain Change took place. It made a phonetic change in high-register nouns (namely, $/\text{ˊ}000\text{ˊ}/$ [HHH(L)]) to HHL ~ HHH(L); the speakers of the language began to consider it as phonetically penultimate accent. And at the end, the high-register nouns lowered the pitch except for the penultimate syllable; i.e., HHL ~ HHH(L) changed to LHL ~ LLH(L).

(35) Kagoshima trisyllabic accent

PMJ	shift	abductive change	D-chng	I-low
(a) $*\text{ˊ}000$	=	$\text{ˊ}000$		
(b) $*\text{ˊ}000\text{ˊ}$			$\text{ˊ}000$ [HHH(L)]	
(c) $*\text{ˊ}000\text{ˊ}$	>	$\text{ˊ}000\text{ˊ}$		$\text{ˊ}000$ [LHL ~ LLH(L)]
(d) $*0\text{ˊ}00$			$\text{ˊ}000$ [HHL ~ HHH(L)]	
(e) $*0\text{ˊ}00\text{ˊ}$	=	$0\text{ˊ}00\text{ˊ}$		
(f) $*00\text{ˊ}0\text{ˊ}$	=	$00\text{ˊ}0\text{ˊ}$		
(g) $*00\text{ˊ}0$	=	$00\text{ˊ}0$		
(h) $*00\text{ˊ}0$	=	$00\text{ˊ}0$	>	$\text{ˊ}000$ = $\text{ˊ}000$ = $\text{ˊ}000$
(i) $*\text{ˊ}000$	=	$\text{ˊ}000$		
(j) $*0\text{ˊ}00$	=	$0\text{ˊ}00$		
(k) $*0\text{ˊ}00\text{ˊ}$	=	$0\text{ˊ}00\text{ˊ}$		
(l) $*00\text{ˊ}0\text{ˊ}$	=	$00\text{ˊ}0\text{ˊ}$		

As far as typology of accent is concerned, Kagoshima has the register distinctions high and low. All PMJ high-initial nouns have become high-register and all PMJ low-initial nouns have come together as low-register in Kagoshima.

The PMJ accent system has lost a number of distinctions in the Kagoshima line.

As a result, the locus-register system of PMJ became the register system of Kagoshima.

6.5. CONCLUSION

This chapter has discussed the reconstruction of PMJ accent and also the development of Myôgi-shô, Kyoto, Tokyo, and Kagoshima accent from PMJ. Among those Mainland Japanese dialects, Myôgi-shô underwent the simplest development. And as far as the number of changes is concerned, the developments of Tokyo accent are the most complex. In addition, however, the development of Kagoshima shows the most drastic change from PMJ accent. That is, in Kagoshima, the distinctions in PMJ were reduced to only two.

Comparing changes involved in the development, Myôgi-shô and Kyoto share a very similar series of changes. The only difference is that Kyoto underwent Initial Accent Gain. Unlike the others, Tokyo has developed the Initial Pitch Lowering rule. Kagoshima has Domain Change in its development. It is not seen in Myôgi-shô, Kyoto, or Tokyo.

From the point of view of typology, generally speaking, the locus-register system of PMJ has been retained in the Kyoto-type Mainland Japanese line. However, PMJ accent has evolved to the locus system of Tokyo and the register system of Kagoshima.

CHAPTER 7

RECONSTRUCTION OF PROTO JAPONIC ACCENT

7.1. INTRODUCTION

In this chapter, comparing accentual patterns of PR and PMJ cognates, we are going to set up correspondence sets, and then reconstruct Proto Japonic (PJ) accent for monosyllables, disyllables, and trisyllables. In the previous sections of this dissertation, we have so far reconstructed the PR and PMJ accent systems as shown in (1) and (2) below. Summarizing the characteristics of the accent systems, PMJ accent is more complex than PR accent; in other words, PMJ has more distinctions in accent for monosyllables, disyllables, and trisyllables. From the viewpoint of typology, both PR and PMJ make use of locus and register distinctions in their accent systems. We will also discuss how these two different accent systems came to coexist in a system.

(1) PR accent system

Monosyllables	Disyllables	Trisyllables
(a) *oo [HH(H)]	(a) * ⁻ OO []] [HH(L)]	(a) * ⁻ OooO [HHH(H)]
(b) * ⁻ oo []] [HH(L)]	(b) * ₋ OO []] [LH(L)]	(b) * ⁻ OooO []] [HHH(L)]
(c) * ₋ oo []] [LH(L)]	(c) *ooO []] [LHF ~ LHH(L)]	(c) * ₋ OooO []] [LRH(L)]
		(d) * ₋ OOO [LLH(H)]
		(e) *Ooo []] O [LFL(L)]
		(f) *OOO []] [LHF ~ LHH(L)]

(2) PMJ accent system

Monosyllabic	Disyllabic	Trisyllabic
(a) * ⁻ oo [HH(H)]	(a) * ⁻ OO [HH(H)]	(a) * ⁻ OOO [HHH(H)]
(b) *oo] [HL(L)]	(b) *O]O [HL(L)]	(b) * ⁻ OOO\ [HHF ~ HHH(L)]
(c) * _{oo} [LL(L)]	(c) * _{OO} [LL(L)]	(c) * ⁻ OOO] [HHH(L)]
(d) * ⁺ oo [LH(H)]	(d) *O ⁺ O [LH(H)]	(d) *O]O ⁺ O [HLH(H)]
	(e) *OO] [LH(L)]	(e) *O ⁺ OO] [LHH(L)]
		(f) *OO ⁺ O] [LLH(L)]
		(g) *OO ⁺ O [LLH(H)]
		(h) *OO/O [LLR ~ LLL(H)]
		(i) * _{OOO} [LLL(L)]
		(j) *O ⁺ OO [LHH(H)]
		(k) *O ⁺ OO\ [LHF ~ LHH(L)]
		(l) *OO ⁺ O\ [LLF ~ LLH(L)]

7.2. CORRESPONDENCES AND RECONSTRUCTION

In this section, we will display correspondence sets between PR and PMJ accent for monosyllables, disyllables, and trisyllables. And then, on the basis of the correspondences, we will attempt to reconstruct PJ accent for each correspondence set.

Monosyllables: There are four sets of accent correspondences between PR and PMJ monosyllables. Based on these, we have reconstructed the following four accent distinctions for PJ monosyllabic nouns. They are */⁻oo/, */o]o/, */_{oo}/, and */⁺oo]/. Reconstructed nouns are seven in total. The first three categories have two nouns for each category and the last has one (see below).

PJ monosyllabic nouns are two moras long. Comparing characteristics of PJ accent with those of PR and PMJ, PJ high-register nouns (3a) are also high-level in both PR and PMJ. PJ and PMJ nouns in a correspondence set in (3c) are

low-register alone while PR cognates are tonic. Furthermore, in both PR and PJ accents are identical in correspondence (3d).

(3) Reconstructed PJ accent for monosyllabic nouns

(a)	PR	PMJ	PJ
	* ⁻ oo	* ⁻ oo	* ⁻ oo
	[HH(H)]	[HH(H)]	[HH(H)]
'hair' (1.1) ¹	*k ^h i:	*ke:y	*ka:y
'blood' (1.1)	*ci:	*ti:y	*tu:y

(b)	PR	PMJ	PJ
	* ⁻ oo]	*oo]	*o]o
	[HH(L)]	[HL(L)]	[HL(L)]
'leaf' (1.2)	*p ^h a:]	*pa:]	*pa:]
'name' (1.2)	*na:]	*na:]	*na:]

(c)	PR	PMJ	PJ
	*_oo]	*_oo	*_oo
	[LH(L)]	[LL(L)]	[LL(L)]
'tree' (1.3)	*_k ^h i:]	*_ki:y	*_kəy:
'eye' (1.3)	*_mī:]	*_me:y	*_may:

(d)	PR	PMJ	PJ
	*_oo]	*[oo	*oo]
	[LH(L)]	[LH(H)]	[LH(L)]
'tooth' (1.3)	*_p ^h a:	*[pa:	*pa:]

Disyllables: In a comparison of PR disyllables with corresponding PMJ cognates, we have recognized eight sets of accentual correspondences. These correspondences enable us to reconstruct eight accent categories for PJ disyllables. For convenience, in (4), we show a summary of the correspondences and reconstructed PJ accent forms. Reconstructed individual words for the correspondences are listed in (5).

¹ Numbers in parentheses indicate traditional accent categories.

(4) Summary of correspondences and reconstructed PJ accent for disyllabic nouns

	PR	PMJ	PJ
(a)	* ⁻ OO] [HH(L)]	* ⁻ OO [HH(H)]	* ⁻ OO [HH(H)]
(b)	* ⁻ OO] [HH(L)]	*O]O [HL(L)]	*O]O [HL(L)]
(c)	* ₋ OO] [LH(L)]	* ₋ OO [LL(L)]	* ₋ OO [LL(L)]
(d)	* _{oo} O) [LHF ~ LHH(L)]	* ₋ OO [LL(L)]	* ₋ ooO [LL(L)]
(e)	* ₋ OO] [LH(L)]	*O[O [LH(H)]	*O[O [LH(H)]
(f)	* _{oo} O) [LHF ~ LHH(L)]	*O[O [LH(H)]	* _{oo} [O [LLH(H)]
(g)	* ₋ OO] [LH(L)]	*OO] [LH(L)]	*OO] [LH(L)]
(h)	* _{oo} O) [LHF ~ LHH(L)]	*OO] [LH(L)]	* _{oo} O] [LHH(L)]

Comparing PR and PMJ disyllabic accent systems with PJ in the correspondence sets in (4), it is noticeable that PJ accent is much more similar to that of PMJ than to PR accent. In fact, the only difference between them is vowel length in the initial syllable in (4d, f, and h). The reconstruction of the vowel length in PJ is completely based on the evidence in PR forms. In other words, PJ length was retained in the PR line, but not in the PMJ line. (See our discussion on vowel length in Chapter 5 of this dissertation.)

(5) Reconstructed PJ accent for disyllabic nouns

(a)		PR	PMJ	PJ
		* ⁻ OO]	* ⁻ OO	* ⁻ OO
		[HH(L)]	[HH(H)]	[HH(H)]
'nose'	(2.1)	* ⁻ p ^h ana]	* ⁻ pana	* ⁻ pana
'cow'	(2.1)	* ⁻ ?usi]	* ⁻ usi	* ⁻ usi
'bird'	(2.1)	* ⁻ t ^h uri]	* ⁻ təri	* ⁻ təri
'loins'	(2.1)	* ⁻ k ^h usi]	* ⁻ kəsi	* ⁻ kəsi
'wind'	(2.1)	* ⁻ k ^h adi]	* ⁻ kazey	* ⁻ kansay
'beard'	(2.1)	* ⁻ pigi]	* ⁻ pyinkey	* ⁻ pyinkay
(b)		PR	PMJ	PJ
		* ⁻ OO]	*O]O	*O]O
		[HH(L)]	[HL(L)]	[HL(L)]
'stone'	(2.2)	* ⁻ ?isi]	*i]si	*e]si
'paper'	(2.2)	* ⁻ k ^h abi]	*ka]byi	*ka]mpyi
'bridge'	(2.2)	* ⁻ p ^h asi]	*pa]si	*pa]si
(c)		PR	PMJ	PJ
		* ₋ OO]	* ₋ OO	* ₋ OO
		[LH(L)]	[LL(H)]	[LL(L)]
'flower'	(2.3)	* ₋ p ^h ana]	* ₋ pana	* ₋ pana
'mountain'	(2.3)	* ₋ yama]	* ₋ yama	* ₋ yama
'cloud'	(2.3)	* ₋ k ^h umu]	* ₋ kumwo	* ₋ kumwo
'dog'	(2.3)	* ₋ ?inu]	* ₋ inu	* ₋ enu
'mud'	(2.3)	—	* ₋ doro	* ₋ ntoro
(d)		PR	PMJ	PJ
		* _{oo} O)	* ₋ OO	* ₋ ooO
		[LHF ~ LHH(L)]	[LL(L)]	[LLL(L)]
'bone'	(2.3)	*p ^h u:nĩ)	* ₋ pone	* ₋ po:ne
(e)		PR	PMJ	PJ
		* ₋ OO]	*O]O	*O]O
		[LH(L)]	[LH(H)]	[LH(H)]
'board'	(2.4)	* ₋ ?ita]	*i]ta	*i]ta
'shoulder'	(2.4)	* ₋ k ^h ata]	*ka]ta	*ka]ta

(f)		PR *ooO [LHF ~ LHH(L)]	PMJ *O ^h O [LH(H)]	PJ *oo ^h O [LLH(H)]
'sea'	(2.4)	*ʔu:mi	*u ^h myi	*u ^h myi
'breath'	(2.4)	*ʔi:ki	*i ^h kyi	*i ^h kyi
'boat'	(2.4)	*p ^h u:ni	*pu ^h ney	*pu ^h nay
'mortar'	(2.4)	*ʔu:si	*u ^h su	*u ^h su
'chopsticks'	(2.4)	*p ^h a:si	*pa ^h siy	*pa ^h suy
'needle'	(2.4)	*p ^h a:ri	*pa ^h riy	*pa ^h ruy
(g)		PR *_OO [LH(L)]	PMJ *OO [LH(L)]	PJ *OO [LH(L)]
'sweat'	(2.5)	*_ʔasi	*ase	*ase
'rain'	(2.5)	*_ʔami	*amey	*amay
(h)		PR *ooO [LHF ~ LHH(L)]	PMJ *OO [LH(L)]	PJ *ooO [LHH(L)]
'bridegroom'	(2.5)	*mu:k ^h u	*mwokwo	*mwo:kwo
'voice'	(2.5)	*k ^h u:i	*kəwey	*kə:way
'shadow'	(2.5)	*k ^h a:gi	*kagey	*ka:nkay
'bucket'	(2.5)	*u:k ^h i	*wokey	*wo:kay

As mentioned, we have reconstructed a number of PJ cognates for the PJ disyllabic accent categories. The number of cognates varies depending on the categories. For instance, there are six nouns for PJ */^hOO/ (5a) and */oo^hO/ (5f), but one for PJ */_ooO/ (5d). Although there is only one cognate for the correspondence (5d), we consider it as a distinctive accent category because the existence of two subcategories among 2.3-5 nouns is supported by evidence in Ryukyuan dialects (see Chapter 5).

Trisyllables: We have reconstructed twelve PJ accent categories on the basis of the correspondence sets shown in (6). Reconstructed trisyllabic nouns for each correspondence set are listed under (7) below.

The PJ trisyllabic accent system is much more similar to that of PMJ than it is to PR accent. The differences between PJ accent and PMJ accent are categories in (6i) and (6j). In other words, PR underwent more changes than PMJ did. As a result, PMJ retained more characteristics of PJ accent than PR. However, regarding the word structure of trisyllables, PJ is very similar to PR; both have long vowels in the second syllable.

Looking into accent patterns in the correspondence, it is noticeable that high-level atonic accent (6a) is stable among all the accent types. From PJ, this accent type remained the same in both the PR and PMJ lines. And in (6i), all the categories are final-accent, but their phonetic pitch shapes vary.

In the correspondences, the first four are high-initial and the rest are low-initial. The high-initial and low-initial accent types systematically correspond to Myôgi-shô high-initial and low-initial categories respectively. Furthermore, some of the Myôgi-shô accent categories correspond to more than one PJ accent. Myôgi-shô accent category 3.2 corresponds to both PJ $*/\text{OooO}\backslash/$ (6b) and $*/\text{OooO}\bar{\text{O}}/$ (6c). Myôgi-shô accent category 3.4 corresponds to PJ $*/\text{O}\bar{\text{O}}\text{ooO}/$ (6e) and $*/\text{O}\bar{\text{O}}\text{OO}/$ (6f). Myôgi-shô accent category 3.5 corresponds to PJ $*/\text{Ooo}\bar{\text{O}}/$ (6g), $*/\text{Ooo}(\text{O})/$ (6h), and $*/\text{OooO}\bar{\text{O}}/$ (6i). And Myôgi-shô accent category 3.7 corresponds to PJ $*/\text{O}\bar{\text{O}}\text{OO}\backslash/$ (6k) and $*/\text{O}\bar{\text{O}}\text{OO}\bar{\text{O}}/$ (6l). This suggests that these Myôgi-shô accent categories result from a merger of PJ accent distinctions.

(6) Summary of accentual correspondences and reconstruction of PJ accent for trisyllabic nouns

	PR	PMJ	PJ
(a)	* ⁻ OooO [HHHH(H)]	* ⁻ OOO [HHH(H)]	* ⁻ OooO [HHHH]
(b)	* ⁻ OooO [HHHH(H)]	* ⁻ OOO) [HHF ~ HHH(L)]	* ⁻ OooO) [HHHF ~ HHHH(L)]
(c)	* ⁻ OooO [HHHH(H)]	* ⁻ OOO] [HHH(L)]	* ⁻ OooO] [HHHH(L)]
(d)	* ⁻ OooO] [HHHH(L)]	*O]O[O [HLH(H)]	*O]oo[O [HLLH(H)]
(e)	* ₋ OooO] [LRH(L)]	*O[OO [LHH(H)]	*O[ooO [LHHH(H)]
(f)	* ₋ OOO [LLH(H)]	* ₋ OOO [LLL(L)]	* ₋ OOO [LLL(L)]
(g)	* ₋ OooO] [LRH(L)]	*OO[O [LLH(H)]	*Ooo[O [LLLH(H)]
(h)	* ₋ OooO] [LRH(L)]	* ₋ OO(O [LLR ~ LLL(H)]	*Ooo(O [LLLR ~ LLLL(H)]
(i)	* ₋ OooO] [LRH(L)]	*OO[O] [LLH(L)]	* ₋ OooO] [LHHH(L)]
(j)	*Ooo]O [LFL(L)]	*O[OO] [LHH(L)]	*Ooo]O [LHHL(L)]
(k)	*OOO) [LHF ~ LHH(L)]	*O[OO) [LHF ~ LHH(L)]	*O[OO) [LHF ~ LHH(L)]
(l)	*OOO) [LHF ~ LHH(L)]	*OO[O) [LLF ~ LLH(L)]	*OO[O) [LLF ~ LLH(L)]

From the correspondences in (7), some PR cognates are missing. This is simply because our data do not have them: 'wing' (3.2), 'lizard' (3.2), 'interval'

(3.2), 'forest' (3.4), and 'sickness' (3.7). Notice that the cognate for 'tears' (3.5)

is disyllabic, i.e., **na:da* LLL(L).

(7) Reconstructed PJ accent for trisyllabic nouns

(a)		PR * ⁻ OooO [HHHH(H)]	PMJ * ⁻ OOO [HHH(H)]	PJ * ⁻ OooO [HHHH]
'mark'	(3.1)	* ⁻ siru:si	* ⁻ syirəsyi	* ⁻ syirə:si
'smoke'	(3.1)	* ⁻ k ^h ibu:si	* ⁻ keyburyi	* ⁻ kaympu:ryi
'forehead'	(3.1)	* ⁻ p ^h ita:i	* ⁻ pyitapyi	* ⁻ pyita:pyi
'yawn'	(3.1)	* ⁻ ?aku:bi	* ⁻ akubi	* ⁻ aku:mpi
(b)		PR * ⁻ OooO [HHH(H)]	PMJ * ⁻ OOO) [HHF ~ HHH(L)]	PJ * ⁻ OooO) [HHHF ~ HHHH(L)]
'centipede'	(3.2)	* ⁻ muka:di	* ⁻ mukade)	* ⁻ muka:nte)
'two'	(3.2)	* ⁻ futa:ci	* ⁻ futatu)	* ⁻ puta:tu)
'wing'	(3.2)	—	* ⁻ tubasa)	* ⁻ tumpa:sa)
'lizard'	(3.2)	—	* ⁻ tokage)	* ⁻ toka:nke)
(c)		PR * ⁻ OooO [HHH(H)]	PMJ * ⁻ OOO] [HHH(L)]	PJ * ⁻ OooO] [HHHH(L)]
'interval'	(3.2)	—	* ⁻ apyida]	* ⁻ apyi:nta]
'cherry'	(3.2)	* ⁻ saku:ra	* ⁻ sakura]	* ⁻ saku:ra]
(d)		PR * ⁻ OooO] [HHHH(L)]	PMJ * ⁻ O] O] [HLL(L)]	PJ * ⁻ O] oo] O [HLLL(L)]
'strength'	(3.3)	* ⁻ cika:ra]	* ⁻ ti] ka] ra	* ⁻ ti] ka] ra
'gold'	(3.3)	* ⁻ k ^h uga:ni]	* ⁻ kwo] ga] ney	* ⁻ kwo] nka] nay

(e)		PR *_OooO] [LRH(L)]	PMJ *O[OO [LHH(H)]	*PJ *O[ooO [LHHH(H)]
'bag'	(3.4)	*_p ^h uku:ru]	*pu[kurwo	*pu[ku:rwo
'treasure'	(3.4)	*_t ^h aka:ra]	*ta[kara	*ta[ka:ra
'mirror'	(3.4)	*_k ^h aga:mi]	*ka[gamyi	*ka[nka:myi
'fan'	(3.4)	*_au:gi]	*a[pukyi	*a[pu:kyi
(f)		PR *_OOO [LLH(H)]	PMJ *_OOO [LLL(L)]	*PJ *_OOO [LLL(L)]
'calendar'	(3.4)	*_k ^h uyumi	*_kəyəmyi	*_kəyəmyi
'forest'	(3.4)	—	*_payasyi	*_payasyi
(g)		PR *_OooO] [LRH(L)]	PMJ *OO[O [LLH(H)]	PJ *Ooo[O [LLLH(H)]
'pillow'	(3.5)	*_maku:ra]	*maku[ra	*maku[ra
'life'	(3.5)	*_ʔinu:ti]	*inə[ti	*inə[ti
'tears'	(3.5)	*na:da LL(L)	*namyi[ta	*namyi[ta
(h)		PR *_OooO] [LRH(L)]	PMJ *_OO(O [LLR ~ LLL(H)]	PJ *Ooo(O [LLLR ~ LLLL(H)]
'heart'	(3.5)	*_k ^h uku:ru]	*kəkə[rə	*kəkə[rə
'cousin'	(3.5)	*_ʔito:ko]	*_itwo[kwo	*_itwo[kwo
(i)		PR *_OooO] [LRH(L)]	PMJ *OO[O] [LLH(L)]	PJ *_OooO] [LHH(L)]
'fat'	(3.5)	*_ʔabu:ra]	*abu[ra]	*_ampu:ra]
'pillar'	(3.5)	*_p ^h asi:ra]	*fasi[ra]	*_pasi:ra]
(j)		PR *Ooo]O [LFL(L)]	PMJ *O[OO] [LHH(L)]	PJ *Ooo]O [LHHL(L)]
'crow'	(3.6)	*gara:lsi	*ka[rasu]	*kara:lsu
'eel'	(3.6)	*ʔuna:gi	*u[nagi]	*una:hki
'earthworm'	(3.6)	*mimi:zi	*mi[mizu]	*mimi:nsu

(k)		PR	PMJ	PJ
		*OOO\	*O[OO\	*O[OO\
		[LHF ~ LHH(L)]	[LHF ~ LHH(L)]	[LHF ~ LHH(L)]
'medicine'	(3.7)	*k ^h usuri\	*_ku[suri\	*ku[suri\
'whale'	(3.7)	*k ^h udira\	*_ku[zira\	*ku[nsira\
'field'	(3.7)	*hataki\	*_pa[takey\	*pa[takay\
(l)		PR	PMJ	PJ
		*OOO\	*_OO[O\	*OO[O\
		[LHF ~ LHH(L)]	[LLF ~ LLH(L)]	[LLF ~ LLH(L)]
'helmet'	(3.7)	*k ^h abutu\	*_kabu[to\	*k ^h ampu[to\
'silkworm'	(3.7)	*kaigu\	*_kapyi[kwo\	*kapyi[kwo\
'sickness'	(3.7)	—	*_yama[pyi\	*yama[pyi\

7.3. DEVELOPMENT OF PROTO RYUKYUAN AND MAINLAND ACCENT FROM PROTO JAPONIC

This section consists of two parts. The first part accounts for the development of PR accent from PJ and the second part is for the development of PMJ accent from PJ. Both parts deal with monosyllabic, disyllabic, and trisyllabic accents. As an overview, a summary of our PJ accent system is shown as follows.

(8) PJ accent system

Monosyllabic	Disyllabic	Trisyllabic
(a) * ⁻ oo [HH(H)]	(a) * ⁻ OO [HH(H)]	(a) * ⁻ OooO [HHH(L)]
(b) *o]o [HL(L)]	(b) *O]O [HL(L)]	(b) * ⁻ OooO\ [HHHF ~ HHHH(L)]
(c) *_oo [LL(L)]	(c) *_OO [LL(L)]	(c) * ⁻ OooO] [HHHH(L)]
(d) *oo] [LH(L)]	(d) *_ooO [LLL(L)]	(d) *O]oo[O [HLLH(H)]
	(e) *O[O [LH(L)]	(e) *O[ooO [LHHH(H)]
	(f) *oo[O [LLH(H)]	(f) *_OOO [LLL(L)]
	(g) *OO] [LH(L)]	(g) *Ooo[O [LLLH(H)]
	(h) *ooO] [LLH(L)]	(h) *Ooo/O [LLLR ~ LLLL(H)]
		(i) *_OooO] [LLHH(L)]
		(j) *Ooo]O [LHHL(L)]
		(k) *O[OO\ [LHF ~ LHH(L)]
		(l) *OO[O\ [LLF ~ LLH(L)]

7.3.1. Development of PR accent from PJ

As seen above, the accent system of PR nouns is very different from that of PJ nouns. The PJ accent system is much more complex than that of PR in terms of the number of accent distinctions and accent patterns as well. We will account for the development of PR accent from PJ accent below.

Monosyllables: In the development of PR monosyllabic accent, there are two changes: Accent Shift and Abductive Change. With these changes, the four-way distinctions of the PJ accent system became three-way in the PR line.

First, PJ */o]o/ (9b) underwent Accent Shift, becoming /⁻oo]/. This change caused a secondary change to PJ */oo]/ (9d). That is, word-initial register for final-accent nouns became distinctive: PJ */oo]/ became /_oo]/.

(9) Development of PR monosyllabic accent

PJ	shift		abductive change	
(a) * ⁻ oo	=	⁻ oo	≡	oo
(b) *o]o	>	⁻ oo]	=	⁻ oo]
(c) *_oo	=	_oo		
(d) *oo]	≈	_oo]	>	_oo]

Second, by Abductive Change, the two low-register categories, i.e., PJ */_oo/ (9c) and /_oo]/ (9d), merged as /_oo]/. High-register categories retained their distinctions. Moreover, it should be noted that in the PR line, disyllabic and trisyllabic high-register atonic and high-register final accent categories merged by Abductive Change, while in monosyllables they did not merge.

Disyllables: In the history of PR disyllabic accent, there are three stages of accentual changes. They are, in order, Accent Shift, Abductive Change, and Assimilation (assml).

At the first stage, Accent Shift converted PJ */O]O/(10b) into /¯OO]/. The initial pitch also became distinctive in contrast with PJ */OO]/ [LH(L)] (10g), whose initial pitch became distinctive as well.

At the second stage, Abductive Change caused three mergers of PJ accent categories. This merged the eight distinctions of PJ to three. First, PJ */¯OO/ (10a) and /¯OO]/ (10b) merged as /¯OO]/. The second change involves three categories, PJ */_OO/ (10c), */O]O/ (10e), and /_OO]/ (10g). They were recategorized as /_OO]/. The third merger includes words with initial-syllable long vowel. PJ */_ooO/ (10d), */oo]O/ (10f), and */_ooO]/ (10h) were turned into /_ooO]/. As a result, there were now three distinctions in register and vowel length.

At the final stage of the development, /_ooO]/ (10e, f, and h) underwent Assimilation, which changed final accent (/_ooO]/) to final falling (/ooO\). Notice that this rule applied to /_ooO]/, but not to the other final-accent nouns (/¯OO]/ and /_OO]/). It also did not take place in the development of PR trisyllabic accent. Taking those circumstances into consideration, the only linguistic condition that seems to trigger Assimilation is the initial-syllable vowel length or three-mora disyllabic final-accent nouns in the PR line.

(10) Development of PR disyllabic accent

PJ	shift		abductive change		assml
(a) * $\bar{\text{OO}}$	=	$\bar{\text{OO}}$			
			>	$\bar{\text{OO}}]$	= $\bar{\text{OO}}]$
(b) * $\text{O}]\text{O}$	>	$\bar{\text{OO}}]$			
(c) * $\bar{\text{OO}}$	=	$\bar{\text{OO}}$			
(e) * $\text{O}]\text{O}$	=	$\text{O}]\text{O}$	>	$_ \text{OO}]$	= $_ \text{OO}]$
(g) * $\text{OO}]$	≈	$_ \text{OO}]$			
(d) * $_ \text{ooO}$	=	$_ \text{ooO}$			
(f) * $\text{oo}]\text{O}$	=	$\text{oo}]\text{O}$	>	$_ \text{ooO}]$	> $\text{ooO})$
(h) * $\text{ooO}]$	≈	$_ \text{ooO}]$			

Trisyllables: With respect to the development of PR trisyllabic accent, three types of changes took place. They are Double Accent Simplification, Accent Shift, and Abductive Change. Accent Shift occurred twice.

With the application of the Double Accent Simplification rule, PJ */ $\text{O}]\text{oo}]\text{O}$ / (11d) became */ $\text{O}]\text{ooO}$ /, and then underwent Accent Shift. It resulted in */ $\bar{\text{Ooo}}]\text{O}$ /. Due to this change, the initial pitch of PJ */ $\bar{\text{Ooo}}]\text{O}$ / [LHHL(L)] (11j) became distinctive as well, resulting in */ $_ \text{Ooo}]\text{O}$ /. At the end of the development, another Accent Shift eventually changed */ $\bar{\text{Ooo}}]\text{O}$ / to */ $\bar{\text{OooO}}]$ /.

Next is Abductive Change. Just like its disyllables, PJ trisyllabic accent underwent three mergers. The first one merged PJ */ $\bar{\text{OooO}}$ / (11a), */ $\bar{\text{OooO}}]$ / (11b), and */ $\bar{\text{OooO}}]$ / (11c) as high-register atonic, i.e., */ $\bar{\text{OooO}}$ /. Second, the rule put PJ */ $\text{O}]\text{ooO}$ / (11e), */ $\text{Ooo}]\text{O}$ / (11g), */ $\text{Ooo}]\text{O}$ / (11h), and */ $_ \text{OooO}]$ / (11i) into one category, namely */ $\text{OooO}]$ /. Accent categories involved in this

merger are either atonic or final-accent; their phonetic pitch shapes are similar to each other, and they share the same word structure, with a long vowel in the middle of words. The third merger involves PJ */O[OO]/ (11k) and */OO[O]/ (11l). They are distinctive accent categories in PJ, but they are very similar to each other both phonemically and phonetically.

(11) Development of PR trisyllabic accent

PJ	D-smpl	shift	abductive change	shift
(a) * ⁻ OooO	= ⁻ OooO	= ⁻ OooO		
(b) * ⁻ OooO]	= ⁻ OooO]	= ⁻ OooO]	> ⁻ OooO	= ⁻ OooO
(c) * ⁻ OooO]	= ⁻ OooO]	= ⁻ OooO]		
(d) *O]oo[O	> O]ooO	> ⁻ Ooo]O	= ⁻ Ooo]O	> ⁻ OooO]
(e) * ₋ O[ooO	= ₋ O[ooO	= O[ooO		
(g) *Ooo[O	= Ooo[O	= Ooo[O	> OooO]	≈ ₋ OooO]
(h) *Ooo[O	= Ooo[O	= Ooo[O		
(i) * ₋ OooO]	= ₋ OooO]	= ₋ OooO]		
(f) * ₋ OOO	= ₋ OOO	= ₋ OOO	= ₋ OOO	= ₋ OOO
(j) *Ooo]O	= Ooo]O	≈ ₋ Ooo]O	= ₋ Ooo]O	≡ Ooo]O
(k) *O[OO]	= O[OO]	= O[OO]		
(l) *OO[O]	= OO[O]	= OO[O]	> OOO]	= OOO]

At the final stage, as mentioned earlier, another Accent Shift took place. It converted PJ */⁻Ooo]O/ (11d) into */⁻OooO]/. Along with this change, */₋Ooo]O/ (11j) lost its register distinction, becoming */Ooo]O/. However, the initial pitch of */OooO], OOO]/ (nouns in this category vary in their word structure: either */OooO]/ or */OOO]/) (11e, g, h, and i) became distinctive in

contrast with $/\text{ }^{\text{H}}\text{OooO}/$ ($< \text{PJ } */\text{O}^{\text{H}}\text{oo}[\text{O}]/$) (11d). That is, $/\text{OooO}^{\text{H}}, \text{OOO}^{\text{H}}/$ became $/\text{ }^{\text{H}}\text{OooO}/, \text{ }^{\text{H}}\text{OOO}/$.

With regard to the changes that took place in the development of PR accent, the changes can be seen in a series of changes as follows: Accent Shift > Abductive Change > Assimilation > Accent Shift. Monosyllables underwent the first two, disyllables underwent the first three, and trisyllables underwent three except Assimilation. Trisyllables also underwent Double Accent Simplification, which is not applicable to monosyllabic and disyllabic nouns.

Regarding typological change in accent, register distinctions were kept throughout the development, although some categories lost their register distinctions. Like PJ, PR is a locus-register system.

7.3.2. Development of PMJ accent from PJ

PMJ accent system is very similar to PJ accent system. Therefore, it is natural that the number of sound changes involved in the development of PMJ accent is fewer than in PR. In fact, there are only two changes (Vowel Shortening and Accent Shift). Among those, Monosyllables and disyllables underwent only one change in their development. The following will reveal how PMJ accent evolved from PJ in detail.

Monosyllables: The development of PMJ monosyllabic accent is rather simple. There is only one change, namely Vowel Shortening, that contributed to the development. When this was applied to nouns, they simply became monomoraic. PJ atonic nouns (i.e., $*/\text{ }^{\text{H}}\text{oo}/$ (12a) and $*/\text{ }^{\text{H}}\text{oo}/$ (12c)) simply became $/\text{ }^{\text{H}}\text{O}/$ and $/\text{ }^{\text{H}}\text{O}/$ respectively.

(12) Development of PMJ monosyllabic accent

PJ	V-shrt	
(a) * ⁻ oo	>	⁻ O
(b) *o]o	>	O]
(c) *_oo	>	_O
(d) *oo]	>	[O

When PJ */o]o/ (12b) underwent Vowel Shortening, the HL melody of the accent became associated with one mora. Thus, /O]/ is H in isolation, but H(L) when followed by a particle.

Regarding the change of PJ */oo]/ to /[O/ (12d), the LH melody of the PJ form was squeezed onto one Tone Bearing Unit (TBU) after Vowel Shortening. Therefore, /[O/ is R when uttered without particles, and it is L(H) with a particle. When this change occurred, the final accent of the category was lost.

Disyllables: Compared with PJ disyllabic accent, the PMJ disyllabic accent system differs only in the vowel length of the categories shown in (13d), (13f), and (13h). Therefore, when Vowel Shortening took place, */_ooO/ (13d), /oo[O/ (13f), and */ooO]/ (13h) merged with */_OO/ (13c), */O[O/ (13e), and */OO]/ (13g) respectively.

In the PMJ line, eight accent distinctions became five. The register and locus distinctions of PJ were basically retained as a system, because what the system lost was its vowel length distinction.

(13) Development of PMJ disyllabic accent

PJ		V-shrt
(a) * ⁻ OO	=	⁻ OO
(b) *O]O	=	O]O
(c) *_OO	>	_OO
(d) *_ooO		
(e) *O[O	>	O[O
(f) *oo[O		
(g) *OO]	>	OO]
(h) *ooO]		

Trisyllables: Unlike its monosyllables and disyllables, the development of PMJ accent involves not only Vowel Shortening but also Accent Shift.

First, as shown in (14), all trisyllables with a long vowel underwent Vowel Shortening. This change did not have any effect on accentual change. The following change, Accent Shift, caused a change in the system. More specifically, /OO]O/ [LHL(L)] (< PJ */Ooo]O/ (14j)) became final-accent (/O[OO]/ [LHH(L))), distinguished from PJ */OO[O]/ [LLH(L)] (14i). At this point, there are no second-syllable-accent nouns.

(14) Development of PMJ trisyllabic accent

PJ		V-shrt		shift
(a) * ⁻ OooO	>	⁻ OOO	=	⁻ OOO
(b) * ⁻ OooO\	>	⁻ OOO\	=	⁻ OOO\
(c) * ⁻ OooO]	>	⁻ OOO]	=	⁻ OOO]
(d) *O]oo[O	>	O]o[O	=	O]o[O
(e) *O[ooO	>	O[oo	=	O[oo
(g) *OO[O	=	OO[O	=	OO[O
(h) *Ooo(O	>	oo(O	=	oo(O
(i) *_OOO]	>	oo[O]	=	oo[O]
(f) *_OOO	=	_OOO	=	_OOO
(j) *Ooo]O	>	oo]O	>	O[oo]
(k) *O[OO\	=	O[OO\	=	O[OO\
(l) *OO[O\	=	OO[O\	=	OO[O\

7.4. CONCLUSION

This chapter has presented our proposals for a reconstruction of PJ accent. This is based on the PR and PMJ accents that we have reconstructed earlier in this dissertation. Stating more specifically on the reconstruction of PJ accent, the system of PJ accent contains four distinctions for monosyllables, eight for disyllables, and twelve for trisyllables. The more syllables words have, the more distinctions there are. As noticed, contour pitches are seen only at the end of words. As far as PJ is concerned, they do not occur in the middle of words. PJ contour pitches were retained in the PMJ line, but disappeared in the PR line. However, PR developed contour pitches on the final syllable of disyllabic words with the initial-syllable long vowel (i.e., /ooO\ [LHF ~ LHH(L)]), and also on a long vowel in the second syllable of trisyllables (/Ooo\O/ [LFL(L)]).

Comparing PR, PMJ, and PJ, we have noticed that the rising accent (namely “f”) is another feature seen in a system where there are many distinctions, such as PMJ and PJ. In PR, the rising accent is not distinctive. PMJ inherited the feature directly from PJ, but PR lost it.

As far as accent typology is concerned, like PJ, both PR and PMJ make use of locus and register. It seems that level-pitch atonic, such as low-level and high-level, are in general more stable than other types of accents.

Regarding vowel length, PJ vowel length was kept in the PR line, but lost in PMJ. In PJ, the vowel length played a role in distinguishing one word from another.

Finally, on the developments of PR and PMJ accent, compared with that of PMJ, the development of PR accent is complex. In the PMJ line, the main change that took place is Vowel Shortening. Yet, there is another change for trisyllables, Accent Shift. On the other hand, in the PR line, PJ accent underwent drastic changes. One of the main changes is Abductive Change, which reduced the number of distinctions. Needless to say, other changes involved in the development of PR played crucial roles, as well. For example, Accent Shift took place twice in trisyllables.

CHAPTER 8

CONCLUSION

In this dissertation, we have proposed a reconstruction of PJ accent for monosyllabic, disyllabic, and trisyllabic nouns. In order to pursue this, we first reconstructed the PA, PO, PM, and PY accent systems. Second, based on these protoforms, a reconstruction of PR accent was realized. PMJ accent was also reconstructed by comparing three modern mainland Japanese dialects (i.e., Tokyo, Kyoto, and Kagoshima) and the dialect of Myôgi-shô. Finally, applying the comparative method to PR and PMJ, we reconstructed PJ accent. Our PJ accent has four accent distinctions for monosyllabic nouns, eight for disyllabic nouns, and twelve for trisyllabic nouns. From the viewpoint of accent typology, PJ accent is register-locus accent. Regarding register, it is a word-initial register system, in which the initial pitch of a word is distinctive. As for locus, locations of both pitch rise and pitch fall are distinctive. Furthermore, there are two types of pitch fall and rise: a pitch falls between moras or syllables (i.e., "↓"), or within a syllable (i.e., "↓̣"), a pitch rises between moras or syllables (i.e., "↑"), or within a syllable (i.e., "↑̣").

We have also accounted for the development of the accent system of each dialect or language presented in this dissertation, including our PA, PO, PM, PY, and PMJ accent. Our explanation is based on the 'natural' accent changes that we formalized in Chapter 4 of this dissertation.

Compared with the previous studies of Japonic accent, our reconstruction differs on the following points.

(1) Methodology: Our reconstruction is pursued solely through the comparative method applied to modern dialects/languages and Myôgi-shô. Okuda and McCawley, on the other hand, have reconstructed PJ accent without using the comparative method systematically. Matsumori's reconstruction is based on the phenomenon of down step, but she did not use the comparative method.

(2) Rules of accent change: We have claimed natural accent change (i.e., rightward shift) and formalized accent changes. Kindaichi attempted to formalize rules of accent change, but under these rules accent shifts both rightward and leftward. No other previous studies discussed 'natural' accent change.

(3) Descendant-ascendant relationship: It has been believed that Kyoto is a direct descendant of the dialect of Myôgi-shô, and because of this, it has been difficult to account for the accentual history of Japonic accent. However, this dissertation has revealed that Kyoto is not a direct descendant of the Myôgi-shô dialect. This finding allowed us to more straightforwardly account for the development of the dialects/ languages from their protoforms.

(4) Typology of accent: We have discussed typology of accent and explained how accent typology shifts from one type to another. In general, the study of Japonic accent in Japan has not put much focus on typology of accent.

(5) Hattori's subcategories: Hattori showed that there are 2.3-5a and 2.3-5b subcategories in Amami and Okinawa Ryukyuan, but he did not think these

categories were reconstructable in PJ. However, we have also found the subcategories in Miyako and Yaeyama, and have proposed that these distinctions should go back to PR and PJ. The reconstruction of the distinctions is only possible when one includes Ryukyuan dialects. Therefore, Tokugawa, Okuda, and McCawley's reconstructions lack crucial accentual distinctions in their PJ accent systems.

(6) Word-initial low register and vowel length: Hattori and Martin suggested that there is a correlation between a long vowel and initial pitch height. We have presented more evidence to support this hypothesis, and based on this we reconstructed word-initial low register in relation to the initial-syllable long vowel. Without Ryukyuan data, this is not possible.

Certainly, the reconstruction of PJ accent presented in this dissertation does not put an end to our research. When we look back into the accentual history of the Japonic languages even earlier than PJ, it raises more questions, e.g., what kind of accent earlier Japonic had and how it evolved?

Vovin (2000) presents an intriguing argument on an earlier accentual system of the Japonic languages in relation to Korean accent. Pointing out a correlation between Korean vowel reduction (corresponding to unstressed syllable in earlier Korean, which had lexical stress) and the Japanese locus accent, Vovin suggests that Proto Koreo-Japonic be a stress language. Furthermore, he assumes that pre-PJ had stress and PJ developed register due to vowel length and voiced /voiceless consonant distinctions. Looking into our reconstruction of PJ, in fact, this assumption seems to be quite possible. This is at present an open

question. Since this is beyond the scope of this dissertation, we leave it for future research.

Finally, needless to say, this dissertation could not be possible without taking advantage of the studies done earlier by the scholars mentioned in this dissertation. As their studies have done, we hope that this dissertation will contribute to the studies of the accentual history of the Japonic languages.

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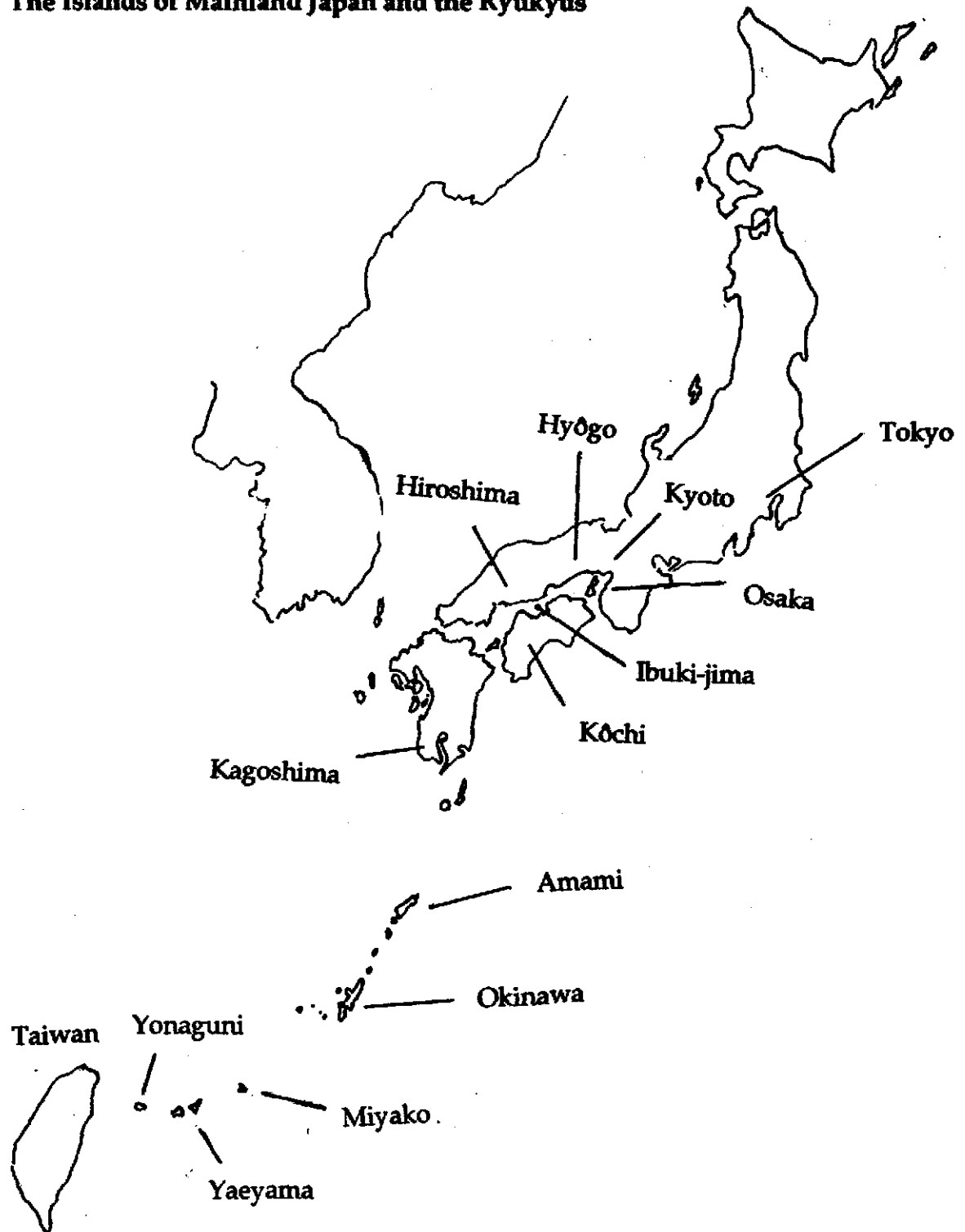
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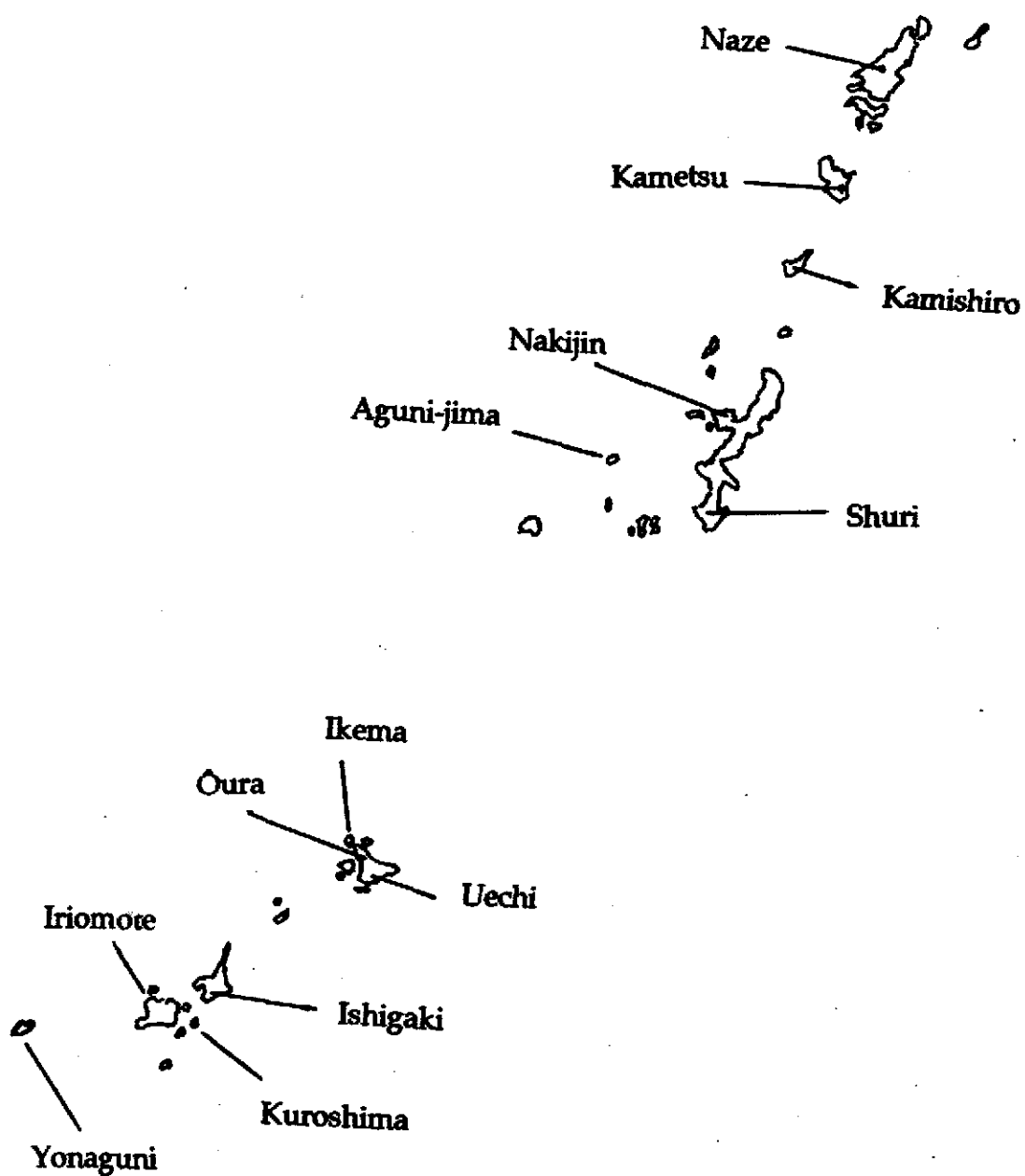
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Map 1**The Islands of Mainland Japan and the Ryukyus**

Map 2**The Islands of the Ryukyus**

Map 3**Map of Accent Types**

- //// Tokyo-type accent
- ≡ Kyoto-type accent
- |||| Kagoshima-type accent
- No distinctive accent

