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Haruo Kubozono

WORD AND SENTENCE PROSODY

THE ENDANGERED DIALECT OF KOSHIKIJIMA JAPANESE

PHONOLOGY AND PHONETICS

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This book is dedicated to the memory of three people who would have been very pleased with its publication:

Yoshiharu Kubozono
1928–1997

Nobuko Kubozono
1930–2017

Hiromi Kubozono
1961–2012

Preface

My research on Japanese prosody started with my work for a doctoral dissertation at the University of Edinburgh back in 1983–1986. I benefited greatly from the course work that I received in my first year, taught by John Laver, Sandy Hutchison, Alan Kemp, Jody Higgs, Jonathan Harrington, and Steve Hiller. My basis as a phonologist was cultivated in this first year in Edinburgh. After the course work, I was fortunate enough to have Bob Ladd as my supervisor from my second year. His enthusiastic supervision determined the course of my academic life since then. Following his advice, I first worked on word accent and intonation in standard Tokyo Japanese and completed my dissertation on the topic in 1987. This dissertation was the very beginning of my forty-year-long research on Japanese prosody. After coming back to Japan in 1986, I expanded the scope of my research to regional Japanese dialects, including my native dialect of Kagoshima Japanese and its sister dialect, Koshikijima Japanese. The latter is an endangered southern dialect and the main target of this current book. The book as a whole is an outcome of the fieldwork that I have carried out on these southern dialects for the past thirty years or so.

My work on Japanese prosody in the past forty years has been influenced through the discussions and collaborations with many people including, among others, Anne Cutler, Carlos Gussenhoven, Shosuke Haraguchi, Larry Hyman, Junko Ito, Nobuko Kibe, Tomoyuki Kubo, Bob Ladd, Akiko Matsumori, Armin Mester, Tetsuo Nitta, Shin'ichi Tanaka, Zendo Uwano, and Tim Vance.

Like other books of the same kind, this volume could not have been published without the help of many people and organizations. First, I would like to thank the informants of my fieldwork in Kagoshima and Koshikijima, especially Akiko and Kenji Ando, Setsuko and Yasuo Hanamure, Toshio and Ken'ichi Kawashima, Hiromi and Nobuko Kubozono, Chiriko and Toshifumi Megurida, Eizo Megurida, and Zenzo Nagata. I would also like to thank Bob Ladd for reviewing my draft very carefully and providing invaluable comments. I should not forget to thank Donna Erickson for checking the English of the draft as well as Ai Mizoguchi and Ryuichi Taki for checking its format. As for funding, my special thanks go to the National Institute for Japanese Language and Linguistics (NINJAL) for their generous support to the collaborative research project, "Cross-Linguistic Studies of Japanese Prosody and Grammar", which I have led for the past six years (2016–2022). Funding from the Japanese government (KAKENHI 19H00530, 20H05617) was also indispensable for my fieldwork. I would also like to express my appreci-

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Finally, I would like to express my sincere thanks to my family – Keiko, Yuka, Naoya, and Ayaka – for supporting me throughout my academic life.

Haruo Kubozono

Contents

List of abbreviations

CA	compound accent
DEC	declarative (particle)
GEN	genitive (particle)
H	high (tone)
H_1	primary H tone
H_2	secondary H tone
KagJ	Kagoshima Japanese
KosJ	Koshikijima Japanese
L	low (tone)
L_1	primary L tone
L_2	secondary L tone
μ	mora
N1	first member of compounds
N2	second/final member of compounds
NOM	nominative (particle)
Q	question particle
σ	syllable
SJ	Sino-Japanese
TOP	topic particle

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Introduction

About the book

Japanese is one of the languages most extensively studied in linguistics today and is one of the most well-studied non-Indo-European languages. Japanese phonology and prosody are no exceptions to this. Prosodic structures of the language have attracted serious attention in the literature and their studies have contributed to the development of phonological theory. To take a few examples, McCawley (1968, 1978) influenced classic generative studies of phonology, Haraguchi (1977) showed the relevance of autosegmental phonology in the analysis of lexical pitch-accent languages, and Pierrehumbert and Beckman (1988) demonstrated that the intonational system of Tokyo Japanese can be analyzed very nicely in the framework of autosegmental-metrical theory of intonational phonology. More recently, Ito and Mester's (2003) work on *rendaku* voicing provided insights into the question of how the lexicon is organized.

While these studies have been very influential in phonology, there are yet many important areas in Japanese phonology and prosody which are worth serious attention from both empirical and theoretical viewpoints. First of all, Japanese is known for its diversity in prosodic organization, with many dialects exhibiting their own prosodic structures and rules (Kubozono 2012b, 2018f). For example, some dialects such as Tokyo Japanese have a right-dominant compound accent rule whereby the phonological structure of the rightmost element determines the phonological pattern of the entire compound, whereas other dialects have a left-dominant rule that refers to the leftmost member to determine compound accent patterns. This situation is complicated by the existence of hybrid systems like Kyoto Japanese that have both the right-dominant and left-dominant compound rules. Similarly, some dialects are mora-counting dialects, while others are syllable-counting dialects. These two types of systems can and actually do co-exist within a small dialect group of the language. Furthermore, some dialects compute lexical pitch patterns from the left edge of the word, while others compute them from the right edge. These variations in prosodic organization and patterning are worthy of careful and detailed analyses, both empirical and theoretical, and are potentially very important for prosodic research in general.

Secondly, despite this diversity, many regional dialects of Japanese are at the risk of extinction because of the strong influence of standard Tokyo Japanese. Most speakers of the language are bilingual between this standard variety and their own regional dialect today and many young speakers are beginning to lose the basic structures of their native dialect (Kubozono 2007, 2018c). Unfortunately,

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many of these endangered dialects remain largely undocumented or unanalyzed. It is urgent to document and analyze these endangered dialects before they are completely extinct.

A third area of research that is worth serious attention concerns the relationship between word prosody and sentence prosody, or the interactions between lexical and postlexical tones. While it is often discussed in prosody in general, little is known about their interactions in Tokyo Japanese, much less in regional dialects.

With these backgrounds, this book aims to analyze the diversity of lexical pitch accent systems of Japanese and their relationship with sentence-level prosody such as question and vocative intonation. Specifically, it aims to provide a comprehensive picture of the prosodic organization of Koshikijima Japanese (henceforth, 'KosJ', for short), a truly endangered dialect with only 2,000 speakers spoken on a remote group of islands in the south of Japan. The analysis of this endangered dialect and its sister dialects including Kagoshima Japanese (henceforth, 'KagJ') is based on the author's fieldwork over the past thirty years or so. A main focus will be placed on the interactions between word prosody (word accent) and sentence prosody (intonation), the two linguistic areas in which this endangered dialect exhibits particularly different features from its sister dialects and Tokyo Japanese, as well as remarkable regional variations within itself.

To achieve these goals, this volume consists of eight chapters. **Chapter 1** describes the main features that Japanese and KosJ exhibit with respect to segmental phonology, syllable structure, and lexical strata. It also defines basic concepts used in the book. **Chapter 2** analyzes major word-prosodic variations found among Japanese dialects from a typological perspective with main focus on KosJ. It shows how the endangered dialect is similar to and different from its sister dialects as well as standard Tokyo Japanese. Specifically, it analyzes the pitch accent system of KosJ and other Japanese dialects with respect to the following features: the number and domain of contrastive pitch patterns, the basic units and directionality of accent computation, compound accent patterns, distinctive phonetic features of pitch accent, and the existence of one-peak and two-peak systems. This analysis reveals a huge diversity of Japanese pitch accent systems in comparison with other languages in the world.

Chapter 3 discusses the emergence and development of a secondary H tone, a unique prosodic feature of KosJ. This H tone appears at the beginning of relatively long words in all but one of the KosJ varieties. Comparing the data from the two-peak varieties of present-day KosJ with those reported by Takaji Kamimura in his reports from eighty years ago (Kamimura 1937, 1941), this chapter examines how the two-peak pitch accent systems emerged and developed historically in KosJ and how the development reinforced the roles of the syllable in the dialect.

Chapter 4 tackles various issues regarding the relationship between word accent and syllable structure. The first section challenges one of the mysteries of Japanese dialectology regarding the distribution of mora-counting and syllable-counting systems within a single dialect group. By examining the historical development of the syllable in KosJ, it argues that the syllable-counting system of KagJ historically derived from the hybrid system found in one KosJ variety today, which, in turn, derived from the mora-based system as found in present-day Nagasaki Japanese. This analysis suggests that a change from an entirely moraic system into an entirely syllabic system is not as difficult as might be generally imagined. The second section looks at the accent rule of alphabetic acronyms such as *JR* 'Japan Railways' and *NHK* 'Nippon Hōsō Kyōkai' in KosJ in comparison with the corresponding accent rules in other dialects. Alphabetic acronyms in Japanese dialects exhibit apparently complicated accent patterns and a huge degree of regional variation. It is demonstrated that the accent patterns in the three dialects analyzed can be explained by their compound accent rules in a principled way.

This is followed by a section devoted to the long-standing question of 'diphthongs', or tautosyllabic vowel sequences, in Japanese. While different pitch accent systems in KosJ interact with the syllable in different ways, they all provide conclusive evidence that only three diphthongs, i.e. /ai/, /oi/, and /ui/, exist in the dialect, in full accordance with the evidence presented from other dialects of the language (Kubozono 2018a). Chapter 4 is concluded by a section examining the status of superheavy syllables in Japanese dialects. Word accent provides convincing evidence that this type of syllable is avoided as much as possible across Japanese dialects. This reinforces the view that trimoraic syllables are generally disfavored across languages (Martinet 1955, Árnason 1980, Prince and Smolensky 1993/2004).

Chapter 5 and the following chapters expand the scope of the book to sentence prosody. Chapter 5 examines the intriguing process involving the deletion of the lexical H tone at the postlexical level in the two-peak systems of KosJ. This process was not reported by Kamimura eighty years ago and, hence, seems to represent a relatively new development in the dialect. Interestingly, it deletes the primary H tone of a phrase in non-final position, i.e. when the phrase is followed by another phrase in the same sentence, consequently promoting the secondary H tone of the non-final phrase to its primary H tone. Different varieties of KosJ manifest this process in different ways, but it is demonstrated that the process as a whole is quite similar to the well-known rhythm rule of English (Liberman and Prince 1977, Gussenhoven 1991).

Chapter 6 examines the structures of question and vocative prosody of KosJ. Like its sister dialects and unlike standard Tokyo Japanese, KosJ lowers pitch

at the end of interrogative sentences in order to distinguish them from declarative sentences (statements). It employs the same phonetic feature in vocative or calling intonation, too, i.e. the pitch patterns that speakers use when calling their friends and family members by their names or kinship terms. Thus, interrogative and vocative constructions often sound quite similar to each other if the former is pronounced without a question particle. However, vocative intonation often exhibits H tone retraction and vowel lengthening in word-medial H-toned syllables, neither of which is observed in question intonation. Interestingly, these additional processes neutralize the lexical contrasts in pitch accent entirely.

Chapter 7 discusses three central issues debated in general linguistics on the basis of the foregoing discussions. One of them concerns the question of how many tones one syllable can actually accommodate in language in general. Ladd (1996, 2008) suggests that languages can carry maximally two tones per syllable if they are subject to a constraint at all. Our study presents evidence that one mora can typically carry up to one tone in KosJ and other Japanese dialects. It is proposed that the generalization that Ladd (1996, 2008) put forward can be linked in a natural and reasonable way to the general constraint on the maximal weight of syllables discussed in Chapter 4. Our analysis thus hints at a general relationship between the phonological weight or quantity of syllables and the number of tones they can carry in a language like Japanese where the number of tones per syllable is highly constrained.

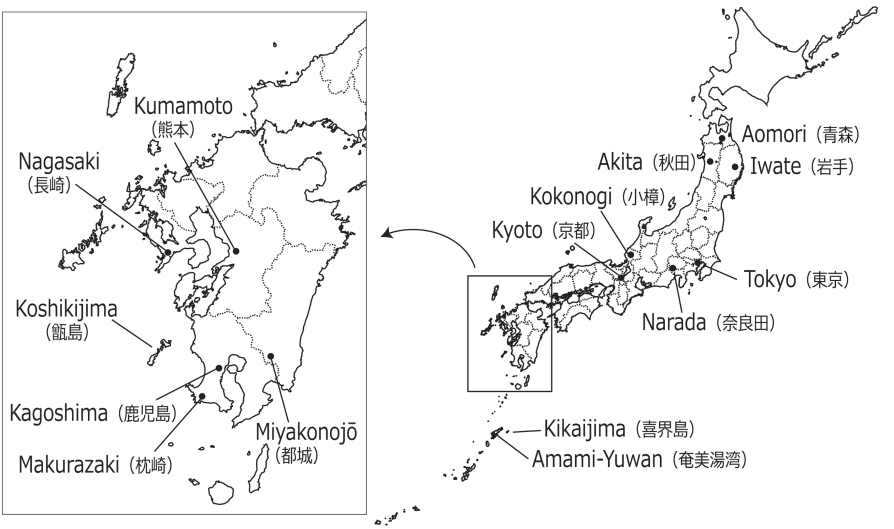
A second issue to be discussed in Chapter 7 is tonal neutralizations that are found at the postlexical level in Japanese. It is demonstrated that different dialects permit postlexical tonal neutralizations to different degrees, depending largely on their organization of lexical prosody. A third issue to be discussed in the final chapter relates to the competitions between lexical and postlexical tones which embody word accent and sentence intonation, respectively. Japanese dialects present interesting cases to the general question of whether one type of tone wins over the other type or whether the tone on the right overrides the one on the left.

The volume is concluded by a brief chapter (**Chapter 8**) which gives a summary of what has been discovered in the book and prospects for the future.

About Koshikijima Japanese

As mentioned above, KosJ is an endangered dialect of Japanese spoken in Kagoshima Prefecture in the south of Japan. It is spoken by about 2,000 native speakers, mostly 60 years old or older, on the Koshikijima Islands about 30–40 km off the coast of mainland Kyushu (see Map 1). The Koshikijima Islands consist

of three small islands called *kami* (northern), *naka* (central), and *shimo* (southern), with only one village (Taira) on the central island (see Map 2). They were separated by the sea until the northern and central islands were connected by bridges in 1994 and the central and southern islands in 2020.



Map 1: Major Japanese dialects.

The population of the Koshikijima Islands is 4,015 as of April 1, 2021, about half of whom are estimated to be native speakers of KosJ. It reached 25,000 in 1950, right after World War II, but has decreased rapidly since then. There are two main reasons for this rapid decline. First, there is no senior high school on the islands now, as well as in the past. Children have had to leave their home villages as soon as they graduated from junior high school at the age of fifteen. They moved to the mainland to receive higher education or to do a job. Very few of them have returned to their home islands after that since they could not find proper jobs there; thus, the second reason for the rapid decline in population. The main industry of the islands was fishery and is still so today.

The rapid decline in population meant a decline in the number of native speakers of KosJ. In addition, it has become a truly endangered dialect because it has not been properly inherited by young inhabitants of the islands. It can be assumed that the local people were exposed to two varieties of Japanese before the War, their native dialect and KagJ, the latter being KosJ's sister dialect spoken by the school teachers and government officials sent from the mainland. KosJ

Map 2: Koshikijima Islands.

speakers at this stage were probably monolingual speakers of their native dialect and bilingual listeners of it and KagJ. This situation changed after the War as they began to expose themselves to a third variety, that is, standard Tokyo Japanese, through TV and radio. The islanders became trilingual listeners at this stage although they probably remained largely monolingual speakers in their native dialect.

The three varieties to which they were exposed differ from each other in many aspects, notably in prosody. The sentence in (1), for instance, is pronounced in remarkably different ways as shown in (2): KosJ is represented by the subdialect of KosJ spoken in Teuchi, the southernmost village on the Koshikijima Islands. In (2) and the rest of this book, capital letters denote high-pitched syllables/moras, while dots indicate syllable boundaries wherever necessary. TOP stands for topic particle.

(1) watasi-wa nihon-kara kimasita.
I-TOP Japan-from came
'I came from Japan'

(2) a. KosJ-Teuchi
WA.ta.si.wa NI.HON.ka.ra KI.MA.si.TA
b. KagJ
wa.ta.SI.wa ni.hon.ka.RA ki.ma.si.TA
c. Tokyo Japanese
wa.TA.SI.WA ni.HOn.ka.ra ki.MA.si.ta

Even proper names exhibit such a regional difference as shown in (3).

(3)

KosJ-Teuchi	**KagJ**	**Tokyo**	**gloss**
KU.bo.zo.no HA.ru.O	ku.bo.ZO.no ha.ru.O	ku.BO.ZO.NO ha.RU.O	Kubozono Haruo
MA.KU.DO.na. RU.do	ma.ku.do.na. RU.do	ma.KU.DO.NA. ru.do	McDonald's

As standard Tokyo Japanese became a prestigious dialect throughout the country, children on the Koshikijima Islands became more familiar with this standard variety and less familiar with their native dialect. This tendency has been intensified by the lack of any social or educational movement to preserve the native dialect on the islands. This has led to the situation we witness today where most small children do not speak their traditional dialect any longer.

Being an endangered language does not lessen the linguistic value of this dialect. On the contrary, it remains an important dialect for linguistic research for the following three reasons. First, little attention has been paid to this endangered dialect, which means that it is not properly documented in the literature. Given that people in their fifties are probably the last generation who speak the traditional dialect, it is urgent to document and analyze it before it is extinct. Second, being separated from mainland dialects by the sea, KosJ has undergone its own developments and exhibits unique linguistic features that are not shared by its sister dialects in the mainland such as KagJ and Nagasaki Japanese. Because of this unique development, one may be tempted to call it the Galapagos of Japan(ese). It typically shows how much a dialect of a language can evolve in its own way if it is separated by the sea from its sister dialects.

Thirdly, KosJ is spoken in ten or more small villages scattered around the islands (Map 2). Since these villages are isolated from each other either by the sea or by mountains, they have developed in their own ways and exhibit considera-

ble regional variations in prosodic organization.[1] The dialect thus shows us how much a dialect can undergo diverse changes within itself over the course of time if it is spoken in geographically close but mutually isolated areas. Table 1 gives the number of inhabitants in each village as of April 1, 2021.

Table 1: Population of each village in 2021.

Island	Village	Population
Northern	Sato	1,051
	Nakakoshiki	385
	Oshima	122
	Nakano	37
	Segami	130
	Eishi	126
	Kuwanoura	38
Central	Taira	198
Southern	Kashima	354
	Nagahama	615
	Sesenoura	103
	Aose	146
	Katanoura	116
	Teuchi	594

Before concluding this introductory chapter, I would like to briefly review past studies on the prosody of KosJ. There is little work on this subject in the literature. A notable exception to this is the two short articles by Takaji Kamimura (Kamimura 1937, 1941). Brought up in Nakakoshiki Village, Kamimura himself was a native speaker of KosJ and grew up as a dialectologist. He conducted 'island-wide' fieldwork in 1937 and described the word accent systems of his native dialect which he divided into what he called 'main stream' KosJ and others.

In the two articles, Kamimura reports that KosJ has two lexical pitch patterns and hence belongs to the same dialect group as KagJ and Nagasaki Japanese. He also reports that the main-stream KosJ varieties exhibit two pitch prominences in relatively long words, one at/near the beginning of the word and the other at/near the end of the word: e.g. *a.SA.ga.O* 'morning glory [flower]', *na.TU.ya.SU.*

1 An accent database of KosJ (Kubozono et al. 2016) is available from http://koshikijima.ninjal.ac.jp/. Operating with Google Chrome, this online database provides the sounds of many words and phrases produced by two speakers per village from eight villages on the Koshikijima Islands.

mi 'summer holiday'. This is a feature that is not shared by the sister dialects where we find only one pitch prominence in each word: *a.sa.ga.O* (Nagasaki and KagJ), *na.TU.ya.su.mi* (Nagasaki), and *na.tu.ya.SU.mi* (KagJ). Of the two prominences observed in KosJ, Kamimura calls the prominence at/near the end of the word 'primary accent' and the other prominence 'secondary accent' for the main reason that the former is phonetically more prominent than the latter.

Although Kamimura's work is focused on word prosody and mentions virtually nothing about sentence prosody, it is nevertheless very important for our work today. For one thing, it is clear from his description that most KosJ varieties already had two-peak systems and differed from their sister dialects in this respect. Secondly, what he reports in his old study is different from what we observe in present-day KosJ in many ways, mostly concerning the position of the 'secondary accent' at the beginning of the word. This gives a hint as to how the dialect changed over the past eighty years and, in particular, how the secondary prominence emerged and developed in the dialect. This is a topic to be fully discussed in Chapter 3. Kamimura's description is also related, although indirectly, to the question regarding the mora and the syllable, namely, the question of why KosJ and Nagasaki Japanese are mora-counting dialects, while KagJ is a syllable-counting dialect (Section 4.1) as well as the question regarding the peculiar deletion of the 'primary accent' observed at the sentence level in present-day KosJ varieties (Chapter 5).

1 Introduction to Japanese phonology

This chapter sketches the basic features that Japanese and KosJ exhibit with respect to segmental phonology (Section 1.1), syllable structure (Section 1.2), and lexical strata (Section 1.3). It also defines basic concepts used in the book (Section 1.4), including 'pitch', 'accent', 'tone', 'intonation', and 'prosody'.

1.1 Segmental phonology

1.1.1 Vowels

KosJ and its sister, KagJ, are not noticeably different from standard Tokyo Japanese in segmental phonology. For vowels, they have the same vowel system as the standard variety, namely, they have five distinctive short vowels, /a/, /i/, /u/, /e/, and /o/. Phonetically, /a/ may be a central vowel as opposed to back vowels (/u/ and /o/) and front vowels (/i/ and /e/). However, /a/ patterns with /u/ and /o/ in some phonological phenomena. For example, the palatal glide /y/ [j] co-occurs with /u/, /o/, and /a/, but not with /i/ and /e/ in Japanese in general: e.g. /kyu/, /kyo/, and /kya/ are legitimate sequences, while /kyi/ and /kye/ are not in modern Japanese. This suggests that /a/ belongs to the group of back vowels in the language.

It should be noted that the five vowels do not occur equally frequently in the Japanese vocabulary. According to Onishi (1937) cited in Hayashi (1982), /a/ is the vowel that occurs most frequently (by type frequency), followed by /o/, /i/, /e/, /u/ in this order.

Of the five vowels, /i/ and /u/ are phonetically weak vowels. They are, for example, the shortest vowels in modern Japanese (Campbell 1992) and are most prone to vowel devoicing (Fujimoto 2015). In Tokyo Japanese, the second vowels in *aki* 'autumn' and *aku* 'evil' are often devoiced in spontaneous speech, while the second vowels in *aka* 'red', *take* 'bamboo', and *tako* 'octopus, kite' are not.

In contrast, little is known about vowel devoicing in regional dialects including KosJ. One thing that is clear is that this dialect is not subject to final vowel deletion that is common in its sister dialect, KagJ. In the latter, /i/ and /u/ are often deleted rather than devoiced word-finally, especially in colloquial speech. For example, the final vowels in *kaki* 'persimmon', *kuti* 'mouse', and *kutu* 'shoe' are deleted with the result that *kuti* and *kutu* become completely homophonous at the segmental level: i.e. [kɯtʔ]. This process does not occur in KosJ although KagJ and KosJ are otherwise very similar to each other at the segmental level.

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In addition to the five short vowels, Japanese has the same number of corresponding long vowels: /aa/, /ii/, /uu/, /ee/, and /oo/. There are many minimal pairs of words that contrast in vowel length (some of which may also be distinguished by word accent): *ka* 'mosquito' vs. *kaa* 'car', *to* 'door' vs. *too* 'ten, tower', *biru* 'building' vs. *biiru* 'beer', *obasan* 'aunt' vs. *obaasan* 'grandmother', *oyama* 'Oyama [family name]' vs. *ooyama* 'Ooyama [family name]', etc.

Like short vowels, long vowels do not occur equally frequently in the language but variably occur according to the type of the word. First, the main sources of long vowels in modern Japanese are loanwords from Chinese, i.e. Sino-Japanese (SJ) words, and recent loanwords from English and other Western languages (henceforth, 'loanwords' for short). That is, long vowels are generally rare in native words. Historically, Japanese did not have a contrast in vowel length, and developed long vowels via sound changes, notably consonant deletion and vowel coalescence: e.g. *owokii* → *ookii* 'big', *awaumi* → *oomi* 'Oomi [old name of Shiga Prefecture]'.

In contrast, many SJ morphemes have a long vowel. However, they exhibit a considerable imbalance in their distribution. Specifically, they permit only three long vowels – /oo/, /ee/, and /uu/ – and not /aa/ or /ii/: e.g. *kookoo* 'high school', *teesee* 'correction', *guusuu* 'even numbers'. Of these three vowels, /oo/ is by far the most frequent in SJ morphemes, followed by /ee/ and /uu/ in this order. Both the absence of /aa/ and /ii/ and the unequal distribution of /oo/, /ee/, and /uu/ in the SJ vocabulary can be attributed primarily to their historical origins, namely, the fact that long vowels in this type of vocabulary derive largely from diphthongs via vowel coalescence. Thus, /oo/ results from the coalescence of three diphthongs, /au/, /ou/, and /eu/, whereas /ee/ developed from /ai/ and /ei/. The coalescence rule did not yield /aa/ or /ii/ from any vowel sequence (Kubozono 2015a).

While SJ thus displays a systemic gap in the inventory of long vowels, recent loanwords show all five long vowels because, being sensitive to vowel length, modern Japanese adopts long or tense vowels in the source languages as long vowels: e.g. *kaado* 'card', *puuru* 'pool', *meetaa* 'meter', *koonaa* 'corner', *miito* 'meat'.

Phonetically, long vowels are considerably longer than their short counterparts. Han (1962: 65) reports that in Tokyo Japanese, long vowels are phonetically two to three times as long as corresponding short vowels in the same phonological contexts. Hirata (2004) provides more recent data for both accented and unaccented words. There is little work on vowel durations in regional dialects, but long and short vowels sound different in duration in both KosJ and KagJ.

Finally, modern Japanese has some diphthongs in addition to short and long vowels. There is some dispute in the literature as to which vowel sequence constitutes a diphthong as opposed to hiatus, or vowel sequences across a syllable boundary. This is fully discussed in Chapter 4 (Section 4.3) where it is shown that only three vowel sequences function as diphthongs across the language,

i.e. /ai/, /oi/, and /ui/. That all these diphthongs end in /i/ is not a coincidence since vowel sequences ending in /u/ such as /au/, /ou/, /eu/ and /iu/ underwent vowel coalescence into long vowels in native and SJ words in the history of the language (Kubozono 2015a): e.g. *kyau* → *kyoo* 'capital', *koukou* → *kookoo* 'high school', *teuteu* → *tyootyoo* 'butterfly', *iu* → *yuu* 'to say'.

1.1.2 Consonants

KosJ and KagJ also share the inventory of consonantal phonemes with Tokyo Japanese, as shown in Table 1.1 (adapted from Shibatani 1990: 159).

Table 1.1: Consonant system of modern Japanese.

	labial	dental-alveolar	palatal	velar	glottal
plosive	p	t		k	
	b	d		g	
fricative		s			h
		z			
nasal	m	n			
liquid			r		
glide	w		y [j]		

This system might look rather simple, but Japanese has many more consonants if allophones are also considered. For example, /s/ has two allophones that are distributed in a complementary fashion in native words: [ʃ] (or [ɕ]) appears before /i/ and [s] before other vowels, e.g. /susi/ [sɯʃi] 'sushi'. Likewise, /t/ is realized in three forms: the affricate [tʃ] before /i/, the affricate [ts] before /u/, and the dental stop [t] anywhere else, e.g. /tati/ [tatʃi] 'sword', /tatu/ [tatsɯ] 'dragon'. Similarly, /h/ has three allophonic forms: the palatal fricative [ç] before /i/, bilabial fricative [ɸ] before /u/, and glottal fricative [h] before any other vowel: e.g. /hati/ [hatʃi] 'bee, eight, pot', /hihu/ [çiɸɯ] 'skin' (Pintér 2015).

These 'allophones' are thus in complementary distribution in the native vocabulary, but many of them are not complementary in SJ words and loanwords. In SJ words, for example, [ʃ] and [s] appear in the same context: e.g. [ʃakɯ] 'to serve *sake*' vs. [sakɯ] 'a fence'. [tʃ] and [t] are not complementary, either: e.g. [tʃa] 'tea' vs. [ta] 'others'. [ç] and [h] also appear before the same vowel: [çakɯ] 'hundred' vs. [hakɯ] 'beat'. It can be said that each of these consonants has been established as an independent phoneme in the consonant system of modern Japanese.

As Table 1.1 shows, consonants in modern Japanese exhibit a contrast in voice, but not all consonants participate in this contrast. As might be expected, voiceless consonants have their voiced counterparts in the system, but not vice versa. Voiced consonants actually fall into two groups, voiced obstruents and non-obstruents (or sonorants), of which only the first group involves a phonological contrast with voiceless consonants in the language. Thus, voiced stops (/b/, /d/, /g/) and fricative (/z/) contrast with voiceless ones (/p/, /t/, /k/ and /s/) in Japanese, whereas voiced non-obstruents (/m/, /n/, /ɾ/, /y/, and /w/) do not have voiceless counterparts at least at the phonemic level.

As is well-known, voiceless obstruents are unmarked as against voiced obstruents in natural languages. Maddieson (1984: 27) reports that "a language with only one stop series almost invariably has plain voiceless plosives". Similarly, Yavaş (1998: 173) mentions that "the existence of the voiced obstruents implies the existence of its voiceless counterparts". The same implicational law is observed in phonological development, too. It is reported that children acquire voiced obstruents only after they have acquired voiceless ones: "Children will . . . use voiceless unaspirated stops before acquiring the pattern of voicing types that is contrastive in their language" (Macken 1980: 163).

On the other hand, non-obstruents such as nasals, liquids and semivowels are typically voiced. For example, voiced nasals ([m], [n]) are unmarked as against voiceless nasals ([m̥], [n̥]) in natural languages, as can be seen from the fact that a diacritic symbol is added in the phonetic descriptions of the latter.

Seen in this light, the distribution of consonants in the Japanese consonant system looks quite natural: It contains unmarked sounds (voiceless obstruents and voiced non-obstruents) in its core part, plus some marked sounds (voiced obstruents). In the traditional Japanese linguistics, the former group is called "seion" (清音), meaning pure sounds, whereas the latter group is called "dakuon" (濁音) which means impure sounds. This grouping is summarized in Table 1.2, where the shaded part denotes "seion", and the others are "dakuon".

Table 1.2: Two-way classification of consonantal phonemes in modern Japanese.

	voiceless	**voiced**
obstruents	p, t, k, s, h	b, d, g, z
non-obstruents	---	m, n, r, w, j

Voiced obstruents did not exist in the consonant system of Old Japanese, at least in word-initial position. They developed in the language in several ways (see Takayama 2015 for historical accounts). One major source is SJ words which had many voiced obstruents in morpheme-initial positions. This can be seen from the

comparison between the SJ and native pronunciations of the same morpheme as shown in Table 1.3.

Table 1.3: Comparison of SJ and native morphemes.

SJ	native	gloss
gai	so.to	outside
zin	hi.to	man, person
dan	o.to.ko	male
zyo	on.na	female

Another major source of voiced obstruents is the sound change known as *rendaku*, or sequential voicing, in native words. This voicing process turned voiceless obstruents into their voiced counterparts in the initial syllable of non-initial members of compounds. Some examples are given in (1.1): see Ito and Mester (2003) and Vance (2015) for a full discussion of this process.

(1.1) a. osiroi 'powder' + hana 'flower' → osiroi-b̲ana
'a tropical American flower, also known as a four-o'clock'
b. to 'door' + tana 'shelf'→ to-d̲ana 'closet, cupboard'
c. hira 'flat' + kana 'kana syllabary' → hira-g̲ana 'hiragana syllabary'
d. nobori 'upward' + saka 'slope' → nobori-z̲aka 'uphill slope'

Note that /b/ alternates with /h/ rather than /p/ in this process. This can be attributed to a change by which /p/ turned into /h/ (phonetically, [ç], [ɸ], [h]) in word-initial position in the course of the history. This historical change shows its trace in the alternation between /h/ and /p/ in the morphophonology of modern Japanese. For example, the word *hiyoko* 'a baby bird' can be related with the mimetic expression *piyopiyo* which denotes the sound produced by baby birds. Likewise, the noun *hikari* 'light' is historically related with the mimetic expression *pikari* which describes lightening. In these words, /p/ turned into /h/ in ordinary nouns, but remained unchanged in onomatopoeic expressions.

1.2 Syllable structure

1.2.1 Mora and syllable

The mora and the syllable are both used in the description of Japanese prosody in general. All syllable boundaries are mora boundaries, by definition, but not

vice versa. In most Japanese dialects including KosJ and Tokyo Japanese, the following four elements can form an independent mora but not independent syllables: the second half of long vowels and diphthongs (often symbolized as R and J, respectively, in the traditional literature), the moraic nasal known as *hatsuon* (often symbolized as N), and the first half of geminate or long consonants known as *sokuon* (Q). In the literature, these four elements are labeled as *tokushu-haku*, meaning special moras, or *fuzoku-haku*, meaning dependent or deficient moras, as opposed to all other *jiritsu-haku* (independent moras) which can form a syllable on their own. In this book, I call these two types of moras 'independent' or 'head' moras and 'dependent' or 'non-head' moras, respectively, to explicitly show their status within a syllable.[2] Table 1.4 illustrates the differences between the two units by counting the number of moras and syllables in each word.

Table 1.4: Syllable count and mora count in Japanese.

Syllable count	Mora count	gloss
nip.pon (2)	ni-p-po-n (4)	Japan
a.me.ri.ka (4)	a-me-ri-ka (4)	America
hu.ran.su (3)	hu-ra-n-su (4)	France
to.yo.ta (3)	to-yo-ta (3)	Toyota
hon.da (2)	ho-n-da (3)	Honda
nis.san (2)	ni-s-sa-n (4)	Nissan
bus.syu (2)	bu-s-syu (3)	(President) Bush
o.ba.ma (3)	o-ba-ma (3)	(President) Obama
to.ran.pu (3)	to-ra-n-pu (4)	(President) Trump
bai.den (2)	ba-i-de-n (4)	(President) Biden

The mora is supposed to be a timing unit in Tokyo Japanese, with each mora having an equal duration. There is some debate about the phonetic reality of this unit (see Warner and Arai 2001 for an overview) but there is no doubt that it has a phonological reality in the dialect. For example, Japanese has many phonological and morphological rules that are sensitive to the mora. This includes a number of accent rules and truncation rules (Kubozono 1999).

The mora has a psychological reality, too. Native speakers of Japanese can easily count the number of moras in a word, but they often have difficulties in counting the number of syllables. One reason for this is that the two native kana syllabaries – hiragana and katakana – correspond well to the moras in phonolog-

2 They are also labeled as 'syllabic mora' and 'non-syllabic mora', respectively (Kubozono 1989).

ical descriptions. The first word *nippon* 'Japan' in Table 1.4, for example, is written with four kana letters: にっぽん (hiragana) and ニッポン (katakana). When literate Japanese count moras in a word, the number generally corresponds to the number of kana letters used to write the word.[3]

The roles of the mora in regional dialects have not attracted serious attention in the literature, except in the literature of word accent. This is true of KosJ and KagJ, too. The role of the mora in KosJ becomes evident in the discussion of word accent (Section 2.3), while the mora's role in KagJ is much less clear (see Section 4.4 for some evidence).

While the mora is often taken for granted in the phonological descriptions of Japanese, the notion of the syllable remains unclear. Generally, native speakers of Japanese cannot tell the number of syllables in a word. They know that the word *nippon* 'Japan' consists of four phonological units, i.e moras, but it is often difficult to convince them that it has only two syllables. This is attributable, at least in part, to the fact that the syllable has no correspondence to the letters in the kana syllabaries. Moreover, syllable's roles in phonological rules were not fully understood until recently (see Kubozono 1999 and Kawahara 2016, among others).[4] The only exception to this is its role in KagJ whose word accent rules are heavily dependent on this unit (Section 2.3). The role of the syllable in KosJ was not explicitly discussed in the literature, but it plays a certain role in explaining its word accent patterns (Section 2.3) as well as the peculiar behavior of diphthongs (Sections 4.3 and 4.4).

1.2.2 Syllable weight

As mentioned above, syllables in Japanese fall into two types: light or monomoraic syllables and heavy or bimoraic ones. Statistically, light syllables outnumber heavy syllables in the language by the ratio of 2:1 (Kubozono 1985). This asymmetry can be attributed to the fact mentioned above, namely, that Old Japanese was a typical CV language with no complex vowels or coda consonants.

The fact that monomoraic and bimoraic syllables appear at the ratio of 2:1 in Japanese vocabulary means that independent moras outnumber dependent moras: actually, independent moras account for 75% of all moras in the language.

3 One notable exception to the direct correspondence between the mora and the kana letters is moras with the palatal glide, /y/ [j], which are found in Sino-Japanese and foreign words. For example, *syu* in the loanword *bussyu* 'Bush' and the Sino-Japanese word *syuzin* 'master' is one mora in phonological length but written with two kana letters, しゅ (hiragana) or シュ (katakana).
4 See Labrune (2012) for a skeptical view about the syllable in Japanese.

The role of syllable weight in phonological descriptions has been discussed in the recent literature of Japanese (Kubozono 1995a, 1999, 2003). Since this notion hinges upon both the notion of the mora and that of the syllable, generalizations based on it serve as evidence for the syllable and the mora at the same time. In this book, syllable weight is discussed in Chapter 4 (Section 4.4) and Chapter 7 (Section 7.1.2) where it is shown that superheavy (trimoraic) syllables are disfavored or prohibited in KosJ and KagJ as well as in Tokyo Japanese.

1.2.3 Syllable structure

Since Old Japanese only permitted CV as a legitimate syllable, modern Japanese still has a rather simple syllable structure. In addition to CV, it now permits CVC where the coda consonant is either a moraic nasal as in *nissan* 'Nissan' and *baiden* 'Biden' or a moraic obstruent as in *nissan* and *bussyu* 'Bush'. These codas entered Japanese as loanwords from Chinese and other languages. Coda consonants and long vowels/diphthongs do not generally co-occur in Japanese as discussed in Chapter 4 (Section 4.4) and Chapter 7 (Section 7.1.2).

Another variant syllable structure involves a palatal glide, i.e. /y/ [j], an element that was also borrowed from Chinese (see Footnote 3 above). Together with this element, Japanese syllables can be maximally CyVC where V is a short vowel or CyVV where VV is a long vowel or diphthong.

1.3 Lexical strata

To understand the phonetic and phonological structures of Japanese, one needs to understand the organization of its lexicon into what are often known as 'lexical strata'. It is particularly important to know that different types of words have different structures and often exhibit different phonological patterns/behaviors (Nasu 2015, Ito and Mester 2015a, Kubozono 2015b). Words in Japanese are generally classified into three groups: (i) native words, (ii) Sino-Japanese (SJ) words, and (iii) loanwords. The third group usually refers to loanwords that have been borrowed from English and other languages in the past few centuries. About 84% of loanwords in modern Japanese come from English (Sibata 1994). Some linguists add mimetic words as a fourth group (Ito and Mester 1999, 2009; Nasu 1999, 2015).

The three types of words show many linguistic differences. In terms of orthography, SJ words and loanwords are generally written in Chinese characters and katakana letters, respectively, the latter being a native writing system. In addition,

some loanwords, especially acronyms, are written in English alphabets, too: e.g. *NHK* 'Nippon Hōsō Kyōkai, Japan Broadcasting Corporation'. Native words, in contrast, are written either in hiragana letters or in Chinese characters (or the combination of the two): e.g. 行く or いく for the verb *iku* 'to go'.

In addition to the differences in orthography, the three types of words exhibit different linguistic structures and patterns. As for vowels, for example, not many native words have a long vowel or diphthong, while many SJ words and loanwords have a long vowel or diphthong. Moreover, long vowels in SJ words are restricted to /oo/, /ee/, and /uu/, as mentioned above. Loanwords have all five long vowels since tense vowels in English are generally adapted as long vowels in Japanese.

As for consonants, /p/ occurs quite commonly in loanwords but not in native words. This is due to the historical changes whereby /p/ turned into other sounds – /h/ in word-initial position and /w/ in medial position – in the course of the history (Section 1.1.2). In native and SJ words, in fact, /p/ is found only as a geminate consonant in word-medial positions. This is clearly shown by the morphophonemic alternation between /h/ in word-initial position and /p/ in medial position: e.g. *hyoo* 'table, chart' vs. *happyoo* 'presentation', *hiruma* 'daytime' vs. *mappiruma* 'midday'.

The three types of words differ in phonological length, too. First, SJ morphemes are the shortest of them all: they are one or two moras long by mora count and one or two syllables long by syllable count. These length restrictions reflect the fact that morphemes in Chinese were basically monosyllables, some of which became disyllabic via vowel epenthesis: e.g. *gak<u>* 'learning' where <u> is an epenthetic vowel. Not many SJ morphemes are used as independent words in Japanese, but rather, two morphemes are usually combined to form a 'word' in the language: e.g. *gaku-mon* 'learning+to ask=science'.

Native morphemes can be longer than SJ morphemes, but they do not usually exceed three moras. Seen conversely, most four-mora or longer native words are compounds, at least etymologically. Thus, the noun *mizuumi* 'lake' consists of two morphemes, *mizu* 'water' and *umi* 'sea'. The same is true of the four-mora verb, *nukazuku* 'to prostrate oneself', where *nuka* 'forehead' and *tuku* 'to push, to prick' are combined. In comparison, loanwords can be quite long. They are minimally bimoraic, e.g. *basu* 'bus' and *pin* 'pin', but can be many moras long. For example, *konpyuutaa* 'computer' is a monomorpheme in Japanese that consists of six moras.

At the word level, four-mora length is the most common length of words in the Japanese vocabulary. In Yokoyama's (1979) data, cited in Hayashi (1982), four-mora words account for 49% of all the words listed in Sanseido's dictionary (*Shinmeikai Kokugo Jiten*), followed by three-mora words (30%) and five-mora words (9%) (Table 1.5).

Table 1.5: Frequency of Japanese words as a function of their length (based on Yokoyama 1979).

No. of moras	1	2	3	4	5	6	7	8~
No. of words	282	3,785	16,095	26,559	4,859	1,858	471	278
%	0.5	7.0	29.7	49.0	9.0	3.4	0.9	0.5

Similar statistics were reported by Hayashi (1957), who looked at about 47,000 words listed in NHK (1951). This is given in Table 1.6.

Table 1.6: Frequency of Japanese words as a function of their length (Hayashi 1957).

No. of moras	1	2	3	4	5	6	7	8~
%	0.3	4.8	22.7	38.8	17.7	11.0	3.3	1.5

1.4 Basic concepts

1.4.1 Pitch, accent, and tone

In this book, the term 'pitch' is used basically interchangeably with 'f0' (fundamental frequency) to mean surface f0 or f0 patterns observed at the phonetic output. High-pitched syllables thus mean syllables that have higher f0 values than the surrounding syllables. Phonological studies of Japanese usually posit two pitch levels, H(igh) and L(ow) tones, which are sufficient enough to describe distinctive lexical pitch patterns in Japanese dialects including KosJ and Tokyo Japanese. This description is adopted in this book, too, where H and L tones are used to describe the pitch patterns of each word or phrase.

This does not necessarily mean that each and every syllable/mora bears one of these tones as assumed in the traditional descriptions including Haraguchi (1977). Rather, I adopt underspecified representations of tone in this book whereby syllables/moras are unspecified for tone if their surface pitch is linguistically predictable (Pierrehumbert and Beckman 1988, Archangeli 2011, Hyman 2011). For example, KosJ and its sister dialect, KagJ, have two distinctive pitch patterns called Type A and Type B (Chapter 2). These two patterns can be distinguished from each other in terms of the position of H-toned (or high-pitched) syllables/moras: Type A has a H tone on the penultimate syllable/mora, whereas Type B has a H tone on the final syllable/mora. Once the position of the H tone is specified, it is fully predictable where L tone appears. Thus, words are only sparsely specified with tone in these dialects. For this reason, H-toned syllables are highlighted by capital letters in this book.

The term 'accent', on the other hand, refers to word-level phonological prominence or prominent patterns. Since Japanese is a pitch-accent language whose word prosodic patterns can be defined basically by pitch as opposed to intensity or duration, word accent in the language can be defined as pitch properties that are prominent at the lexical level. The two lexical pitch patterns observed in KosJ – Type A and Type B – are thus the two *accent* patterns of this particular dialect. The term 'accent' is also often used to refer to the phonological prominence assigned to a particular position (syllable or mora) of the word. In Tokyo Japanese, for example, an abrupt pitch fall is the phonetic correlate of word accent by which the two basic prosodic patterns are defined: 'accented' words involve an abrupt pitch fall, whereas 'unaccented' words lack this phonetic property. Thus, the word *inoti* 'life' is accented on its initial mora since it exhibits an abrupt pitch fall between the first and second moras as in ĩnoti. In contrast, nezumi 'mouse' is lexically 'unaccented' since it does not involve an abrupt pitch fall even when it is followed by a grammatical particle. The term '(un)accented' in these descriptions refers to the presence or absence of pitch prominence at the word level.

1.4.2 Intonation

In this book, the term 'intonation' refers to pitch properties beyond the domain of the word such as clauses and sentences. It is often used in the literature of Japanese phonology to refer to pitch properties of sentences which combine lexical prosody, i.e. word accent, and postlexical prosody, but I use the term to specifically refer to those features that are observed when phrases are concatenated into sentences, such as the pitch features that distinguish interrogative sentences from declarative ones. In the same way, intonational or postlexical tones refer to the tones such as H% and L% that are found in the domain beyond the word.

In Japanese dialects including Tokyo Japanese, word accent and sentence-level intonation are both signaled primarily by pitch, but lexical and postlexical tones can and do generally co-exist with each other. Lexical tones appear within words, whereas postlexical ones generally appear at the edge of the phrase or sentence. However, they interact with each other in some restricted contexts, notably when they dock on one and the same syllable creating tonal crowding situations. They also interact with each other when lexical and postlexical H tones appear on adjacent syllables or moras, a situation we call 'tonal clash'. This raises an interesting question of which type of tone overrides the other or if there is any positional effect. These questions are addressed in Chapters 6 and 7, especially in the latter.

1.4.3 Prosody

The term 'prosody' (*purosodii* in Japanese) refers to phonological properties of words, phrases, clauses and sentences, that is, those attested at word or higher levels. Japanese has an independent word *inritsu* as a translation of the English *prosody*, but I avoid using this classic term in this book since it refers basically to the prosody of the verse. I use the term 'prosody' to refer specifically to word accent (word prosody) and sentence intonation (sentence prosody) in spoken language.

1.4.4 Neutralization

In this book, I mainly discuss tonal or accentual neutralizations by which a lexical tonal contrast is lost in some contexts, particularly at the postlexical level where words are concatenated to form clauses and sentences (see also Kubozono and Giriko 2018, Hyman 2018, Igarashi et al. 2018, Kubozono 2018b, Uwano 2018). This is to be discussed in the second half of this book, especially in Chapter 7.

2 Typological features of KosJ word prosody

This chapter describes the basic prosodic features of KosJ from a typological perspective, by showing how it is similar to and different from its sister dialects as well as standard Tokyo Japanese and how it can be located in the prosodic typology of languages. Specifically, it analyzes the lexical pitch accent systems of KosJ and other Japanese dialects from cross-linguistic perspectives with respect to the following features: the number and domain of contrastive pitch patterns (Sections 2.1 and 2.2), the basic units and directionality of accent computation (Sections 2.3 and 2.4), compound accent patterns (Section 2.5), distinctive phonetic features of pitch accent (Section 2.6), and the existence of one-peak and two-peak systems (Section 2.7). This analysis reveals a huge diversity of Japanese pitch accent systems in comparison with other languages in the world.

2.1 Two-pattern system

There are many parameters that can be used to typologize Japanese pitch accent systems. The one that has been most popularly employed in the literature is based on the number of contrastive pitch patterns used at the lexical level. I adopt here the typology proposed by Uwano (1999), who classified Japanese pitch accent systems into the two major types given in (2.1). He posited 'accentless' systems as another type of pitch accent system, but I put them beyond the scope of this book since they do not specify pitch features at the lexical level and, in this sense, can be classified into the same group that Pike (1948) called 'intonational languages'.

(2.1) a. multi-pattern systems
b. N-pattern systems

Multi-pattern systems in (2.1a) represent prosodic systems where the number of distinctive pitch patterns increases as the word becomes longer. In Tokyo Japanese, for example, monosyllabic nouns have two distinctive patterns, bisyllabic nouns have three patterns, and trisyllabic nouns have four patterns. This is exemplified in (2.2a)-(2.2c) where NOM stands for nominative particle. In each of these sets, the last pattern is called an 'unaccented' pattern since it lacks a pitch fall, or the distinctive pitch feature of this system. Because of this additional pitch pattern, Tokyo Japanese permits *n+1* pitch patterns in nouns with *n* syllables (McCawley 1968).

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(2.2) Accent patterns in Tokyo Japanese

a. Monosyllables
HI-ga 'fire-NOM'
hi-GA 'sun(shine)-NOM'

b. Bisyllables
HA.na-ga 'Hana [girl's name]-NOM'
ha.NA-ga 'flower-NOM'
ha.NA-GA 'nose-NOM'

c. Trisyllables
I.no.ti-ga 'life-NOM'
ko.KO.ro-ga 'heart-NOM'
o.TO.KO-ga 'man-NOM'
ne.ZU.MI-GA 'mouse-NOM'

Similarly, Kyoto Japanese permits three, four, and six contrastive patterns for monosyllabic, bisyllabic, and trisyllabic nouns, respectively (Hirayama 1960). Tokyo and Kyoto Japanese thus display a larger number of distinctive pitch patterns in words with a larger number of syllables. In this sense, they resemble stress-accent languages like English and German where the number of stress locations increases in proportion to the phonological length of the word: bisyllabic nouns have two accent patterns (*Chína* vs. *Japán*), trisyllabic nouns have three (*Gérmany* vs. *compúter* vs. *Japanése*), etc.[5] What is common in multi-pattern pitch accent systems of Japanese and stress accent systems of English and German is that a certain position of a word is phonologically prominent. The two types of prosodic systems certainly differ in two major respects – in whether the phonological prominence is realized in pitch features (Japanese) or non-tonal features (English and German) and whether the systems permit so-called unaccented words (Japanese) or not (English and German). But they both mark a certain syllable/mora in a word as a phonologically prominent position, which is a feature not shared by N-pattern systems in Japanese.

5 It may be worth adding here that multi-pattern systems in Japanese do not exhibit multiple patterns in every category of words. In Tokyo Japanese, for example, verbs and adjectives display a contrast in the presence or absence of a pitch accent, i.e. abrupt pitch fall, but not in its position: they are accented on the penultimate mora or, otherwise, unaccented (no pitch fall) in their bare forms: *na'.ru* 'to become, to bear fruit', *ha.re'.ru* 'to clear up', *u.ma'i* 'tasty', *a.o'i* 'blue, green' vs. *na.ru* 'to ring', *ha.re.ru* 'to become swollen', *a.mai* 'sweet', *a.kai* 'red'. Thus, verbs and adjectives in this dialect constitute a two-pattern system irrespective of the phonological length of the word.

Having said that Tokyo Japanese has *n+1* patterns for *n*-syllable nouns, one must hasten to add that these multiple patterns are not equally distributed. On the contrary, the dialect has only two productive patterns, while all other patterns are exceptional and may be marked as such in the lexicon (Section 2.4).

Unlike multi-pattern systems in (2.1a), N-pattern systems in (2.1b) only permit a fixed number of pitch patterns at the lexical level irrespective of the length of the word. Japanese permits one to three patterns, the most common one by far being systems with two contrastive patterns (Uwano 1984a). KosJ and its sister dialects belong to this most common group of N-pattern systems. In KosJ, words exhibit two and only two patterns called Type A and Type B, which bear a H tone on the penultimate and final moras, respectively.[6] This is illustrated in (2.3) where, again, accent patterns of Teuchi Village (KosJ-Teuchi) are shown. Note that this system assigns two H tones in four-mora-long or longer Type A words and three-mora-long or longer Type B words (Section 2.7).

(2.3) KosJ-Teuchi

	Type A	**Type B**
Monomoraic word	HI-ga 'sun(shine)-NOM'	hi-GA 'fire-NOM'
Bimoraic word	A.me 'candy'	a.ME 'rain'
Trimoraic word	o.NA.go 'woman'	O.to.KO 'man'
Four-mora word	A.ma.ZA.ke 'fermented rice drink'	A.SA.ga.O 'morning glory'

Similarly, KagJ also exhibits only two patterns no matter how long the word may be. Like KosJ, this dialect bears a H tone in the penultimate (Type A) and final (Type B) positions, but these positions are measured by the syllable rather than the mora as we will see in Section 2.3 below. KagJ also differs from KosJ-Teuchi in assigning only one H tone per word even in long words.

6 In this system, monomoraic words have neutralized the accentual contrast when pronounced in isolation: both Type A and Type B are pronounced with a H tone. However, the accentual contrast manifests itself when the words are followed by a grammatical particle like the nominative particle *ga* (see Sections 7.2.1 and 7.2.3 for more details).

(2.4) KagJ

	Type A	**Type B**
Monosyllabic word	HI-ga ‘sun(shine)-NOM’	hi-GA ‘fire-NOM’
Bisyllabic word	A.me ‘candy’	a.ME ‘rain’
Trisyllabic word	o.NA.go ‘woman’	o.to.KO ‘man’
Four-syllable word	a.ma.ZA.ke ‘fermented rice drink’	a.sa.ga.O ‘morning glory’

Nagasaki Japanese, another sister dialect to KosJ, also exhibits two contrastive pitch patterns (Sakaguchi 2001, Matsuura 2014). Unlike KosJ and KagJ, it assigns a H tone on the second mora from the beginning of the word (or the initial mora in bimoraic words) in Type A and on the final mora in Type B. While this system differs from its sister dialects of KosJ and KagJ in calculating the prominent position from the beginning of the word rather than from the end (see Section 2.4 for details), it has only two distinctive patterns like its sister dialects and, moreover, the two accent classes in Nagasaki basically correspond to those in its sister dialects in terms of the morphemes that belong to each class. This is illustrated in (2.5).

(2.5) Nagasaki Japanese

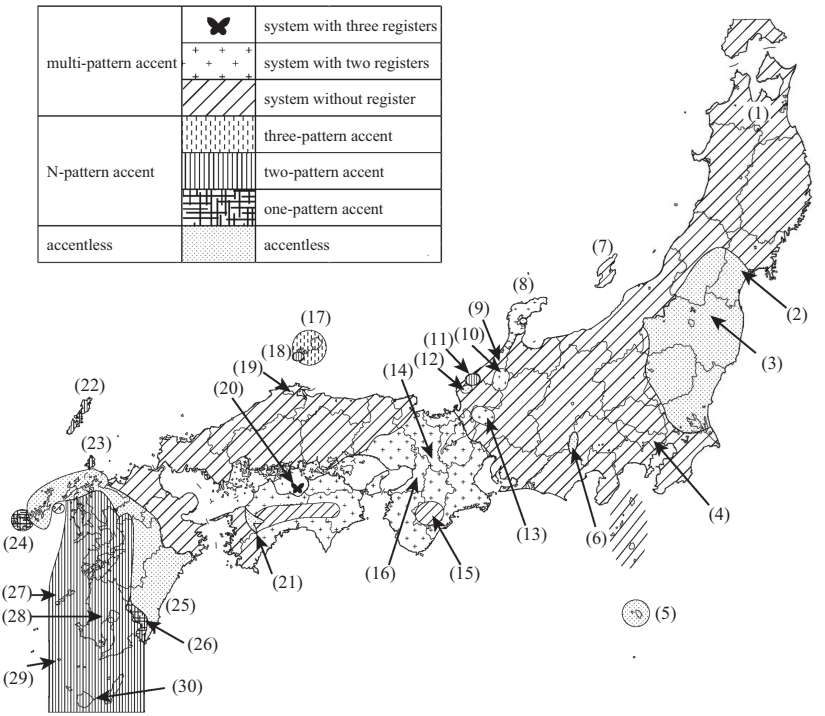
	Type A	**Type B**
Monomoraic word	HI-ga ‘sun(shine)-NOM’	hi-GA ‘fire-NOM’
Bimoraic word	A.me ‘candy’	a.ME ‘rain’
Trimoraic word	o.NA.go ‘woman’	o.to.KO ‘man’
Four-mora word	a.MA.za.ke ‘fermented rice drink’	a.sa.ga.O ‘morning glory’

While KosJ and its sister dialects all have two-pattern accent systems, the simplest N-pattern system exhibits only one pattern (see Section 2.4 for three-pattern systems). Pitch accent systems of this type do not use pitch in any contrastive way, but they nevertheless have a certain invariable pitch pattern. A typical example is the system of Miyakonojo and Kobayashi in Miyazaki Prefecture (see Map 1 on page 5). This system assigns a H tone to the final syllable of every word, which corresponds to Type B in KagJ illustrated in (2.4) above. This is shown in (2.6), where Type A and Type B words in KagJ become tonally homophonous. Notice that native speakers of this dialect do not accept other pitch patterns such as *O.na.go* or *o.NA.go* for *onago* ‘woman’.

(2.6) Miyakonojo and Kobayashi Japanese

Monosyllabic word	hi-GA ‘sun(shine)-NOM, fire-NOM’
Bisyllabic word	a.ME ‘candy, rain’
Trisyllabic word	o.na.GO ‘woman’, o.to.KO ‘man’
Four-syllable word	a.ma.za.KE ‘fermented rice drink’, a.sa.ga.O ‘morning glory’

From a typological point of view, N-pattern accent systems resemble tone languages such as Chinese dialects, Vietnamese, and Thai. For example, Mandarin Chinese shows four tone patterns (Tone 1 to Tone 4), Thai has five dinstictive tones, and Cantonese Chinese and Vietnamese both display six tones. These ‘tone languages’ assign their distinctive tones *syllable* by *syllable*, while N-pattern accent systems of Japanese assign their distinctive accent patterns to each *word*. This difference is not as big as it might seem if reanalyzed in terms of the morpheme: morphemes are predominantly monosyllabic in Asian tone languages, while they are mostly bisyl-

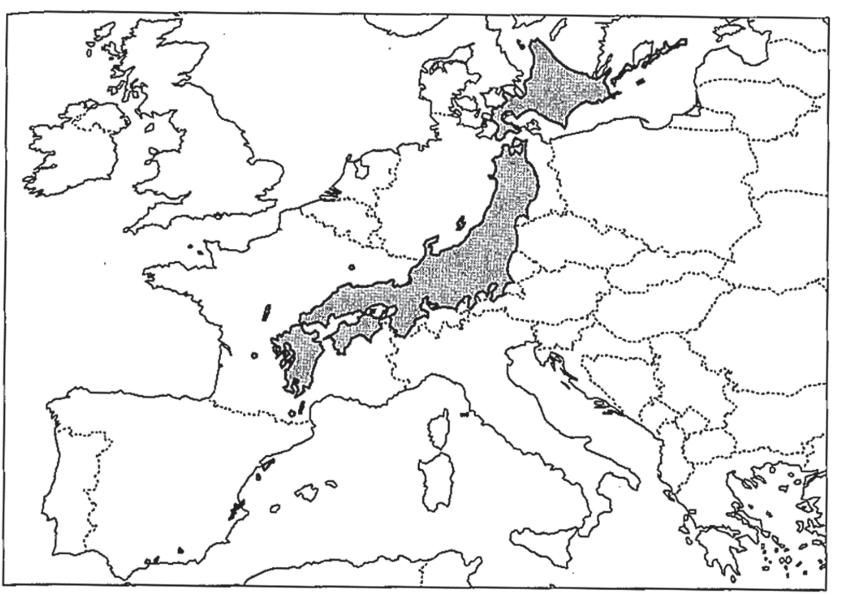


Map 3: Distribution of Japanese dialects.

labic or longer in Japanese. This leads to the generalization that each morpheme has one of the distinctive melodies – tones or accent patterns – in both types of languages. Capturing this identity, Hayata (1999) proposed to label the Asian tone languages as 'syllable tone' languages and N-pattern Japanese dialects as 'word tone' languages. Along the same line of argument, he proposed to capture the difference between N-pattern and multi-pattern Japanese dialects by labeling them as 'word tone' and 'word accent' languages, respectively. The latter label, 'word accent', is probably intended to capture the above-mentioned similarity between Tokyo-type pitch accent system and word stress systems such as those of English and German.

Finally, multi-pattern and N-pattern systems are not equally distributed around the Japanese Archipelago. According to Uwano (1999), the former type is predominantly found in the central and northern parts of Japan, including the old capital of Kyoto and the present-day capital Tokyo (meaning the capital in the east). On the other hand, N-pattern systems are widespread in the western part of Japan, including Kyushu and the Ryukyuan Islands. This can be seen from Map 3, quoted from Uwano (2012b: 1429).

One may be surprised at the diverse types of pitch accent systems in the small country of Japan (378,000 km^2, ranked 61st in the world), which is more spacious than the United Kingdom (242,000 km^2, ranked 78th) but smaller than California (424,000 km^2) in the USA. One clue to this question can be seen from Map 4 taken



Map 4: Map of Japan overlaid on Europe (slightly revised from Sanada 2007: 68).

from Sanada (2007: 68), where Japan is overlaid on the map of Europe. This map shows that Japan is a very *long* country from the northern island of Hokkaido to the small Ryukyuan islands in the south. In Europe, this stretch would cover many different countries and many different languages.

2.2 Phrase accent

We have seen that multi-pattern and N-pattern systems are qualitatively different from each other. In the former, a certain syllable/mora is marked as a phonologically prominent position in a word or morpheme, while a certain melody is assigned to every word or morpheme in the latter. This difference corresponds by and large to the domain where the accent patterns are manifested. In Tokyo-type systems, the phonologically marked position remains prominent in the word whether the word is pronounced in isolation (one-word sentence) or it is embedded in a basic syntactic phrase known as *bunsetsu*, which consists of one content word optionally followed by one or more grammatical particles. Thus, initially-accented words remain initially-accented, medially-accented words remain medially-accented, and unaccented words remain unaccented in the *bunsetsu* domain. This is illustrated below with the trisyllabic words in (2.7c).

(2.7) a. I.no.ti 'life', I.no.ti-ga 'life-NOM', I.no.ti-ka.ra 'from the life'
b. ko.KO.ro 'heart', ko.KO.ro-ga 'heart-NOM', ko.KO.ro-ka.ra 'from the heart'
c. o.TO.KO 'man', o.TO.KO-ga 'man-NOM', o.TO.KO-ka.ra 'from the man'
d. ne.ZU.MI 'mouse', ne.ZU.MI-GA 'mouse-NOM', ne.ZU.MI-KA.RA 'from the mouse'

The same can be seen more clearly in phonological representations where only phonologically prominent syllables/moras are marked. Following McCawley (1968), apostrophes /'/ are often used to denote this phonological prominence as shown below. This is equivalent to the diacritic /˺/ which is commonly used in articles written in Japanese (Hattori 1955, Uwano 1997b). In phonetic terms, these diacritics denote the position where an abrupt pitch fall occurs as a manifestation of lexical 'accent' (or *akusento-kaku* 'accent kernel' in Hattori's and Uwano's terminology).

(2.8) a. i'.no.ti 'life', i'.no.ti-ga 'life-NOM', i'.no.ti-ka.ra 'from the life'
b. ko.ko'.ro 'heart', ko.ko'.ro-ga 'heart-NOM', ko.ko'.ro-ka.ra 'from the heart'
c. o.to.ko' 'man', o.to.ko'-ga 'man-NOM', o.to.ko'-ka.ra 'from the man'
d. ne.zu.mi 'mouse', ne.zu.mi-ga 'mouse-NOM', ne.zu.mi-ka.ra 'from the mouse'

As we shall see shortly (Section 2.4), the prominent position is calculated from the end of the word in this system. The prominent positions are nevertheless invariable throughout the morphological paradigm as in (2.8). This is analogous to the situation in English and other stress languages where the prominent position of a word is basically invariable in phrases and sentences: *Japan* remains finally-accented in phrases like *in Japan*, *across Japan*, *John lives in Japan*, etc.

This is not the case in N-pattern systems, however. In this second type of prosodic system, lexical melodies usually spread to the entire domain of *bunsetsu* so that H-toned syllables appear to shift to the right as the word or phrase becomes longer. What is invariable here is the position of the H tone in the *bunsetsu* domain. This is illustrated in (2.9)-(2.11) for KosJ and its sister dialects. Note that Type A words in Nagasaki Japanese do not shift the H tone in four-mora or longer *bunsetsu* phrases, but this is due to the fact that the position of the H tone is calculated from the left edge of the domain rather than from the right edge in this system (Section 2.4).

(2.9) KosJ-Teuchi
  a. Type A
     A.me 'candy', a.ME-ga 'candy-NOM', A.me-KA.ra 'from the candy'
  b. Type B
     a.ME 'rain', A.me-GA 'rain-NOM', A.ME-ka.RA 'from the rain'

(2.10) KagJ
  a. Type A
     A.me 'candy', a.ME-ga 'candy-NOM', a.me-KA.ra 'from the candy'
  b. Type B
     a.ME 'rain', a.me-GA 'rain-NOM', a.me-ka.RA 'from the rain'

(2.11) Nagasaki Japanese
  a. Type A
     A.me 'candy', a.ME-ga 'candy-NOM', a.ME-ka.ra 'from the candy'
  b. Type B
     a.ME 'rain', a.me-GA 'rain-NOM', a.me-ka.RA 'from the rain'

In sum, multi-pattern accent systems in Japanese define their pitch patterns within the word domain, while N-pattern systems manifest their pitch patterns within the *bunsetsu* domain. This crucial difference can be attributed to the difference in the nature of phonological prominence: words are lexically marked

with respect to the prominent *position* in the former system, whereas they are marked with respect to a prominent *pattern* or *melody* in the latter system. It is the latter system that allows lexical patterns to spread beyond the word within the *bunsetsu* domain.

It is probably worth referring here to 'hybrid' pitch accent systems where the word and the *bunsetsu* both serve as the domain of accent assignment. A representative example is the Kikaijima dialect spoken on Kikaijima Island in Amami, Kagoshima Prefecture.[7] The Kikaijima-Wan dialect described by Uwano (1984a, 2002) has a hybrid system where its two accent patterns are defined within the domain of the word and the *bunsetsu*, respectively. One accent pattern, which Uwano called 'Pattern α', involves a low tone on the penultimate mora, thus showing a pitch rise immediately before the final mora. This pattern is defined within the *bunsetsu* domain as can be seen from the examples in (2.12a), where the position of the pitch rise shifts to the right as the *bunsetsu* becomes longer. In contrast, the other accent pattern (Pattern β) exhibits a pitch rise immediately before the penultimate mora within the domain of the word, with all moras before the antepenultimate mora redundantly H-toned. Adding grammatical particles to the words thus exerts no effect on the position of the pitch rise in this accent class, as shown in (2.12b).[8] How this hybrid system emerged in the Kikaijima-Wan dialect remains a mystery.

(2.12) a. Pattern α
mi.DU 'water', MI.du-GA 'water-NOM', MI.DU-ka.RA 'from (the) water'
KAN.na.RI 'thunder', KAN.NA.ri-GA 'thunder-NOM', KAN.NA.RI-ka.RA 'from the thunder'

b. Pattern β
ha.TA.NA 'sword', ha.TA.NA-GA 'sword-NOM', ha.TA.NA-KA.RA 'from the sword'
MEe.RA.BI 'young woman', MEe.RA.BI-GA 'young woman-NOM'
MEe.RA.BI-KA.RA 'from the young woman'

7 The Kikaijima dialect belongs to the northern group of Ryukyuan spoken in southern islands of the Japanese Archipelago. Ryukyuan was traditionally regarded as forming the southernmost dialect group in Japanese but is now beginning to be recognized as an independent language constituting the Japonic language family together with Japanese (see Nitta 2016, for example).
8 Pattern β words show a low tone on the final mora when pronounced in isolation. This is a postlexical tone that marks (the end of) declarative sentences.

2.3 Mora and Syllable

Japanese has often been labeled as a typical mora or mora-timed language, a language where the mora serves as an important phonological and timing unit (Trubetzkoy 1958/1969, Kindaichi 1967). This is an oversimplified description of the language since the roles of the mora and those of the syllable vary greatly from one dialect to another.

A more accurate description is the one given by McCawley (1978), who made a distinction between the counting unit and the bearing unit in accent computation. The former is a unit used to measure phonological length or distances, while the latter is a unit that bears the accent or the phonologically dominant H tone. The latter is equivalent to the TBU, or tone-bearing unit, used in the descriptions of tone languages. This two-way classification yields a typology as shown in Table 2.1 (McCawley 1978).

Table 2.1: McCawley's (1978) typology.

Accent-bearing unit / Counting unit	Syllable	Mora
Syllable	Polish	Beja (Sudan)
Mora	Japanese (Tokyo) Latin	Lithuanian

According to this typology, Tokyo Japanese can be defined as a 'mora-counting, syllable language'. That the mora serves as a counting unit can be seen from the accentuation of loanwords most of which are accented on the third mora from the end of the word, as illustrated below: phonological notations using the diacritic are given in parentheses. The accentuation of these words can be generalized by the notion of the mora, but not by the notion of the syllable.

(2.13) Loanwords in Tokyo Japanese
- a. BA.na.na (ba'.na.na) 'banana'
- b. KA.na.da (ka'.na.da) 'Canada'
- c. In.do (i'n.do) 'India'
- d. HA.wai (ha'.wai) 'Hawaii'

On the other hand, Tokyo Japanese does not use the mora as an accent-bearing unit. This is because the two moras constituting heavy syllables do not exhibit a tonal contrast in this system: in other words, the second moras of heavy syllables, or dependent moras, cannot bear an accent (see Chapter 4 for more details about the

heavy-light distinction). Thus, the accent assigned to dependent moras shifts automatically one mora to the left, i.e. to the head mora of the same syllable, if these two moras form a heavy syllable. This can be seen from the loanwords in (2.14).

(2.14) a. ROn.don (ro'n.don), *roN.don (*ron'.don) 'London'
b. SAk.kaa (sa'k.kaa), *saK.kaa (*sak'.kaa) 'soccer, football'
c. e.RE.BEe.taa (e.re.be'e.taa), *e.RE.BEE.taa (*e.re.bee'.taa) 'elevator'
d. wa.SIn.ton (wa.si'n.ton), *wa.SIN.ton (*wa.sin'.ton) 'Washington'

The mora-counting, syllable system of Tokyo Japanese contrasts with the mora-counting, mora system of Nagasaki Japanese. In the latter system, most loanwords belong to Type A in its two-pattern system and actually display a H tone on the second mora as illustrated in (2.15). This prominent mora may be an independent mora as in (2.15a) or a dependent mora as in (2.15b), indicating that both types of moras can bear an accent or H tone.

(2.15) Type A in Nagasaki Japanese
a. ba.NA.na 'banana', ka.NA.da 'Canada', ha.WAi 'Hawaii', wa.SIn.ton 'Washington'
b. iN.do 'India', roN.don 'London', saA.ka.su 'circus', saI.do 'side'

This is true of Type B words, too, in the same dialect. This group of words display a H tone on the final mora, again regardless of whether it is an independent mora as in (2.16a) or a dependent mora as in (2.16b) (Sakaguchi 2001). This second type is sometimes described as involving a gradual upward pitch contour towards the end of the word (Matsuura 2014).

(2.16) Type B in Nagasaki Japanese
a. a.ME 'rain', o.to.KO 'man', na.ga.sa.KI 'Nagasaki'
b. too.kyoO 'Tokyo', ni.hoN 'Japan'

Thus, the two moras constituting heavy syllables can equally bear a H tone in this dialect. This means that the dialect does not need to refer to the syllable per se, which, in turn, means that the mora serves both as a counting unit and as an accent/H tone-bearing unit. In short, it is a 'mora-counting, mora language' in McCawley's (1978) typology.

Very interestingly, KagJ displays entirely opposite features although it is a sister dialect to Nagasaki. This dialect is a 'syllable-counting, syllable language' (Kubozono 2011, 2018f); the syllable functions as a counting unit and an accent/H tone-bearing unit. Thus, Type A and Type B words bear a H tone on the penul-

timate and final *syllables*, respectively. In this system, the distinction between monomoraic and bimoraic syllables is relevant only marginally at the lexical level (Kubozono 2018d) – see also Chapters 6 and 7 (Sections 6.2.1 and 7.1) for evidence that the dialect refers to the distinction at the postlexical level.

(2.17) KagJ

a. Type A
ba.NA.na 'banana', HA.wai 'Hawaii', IN.do 'India', RON.don 'London' SAK.kaa 'soccer, football', wa.SIN.ton 'Washington', na.tu.ya.SU.mi 'summer holiday', a.ka.SIN.goo 'red signal'

b. Type B
too.KYOO 'Tokyo', ni.HON 'Japan', ha.ru.ya.su.MI 'spring holiday' a.o.sin.GOO 'green signal'

It is strange indeed to find that the two sister dialects depend on entirely different phonological units: Nagasaki Japanese relies entirely on the mora, while KagJ depends entirely on the syllable (see Section 4.1 for a historical analysis of this difference). Given this difference, it may not come as a surprise if we find another sister dialect that exhibit hybrid features. KosJ is indeed such a dialect since it is a 'mora-counting, syllable dialect' in much the same sense as Tokyo Japanese which we saw in (2.13)-(2.14) above.

The pitch-accent systems in KosJ fall into two types, (i) two-peak systems that exhibit two H tones in relatively long words as we saw in (2.3) and (2.9) above and (ii) a one-peak system that shows only one H tone per word no matter how long the word may be. The one-peak system is similar to the system of KagJ in (2.17) and is found only in Taira Village on the Koshikijima Islands, the sole village on the central island (Map 2 on page 6). Let us compare this system here with the system found in Teuchi Village, i.e. KosJ-Teuchi, as a representative of the two-peak systems.

The one-peak system of KosJ-Taira resembles the system of KagJ described in (2.17). It is, in fact, a moraic version of the syllabic system of KagJ: it exhibits a H tone on the penultimate *mora* (Type A) and on the final *mora* (Type B). This can be seen very clearly in Type A words ending in a heavy syllable as in (2.18b).

(2.18) Type A in KosJ-Taira

a. ba.NA.na 'banana', na.tu.ya.SU.mi 'summer holiday'
b. ha.WAi 'Hawaii', ron.DOn 'London', sak.KAa 'soccer, football', wa.sin. TOn 'Washington', a.ka.sin.GOo 'red signal'

The examples in (2.18a) are ambiguous between the syllable and the mora since they can be interpreted as being H-toned either on the penultimate syllable or on the penultimate mora. However, those in (2.18b) unambiguously indicate that they are H-toned on the penultimate *mora*, not on the penultimate *syllable*.

The two-peak systems in KosJ exhibit basically the same pattern. In KosJ-Teuchi, for example, the H tone appears on the penultimate mora in Type A and on the final mora in Type B, as exemplified in (2.19), although it differs from the KosJ-Taira system in displaying an additional, secondary H tone at the beginning of relatively long words.

(2.19) KosJ-Teuchi

a. Type A
ba.NA.na 'banana', ha.WAi 'Hawaii', zi.KAn 'time', NA.TU.ya.SU.mi 'summer holiday', RON.DOn ~ ROn.DOn 'London', WA.sin.TOn 'Washington', A.KA.sin.GOo 'red signal'

b. Type B
O.to.KO 'man', A.SA.ga.O 'morning glory', HA.RU.YA.su.MI 'spring holiday', NI.hoN 'Japan', I.NA.BI.kaI 'lightening', A.O.SIN.goO 'green signal'

The data in (2.18) and (2.19) show that both the one-peak and two-peak systems of KosJ measure phonological distances in terms of the mora. On the other hand, there is evidence that the two systems use the syllable, not the mora, as a unit bearing the accent or H tone. The one-peak system of KosJ-Taira, for example, does not allow the H tone to appear on the second mora of the heavy syllable in the same way as Tokyo Japanese avoids assigning an accent on the same type of mora. In other words, both KosJ-Taira and Tokyo Japanese avoid the prosodic structure in (2.20), or the structure known as the 'rising contour tone' where the tonal prominence (accent or H tone) appears on the phonologically weaker mora of heavy syllables.

(2.20) Rising contour tone

As we saw in (2.14) above, Tokyo Japanese avoids this marked structure by shifting the accent (H tone) onto the head mora of the same syllable. In contrast, KosJ-Taira avoids the same structure by spreading the H tone to the entire syllable,

as illustrated in (2.21). In Type A words given in (2.21a), the H tone originally assigned to the penultimate mora spreads to the entire syllable containing this mora. Type B words also undergo this H tone spreading rule by which the final heavy syllables as a whole are H-toned.

(2.21) H tone spreading in KosJ-Taira

a. Type A
puU.ru → PUU.ru 'swimming pool'
paN.tu → PAN.tu 'underpants'
raI.su → RAI.su 'rice'

b. Type B
ni.hoN → ni.HON 'Japan'
i.na.bi.kaI → i.na.bi.KAI 'lightening'
a.o.sin.goO → a.o.sin.GOO 'green signal'

The structure in (2.20) is disfavored in the two-peak system of KosJ-Teuchi, too. However, this system avoids the structure by retracting the H tone onto the head mora of the same syllable in much the same way as Tokyo Japanese moves the accent one mora to the left as in (2.14). This is illustrated in (2.22).

(2.22) H tone shift in KosJ-Teuchi
puU.ru → PUu.ru 'swimming pool'
paN.tu → PAn.tu 'underpants'
raI.su → RAi.su 'rice'

The difference between (2.21) and (2.22) is interesting enough. More interesting is the fact that the strategy in (2.22) is shared by other two-peak systems of KosJ. This means that KosJ systems resolve rising contour tones in two different ways depending on whether they form a one-peak system (KosJ-Taira) or a two-peak system (KosJ-Teuchi and other varieties). This raises an interesting question of why the one-peak/two-peak difference corresponds to the choice of the strategies to remedy rising contour tones. This question remains a mystery in the study of KosJ.

Some may have noticed a slight difference between the one-peak and two-peak systems of KosJ. The one-peak system of KosJ-Taira undergoes H tone spreading in both accent classes (Types A and B) as shown in (2.21), but the two-peak system of KosJ-Teuchi undergoes H tone shift only in Type A words as in (2.22). Namely, the latter system tolerates the marked structure in (2.20) if the word belongs to Type B. This can be seen from some examples in (2.19b): i.e. *NI.hoN*, *NI.WA.toI*, *A.O.SIN.goO*.

Why does KosJ-Teuchi display such an asymmetry between the two accent classes? This mystery can be solved if we consider the outcome of H tone shift in Type B.

(2.23) Hypothetical outcome of H tone shift in Type B words in KosJ-Teuchi
NI.ho.N → *ni.HOn
NI.WA.toI → *NI.wa.TOi
A.O.SIN.goO → *A.O.sin.GOo

As can be seen from the hypothetical outputs in (2.23), H tone shift in Type B would assign the H tone on the penultimate mora. The secondary H tone appears at the beginning of these outputs according to a general rule (see Sections 2.7 and 3.2), in such a way that the two H tones are separated by one L-toned syllable or head mora. These outputs would be identical to Type A forms, e.g. *zi.KAn* 'time' and *A.KA.sin.GOo* 'red signal' in (2.19a). This suggests that in KosJ-Teuchi, H tone shift is blocked in Type B because that would lead to tonal neutralization. KosJ-Taira should be entirely free from this constraint since H tone spreading does not result in tonal neutralization: *ni.HON* (Type B) vs. *zi.KAn* (Type A), *a.o.sin.GOO* (Type B) vs. *a.ka.sin.GOo* (Type A).

In sum, KosJ systems generally avoid assigning the primary prominence on the second mora of heavy syllables just like Tokyo Japanese. This leads to the conclusion that KosJ, too, is a 'mora-counting, syllable language'. This view can be further reinforced by the additional role that the syllable plays in two-peak systems of KosJ. In KosJ-Teuchi and many other two-peak systems of KosJ, the secondary H tone is generally separated from the primary H tone by *one syllable* (see Section 3.2 for details). In other words, the clash between the two H tones is avoided by keeping a L-toned *syllable* between them. This can be seen most clearly in words with a heavy syllable immediately before the primary H tone.

(2.24) KosJ-Teuchi
a. Type A
WA.sin.TOn, *WA.SIn.TOn 'Washington'
A.KA.sin.GOo, *A.KA.SIn.GOo 'red signal'

b. Type B
NI.hon.GA, *NI.HOn.GA 'Japanese painting'
NI.hon.GO, *NI.HOn.GO 'Japanese language'
I.NA.BI.kai-GA, *I.NA.BI.KAi-GA 'lightening-NOM'

To sum up the discussion so far, Japanese pitch-accent systems exhibit a huge diversity if they are analyzed in terms of the two-way typology proposed by McCawley (1978). In fact, as summarized in Table 2.2, they range from the 'mora-counting, mora system' of Nagasaki Japanese to the 'syllable-counting, syllable systems' of KagJ and Kobayashi Japanese. The 'mora-counting, syllable systems' of Tokyo Japanese and KosJ are both hybrid systems, so to speak, that can be defined between the two extreme types. This alone reveals the diversity of pitch accent systems in Japanese.

Note that the two-way typology in Table 2.2 cannot be linked to the multi-pattern vs. N-pattern distinctions discussed in Section 2.1, since Nagasaki, KagJ, and KosJ are all two-pattern systems but nevertheless belong to different language types with respect to the use of the mora and the syllable. It is interesting that the diversity in Table 2.2 can be found within two-pattern systems.

Table 2.2: Japanese pitch-accent systems.

Accent-bearing unit / Counting unit	Syllable	Mora
Syllable	Polish Japanese (KagJ, Kobayashi)	Beja (Sudan)
Mora	Latin Japanese (Tokyo, KosJ)	Lithuanian Japanese (Nagasaki)

More interesting is the fact that all three dialects – Nagasaki, KagJ, and KosJ – are sister dialects to each other that are believed to have originated from the same proto system historically. The fact that the diversity in Table 2.2 can be found within this small dialect group suggests that the roles of the syllable and the mora can change relatively easily in the course of time, at least much more so than might be generally assumed. We will return to this interesting topic in Section 4.1, where we discuss how the hybrid system of KosJ emerged and how it developed into the syllabic system of KagJ.

2.4 Directionality in accent computation

2.4.1 General typology

Another parameter that can typologize word-prosodic systems concerns the directionality whereby the position of word-level prominence is computed. There are two logical directions – from left to right and from right to left – referring to the left

edge of the word and the right edge of the word, respectively. According to the now classic typological work by Hyman (1977), stress (accent) systems display a slight bias towards the right-edge type: 180 languages count the prominent position from the end of the word, while 126 languages do so from the beginning of the word. In the former group, most languages place stress either on the final or penultimate syllable. In the latter group, in contrast, the initial syllable is by far the most preferred position of word prominence. This is summarized in Table 2.3, where +1 and +2 denote that the prominence is on the first and second syllables of the word, respectively, and -3, -2, and -1 mean the antepenultimate, penultimate, and final syllables of the word, respectively, as the target location of lexical prominence. 'Others' refer to those languages whose stress position cannot easily be fixed on any syllable.

Hyman's work suggests that the directionality differs between languages but that a single language has just one rule, i.e. either 'left to right' or 'right to left'. Seen in this light, it is interesting that both types exist in Japanese, as we will see below, with some dialects belonging to the first type and others to the other type.

Table 2.3: Results of Hyman's (1977) analysis.

Left to right		Right to left			others	total
+1	+2	−3	−2	−1	—	
114	12	6	77	97	138	
(subtotal 126)		(subtotal 180)				444

2.4.2 Right-to-left directionality

There is no serious work on the typology of Japanese dialects from this standpoint, but it seems that a majority of Japanese dialects calculate the position of word-level prominence from the end of the word. In Tokyo Japanese, for example, most loanwords attract a pitch accent on the syllable containing the antepenultimate mora (McCawley 1968). This is exemplified in (2.25), where phonological representations using a diacritic are given in the parentheses. This rule obviously refers to the right edge of the word, not the beginning.

(2.25) (=2.13, 2.14)
- a. BA.na.na (ba'.na.na) 'banana'
- b. KA.na.da (ka'.na.da) 'Canada'
- c. In.do (i'n.do) 'India'
- d. HA.wai (ha'.wai) 'Hawaii'
- e. ROn.don (ro'n.don) 'London'

f. SAk.kaa (sa'k.kaa) 'soccer, football'
g. e.RE.BEe.taa (e.re.be'e.taa) 'elevator'
h. wa.SIn.ton (wa.si'n.ton) 'Washington'

Employing the notion of bimoraic foot (Poser 1990), Kubozono (2008a) proposed to reformulate the traditional 'antepenultimate rule' as in (2.26), where bimoraic feet are shown with square brackets.

(2.26) Loanwords are accented on the rightmost, non-final foot
a. [ba'.na].na
b. [ka'.na].da
c. [i'n].do
d. [ha'].[wai][9]
e. [ro'n].[don]
f. [sa'k].[kaa]
g. [e.re].[be'e].[taa]
h. wa.[si'n].[ton]

In the framework of Optimality Theory (Prince and Smolensky 1993/2004), this rule can be attributed to two general constraints, Rightmostness and Nonfinality; the former forces the accent to be located towards the end of the word as much as possible, while the latter forces it away from the end of the word. Interaction of these two constraints yields the 'rightmost, non-final' effect in (2.26) and the 'antepenultimate' effect in the traditional description.

Research on word accent in the past few decades has demonstrated that the foot-based rule in (2.26) accounts for the accentuation of a wide range of words in Tokyo Japanese, from baby-talk words and various types of derived words to compound words (Kubozono 1995b, 1997, 2008a: see Kubozono 2020 for a summary). As illustrated in (2.27), baby-talk words or motherese typically take bisyllabic forms and are uniformly accented on their initial syllables regardless of the accentuation of the source adult forms, including those that are unaccented in the input. The same is true of nicknames of various kinds, as shown in

9 How this type of trimoraic words are footed remains an open question. The initial mora, *ha*, may form a foot, i.e. a degenerate foot, on its own, it may form a trimoraic foot together with the following moras, or it remains unfooted although it attracts lexical accent. This question depends largely on how the whole system is analyzed, especially which constraint is regarded as undominated in the analysis.

(2.28). The various nouns in (2.29)-(2.32) may not be bisyllabic and are accented in various ways in the input, but they also follow the foot-based rule in (2.26). Note that the plural ending *zu* in (2.29) is extraprosodic, i.e. attached after accent computation, notwithstanding the claim by Kawahara and Wolf (2010) (Giriko, Ohshita, and Kubozono 2011, Kubozono 2020). Superscript /^{0}/ means that the word is unaccented.

(2.27) Baby-talk words (motherese)
- a. ba'.ba → [ba'a].ba 'grandma'
- b. ku.tu' → [ku'k].ku 'shoes'
- c. da.ku^0 → [da'k].ko 'to hold up'
- d. po.ke't.to → [po'k].ke 'pocket'
- e. ne.ru^0 → [ne'n].ne 'to sleep'
- f. o.bu'.u → [o'n].bu 'to hold'
- g. ha'.u → [ha'i].[hai] 'to crawl'

(2.28) Nicknames
- a. Sa'.ti.ko, Sa.ti.e^0 → [sa't].[tyan], [sa't].[tii]
- b. A.ra'.ga.ki → [ga'k].[kii]
- c. su.tyu.wa'a.de.su → [su't].[tii] 'stewardess'
- d. Ya.na.gi.ta^0 → [gi'i].ta

(2.29) Group names
- a. rai.on^0 'lion' → [ra'i][on]-zu 'the Lions'
- b. ton.ne.ru^0 'tunnel' → [to'n].[ne.ru]-zu 'the Tunnels'
- c. go.ki.bu.ri^0 'cockroach'
  → go.[ki'.bu].[rii]-zu 'the Cockroaches'
- d. do.ra.e.mon^0 → do.[ra'.e].[mon]-zu 'the Doraemons'
- e. ka.ri.fo.ru.ni.a^0 → ka.ri.fo.[ru'.ni].[aa]-zu 'the Californias'

(2.30) Pokémon names
- a. sa.wa.mu.ra^0 → sa.[wa'.mu].[raa]
- b. goo.ri.ki^0 → [go'o].ri.[kii]
- c. kai.ri.ki^0 → [ka'i].ri.[kii]
- d. wa'n.ri.ki → [wa'n].ri.[kii]

(2.31) Blend words[10]
a. go'.ri.ra 'gorilla' / ku.zi.ra^{0} 'whale' → [go'.zi].ra 'godzilla'
b. ri'n.su 'rinse' / sya'n.puu 'shampoo'→ [ri'n].[puu]
c. ma'.ma 'Mom' / do'.ra.gon 'dragon' → [ma'.ma].[gon]
d. ba.to.mi'n.ton 'badminton' / pi'n.pon 'ping pong' → [b'a.to].[pon]

(2.32) Nonce words
a. [a.i].[u'.e].o 'aiueo (five vowels in Japanese)'
b. [a.ka].[sa'.ta].na 'akasatana (first five columns in kana chart)'
c. [ha.ma].[ya'.ra].wa 'hamayarawa (next five columns in kana chart)'

The same accentual generalization holds in compounds and verbs/adjectives although they were attributed to different accent rules in the literature (see Kubozono 2008a and Section 2.5.1 below for more details about this generalization). All in all, the accentuation of Tokyo Japanese can be generalized by a rule referring to the right edge of the word: accent location of most words in this dialect is computed from the end of the word.

KagJ and KosJ share this basic feature although they have otherwise quite different pitch accent systems from Tokyo Japanese, e.g. they are two-pattern systems as against the multi-pattern system of Tokyo. As mentioned in (2.17)-(2.19) above, these two-pattern systems compute the position of word-level prominence from the right edge of the word, assigning a H tone to the penultimate position (Type A) and final position (Type B).

2.4.3 Left-to-right directionality

While this 'right to left' directionality is shared by many Japanese dialects, the opposite strategy is found in some dialects. Nagasaki Japanese is a typical example. As we saw in Section 2.3, this two-pattern system assigns a H tone on the second mora in Type A and the final mora in Type B. While the second type is sometimes described as showing a gradually ascending pitch pattern towards the end of the word rather than an abrupt rise on the final mora (Matsuura 2014), the first type clearly indicates a computation from left to right. This is an interesting fact from a cross-dialectal point of view since the sister dialects to Nagasaki –

10 Some blend words are unaccented like *pi.a.ni.ka*^{0} (made from *pi.a.no*^{0} 'piano' and *ha.mo.ni.ka*^{0} 'harmonica'). This irregular pattern can be attributed to the general deaccenting effect typically found in four-mora nouns ending in a sequence of two light syllables (Kubozono 1996, 1999).

KosJ and KagJ – take the opposite, right-to-left strategy. The fact that both strategies are found within the small group of two-pattern dialects in southwestern Kyushu suggests that this feature, too, can change relatively easily in the course of time. In response to this question, Uwano (2012a) proposes that the Nagasaki type represents the proto-type of the two-pattern systems in this area, which changed into the right-to-left system found in KosJ and KagJ (see Section 2.5 for this argument).

2.4.4 Hybrid systems

Having seen that both the left-to-right and right-to-left strategies are found in Japanese, it is worth referring to hybrid systems where the two strategies are both used *within* the same dialect. Let us look at three such systems here. Of these, two systems refer to the two edges to define different accent patterns, while the third, i.e. that of KosJ, does so to define two pitch peaks within one and the same word.

The Kokonogi dialect spoken in Fukui Prefecture in the north (Map 1 on page 5) has a mora-counting, three-pattern system (Nitta 2012).[11] In this dialect, one of the three pitch patterns – termed Type I here – refers to the right edge and involves an abrupt pitch fall between the final two moras in the *bunsetsu* domain. In contrast, a second pattern – termed Type II – involves a pitch fall between the second and third moras counted from the beginning of the word, thus calculating the prominent position from the left edge of the *bunsetsu*. A third pattern is neutral to the directionality as it exhibits a rather flat pitch pattern. Type I and Type II are exemplified in (2.33).

(2.33) a. Type I
ku.RU.ma ‘a car’, ku.RU.MA-ga ‘a car-NOM’
ya.MA.ZA.KU.ra ‘a wild cherry tree’, ya.MA.ZA.KU.RA-ga ‘a wild cherry tree-NOM’

b. Type II
hi.DA.ri ‘left’, hi.DA.ri-ga ‘left-NOM’
no.KO.gi.ri ‘a saw’, no.KO.gi.ri-ga ‘a saw-NOM’

11 This is a ‘mora-counting, mora system’ like Nagasaki Japanese (Section 2.3) and employs the *bunsetsu* (basic phrase) rather than the word as the domain of accent assignment, as a general property of N-pattern systems (Section 2.2).

A similar hybrid system can be found in the Yuwan dialect in northern Ryukyuan spoken in the south of the country (Niinaga and Ogawa 2011). Like the Kokonogi dialect, this dialect also has a three-pattern system with three contrastive pitch patterns (Types I-III). It is also similar to the Kokonogi dialect in using the mora as a counting unit and also in realizing lexical pitch patterns within the domain of the *bunsetsu*. Of the three pitch patterns in this dialect, Type I involves a pitch fall between the final two moras (comparable with Type I in Kokonogi), while Type II looks basically the same as Type II in Kokonogi, exhibiting a pitch fall between the second and third moras from the left edge – or, to be more precise, immediately after the syllable containing the second mora. The third pattern (Type III) raises pitch on the *bunsetsu*-final mora. These three patterns are exemplified in (2.34).

(2.34) a. Type I
HA.bu '*habu*, a poisonous snake', HA.BU-nu '*habu*-NOM'
KU.YU.mi 'a calendar', KU.YU.MI-nu 'a calendar-NOM'

b. Type II
NAN.naa 'green vegetables', NAN.naa-nu 'green vegetables-NOM'
HA.NA-nu 'a flower-NOM'
HI.ZYAI-nu 'left-NOM'

c. Type III
na.BI 'a cooking pan', na.bi-NU 'a cooking pan-NOM', na.bi-ga.DI 'up to the cooking pan'

Types I and III refer to the right edge of the *bunsetsu*, while Type II defines its pattern with reference to the left edge. Although this system is more complex than that of Kokonogi in relying on the syllable in part, it is also a hybrid system that refers to both edges of the *bunsetsu* in accent computation. These hybrid systems are extremely interesting since two opposite strategies are employed in one and the same system or, equivalently, by one and the same speaker. They are mysterious enough seen from the viewpoint of language typology and also language acquisition.

One may be more amazed if one studies the two-peak systems of KosJ. These systems refer to both edges for the computation of *one and the same word*: they associate the secondary H tone to the syllable(s) at the beginning of the *bunsetsu*, while looking at the right edge to define the position of the primary H tone in the

same word. To take one example, the variety spoken in Kuwanoura Village[12] – KosJ-Kuwanoura – assigns a primary H tone at or near the end of the word, i.e. on the penultimate mora (Type A) and on the final mora (Type B), just as KosJ-Teuchi discussed in Section 2.3 above. In addition to this, KosJ-Kuwanoura assigns a secondary H tone on the two moras in word-initial position in both accent classes (see Section 3.3 for exceptions). Some typical examples are given in (2.35).

(2.35) KosJ-Kuwanoura
  a. Type A
  NA.TU.ya.SU.mi 'summer holiday'
  A.KA.sin.GOo 'red signal'

  b. Type B
  HA.RU.ya.su.MI 'spring holiday'
  A.O.sin.goO 'green signal'

This system obviously employs two different strategies: it calculates the primary H tone from the end of the word while computing the secondary H tone from the beginning within the same word. Historically, this hybrid system can be accounted for by attributing the secondary prominence to sentence or phrasal prosody rather than word prosody. That is, the secondary H tone in KosJ originates from a boundary tone signaling the onset of a new phrase and, hence, is a phonological property of the phrase rather than the word (see Section 3 for the historical development of the secondary H tone in KosJ).

That said, it is worth emphasizing that the second H tone is now 'lexicalized' in some varieties of KosJ. KosJ-Teuchi is one such variety. In this system, the secondary H tone is assigned to the word-initial position but in slightly different ways from KosJ-Kuwanoura: the secondary prominence correlates with the primary one in a rather direct manner and spreads over multiple moras/syllables at the beginning of the word. Specifically, the secondary H tone is assigned in such a way that it is followed by a L-toned syllable or head mora, as shown in (2.36).

(2.36) KosJ-Teuchi
  a. Type A
  NA.TU.ya.SU.mi 'summer holiday'
  A.KA.sin.GOo 'red signal'

12 This is a truly endangered variety with only 38 native speakers – mostly elderly speakers – as of April 1, 2021 (Table 1 on page 8).

b. Type B
HA.RU.YA.su.MI ‘spring holiday’
A.O.SIN.goO ‘green signal’

At the lexical level (or in one-word sentences), the primary H tone plays a distinctive function, i.e. differentiates Type A from Type B by its position. The secondary H tone can also play a distinctive role but in an indirect manner. At the sentence level, on the other hand, the primary H tone often disappears except in sentence-final position (Kubozono 2012a, 2012c, 2019). This is illustrated in (2.37), where # denotes a *bunsetsu* boundary (see Chapter 5 for more details about the H tone deletion at the postlexical level).

(2.37) Primary H tone deletion in KosJ-Teuchi
a. Type A
NA.TU.ya.su.mi # YAN.NEe ‘It is the summer holiday, isn’t it’
A.KA.sin.goo # YAN.NEe ‘It’s a red signal, isn’t it’

b. Type B
HA.RU.YA.su.mi # YAN.NEe ‘It’s a spring holiday, isn’t it’
A.O.SIN.goo # YAN.NEe ‘It’s a green signal, isn’t it’’

The lexical distinctions are still preserved in these examples, too, but not by the primary H tone (as it is no longer manifested at the surface). Rather, the two accent types are differentiated from each other by the secondary H tone, or by the stretch of syllables associated with this tone, to be more precise: the secondary prominence is linked to one more syllable in Type B than in Type A. This suggests that the secondary H tone at the beginning of the word is no longer a phrasal, boundary tone in this system, but a lexical tone that can distinguish between the two lexical accent classes. If this interpretation is correct, it follows that the secondary lexical tone is calculated from the left edge of the word while the primary one is defined from the right edge.[13] Thus, the two opposite strategies are employed within one and the same word in this hybrid system.

13 Kubozono (2012a, 2012c) analyzed the secondary H tone in KosJ-Teuchi as calculated from the right edge of the word just like the primary H tone. This analysis cannot be fully supported by evidence regarding the history of the secondary H tone in this and other varieties of KosJ as well as comparison with other languages/dialects (Kubozono 2019).

2.5 Compound accent

2.5.1 Right-dominant dialects

Let us consider compound accent/tone rules as a fifth parameter to typologize word-prosodic systems. If a language has an accent/tone rule specific to compounds, it will use the rule to unify the two component words prosodically.[14] Compounding is comparable to the merger of two companies into one. When two companies are merged into one, they inevitably choose one leader instead of two. Phonological compounding is basically the same as this; it deletes the prominence – accent or tone – of one component and keeps the prominence of the other component to show the integrity of the entire compound. Thus, compound accent/tone rules can generally be classified into two types, left-dominant and right-dominant. Here, again, Japanese exhibits diversity: some dialects have a left-dominant rule and others showing a right-dominant rule. KosJ and its sister dialects belong to the former type and Tokyo Japanese to the latter. Let us look at the compound accent rule of Tokyo Japanese first.

Tokyo Japanese has a typical right-dominant compound accent rule. Except for dvandva (coordinate) compounds,[15] it ignores the accent or accent pattern of the first member (N1) and refers only to the second, i.e. final, member or N2. N2s fall into two types, lexically marked and unmarked types, in morphological terms. Those lexically marked are deaccenting morphemes that deaccent the whole compounds. These morphemes are limited to monomoraic or bimoraic ones, as exemplified in (2.38).[16] Again, superscript /°/ is used to mark unaccented words.

(2.38) Deaccenting morphemes
a. i.ro' 'color'
o.re'n.zi + i.ro' → orenzi-iro° 'orange+color=orange color'
ne.zu.mi ° + i.ro' → nezumi-iro° 'mouse+color=gray'

14 In Japanese, compounds can be distinguished from phrasal expressions not only phonologically but also morphologically. For example, *aka denwa* 'public phone' is a compound noun consisting of two nouns, *aka* 'red' and *denwa* 'phone', whereas the corresponding noun phrase *akai denwa* 'red phone' consists of an adjective *akai* 'red' and a noun *denwa* 'phone'.

15 In Japanese as in many other languages, dvandva compounds are resistant to compound accent rules and behave as if they were phrases: they are generally manifested in two accentual phrases with each element forming an independent accentual unit (Kubozono 1988/1993).

16 Most deaccenting morphemes are accented on their final syllable when pronounced in isolation (Poser 1984). This is a very interesting fact together with the fact that they are limited to monomoraic and bimoraic lengths and are not found in loanwords.

b. to'o 'party'
mi'n.syu + to'o → minsyu-too° 'democracy+party=Democratic Party'
kyo'o.wa + to'o → kyoowa-too° 'republic+party=Republican Party'

c. go' 'word, language'
ni.ho'n + go' → nihon-go° 'Japan+language=Japanese language'
tyu'u.go.ku + go' → tyuugoku-go° 'China+language=Chinese language'

d. si.ki'
ku'.mon + si.ki' → ku.mon-si.ki° 'Kumon+method=Kumon method'
ka'.na.da + si.ki' → ka.na.da-si.ki° 'Canada+style=Canadian style'

In contrast, lexically unmarked morphemes follow regular phonological rules of which the most important is to preserve the original accent of N2. This is true of compounds with a short (monomoraic or bimoraic) N2 and those with a long (trimoraic or longer) N2, as exemplified in (2.39a) and (2.39b), respectively

(2.39) a. compounds with a short N2
pe'.ru.sya + ne'.ko → pe.ru.sya-ne'.ko 'Persia+cat=Persian cat'
mi'k.ku.su + pi'.za → mik.ku.su-pi'.za 'mix+pizza=mixed pizza'

b. compounds with a long N2
ya'.ma.to + na.de'.si.ko → ya.ma.to-na.de'.si.ko 'Japan+lady=Japanese lady'
yuu.syoo° + pa.re'e.do → yuu.syoo-pa.re'e.do 'victory+parade=victory parade'
si'n + ta.ma.ne'.gi → sin-ta.ma.ne'.gi 'new+onion=new onions'

The general rule admits a certain number of exceptions where the original accent of N2 is not preserved in compounds. This is due largely to the Nonfinality constraint by which the accents on the final mora, syllable, or bimoraic foot in N2 do not survive in compounds. When this constraint is at play, a default compound accent (CA) is assigned to the rightmost, non-final foot of the entire compound, as shown in (2.40). This is the second basic phonological rule of compound accentuation in Tokyo Japanese.[17]

17 An additional force urges the compound accent to appear at the boundary between N1 and N2 in the output. This yields an accent on the final syllable of N1 if N2 is short, hence resulting in an iambic foot: e.g. na.ga.[sa.ki']-[ken], *na.ga.[sa'.ki]-[ken] 'Nagasaki Prefecture' (Kubozono 1995b, 1997).

(2.40) a. compounds with a short N2
na.ga'.sa.ki+ke'n→na.ga.[sa.ki']-[ken]'Nagasaki+prefecture=Nagasaki Prefecture'
me'.ron + pa'n → me.[ro'n]-[pan] 'melon+bread=melon-flavored bread'
a'.ki.ta + i.nu' → a.[ki.ta']-[i.nu] 'Akita+dog=Akita dog'
so.tu.gyoo^{o} + si.ki' → so.tu.[gyo'o]-[si.ki] 'graduation+ceremony=graduation ceremony'

b. compounds with a long N2
na.ma' + ta.ma'.go → na.ma-[ta'ma].go 'raw+egg=uncooked egg'
kya'.be.tu + hatake' → kya.be.tu-[ba'.ta].ke 'cabbage+field=cabbage field'
on.na' + ko.ko'.ro → on.na-[go'.ko].ro 'woman+heart=female psychology'
de'n.ki+ka.mi.so'.ri→den.ki-[ka'.mi].[so.ri]'electricity+razor=electric razor'
ya.ma' + o.to.ko' → ya.ma-[o'.to].ko 'mountain+man=mountaineer'

Not surprisingly, the same default CA rule applies to compounds with a lexically unaccented N2, as exemplified in (2.41).

(2.41) a. compounds with a short N2
mi.na.si^{o} + ko^{o} → mi.[na.si']-go 'without a family+child=orphan'
a'ma.zon + ka.wa^{o} → a.ma.[zo'n]-[ga.wa] 'Amazon+river=The Amazon River'
ka'.bu.to + mu.si^{o} → ka.[bu.to']-[mu.si] 'helmet+bug=beetle'

b. compounds with a long N2
mi.na.mi^{o} + a.me.ri.ka^{o} → mi.na.mi-[a'.me].ri.ka ~ mi.na.mi-a.[me'.ri].ka 'south+America=South America'
syo'o + gak.koo^{o} → syoo-[ga'k].[koo] 'little+school=elementary school'

Note that the default CA rule illustrated in (2.40) and (2.41) is essentially identical to the default accent rule of morphologically simplex nouns shown in (2.26) above. In other words, the rule assigning an accent on the rightmost, non-final foot in the output is a very general accent rule in Tokyo Japanese (see Kubozono 2008a for an argument that this rule applies to verbs and adjectives, too). In any case, the data given in (2.38)-(2.41) reveal the very basic principle underlying compound accentuation in this dialect: N2 rather than N1 determines the prosodic shape of compound nouns.

That Tokyo Japanese has a right-dominant CA rule can be further confirmed by the examples in (2.42) where the accentual contrast in N1 is entirely lost, i.e. neutralized, in compounds.

(2.42) a. a'me + ma.tu.ri^{o} → a.me-ma'.tu.ri 'rain+festival=rain festival'
b. a.me^{o} + ma.tu.ri^{o} → a.me-ma'.tu.ri 'candy+festival=candy festival'

2.5.2 Left-dominant dialects

In contrast to Tokyo Japanese, many southern dialects have a left-dominant compound accent/tone rule whereby the initial member rather than the final one determines the prosodic shape of the entire compound expression. This is exactly true of the two-pattern pitch accent systems in KosJ and its sister dialects whose compound accentuation is quite simple: compounds inherit the accent pattern (Type A or Type B) of N1. In KagJ, for example, compounds exhibit Type A pattern and bears a H tone on the penultimate syllable if N1 is a Type A morpheme, while they have a H tone on the final syllable if this member is Type B. In (2.43) and the rest of the book, subscripts $_{A}$ and $_{B}$ denote that the word takes Type A or Type B pattern, respectively.

(2.43) KagJ
a. Type A
NA.tu $_{A}$ + ya.su.MI $_{B}$ → na.tu-ya.SU.mi $_{A}$ 'summer holiday'
A.ka $_{A}$ + sin.GOO $_{B}$ → a.ka-SIN.goo $_{A}$ 'red signal'
b. Type B
ha.RU $_{B}$ + ya.su.MI $_{B}$ → ha.ru-ya.su.MI $_{B}$ 'spring holiday'
a.O $_{B}$ + sin.GOO $_{B}$ → a.o-sin.GOO $_{B}$ 'green signal'

Stated conversely, compounds exhibit different accent patterns if their N1s originally belong to different accent classes. This is illustrated in (2.44).

(2.44) a. A.me $_{A}$ + ma.TU.ri $_{A}$ → a.me-ma.TU.ri $_{A}$ 'candy+festival=candy festival'
b. a.ME $_{B}$ + ma.TU.ri $_{A}$ → a.me-ma.tu.RI $_{B}$ 'rain+festival=rain festival'

Exactly the same is true of KosJ. Since KosJ is a moraic version of KagJ (Section 2.3), it exhibits the same compound patterns in both the one-peak system of KosJ-Taira (2.45) and the two-peak system of KosJ-Teuchi (2.46).

(2.45) KosJ-Taira

a. Type A
NA.tu $_{A}$ + ya.su.MI $_{B}$ → na.tu-ya.SU.mi $_{A}$ ‘summer holiday’
A.ka $_{A}$ + sin.GOO $_{B}$ → a.ka-sin.GOo $_{A}$ ‘red signal’
A.me $_{A}$ + ma.TU.ri $_{A}$ → a.me-ma.TU.ri $_{A}$ ‘candy festival’

b. Type B
ha.RU $_{B}$ + ya.su.MI $_{B}$ → ha.ru-ya.su.MI $_{B}$ ‘spring holiday’
a.O $_{B}$ + sin.GOO $_{B}$ → a.o-sin.GOO $_{B}$ ‘green signal’
a.ME $_{B}$ + ma.TU.ri $_{A}$ → a.me-ma.tu.RI $_{B}$ ‘rain festival’

(2.46) KosJ-Teuchi

a. Type A
NA.tu $_{A}$ + YA.su.MI $_{B}$ → NA.TU-ya.SU.mi $_{A}$ ‘summer holiday’
A.ka $_{A}$ + SIN.goO $_{B}$ → A.KA-sin.GOo $_{A}$ ‘red signal’
A.me $_{A}$ + ma.TU.ri $_{A}$ → A.ME-ma.TU.ri $_{A}$ ‘candy festival’

b. Type B
ha.RU $_{B}$ + YA.su.MI $_{B}$ → ha.ru-ya.su.MI $_{B}$ ‘spring holiday’
a.O $_{B}$ + SIN.goO $_{B}$ → A.O-SIN.goO $_{B}$ ‘green signal’
a.ME $_{B}$ + ma.TU.ri $_{A}$ → A.ME-MA.tu.RI $_{B}$ ‘rain festival’

As shown in (2.47), Nagasaki Japanese follows basically the same rule although it admits a certain number of exceptions (Matsuura 2014). Recall that this dialect assigns a H tone to the second mora (or the initial mora in bimoraic words) in Type A and to the final mora in Type B.

(2.47) Nagasaki Japanese

a. Type A
NA.tu $_{A}$ + ya.su.MI $_{B}$ → na.TU-ya.su.mi $_{A}$ ‘summer holiday’
A.ka $_{A}$ + sin.goO $_{B}$ → a.KA-sin.goo $_{A}$ ‘red signal’
A.me $_{A}$ + ma.TU.ri $_{A}$ → a.ME-ma.tu.ri $_{A}$ ‘candy festival’

b. Type B
ha.RU $_{B}$ + ya.su.MI $_{B}$ → ha.ru-ya.su.MI $_{B}$ ‘spring holiday’
a.O $_{B}$ + sin.goO $_{B}$ → a.o-sin.goO $_{B}$ ‘green signal’
a.ME $_{B}$ + ma.TU.ri $_{A}$ → a.me-ma.tu.RI $_{B}$ ‘rain festival’

All in all, KosJ and its sister dialects obey the left-dominant compound accent rule by which the accent type (A or B) of N1 is inherited by the compounds. They thus share the same compound rule despite the fact that they exhibit different

surface pitch patterns. This contrasts very clearly with the right-dominant accent rule of Tokyo Japanese.

It may be worth adding here that the choice between the left-dominant and right-dominant compound rules is not directly related with the parameters we saw in the preceding sections. For example, it does not correspond to the mora/syllable distinctions discussed in Section 2.3 above since the same left-dominant group consists of mora-counting dialects such as KosJ and Nagasaki Japanese and syllable-counting dialects such as KagJ.

In contrast, the relationship between compound accentuation and multi-pattern/N-pattern accent systems discussed in Section 2.1 is more transparent. On the one hand, N-pattern systems tend to have a left-dominant compound accent rule. This is true not only of the three dialects mentioned above – KosJ, KagJ, and Nagasaki – but also other two-pattern systems and three-pattern systems in the south of Japan (Matsumori et al. 2012: 165). On the other hand, in the absence of sufficient linguistic data and analyses, it is not fully clear if all multi-pattern systems take or favor a right-dominant compound rule like Tokyo Japanese. Moreover, Osaka and Kyoto Japanese have a multi-pattern accent system just like the standard variety, but they exhibit a typical feature of a left-dominant compound rule just like KosJ and its sister dialects, as we shall see in the next section. The relationship between compound accentuation and the nature of pitch accent remains a topic for future work.

2.5.3 Hybrid system

It may come as a surprise to find that left-dominant and right-dominant compound accent rules exist in different dialects of the same language. More astonishing is the fact that the two rules can and do co-exist in one and the same dialect system. This is the system of Kinki Japanese spoken in the central area of the country including the old capital of Kyoto and the commercial cities of Osaka and Kobe (Uwano 1997a, Hayata 1999). This dialect is subject to the right-dominant compound rule in much the same way as Tokyo Japanese which we saw in Section 2.5.1: namely, the accented/unaccented distinction as well as the position of the accent in compounds is determined by their final member and, moreover, the lexical accent of this member tends to be preserved. On the other hand, it is also subject to the left-dominant compound rule in much the same way as KosJ and its sister dialects we saw in Section 2.5.2 above. Let us examine the hybrid nature of this system.

Kinki Japanese has a multi-pattern accent system just like Tokyo Japanese (Section 2.1). Like the standard variety, it is sensitive to the presence or absence of an abrupt pitch fall as well as its location. In addition to this, it is also sensitive to the word-initial pitch, i.e. the distinction between high-beginning and low-beginning

patterns. Thus, both lexically accented and unaccented words fall into two groups, those that begin with a high pitch (high-beginning words) and those that has a low pitch word-initially (low-beginning words). (2.48) illustrates this distinction with unaccented words, i.e. those that do not involve a pitch fall: the pitch pattern in (2.48a) is not permitted by Tokyo Japanese. These two groups of words are differentiated by the pitch of the initial syllable.

(2.48) Kinki Japanese
  a. High-beginning words
     A.ME 'candy', U.SI 'cow', KU.TI 'mouth'
  b. Low-beginning words
     u.MI 'sea', i.TO 'string', ka.TA 'shoulder'

This distinction is observed in compounds, too, and is determined by their first member (Wada 1942). Thus, the compounds in (2.49a) begin with a H tone since their initial members are high-beginning morphemes. In contrast, those in (2.49b) inherit the low-beginning feature of their initial members and begin with a L tone. According to Uwano (1984b), this left-dominant compound rule historically developed into the left-dominant rule in KosJ and its sister dialects described above.

(2.49) Compounds in Kinki Japanese
  a. High-beginning compounds
     NA.tu + YA.su.mi → NA.TU-YA.su.mi 'summer holiday'
     KYA.be.tu + ha.TA.ke → KYA.BE.TU-BA.ta.ke 'cabbage field'
     PIn.ku + I.ro → PIN.KU-I.RO 'pink+color=pink'
     A.ME + MA.TU.RI → A.ME-MA.tu.ri 'candy festival'
  b. Low-beginning compounds
     ha.RU + YA.su.mi → ha.ru-YA.su.mi 'spring holiday'
     ya.saI + ha.TA.ke → ya.sai-BA.ta.ke 'vegetable field'
     ne.zu.MI + I.ro → ne.zu.mi-i.RO 'mouse+color=gray'
     a.ME + MA.TU.RI → a.me-MA.tu.ri 'rain festival'

On the other hand, the accented/unaccented distinction is determined by the final members as in Tokyo Japanese. For example, *i.ro* 'color' is a deaccenting morpheme in this dialect, too, and gives rise to unaccented compounds. *ya.su.mi* 'holiday', *ha.ta.ke* 'field', and *ma.tu.ri* 'festival' are not deaccenting morphemes and yield default compound patterns instead, with a CA accent on the rightmost, non-final foot. This is the same effect exerted by the right-dominant compound rule in Tokyo Japanese which we saw in (2.40) and (2.41) above.

In sum, Kinki Japanese has hybrid compound accent rules combining the left-dominant rule as found in KosJ and its sister dialects and the right-dominant rule as found in Tokyo Japanese. This hybrid nature might look astonishing from cross-linguistic perspectives, but native speakers of the dialect use the hybrid rules to create correct output patterns of compounds. On the other hand, native speakers of other Japanese dialects including those of Tokyo Japanese and KosJ/KagJ have difficulties with the hybrid rule and often confuse the high-beginning and low-beginning words when they try to speak Kinki Japanese.

2.6 Distinctive feature

As mentioned above, the lexical pitch accent system of Tokyo Japanese is sensitive to a pitch fall and uses this feature to distinguish between lexcically accented and unaccented words. Accented words may also contrast with each other in terms of the position of the pitch fall. In this type of system, pitch fall functions as the distinctive phonetic feature of pitch accent. While this feature is shared by many dialects of the language, it is not shared by all dialects. This is another point where Japanese exhibits regional variability.

According to Uwano (2012b), there are some dialects that exceptionally display sensitivity to pitch rise rather than pitch fall. These dialects are found mainly in Tohoku area in the north of Japan such as Aomori, Akita, and Iwate Prefectures (see Map 1 on page 5). They have multi-pattern accent systems where the number of contrastive accent patterns increases as the word becomes phonologically longer. In this respect, they are similar to Tokyo Japanese. However, they differ from the standard variety in using pitch rise rather than pitch fall as a distinctive feature: they differentiate multiple accent patterns in terms of the presence or absence of a pitch rise and its location within the word.

Apart from these northern dialects, the Narada dialect spoken in Yamanashi Prefecture near Tokyo is worth special attention since it also uses pitch rise as a distinctive feature although it is geographically surrounded by Tokyo-type dialects where pitch fall is distinctive (Uwano 2012b). Let us compare these two systems to understand the difference.

A highly endangered dialect spoken in a mountainous area, Narada Japanese is similar to Tokyo Japanese in permitting *n+1* accent patterns for *n*-syllable nouns. At a first glance, it looks strikingly different from the standard variety since it shows entirely different pitch patterns at the surface, as exemplified in (2.50).

(2.50) Tokyo vs. Narada (surface pitch patterns)

Tokyo	**Narada**	**gloss**
KA.bu.to	ka.BU.to	helmet
KA.bu.to-ga	ka.BU.to-ga	helmet-NOM
ko.KO.ro	KO.ko.RO	heart
ko.KO.ro-ga	KO.ko.RO-ga	heart-NOM
o.TO.KO	O.to.ko	man
o.TO.KO-ga	O.to.ko-GA	man-NOM
sa.KA.NA	SA.ka.na	fish
sa.KA.NA-GA	SA.ka.na-ga	fish-NOM

However, a closer examination of the surface pitch patterns reveals that the two systems are more or less mirror-images of each other. Specifically, the Narada patterns exhibit a pitch rise in the positions where the Tokyo patterns show a pitch fall. In the word *kabuto* 'helmet', for example, pitch drops between the first two moras in Tokyo, while it rises in the same position in Narada. Uwano (2012b) interpreted this as evidence that pitch rise rather than pitch fall is distinctive in Narada. This analysis is illustrated in (2.51): /⌋/ is an accent mark for pitch rise that has a function of raising pitch where it is marked. Words without the accent marks – /'/ or /⌋/ – are unaccented.

(2.51) Tokyo vs. Narada (phonological analysis)

Tokyo	**Narada**	**gloss**
ka'.bu.to	ka⌋.bu.to	helmet
ka'.bu.to-ga	ka⌋.bu.to-ga	helmet-NOM
ko.ko'.ro	ko.ko⌋.ro	heart
ko.ko'.ro-ga	ko.ko⌋.ro-ga	heart-NOM
o.to.ko'	o.to.ko⌋	man
o.to.ko'-ga	o.to.ko⌋-ga	man-NOM
sa.ka.na	sa.ka.na	fish
sa.ka.na-ga	sa.ka.na-ga	fish-NOM

This analysis captures the basic identity between the two systems: they are identical to each other with respect to the position where an abrupt pitch change occurs. It also captures their crucial difference, a difference in the direction involved in the pitch change. The Narada system is thus different from the Tokyo system

in using pitch rise rather than pitch fall as a distinctive feature of pitch accent. The two systems do differ from each other in some minor respects at the surface, but these pitch differences are lexically redundant features in both dialects. For example, the initial mora is low-pitched in Tokyo Japanese unless it is accented. Similarly, the same mora is high-pitched in Narada Japanese unless it is accented.

Japanese thus has two types of pitch accent systems, one sensitive to pitch fall and the other to pitch rise. This classification may seem simple, but it is not as straightforward as it might appear to be because it is often difficult to determine which pitch feature – rise or fall – is distinctive in a particular system. KosJ is one such system, and so is its sister dialect, KagJ.

As for KagJ, its two-pattern system as described in (2.43) can be interpreted either way. The traditional analysis assumes that the two patterns contrast with each other in terms of the position of the H tone, i.e. penultimate (Type A) vs. final (Type B) (Hirayama 1951, Kibe 2000). This analysis implies that it is the position of a pitch rise that is relevant, that is, that pitch rise is the phonetic correlate of pitch accent in this system. Using the same accent mark as for Narada, this analysis can be shown as below.

(2.52) KagJ
  a. Type A
     ⌋na.tu ‘summer’, na.tu-ya.⌋su.mi ‘summer holiday’
  b. Type B
     ha.⌋ru ‘spring’, ha.ru.ya.su.⌋mi ‘spring holiday’

While this interpretation seems widely accepted, it is not the only analysis available for this dialect. Looking at the same data, Haraguchi (1977), Shibatani (1990), and Kubozono (2018b,c) put forward an entirely different analysis whereby the system is sensitive to pitch fall rather than pitch rise. According to this analysis, Type A and Type B contrast in the presence or absence of an abrupt pitch fall and can be termed as ‘accented’ and ‘unaccented’, respectively, just like the two major accent types in Tokyo Japanese described in (2.51) above. Type B words are assigned a H tone on their final syllables by some redundancy rule.

(2.53) KagJ (reanalysis)
  a. Type A
     na’.tu ‘summer’, na.tu-ya.su’.mi ‘summer holiday’
  b. Type B
     ha.ru ‘spring’, ha.ru.ya.su.mi ‘spring holiday’

One and the same set of data of a single dialect can thus be analyzed in two entirely different ways, either as evidence for pitch rise or as evidence for pitch fall as a distinctive feature. This is exactly true of KosJ which has been described as having a primary H tone on the penultimate mora (Type A) and on the final mora (Type B). While this traditional analysis implies that pitch rise functions as a distinctive feature, it is equally possible to assume that the two accent types contrast with each other in the presence or absence of a pitch fall, i.e. that Type A has a pitch fall and hence 'accented', while Type B involves no pitch fall and is 'unaccented' as shown in (2.53) for KagJ. This alternative analysis posits pitch fall as a phonetic correlate of pitch accent in KosJ.

In the case of KagJ, there are several independent reasons to support the analysis in (2.53) in preference to the one in (2.52) (Kubozono 2018b, c). The most important is the fact that this dialect displays a tonal contrast in monomoraic, monosyllabic words as well: a pitch fall occurs within the sole syllable in Type A words, e.g. *hì* 'sun' and *hà* 'leaf', while no comparable pitch fall occurs in Type B words, e.g. *hī* 'fire', *hā* 'tooth'. These two types of monosyllables are thus distinguished from each other not in terms of the position of a pitch rise, but in terms of the presence or absence of a pitch fall.

That said, it is difficult to examine KosJ in the same way as KagJ. This endangered dialect shows a neutralization between Type A and Type B in monomoraic words. Just like KagJ, it distinguishes between the two accent types if they have one or more grammatical particles attached, as shown in (2.54a). However, the two accent types are neutralized when they are pronounced in isolation, as in (2.54b), with both types of monosyllables pronounced with a flat pitch just like Type B monosyllables in KagJ. How to interpret the data in (2.54b) is a difficult task. Hence, in the absence of other independent evidence, it is difficult to say anything conclusive about the distinctive feature of pitch accent in KosJ. However, this difficulty does not reduce the importance of the distinctive pitch feature (pitch rise or fall) as an independent parameter to typologize Japanese pitch accent systems to better understand their diversity from a typological viewpoint.

(2.54) KosJ

a. Forms with a particle
   Type A HI-ga 'sun-NOM', HA-ga 'leaf-NOM'
   Type B hi-GA 'fire-NOM', ha-GA 'tooth-NOM'

b. Bare forms
   Type A HI 'sun', HA 'leaf'
   Type B HI 'fire', HA 'tooth'

2.7 Two-peak vs. one-peak systems

In prosodic systems with a lexical accent, whether pitch accent or stress accent, a certain constituent (mora or syllable) is generally marked as the phonological head of the word so that the prominence associated with the head constituent signals the peak or edge of the word. However, Japanese permits two major exceptions to this culminative function of word accent. One is the existence of 'unaccented words' discussed in the preceding section, or words that lack a phonological prominence. The other exception is the existence of words that have more than one pitch peak or H tone, which is indeed important for understanding the pitch accent systems of KosJ and the various interesting prosodic phenomena observed therein.[18]

As discussed in Section 2.1, Tokyo Japanese permits unaccented words but not words that have more than one phonological peak or pitch accent. Thus, one word may have at most one pitch accent no matter how long it may be, as long as it is realized in one prosodic word.[19] Because of the unaccented class of words, this standard dialect has *n+1* tonal oppositions for *n*-syllable nouns. In phonetic terms, this dialect does not allow pitch to rise again after it has fallen within the word domain: *ka'.ma.ki.ri* 'mantis' and *ka'n.sai* 'Kansai', for example, show a pitch fall immediately after the first mora, *ka*, but no pitch rise after that. If pitch should rise again, it would signal the beginning of the next word.

While this feature is shared by many Japanese dialects, including KagJ, it is not shared by all of them. In fact, there are several dialects, especially in southern Japan, where one word permits more than one pitch peak. KosJ is a typical example of this type. Unlike its sister dialect of KagJ, most varieties of this endangered dialect permit two pitch peaks – or two H tones – in three-mora or longer words (Kamimura 1937, 1941; Kubozono 2012c, 2016). This is illustrated in (2.55), where KosJ-Teuchi is chosen as a representative of two-peak KosJ systems and compared with the one-peak systems of KosJ-Taira and KagJ.

18 See Myrberg (2022) and the references cited therein for the analysis of one-peak and two-peak systems in Scandinavian languages.

19 See Kubozono (1988, 1995a) and Ito and Mester (2015b) for full discussion of some compound words realized in two or more prosodic words.

(2.55) Comparison of KosJ-Teuchi with KosJ-Taira and KagJ

Accent Type	KosJ-Teuchi	KosJ-Taira	KagJ	gloss
A	A.me	A.me	A.me	candy
	ba.REe	ba.REe	BA.ree	volleyball
	o.NA.go	o.NA.go	o.NA.go	woman
	KA.ma.BO.ko	ka.ma.BO.ko	ka.ma.BO.ko	boiled fish paste
	KE.da.MOn	ke.da.MOn	ke.DA.mon	wild animal
	NA.TSU. ya.SU.mi	na.tsu. ya.SU.mi	na.tsu.ya. SU.mi	summer holiday
B	a.ME	a.ME	a.ME	rain
	MI.kaN	mi.KAN	mi.KAN	orange
	KO.ko.RO	ko.ko.RO	ko.ko.RO	heart
	a.SA.ga.O	a.sa.ga.O	a.sa.ga.O	morning glory
	A.NI.saN	a.ni.SAN	a.ni.SAN	elder brother
	HA.RU.YA. su.MI	ha.ru.ya. su.MI	ha.ru.ya. su.MI	spring holiday

As these examples show, KosJ-Teuchi permits an additional H tone at the beginning of relatively long words in addition to a H tone on the penultimate mora (Type A) and on the final mora (Type B), respectively. The two H tones are usually separated by one L-toned *syllable* as illustrated in (2.56) (Section 2.3).

(2.56) a. Type A
KE.da.MOn 'wild animal'
KE.da.MOn-ga 'wild animal-NOM'
KE.DA.mon-KA.ra 'from the wild animal'
KE.DA.MON-ka.RA-mo 'from the wild animal, too'

b. Type B
A.NI.saN 'elder brother'
A.NI.san-GA 'elder brother-NOM'
A.NI.SAN-ka.RA 'from the elder brother'
A.NI.SAN-KA.ra-MO 'from the elder brother, too'

These accent patterns can be accounted for if one assumes that the dialect has two melodies – /$H_2L_2H_1L_1$/ (Type A) and /$H_2L_2H_1$/ (Type B) – that differ from each other in having L_1 or not. One may wonder here if the secondary prominence at the beginning of the word may be a phrasal tone signaling the beginning of the phrase just like the phrase-initial pitch rise in Tokyo Japanese (e.g. /a.ME.RI.KA/ 'America'). This interpretation seems correct in the old system of KosJ that Kamimura (1937, 1941) described eighty years ago, where H_2 was linked only to the second mora in both accent classes (see Chapter 3 for details). In the present-day system of KosJ-Teuchi, however, the same H tone is realized over multiple moras/syllables. Moreover, this tone signals not only the onset of a new *bunsetsu*, but also the Type A/B distinction in connected speech (Kubozono 2012c). Specifically, H_1 disappears in non-final position of the sentence, while H_2 survives as the sole prominence (Section 2.4). This is illustrated in (2.57), where / . . . / means that the phrase is followed by another phrase in the same utterance.

(2.57) H_1 deletion in connected speech in KosJ-Teuchi

a. Type A
NA.TU.ya.SU.mi . . . → NA.TU.ya.su.mi . . . 'summer holiday . . . '
KE.da.MOn . . . → KE.da.mon . . . 'wild animal . . . '
KE.DA.mon-KA.ra . . . → KE.DA.mon-ka.ra . . . 'from the wild animal . . . '

b. Type B
HA.RU.YA.su.MI . . . → HA.RU.YA.su.mi . . . 'spring holiday . . . '
A.NI.saN . . . → A.NI.san . . . 'elder brother . . . '
A.NI.SAN-ka.RA . . . → A.NI.SAN-ka.ra . . . 'from the elder brother . . . '

This H tone deletion is a peculiar phenomenon involving the deletion of the lexically primary H tone (H_1) and the subsequent promotion of the secondary H tone (H_2) as the dominant tone at the postlexical level. Since this process applies to both Type A and Type B alike, the lexical tonal contrast comes to be signaled by the domain of H_2 in non-final phrases: e.g. *NA.TU.ya.su.mi* . . . 'summer holiday . . . ' vs. *HA.RU.YA.su.mi* . . . 'spring holiday. . . '. What this means is that H_2 as well as H_1 is a lexical tone rather than a phrasal one in this system (see Chapter 5 for more details).

Two points are worth mentioning here. One of them concerns the fact that both one-peak and two-peak systems exist within the small geographical area of KosJ. The data in (2.55) reveal striking resemblances between the two types of systems in KosJ as well as between KosJ and KagJ. Comparison of these three systems suggests that they are historically derived from a single prosodic system, most probably from a one-peak system as found in present-day KosJ-Taira. This,

in turn, suggests that a two-peak system can develop from a one-peak system relatively easily in the course of time, at least more easily than might be generally assumed.

Another noteworthy point is that two-peak systems like the one in KosJ-Teuchi are reported independently in several areas in Japan. Apart from KosJ, they are observed in the Kikaijima-Wan dialect (Section 2.2) and the Narada dialect (Section 2.6), for example. They are repeated below.

(2.58) Kikaijima-Wan dialect
  a. Pattern α
  U.duI 'dance', MI.du-GA 'water-NOM', MI.DU-ka.RA 'from (the) water'
  KAN.na.RI 'thunder', KAN.NA.ri-GA 'thunder-NOM'
  b. Pattern β
  KA.ma.KI.RI 'mantis', MEe.RA.BI 'young woman'
  MEe.RA.BI-GA 'young woman-NOM'

(2.59) Narada dialect
  a. KO.ko.RO 'heart', KO.ko.RO-ga 'heart-NOM'
  b. O.to.ko 'man', O.to.ko-GA 'man-NOM'

What is common in these two-peak systems is that a secondary H tone appears in word-initial position in relatively long words. This secondary H tone may be a phrasal boundary tone or a secondary lexical tone (Chapter 5). While this question must be considered for each system, it is important to emphasize that these two-peak systems developed independently in various parts of the country and cannot be traced back to a single two-peak system. This view can be supported by several independent pieces of evidence. First, the two-peak systems are geographically located quite far apart from each other with each two-peak system surrounded by one-peak systems. The Narada dialect, for example, is spoken in an isolated area in the midst of Tokyo-type accent systems. The two-peak systems of KosJ are also geographically isolated, with its sister dialects all being one-peak systems.

Second, there is little correspondence among the one-peak systems with respect to the pitch pattern of individual words. For example, the two-peak system geographically closest to KosJ is the Makurazaki dialect spoken in the same prefecture (Kagoshima Prefecture), about 80 km apart from each other by the sea (Map 1 on page 5). These two dialects do not show a tonal correspondence with respect to the one-peak vs. two-peak distinctions. This can be seen from the trimoraic nouns in (2.60): the data about Makurazaki are taken from Kibe (1997).

(2.60) Comparison of KosJ with Makurazaki Japanese

Accent type	KosJ-Teuchi	Makurazaki	gloss
Type A	ku.RU.ma	KU.ru.MA	car
	ka.TA.ti	KA.ta.TI	shape
	ha.TA.ti	HA.ta.TI	twenty-years old
Type B	O.to.KO	O.TO.ko	man
	KO.ko.RO	KO.KO.ro	heart
	KA.bu.TO	KA.BU.to	helmet

These two dialects both have two-pattern systems (Type A and Type B) and exhibit a high degree of correspondence in terms of which word belongs to which accent type: *kuruma* 'car' and *katati* 'shape' belong to one group, while *otoko* 'man' and *kokoro* 'heart' belong to the other. However, they have entirely different pitch patterns. In KosJ-Teuchi, two-peak patterns are found in trimoraic Type B words, while they are observed in trimoraic Type A words in Makurazaki. Thus, there is no direct correspondence between the two systems with respect to the two-peak forms. This fact reinforces the view that two-peak systems emerged in various parts of Japan quite independently of each other.

Finally, I would like to draw attention to the fact that two-peak forms are occasionally observed in one-peak systems, too, especially in spontaneous speech. In Kinki Japanese, for example, the words in (2.61) are often pronounced with two pitch peaks at the surface. (2.61a) is an example where a secondary pitch peak appears before the primary peak, while the example in (2.61b) shows a secondary peak after the primary one.

(2.61) Kinki Japanese
a. oo.KI.ni → Oo.KI.ni 'thank you'
b. KYOo.to-ni → KYOo.TO-ni 'to Kyoto'

What these examples have in common is an alternation between high and low pitch resulting out of a sequence with only one high-pitched mora. A secondary high pitch in these examples may occur for rhythmic reasons in synchronic grammar and may be different in nature from the secondary H tones in the two-peak pitch accent systems of KosJ and other dialects we saw above. However, it is important to pay attention to these synchronic variations in essentially one-peak systems since they may well result in two-peak systems in the course of time.

3 Emergence of a secondary H Tone

3.1 One-peak vs. two-peak systems

As mentioned at the end of Chapter 2, one of the salient features of KosJ is the existence of two pitch peaks or H tones in relatively long words in most of its varieties. In this respect, KosJ falls into two subgroups, one that has only one underlying H tone per word like its sister dialects, and the other that permits two underlying H tones in relatively long words. The first subgroup consists of only one variety, spoken in the small village of Taira on the central island (Map 2 on page 6). Taira is the sole village on this tiny island with a population of about two hundred people (Table 1 on page 8). The variety spoken in this village, or KosJ-Taira, permits only one underlying H tone per word no matter how long the word may be. Specifically, the sole H tone usually emerges on the penultimate mora in Type A words and on the final mora in Type B words. To this extent, it is a moraic version of KagJ where the H tone appears on the penultimate syllable (Type A) and on the final syllable (Type B).

On the other hand, other varieties of KosJ exhibit two underlying H tones in relatively long words – four-mora or longer words in Type A and three-mora or longer words in Type B. This is shown in (3.1) below, where pitch patterns of KosJ-Teuchi spoken at the southern edge of the southern island are shown as representative of KosJ two-peak systems, in comparison with those of the one-peak systems of KosJ-Taira and KagJ. In two-peak words, the first H tone spreads over multiple syllables/moras at the beginning of the words.

(3.1) Comparison of KosJ-Teuchi, KosJ-Taira, and KagJ

Accent Type	**KosJ-Teuchi**	**KosJ-Taira**	**KagJ**	**gloss**
Type A	A.me	A.me	A.me	candy
	o.NA.go	o.NA.go	o.NA.go	woman
	WA.sin.TOn	wa.sin.TOn	wa.SIN.ton	Washington
	NA.TU.ya.SU.mi	na.tu.ya.SU.mi	na.tu.ya.SU.mi	summer holiday

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Type B	a.ME	a.ME	a.ME	rain
	O.to.KO	o.to.KO	o.to.KO	man
	A.SA.ga.O	a.sa.ga.O	a.sa.ga.O	morning glory
	HA.RU.YA.su.MI	ha.ru.ya.su.MI	ha.ru.ya.su.MI	spring holiday

As is clear from the comparison, the prominence that appears at or near the end of two-peak words in KosJ-Teuchi corresponds to the sole prominence in KosJ-Taira and KagJ. This suggests that in the KosJ-Teuchi system, the peak near the end of the word is the primary prominence, while the other peak at the beginning is a secondary prominence that is a relatively recent development in KosJ. In the absence of historical documents, it is not clear when the two-peak systems emerged in KosJ. However, Takaji Kamimura, a dialectologist and native speaker of KosJ, reported in his old article (Kamimura 1941) that what he calls the 'main stream' of KosJ permits two peaks in relatively long words, and that KosJ-Taira is a notable exception to this. He calls the prominence at the beginning of long words a 'secondary accent' because he observes that it is phonetically lower than the 'primary accent' at/near the end of the word. In this book, I agree with Kamimura that the H tone at the beginning of the word is secondary compared to the H tone at/near the end, and, thus, describe the melodies of the two accent types as $H_2L_2H_1L_1$ (Type A) and $H_2L_2H_1$ (Type B).

Kamimura's description of the two-peak systems is quite similar to what we observe in KosJ today with respect to H_1. Namely, the distinctive H_1 appears on the penultimate mora (Type A) and the final mora (Type B), and in Type A, it is subject to a leftward shift if the penultimate mora happens to be the second (non-head) mora of heavy syllables, as shown in (3.2) (see (2.22) in Section 2.3). This means that the primary H tone has not changed its position or behavior for the past eighty years.

(3.2) ke.DA.moN-ga → KE.da.MOn-ga 'wild animal-NOM'
cf. KE.da.MOn 'wild animal'

On the other hand, his description of the secondary H tone (H_2) is considerably different from what is observed today. Kamimura (1937, 1941) states that H_2 usually appears on the second mora from the beginning in both Type A and Type B words, whether this mora is the head mora of the syllable as in (3.3a) and (3.4a) or the second (dependent) mora of heavy syllables as in (3.3b) and (3.4b). The only exception to this general rule is when H_2 appears immediately before the primary H tone (H_1), in which case H_2 is retracted to the initial mora. This excep-

tional pattern is illustrated in (3.5). The H tone retraction can be explained as a solution to a H tone clash, a situation where the primary and secondary H tones appear adjacently to each other.

(3.3) Type A
  a. na.TU.ya.SU.mi ‘summer holiday’
     ka.ZAi.MOn ‘decoration’
  b. zyoO.ki.SEn ‘steamboat’

(3.4) Type B
  a. ha.RU.ya.su.MI ‘spring holiday’
     i.NA.bi.kaI ‘lightening’
  b. uU.ka.ZE ‘big wind, typhoon’
     seN.seI ‘teacher’

(3.5) Exceptional pattern
  a. Type A
     a.MA.ZA.ke (expected) → A.ma.ZA.ke ‘fermented rice drink’
  b. Type B
     o.TO.KO (expected) → O.to.KO ‘man’

Since the secondary H tone appears in the same position in both accent types, this tone does not play any distinctive role at all. This suggests that it emerged as a boundary H tone signaling the beginning of words. That this tone is a relatively recent development in the history of KosJ can be supported by other independent evidence, too. First, it does not appear in KosJ-Taira, the sole one-peak system of KosJ, much less in KosJ’s sister dialects, KagJ and Nagasaki Japanese. Given this, it is more natural to assume that a secondary H tone emerged in other KosJ varieties rather than to assume that it disappeared in KosJ-Taira and the sister dialects. Second, Kamimura (1937, 1941) observes that the secondary H tone at the beginning of the word is phonetically lower or weaker than the distinctive H tone (H_1) that appears at/near the end of the word. This suggests that H_2 emerged at a later stage than H_1 quite redundantly. Third, H_2 has undergone considerable changes in KosJ in the past eighty years, as we will see in the next sections, while H_1 is free from such historical changes. That H_2 has been quite variable in the two-peak KosJ systems today suggests that it was variable even before Kamimura observed it eighty years ago.

Finally, the two-peak systems of KosJ do not exhibit a phonetic correspondence to other two-peak systems in the same southwestern region of Kyushu where KosJ's sister dialects are spoken. As mentioned in Section 2.7, the two-peak system geographically closest to KosJ is found in Makurazaki at the south-western edge of Kagoshima Prefecture, about 80 km apart by sea from the Koshikijima Islands. Maybe distantly related to KosJ, this system also has two distinctive pitch patterns, Type A and Type B, and these two classes correspond well with the two classes labeled similarly in KosJ and KagJ in terms of the lexical items that belong to them. However, the actual pitch patterns differ greatly between the two two-peak systems. This is shown in (3.6) with trimoraic nouns: the data about Makurazaki are taken from Kibe (1997).

(3.6) KosJ-Teuchi vs. Makurazaki

Accent Type	**KosJ-Teuchi**	**Makurazaki**	**gloss**
Type A	ku.RU.ma	KU.ru.MA	car
	ka.TA.ti	KA.ta.TI	shape
	ha.TA.ti	HA.ta.TI	twenty years old
Type B	O.to.KO	O.TO.ko	man
	KO.ko.RO	KO.KO.ro	heart
	KA.bu.TO	KA.BU.to	helmet

The comparison in (3.6) shows that Type B words in KosJ-Teuchi have the same pitch patterns as Type A words in Makurazaki, while Type A words in KosJ-Teuchi are similar in phonetic shape to Type B words in Makurazaki. More crucially, two-peak patterns occur in Type B trimoraic words in KosJ-Teuchi and in Type A trimoraic words in Makurazaki. Given these differences, it is hard to believe that KosJ-Teuchi inherited its secondary H tone (H_2) from the common proto system from which both KosJ and Makurazaki originated. Rather, it is plausible to assume that the two dialects developed their two-peak systems independently of each other. This reinforces the argument that the two-peak systems of KosJ developed on their own, while this development failed to occur in the isolated village of Taira where a one-peak system is still observed.

3.2 KosJ main stream today

Having characterized the secondary H tone in KosJ as a relatively recent development in its history, let us now consider how it has changed over the past eighty

years by comparing Kamimura's (1937, 1941) description with what is observed today. Kamimura was brought up in Nakakoshiki Village, a central village on the northern island and he included the accent system of his native village in the 'main stream' of KosJ. By comparing his description with what is observed in the same village today, we can see how the system of KosJ-Nakakoshiki has changed over the past eighty years.

My own fieldwork in the village has shown that its accent system is basically identical to that of KosJ-Teuchi, spoken at the southern edge of the southern island, which was also included in the 'main stream' group of KosJ in Kamimura's description. What is observed in this group today is that the secondary H tone (H_2) appears on multiple syllables before the primary H tone (H_1) with one L-toned syllable in between, as shown in (3.7)

(3.7) KosJ main stream in the past and present

Accent Type	**Main stream eighty years ago**	**Main stream today**	**gloss**
Type A	A.me	A.me	candy
	o.NA.go	o.NA.go	woman
	A.ma.ZA.ke	A.ma.ZA.ke	fermented rice drink
	ka.ZAi.MOn	KA.zai.MOn	decoration
	zyoO.ki.SEn	ZYOO.ki.SEn	steamboat
	na.TU.ya.SU.mi	NA.TU.ya.SU.mi	summer holiday
Type B	a.ME	a.ME	rain
	O.to.KO	O.to.KO	man
	a.SA.ga.O	A.SA.ga.O	morning glory
	i.NA.bi.kai-GA	I.NA.BI.kai-GA	lightening-NOM
	ha.RU.ya.su.MI	HA.RU.YA.su.MI	spring holiday

Comparison of the two systems, past and present, reveals the following three points. First, the two systems do not show any difference with regard to the primary H tone (H_1). This H tone appears on the penultimate mora in Type A and the final mora in Type B in both systems. Second, the secondary H tone was fixed on the second mora in the old system but is now allowed to spread over multiple syllables at the beginning of the word in the new system. In the latter system, in fact, the two H tones behave in a systematic manner such that they are sepa-

rated by one L-toned syllable.[20] Seen differently, the intervening L tone serves to prevent a clash between the two H tones in the new system. H tone clash was prohibited in the old system, too, but the clash situation occurred only in relatively short words in this system: e.g. *A.ma.ZA.ke*, **a.MA.ZA.ke* 'fermented rice drink' (Type A) and *O.to.KO*, **o.TO.KO* 'man' (Type B).

Having said that a NoClash constraint is at work in both the old and new systems, it is worth adding that there is one notable exception in the new system. This exception appears when there is only one syllable before the primary H tone, or H_1. In Type B words, the initial syllable is L-toned whether it is monomoraic as in *a.ME* 'rain' and *ha.RU* 'spring' or heavy as in *rin.GO* 'apple' and *kai.TA* 'wrote'. This suggests that Type B words are faithful to the NoClash constraint: the secondary H tone (H_2) cannot stand immediately before the primary H tone. The same is true in Type A words if their initial syllable is monomoraic: e.g. *o.NA.go* 'woman', *ba.REe* 'volleyball', *po.PAi* 'Popeye'. However, Type A words often begin with a high tone if their initial syllable is bimoraic: e.g. *TON.NE.ru* 'tunnel', *RON.DOn* 'London', *PII.KEe* 'PK'. *SYOO.TYUu* 'primary and secondary (school)'. This pattern permits the two H tones to stand next to each other, obviously violating the NoClash constraint.[21]

Returning to the comparison between the old and new main-stream systems, a third difference between these two-peak systems is found regarding the function of the secondary H tone. In the old system, it functioned only as a boundary tone marking the beginning of the word. In the new system, in contrast, it can potentially distinguish between the two accent types in the sense that Type B words always exhibit a longer stretch of H-toned syllables than Type A words of the same phonological length. Thus, *HA.RU.YA.su.MI* 'spring holiday' (Type B) can be differentiated from *NA.TU.ya.SU.mi* 'summer holiday' (Type A) by the number of syllables over which H_2 spreads, not just by the position of the primary H tone (H_1) – final vs. penultimate moras. This additional role of H_2 relates crucially to the postlexical process of H_1 deletion to be discussed in Chapter 5.

Overall, the domain of the secondary H tone has changed from a single mora to a stretch of syllables in the main-stream varieties of KosJ over the past eighty years. Accordingly, it has gained a lexical function in addition to the role of a boundary tone. Sensitivity to the syllable has also changed over the past eighty years. In the old system, the secondary H tone was insensitive to the syllable or syllable boundaries since it was linked to the second mora irrespective of its nature, i.e. regardless of whether it is the head mora or non-head mora of the syllable, as

20 See Myers (1990) for a similar system in Shona, a Bantu language spoken in Africa.

21 Some speakers permit a variant pattern that involves an alternation between H and L tones: e.g. *TOn.NE.ru* 'tunnel', *ROn.DOn* 'London'. This pattern, which would be expected in Kamimura's old system, obeys the NoClash constraint faithfully.

we saw in (3.3)-(3.5) above. In contrast, the same H tone is now sensitive to the syllable in such a way that it is separated from the following primary H tone by one L-toned *syllable*: e.g. *KA.zai.MOn*, **KA.ZAi.MOn* 'decoration' (Type A), *I.NA.BI.kai-GA*, **I.NA.BI.KAi-GA* 'lightening-NOM' (Type B). This emerging sensitivity to the syllable bears crucially upon the discussion of diphthongs and superheavy syllables in KosJ, an issue which will be tackled in Chapter 4.

3.3 KosJ-Kuwanoura

So far, we have seen that KosJ-Taira remains a one-peak system, while KosJ-Teuchi and KosJ-Nakakoshiki underwent qualitative changes with respect to the secondary H tone over the past eighty years. My fieldwork study shows that other KosJ varieties have changed the nature of their secondary H tone in more or less the same way as these two varieties. However, there is one notable exception to this general trend. This is found in the variety spoken in Kuwanoura Village, an isolated small village with only 38 native speakers at the northwestern edge of the northern island (Map 2 on page 6). This endangered variety was not documented by Kamimura in his description eighty years ago (Kamimura 1937, 1941), so it may not be appropriate to link the present-day KosJ-Kuwanoura system directly with the main-stream system that Kamimura described. However, it is worth describing this endangered system in comparison with Kamimura's system and the present-day KosJ systems of other villages to better understand the nature of the secondary H tone in KosJ.

First of all, the endangered system of KosJ-Kuwanoura exhibits no difference with respect to the primary H tone from other KosJ systems today, nor from the main-stream system that Kamimura (1937, 1941) described: namely, this H tone usually appears on the penultimate and final moras in Type A and Type B, respectively, in all varieties of KosJ. However, it shows striking differences from other KosJ varieties regarding the secondary H tone. In present-day KosJ-Kuwanoura, it is realized basically on the initial two moras in both accent types. In terms of the domain of this H tone, this endangered variety is closer to Kamimura's old system where only the second mora was the target of the secondary H tone. Since the initial two moras are H-toned in both accent types in KosJ-Kuwanoura, it does not serve any distinctive function, just as in Kamimura's old system. In this respect, the secondary H tone in KosJ-Kuwanoura is qualitatively different from the corresponding H tone in KosJ-Teuchi, KosJ-Nakakoshiki and other KosJ varieties today.

On the other hand, the secondary H tone in KosJ-Kuwanoura behaves differently in two crucial ways from the corresponding H tone in the main-stream system that Kamimura (1937, 1941) described. First, it is sensitive to the syllable in

the endangered system in that it spreads to the third mora if the second and third moras form one syllable, i.e. a heavy syllable. Second, it can appear adjacently with the primary H tone. Namely, the two H tones are not sensitive to the clash constraint that prevents them from appearing on adjacent moras/syllables. Recall that this constraint operated partially in Kamimura's old system and wholly in the present-day systems of KosJ-Teuchi and KosJ-Nakakoshiki, as we saw in (3.7) above. Lack of sensitivity to this clash constraint is indeed a unique feature of the endangered system of KosJ-Kuwanoura today. These two distinct features of KosJ-Kuwanoura are illustrated in (3.8).

(3.8) KosJ-Kuwanoura today in comparison with other KosJ systems

Accent Type	**Main stream eighty years ago**	**Main stream today**	**KosJ-Kuwanoura today**	**gloss**
Type A	A.me	A.me	A.me	candy
	o.NA.go	o.NA.go	o.NA.go~ O.NA.go	woman
	A.ma.ZA.ke	A.ma.ZA.ke	A.MA.ZA.ke	fermented rice drink
	ka.ZAi.MOn	KA.zai.MOn	KA.ZAI.MOn	decoration
	zyoO.ki.SEn	ZYOO.ki.SEn	ZYOO.ki.SEn	steamboat
	na.TU.ya.SU.mi	NA.TU. ya.SU.mi	NA.TU.ya.SU.mi	summer holiday
Type B	a.ME	a.ME	a.ME~A.ME	rain
	O.to.KO	O.to.KO	O.TO.KO	man
	a.SA.ga.O	A.SA.ga.O	A.SA.ga.O	morning glory
	i.NA.bi.kai-GA	I.NA. BI.kai-GA	I.NA.bi.kai-GA	lightening-NOM
	ha.RU.ya.su.MI	HA.RU. YA.su.MI	HA.RU.ya.su.MI	spring holiday

3.4 Comparison

In the foregoing sections, we compared three two-peak systems of KosJ, focusing on the domain and behavior of the secondary H tone (H_2): (i) the system that Kamimura (1937, 1941) described on the basis of his fieldwork in 1937, (ii) the

present-day system of Kamimura's native village, KosJ-Nakakoshiki, and (iii) the one that is observed in KosJ-Kuwanoura today. The descriptions of the latter two systems are based on fieldwork conducted quite recently.

As we saw, the three systems share basic features with respect to the primary H tone (H_1) that appears at or near the end of the word/phrase. For example, H_1 is computed from the end of the word/phrase and is usually placed on the penultimate mora (Type A) or on the final mora (Type B). Moreover, it is subject to the leftward H tone shift (3.2) if its docking site happens to be the second mora of a heavy syllable: it moves to the head mora of the relevant syllable. Furthermore, this leftward H_1 shift occurs only in Type A words since it would result in the loss of tonal contrast if it should occur in Type B words as well.

In contrast to these basic commonalities, the three systems display different patterns with respect to the secondary H tone, or H_2. These differences can be captured in a general way if they are analyzed in terms of the degree of H_2 spreading and the clash with H_1. In the old system Kamimura (1937, 1941) described, H_2 is realized on the second mora and does not spread. It moves to the initial mora only when it would be immediately adjacent to H_1 and, hence, would create a H tone clash. The present-day system of the same village, in contrast, spreads H_2 rather freely from the beginning of the word/phrase to its end, while still avoiding a tone clash with H_1. The result is that the two H tones are separated typically by one L-toned syllable.

Finally, the present-day system of KosJ-Kuwanoura is similar to the old system of Kamimura in that it does not allow H_2 to freely spread. In this system, H_2 is actually fixed to the initial two moras and spreads to the third mora only when the second and third moras form a heavy syllable: H_2 spreading is allowed only to avoid a falling contour tone in heavy syllables. On the other hand, the system is different from both the old system and the present-day system of KosJ-Nakakoshiki in allowing H_2 to clash with H_1. Hence, the two H tones can be realized on two adjacent syllables/moras as shown in (3.8) above.

These differences can be summarized in Table 3.1.

Table 3.1: Behavior of H_2 (summary).

	Basic pattern	**H_2 spreading**	**Clash with H_1**
KosJ-Nakakoshiki in 1937 (Kamimura 1937, 1941)	Fixed to the second mora	Strictly prohibited	Prohibited (leftward H_2 shift)
KosJ-Nakakoshiki today	Realized on multiple word-initial syllables	Allowed	Prohibited (H_2 and H_1 separated by a L-toned syllable)
KosJ-Kuwanoura today	Fixed to the initial two moras	Allowed only to avoid a falling contour tone	Permitted

Note that Kamimura's old system and the KosJ-Nakakoshiki system today both prohibit H_2-H_1 clash but remedy it in different ways: by simply retracting H_2 in the former system as in (3.5) or by separating the two H tones with an intervening L tone in the latter. This difference comes from a difference in the extent of H_2 spreading, due to whether H_2 is allowed to spread over multiple syllables/moras (KosJ-Nakakoshiki today) or not (KosJ-Nakakoshiki in 1937).

The differences in the distribution of H_2 summarized in Table 3.1 are closely related to the potential distinctiveness of the H_2 tone. Kamimura's old system is very similar to the present-day KosJ-Kuwanoura system in this respect because H_2 is not distinctive at all. In these two systems, H_2 is realized in the same stretch of syllables/moras in Type A and Type B alike. On the other hand, present-day KosJ-Nakakoshiki is different from these two systems in that the two accent classes are differentiated from each other by the number of syllables to which H_2 spreads. Hence, H_2 is potentially distinctive in this system.

3.5 Historical considerations

Having understood the synchronic and diachronic variations in H_2 in KosJ, let us consider how the variations emerged from a historical perspective. One scenario that immediately springs to mind is that Kamimura's old system has developed in two different directions, allowing H_2 to spread in different ways. It is shown in (3.9).

(3.9) Kamimura's old system → (a) KosJ-Kuwanoura system today
→ (b) KosJ-Nakakoshiki system today

This scenario entails the following developments with respect to H_2. In changing to (3.9a), H_2 expanded its domain from the original second mora to the initial mora. It also began to spread to the third mora if the second and third moras formed one syllable. At the same time, the same H tone became immune to the NoClash constraint that prohibits H_2 from appearing adjacent to H_1. In changing to (3.9b), on the other hand, the same H tone began to spread more freely, to the initial mora as well as to the third and following moras. This new system nevertheless remains subject to the NoClash constraint, thus keeping L-toned material between the two H tones in the same phrase.

While this scenario seems rather simple, one can also postulate a different historical scenario. This alternative scenario, which was suggested by Larry Hyman (2017), assumes a proto-KosJ system where H_2 was linked only to the word/phrase-initial mora as a left-edge boundary tone. This system was proba-

bly subject to the NoClash constraint in such a way that word-initial H_2 was not allowed to stand immediately adjacent to H_1. This constraint, in fact, accounts for the lack of word-initial H tone in trimoraic Type A words and bimoraic Type B words in contemporary KosJ varieties (probably except KosJ-Kuwanoura): e.g. *o.NA.go*, **O.NA.go* 'woman' (Type A); *a.ME*, **A.ME* 'rain' (Type B).

H_2, which started as a word/phrase-initial boundary tone, then spread to the second mora, while being still subject to the NoClash constraint. This yields a system where H_2 is realized on the initial two moras, as shown in (3.10).

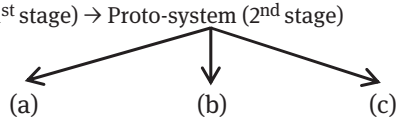
(3.10) a. Proto-system (1st stage) → Proto-system (2nd stage)

Type A
A.ma.ZA.ke → *A.MA.ZA.ke (no change due to NoClash)
NA.tu.ya.SU.mi → NA.TU.ya.SU.mi
KA.zai.MOn → KA.ZAi.MOn
ZYOo.ki.SEn → ZYOO.ki.SEn

Type B
O.to.KO → *O.TO.KO (no change due to NoClash)
HA.ru.ya.su.MI → HA.RU.ya.su.MI

According to this scenario, the proto-system (2nd stage) developed in three different ways, as shown in (3.11).

(3.11) Proto-system (1st stage) → Proto-system (2nd stage)



KosJ-Kuwanoura Kamimura's system KosJ-Nakakoshiki

In the path to (3.11a), the proto-system (2nd stage) removed the NoClash constraint, yielding a system that allows H_2 to clash with H_1. At the same time, H_2 became subject to a constraint banning falling contour tones, thus yielding *KA.ZAI.MOn* 'decoration' and *KA.ZAI.mon-KA.ra* 'from the decoration'. These developments, illustrated in (3.12), lead to the system found in KosJ-Kuwanoura today.

(3.12) Proto-system (2nd stage) → KosJ-Kuwanoura today

Type A
A.ma.ZA.ke → A.MA.ZA.ke
NA.TU.ya.SU.mi (no change)
KA.ZAi.MOn → KA.ZAI.MOn
ZYOO.ki.SEn (no change)

Type B
O.to.KO → O.TO.KO
HA.RU.ya.su.MI (no change)

On the other hand, the same proto-system (2nd stage) lowered the word/phrase-initial H_2 tone in the path to (3.11b),[22] while still being subject to the NoClash constraint. As shown in (3.13), this is the system that Kamimura (1937, 1941) described eighty years ago.

(3.13) Proto-system (2nd stage) → Kamimura's old system
Type A A.ma.ZA.ke → *a.MA.ZA.ke (no change due to NoClash)
NA.TU.ya.SU.mi → na.TU.ya.SU.mi
KA.ZAi.MOn → ka.ZAi.MOn
ZYOO.ki.SEn → zyoO.ki.SEn

Type B O.to.KO → *o.TO.KO (no change due to NoClash)
HA.RU.ya.su.MI → ha.RU.ya.su.MI

Finally, the same proto-system (2nd stage) spread H_2 further to the right in the path to (3.11c). At the same time, it came to be constrained by the NoClash constraint more strictly, with the result that it now leaves one and only one L-toned syllable (or head mora) before the primary H tone, i.e. H_1. These changes are shown in (3.14). The resultant system is the one found in KosJ-Nakakoshiki today.

(3.14) Proto-system (2nd stage) → KosJ-Nakakoshiki today
Type A A.ma.ZA.ke → *A.MA.ZA.ke (no change due to NoClash)
NA.TU.ya.SU.mi → *NA.TU.YA.SU.mi (no change due to NoClash)
KA.ZAi.MOn → KA.zai.MOn
ZYOO.ki.SEn → *ZYOO.KI.SEn (no change due to NoClash)

Type B O.to.KO → *O.TO.KO (no change due to NoClash)
HA.RU.ya.su.MI → HA.RU.YA.su.MI

While it is apparently more complex than the first scenario in (3.9) above, the analysis sketched in (3.10)-(3.14) is compatible with the tendency in (3.15), which was noted by Hyman (1977: 46) regarding the position of secondary prominence (or secondary stress in his description). This tendency cannot be captured by the scenario in (3.9) since it posits Kamimura's system as a point of departure, where the secondary prominence appears on the second mora rather than the initial one.

22 This initial lowering may be equivalent to the initial lowering found in present-day Tokyo Japanese: *a.ZA.ra.si* 'seal', 'sea calf', *yo.KO.HA.MA* 'Yokohama' (Haraguchi 1977).

(3.15) "The occurrence of an initial primary and a penultimate secondary stress, or of a primary penultimate and an initial secondary stress is not fortuitous. Rather it would appear that the intrinsic variations which give rise to stress-accent are always present, and can become grammaticalized at any time."

On the other hand, the scenario sketched in (3.10)-(3.14) has difficulties in explaining the development of Kamimura's old system into the present-day KosJ-Nakakoshiki system, the two systems found in the same village, Nakakoshiki, with a time difference of eighty years. From the scenario in (3.11) it will follow that initial lowering took place as the proto-system (2nd stage) developed into Kamimura's old system in (3.11b) but was then undone as the same proto-system developed, inevitably via Kamimura's system, into the KosJ-Nakakoshiki system today in (3.11c). This peculiar development is illustrated in (3.16). The historical scenario in (3.9) is free from this problem.

(3.16) a. Proto-system (2nd stage)
NA.TU.ya.SU.mi 'summer holiday'

b. Kamimura's old system
na.TU.ya.SU.mi

c. KosJ-Nakakoshiki system today
NA.TU.ya.SU.mi

We have so far considered two historical scenarios to account for the different behaviors of H_2 in the three systems of KosJ. I am inclined towards the first one, but it is difficult to find decisive evidence to argue against the second one. More data from other KosJ varieties may provide decisive evidence in the future.

To summarize, this chapter examined the nature and behavior of the secondary H tone in KosJ. Given the fact that its sister dialects such as KagJ and Nagasaki Japanese have only one (underlying) H tone per word, it is plausible to assume that KosJ, too, originally permitted only one H tone per word and that this old system survives in present-day KosJ-Taira spoken in the sole, isolated village on the central island. In the course of time, it developed a secondary H tone (H_2) in other villages, as a phrasal boundary tone marking the beginning of a new phrase. While the primary H tone (H_1) at/near the end of the word shows little or no historical change over the past eighty years, H_2 shows considerable variations both historically and geographically.

This chapter examined these variations by comparing three two-peak accent systems in KosJ: (i) the 'main stream' system described by Kamimura (1937) eighty

years ago, (ii) the present-day 'main stream' system that is found quite extensively on the island, including Kamimura's native village (KosJ-Nakakoshiki), and (iii) the one observed in the isolated village of Kuwanoura (KosJ-Kuwanoura) today. A careful comparison of the three systems revealed that their differences can be described by two features: the extent to which the secondary H tone spreads and the role of the NoClash constraint.

4 Syllable and accent

This chapter addresses various questions pertaining to the interaction between the syllable and word accent in KosJ from both diachronic and synchronic perspectives. The first section (Section 4.1) tackles the interesting question of how the moraic system of KosJ and the syllabic system of KagJ diverged from the same proto system, a topic that might relate crucially to the well-known fact that most Japanese dialects are mora-based rather than syllable-based today. Section 4.2 considers the accent patterns of so-called alphabetic acronyms such as *ET* 'Extra Terrestrial', *PTA* 'parent-teacher association', and *NHK* 'Nippon Hōsō Kyōkai' to demonstrate that their seemingly complex accent patterns can be reduced to a simple rule if the roles of the mora and the syllable are properly understood.

The final two sections examine the syllable structure of KosJ from general linguistic perspectives. Section 4.3 analyzes 'diphthongs', or tautosyllabic vowel sequences. While what actually constitutes tautosyllabic vowel sequences has been a matter of debate in Japanese phonology, KosJ provides conclusive evidence to this question since it is sensitive to the syllable and syllable boundaries in a variety of ways. The final section (Section 4.4) demonstrates that superheavy, i.e. trimoraic, syllables are disfavored in the mora-based system of KosJ, just as in its sister dialect of KagJ and the standard variety of Tokyo Japanese.

4.1 From mora to syllable

4.1.1 A puzzle

As we saw in Chapter 2, KosJ is strikingly similar to KagJ in the organization of word prosody. First, the two dialects both have two-pattern systems, systems with two accent classes (Type A and Type B), and they show little difference in the lexical items that belong to each class (Section 2.1). Second, they also resemble each other in employing the *bunsetsu* as the domain of word accent, thereby spreading the two lexical melodies to the basic syntactic phrase consisting of a content word and one or more optional grammatical particles (Section 2.2). Third, the two dialects also share the feature pertaining to the directionality of accent computation in calculating the prominent position from the right edge rather than from the left (Section 2.4). Fourth, they share the left-dominant compound accent rule whereby the accent type (A or B) of the leftmost member is inherited by the whole compounds (Section 2.5). These commonalities suggest that the two dialects descended from the same ancestor that possessed all the common features.

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Despite these similarities, the two sister dialects differ in two crucial respects. First, many varieties of KosJ have two-peak systems, while KagJ has a one-peak system. We considered this difference in the preceding chapter and concluded that the two-peak systems developed historically from a one-peak system in KosJ. The remaining major difference between KosJ and KagJ concerns the use of the mora and the syllable in accent computation. As mentioned in Section 2.3, KosJ is a typical mora-counting dialect where the position of H tones is determined by measuring phonological distances by the mora. This contrasts quite sharply with the syllable-counting system of KagJ where the position of H tone is computed by counting the number of syllables. This raises the question of how the crucial difference emerged between the two sister dialects historically.

Let us first consider this question from a wider perspective. As we saw in Section 2.3 above, McCawley (1978) proposed the following typology based on two independent notions: 'counting unit' and 'accent-bearing unit'. The former refers to the phonological unit used to measure phonological distances for accent computation whereby languages fall into two types, 'mora-counting' and 'syllable-counting' languages. On the other hand, the notion of 'accent-bearing unit' is equivalent to that of 'tone-bearing unit' used in the description of tone languages. The two notions are mutually independent, thus yielding four types of systems as given in Table 4.1.

Table 4.1: Two-way classification of languages (McCawley 1978).

Accent-bearing unit / Counting unit	**Syllable**	**Mora**
Syllable	Polish	Beja (Sudan)
Mora	Latin Tokyo Japanese	Lithuanian

In this typology, standard Tokyo Japanese is defined as a 'mora-counting, syllable system', a hybrid system where the mora serves as a counting unit, while the syllable serves as an accent-bearing unit, or a unit to which the accent is actually assigned. The separation of the two types of units is required to account for the fact that not every mora can bear an accent in this dialect. Specifically, the second mora of heavy syllables cannot bear an accent, so that any accent shifts one mora to the left if it is placed on a dependent mora, that is, the second half of long vowels and diphthongs, the moraic nasal, or the moraic obstruent (the first half of geminate consonants). This can be illustrated by the loanword accent rule in (4.1). This rule was originally proposed as a loanword accent rule, but it actually accounts for the accentuation of *accented* nouns in Tokyo Japanese, including native and Sino-Japanese words (Kubozono 2006, 2008a).

(4.1) Loanword accent rule in Tokyo Japanese (McCawley 1968)
Accent is placed on the syllable containing the third mora from the end of the word.

This 'antepenultimate rule' is exemplified in (4.2), where apostrophes indicate lexical pitch accent, or the location where an abrupt pitch drop occurs as a manifestation of the pitch accent. The crucial case is in (4.2b), where the accent on the antepenultimate mora is retracted because this mora is the second mora of a heavy syllable.

(4.2) a. ka'.na.da 'Canada', ba'.na.na 'banana', ro.san.ze'.ru.su 'Los Angeles', so'.u.ru 'Seoul', pu'.san 'Busan', pa.re'e.do 'parade'

b. ro'n.don 'London', wa.si'n.ton 'Washington', sa'i.daa 'cider, lemonade', kaa.ne'e.syon, 'carnation', e.re.be'e.taa 'elevator', ma'k.ku.su 'max', ba't.taa 'batter'

As we saw in Section 2.3 above, KosJ has a similar hybrid system. It is a mora-counting dialect since the position of the primary H tone is determined by the mora: it falls on the penultimate mora in Type A and on the final mora in Type B. On the other hand, the syllable serves as an accent-bearing unit in this system, too, because the H tone is accommodated within a syllable if it is assigned to a non-head mora of the syllable. Specifically, the H tone assigned to the second mora of a heavy syllable spreads to the entire syllable in KosJ-Taira, whereas it shifts to the head mora of the same syllable in KosJ-Teuchi and other KosJ varieties. These two processes are illustrated in (4.3) and (4.4), respectively. It is interesting to find that the one-peak system of KosJ-Taira is subject to H tone spreading, while two-peak systems of other KosJ varieties are subject to H tone shift. It is not clear how the emergence of two-peak systems in KosJ is historically related to the different tone rules in (4.3) and (4.4), but it is interesting that the sole village on the central island underwent different tonal changes from all the villages on the northern and southern islands.

(4.3) H tone spreading in KosJ-Taira
a. Type A
puU.ru → PUU.ru 'swimming pool'
paN.tu → PAN.tu 'underpants'
raI.su → RAI.su 'rice'
to.raN.pu → to.RAN.pu 'trump, Trump'

b. Type B
ni.hoN → ni.HON ‘Japan’
ya.saI → ya.SAI ‘vegetable’
i.na.bi.kaI → i.na.bi.KAI ‘lightening’
a.o.sin.goO → a.o.sin.GOO ‘green signal’

(4.4) H tone shift in KosJ-Teuchi
puU.ru → PUu.ru ‘swimming pool’
paN.tu → PAn.tu ‘underpants’
raI.su → RAi.su ‘rice’
to.raN.pu → to.RAn.pu ‘trump, Trump’

As for the tone shift rule in (4.4), it should be recalled that it occurs only in Type A words in KosJ-Teuchi and other two-pattern KosJ systems because it would neutralize the tonal contrast if it had also occurred in Type B words. For example, the process would turn the Type B words *NI.hoN* ‘Japan’ and *MI.kaN* ‘orange’ into *ni.HOn* and *mi.KAn*, which would be indistinguishable from the Type A words *si.HOn* ‘capital’ and *zi.KAn* ‘time’.

Returning to the discussion of language typology, integrating the three southern dialects – Nagasaki, KagJ, and KosJ – will yield a new picture depicted in Table 4.2, where KosJ and its sister dialects belong to different typological groups. This leads to the long-standing mystery in Japanese phonology, the question of why there exist typologically different systems in the geographically narrow region of south-western Japan today. The three sister dialects – KosJ, Nagasaki, and KagJ – all have two-pattern systems and look otherwise very similar to each other. As we will see below, the one-peak system of KosJ-Taira plays a key role in solving this mystery.

Table 4.2: Japanese dialects placed in McCawley’s (1978) typology.

Accent-bear unit / Counting unit	**Syllable**	**Mora**
Syllable	Polish *KagJ*	Beja (Sudan)
Mora	Latin Tokyo Japanese *KosJ*	Lithuanian *Nagasaki Japanese*

4.1.2 Solution

The diversity in KosJ and its sister dialects can be exemplified with Type A words in (4.5).

(4.5) Comparison of the three sister dialects (Type A)

Nagasaki	**KosJ-Taira**	**KagJ**	**gloss**
H on the second mora	H on the penultimate mora	H on the penultimate syllable	
o.BA.ma	o.BA.ma	o.BA.ma	Obama
baI.den	bai.DEn	BAI.den	Biden
kaA.taa	kaa.TAa	KAA.taa	Carter
to.RAn.pu	to.RAN.pu	to.RAN.pu	Trump

As we saw in Section 2.3, Nagasaki Japanese is a purely mora-counting dialect whose Type A words bear a H tone on the second mora regardless of whether it is the head mora of a syllable as in *o.BA.ma* and *to.RAn.pu* or a non-head mora as in *baI.den* and *kaA.taa*. The syllable seems totally irrelevant in this system. KagJ, in contrast, has a purely syllabic system where Type A words bear a H tone on the penultimate syllable, whether this syllable is monomoraic as in *o.BA.ma* or disyllabic as in *BAI.den*, *KAA.taa* and *to.RAN.pu*. The mora seems to play little or no role in this system (see Kubozono 2018d and Chapters 6 and 7 in this book for some lexical and postlexical evidence that this system is sensitive to the mora, too).

In contrast to these sister dialects, KosJ-Taira is a hybrid system that uses the mora to define the basic location of tonal prominence but is subject to the H tone spreading rule in (4.3). In using the mora as a basic counting unit, it is obviously closer to Nagasaki Japanese. However, it is similar to KagJ, too, since it refers to the syllable as a result of the H tone spreading rule in (4.3). The effects of this additional tone rule are highlighted with bold in Table 4.3, where KosJ-Taira forms are compared with those of a hypothetical mora-counting system with no spreading rule. Here, we focus on the structure (weight) of the two syllables in word-final position, since the H tone is assigned within this two-syllable window in both accent types in KosJ and KagJ alike. Since superheavy syllables are generally banned in this system, as we will see in Section 4.4, the four combinations – Light-Light, Heavy-Light, Light-Heavy, Heavy-Heavy – are an exhaustive list for the structure of the word-final two syllables.

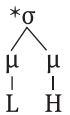
It is important to note here that the H tone spreading rule in (4.3) is of a rather general nature in general linguistic perspectives. Just like the H tone shift rule in

Table 4.3: Effects of H tone spreading.

Accent type	Word-final Syllable structure	Purely moraic system	KosJ-Taira (mora counting + H tone spreading)	gloss
Type A	. . . Light-Light	o.NA.go	o.NA.go	woman
	. . . Heavy-Light	**paN**.tu	**PAN**.tu	pants
	. . . Light-Heavy	ba.REe	ba.REe	volleyball
	. . . Heavy-Heavy	sai.DAa	sai.DAa	lemonade
Type B	. . . Light-Light	o.to.KO	o.to.KO	man
	. . . Heavy-Light	rin.GO	rin.GO	apple
	. . . Light-Heavy	mi.**kaN**	mi.**KAN**	orange
	. . . Heavy-Heavy	sen.**sel**	sen.**SEI**	teacher

(4.4), it is motivated by a force to avoid a marked tonal structure known as 'rising contour tone', schematized in (4.6) below.

(4.6) Constraint on rising contour tone



This structure is marked because the more prominent tone, i.e. H tone, is assigned only to the phonologically weak mora of the heavy syllable. The one-peak system of KosJ-Taira resolves this marked structure by spreading the H tone to the entire syllable as in (4.3), while the two-peak system of KosJ-Teuchi remedies the same structure by shifting the H tone one mora to the left, that is, onto the head mora of the heavy syllable as in (4.4). The former rule is widely found in African tone languages (Hyman 2007), while the latter is observed in Tokyo Japanese as we saw in (4.2b) above: e.g. *roN.don* → *ROn.don* 'London'. Thus, the two tone rules in (4.3) and (4.4) are well motivated and can be attributed to the constraint against rising contour tones in (4.6).

One should add here that H tone spreading in (4.3) as found in KosJ-Taira is observed in standard Tokyo Japanese and some dialects of Korean, too. In Tokyo Japanese, word-initial pitch is predictable in such a way that the word-initial two moras differ in pitch height: the initial mora is low and the second is high as in (4.7a) unless the initial mora is lexically accented (and H-toned) as in (4.7b). One notable exception to this rule is words beginning with a heavy syllable. In such a

case, the word-initial two moras are usually both H-toned as in (4.7c), with forms in (4.7d) being used very occassionally.[23]

(4.7) a. yo.KO.HA.MA 'Yokohama', a.ME.RI.KA 'America'
b. KA.na.da 'Canada', I.no.ti 'life'
c. OO.SU.TO.ri.a 'Austria', TOO.KYOO 'Tokyo'
d. ʔoO.SU.TO.ri.a, ʔtoO.KYOO

Notice that (4.7a) and (4.7c) are complementary to each other. If words are not initially-accented like (4.7b), words begin with a low pitch if they begin with a monomoraic syllable, as in (4.7a), while they begin with a high pitch if they begin with a bimoraic syllable, as in (4.7c). In these words, the weight/quantity of the initial syllable determines the pitch height of the initial mora. This can be attributed to the constraint prohibiting rising contour tones in (4.6), which precludes the pitch pattern in (4.7d): (4.7d) involves a marked structure whereby the second mora of heavy syllables is tonally more salient than the first mora despite the reverse relationship in syllable structure.

H tone spreading is also observed in Korean. Lee (2005) established the following three tonal patterns for South Kyungsang loanwords.[24] The tonal patterns are schematically shown in parentheses, where σ_L and σ_H denote light (monoraic) and heavy (bimoraic) syllables, respectively, whereas σ represents any syllable, light or heavy.[25]

(4.8) a. If the word begins with a heavy (bimoraic) syllable, its first two syllables are H-toned and the following syllables L-toned. ($\overline{\sigma_H\sigma}\backslash\underline{\sigma \ldots \sigma\#}$)

b. If the word begins with a light (monomoraic) syllable and ends in a heavy syllable, its initial syllable is L-toned and the remaining syllables H-toned.
($\underline{\sigma_L}\overline{\sigma \ldots \sigma_H}\#$

c. If the word begins with and ends in a light syllable, its initial and final syllables are L-toned, with all other syllables H-toned. ($\underline{\sigma_L}\overline{\sigma \ldots \sigma}\underline{\sigma_L}\#$)

In the loanword accentuation of this dialect, the pitch height of the word-initial syllable is predictable from its weight: if it is monomoraic as in (4.8b,c), it begins

23 (4.7d) is only permitted in very careful or exaggerated speech.

24 Similar patterns are reported for loanwords in North Kyungsang Korean (Kenstowicz and Sohn 2001)

25 See Kubozono (2018e) for a mora-based generalization of the three accent patterns.

with a L tone, while it begins with a H tone if it is bimoraic as in (4.8a). This is the same situation that we find in KosJ-Taira in (4.3) and Tokyo Japanese in (4.7). In all three cases, the pitch pattern of syllables is subject to the constraint in (4.6), which makes the entire heavy syllable H-toned to avoid a rising contour tone.

Returning to the H tone spreading rule in (4.3), Tables 4.2 and 4.3 showed that this general tone rule exerts an effect in only three out of eight phonological contexts in the KosJ-Taira system, as highlighted in bold: Heavy-Light structure in Type A and Light-Heavy and Heavy-Heavy structures in Type B. At first glance, this effect seems highly limited, but a closer examination reveals that it is actually not. This can be seen in Table 4.4, where the KosJ-Taira system is compared with the syllable-counting system of KagJ.

Table 4.4: Comparison of KosJ-Taira and KagJ.

Accent type	Word-final Syllable structure	KosJ-Taira (mora counting + H tone spreading)	KagJ (syllable counting)	gloss
Type A	. . . Light-Light	o.NA.go	o.NA.go	woman
	. . . Heavy-Light	PAN.tu	PAN.tu	pants
	. . . Light-Heavy	**ba.REe**	**BA.ree**	volleyball
	. . . Heavy-Heavy	**sai.DAa**	**SAI.daa**	lemonade
Type B	. . . Light-Light	o.to.KO	o.to.KO	man
	. . . Heavy-Light	rin.GO	rin.GO	apple
	. . . Light-Heavy	mi.KAN	mi.KAN	orange
	. . . Heavy-Heavy	sen.SEI	sen.SEI	teacher

The comparison in Table 4.4 shows that KosJ-Taira system exhibits identical pitch patterns with the syllable-counting system of KagJ in six out of eight contexts. In fact, these two systems have exactly the same patterns in Type B words. In addition, they produce identical pitch patterns in half of the contexts in Type A words, too. This means that the two systems yield identical outputs in six out the eight contexts in which the outputs are ambiguous between an entirely syllable-counting system (KagJ) and a mora-counting system with a tone spreading rule (KosJ-Taira). On the other hand, they differ only in the two contexts highlighted in Table 4.4, that is, only in Type A words ending in a heavy syllable: *ba.REE* vs. *BA.ree* 'volleyball' and *sai.DAa* vs. *SAI.daa* 'lemonade'.

This leads to a historical scenario whereby the syllable-counting system of KagJ derived from the hybrid system of KosJ-Taira, which, in turn, originated from

a purely mora-counting system like that of present-day Nagasaki Japanese. This scenario is summed up below:

(4.9) a. The common ancestor of all three dialects was an entirely mora-based and one-peak system as in present-day Nagasaki Japanese.

b. KosJ and KagJ developed from this moraic system into a proto KosJ/KagJ system that was a mora-counting system assigning a H tone on the penultimate mora (Type A) and on the final mora (Type B).

c. This proto-system became subject to the constraint against rising contour tones in (4.6). KosJ divided into two subsystems at this stage, one in which the marked system in (4.6) was resolved by H tone spreading (4.3) as in KosJ-Taira today and the other in which the same marked system was remedied by H tone shift (4.4) that occurred elsewhere in KosJ including KosJ-Teuchi today.

d. KagJ developed from the KosJ-Taira system via reanalysis.

The developments from the proto KosJ/KagJ system in (4.9b) into the KosJ-Taira system in (4.9c) and further into the syllabic system of KagJ in (4.9d) are exemplified in Table 4.5, where, again, we consider all four combinations of light and heavy syllables in word-final position for both Type A and Type B.

Table 4.5: A scenario of historical changes.

Accent type	Phonological context	Proto KosJ/KagJ	⇨KosJ-Taira	⇨KagJ
Type A	. . . Light-Light	o.NA.go	o.NA.go	o.NA.go
	. . . Heavy-Light	**paN**.tu	**PAN.tu**	PAN.tu
	. . . Light-Heavy	ba.REe	*ba.REe*	*BA.ree*
	. . . Heavy-Heavy	sai.DAa	*sai.DAa*	*SAI.daa*
Type B	. . . Light-Light	o.to.KO	o.to.KO	o.to.KO
	. . . Heavy-Light	rin.GO	rin.GO	rin.GO
	. . . Light-Heavy	mi.**kaN**	**mi.KAN**	mi.KAN
	. . . Heavy-Heavy	sen.**sel**	**sen.SEI**	sen.SEI

The KosJ-Taira system changed from the proto-system in three phonological contexts (highlighted in bold), whereas it remained unchanged in the remaining five contexts. This is the first step due to the emergence of the general H tone spreading rule in (4.3). Notice that the new KosJ-Taira system is still mora-counting, but

is nevertheless very similar to the KagJ system at the surface. In fact, the former system is identical to the latter in six out of eight phonological contexts. In other words, the KosJ-Taira system can be interpreted as a syllable-counting system with the exception of two notable contexts.

The second step involved tonal changes in these remaining two contexts, that is, in Type A words ending in a heavy syllable (italicized in Table 4.5). I propose that this second step was triggered by a reanalysis that took place among language-acquiring small children, who reinterpreted (or misinterpreted) the mora-counting system with a H tone spreading rule as an entirely syllable-counting system.

4.1.3 An alternative scenario

Let us now consider the other scenario, a scenario that assumes the other way around, namely, that the three sister dialects – Nagasaki, KagJ, and KosJ – originated from the KagJ-type syllable-counting system. This scenario posits that the syllable-counting system turned into the hybrid system of KosJ-Taira system first and then into an entirely mora-based system of Nagasaki type. This alternative scenario is illustrated in Table 4.6.

Table 4.6: An alternative scenario.

Accent type	Phonological context	Proto-system (KagJ type)	⇨KosJ-Taira	⇨Mora-counting system (Nagasaki type)
Type A	. . . Light-Light	o.NA.go	o.NA.go	o.NA.go
	. . . Heavy-Light	PAN.tu	*PAN.tu*	*paN.tu*
	. . . Light-Heavy	**BA.ree**	**ba.REe**	ba.REe
	. . . Heavy-Heavy	**SAI.daa**	**sai.DAa**	sai.DAa
Type B	. . . Light-Light	o.to.KO	o.to.KO	o.to.KO
	. . . Heavy-Light	rin.GO	rin.GO	rin.GO
	. . . Light-Heavy	mi.KAN	*mi.KAN*	*mi.kaN*
	. . . Heavy-Heavy	sen.SEI	*sen.SEI*	*sen.sei*

This scenario cannot be accepted for two major reasons. First, it is difficult to explain why the entirely syllable-counting system of KagJ changed into the hybrid system of KosJ-Taira, which is complex in being mora-counting while being subject to the contour tone constraint in (4.6). For example, it is hard to explain why *BA.ree* and *SAI.daa* changed into *ba.REe* and *sai.DAa* (highlighted in bold in Table 4.6), while

still keeping the syllable-counting assignment in Type B words such as *mi.KAN* and *sen.SEI*. The only way to justify this scenario would be to posit a system where Type A words are subject to mora-counting assignment, while Type B words follow a syllable-counting procedure. This type of hybrid system cannot be supported by any existing evidence either from Japanese dialects or from other languages.

Similarly, it is difficult to give a general account of the second step, i.e. the change from the KosJ-Taira system into the entirely mora-based system (italicized). For example, it is difficult to explain why *PAN.tu* (Type A) and *mi.KAN* (Type B) changed into *paN.tu* and *mi.kaN*. Tonal changes of this type cannot be motivated by any general rule or principle.

In sum, neither of the two steps assumed in the second scenario in Table 4.6 can be motivated by any general principle in tonal phonology.

4.1.4 Implications

We have so far established a historical scenario that can explain the differences in the three sister dialect: the mora-counting system of Nagasaki Japanese, the mora-counting system of KosJ-Taira with H tone spreading, and the syllable-counting system of KagJ. The proposed scenario in Table 4.5 posits a mora-counting system as their common ancestor. As for KosJ and KagJ, it specifically assumes a common ancestor assigning H tones on the penultimate mora (Type A) and on the final mora (Type B). This entirely moraic system turned into the KosJ Taira system first and then into the syllable-counting system of KagJ.

This analysis has several important implications for phonological theory in general and Japanese phonology in particular. First, a change from an entirely moraic system into an entirely syllabic system is not very difficult as might be generally imagined. A moraic system can develop into a syllabic system in just two steps, first by H tone spreading due to the constraint against contour tones and, secondly, by a reanalysis on the part of the language learners. It is not clear how old the proto system was, but given the differences we observe among the three sister dialects today, it seems that the entire development started and was completed within a relatively short period of time in the history of Japanese, probably in just a few centuries.

As for Japanese phonology, the proposed scenario cannot be taken as evidence in any direct way regarding the proto-Japanese system. On the one hand, the hypothesis that proto-Japanese was a syllable-based system is not supported, as the scenario assumes a mora-based proto-system of KagJ and KosJ (and Nagasaki). However, the scenario does not entirely preclude the possibility that the proto-Japanese system might have been a syllable-based one; the current analysis of the three southern dialects speaks neither for nor against this hypothesis. Similarly,

the current analysis cannot be taken as concrete evidence that the proto-Japanese system was a mora-based one. The scenario proposed here only covers the history of the three southern dialects in the long history of pitch accent in the language.

4.2 Accent of alphabetic acronyms

4.2.1 Alphabetic acronyms in Japanese

Alphabetic acronyms[26] such as *ET*, *PC*, *PTA* and *FBI* are used in Japanese as well as in English and other European languages. In fact, Japanese uses many alphabetic acronyms in daily conversations, newspapers and other communication media. Alphabetic acronyms are different from ordinary loanwords such as *bukku* (ブック 'book') and *konpyuutaa* (コンピューター 'computer') in being usually written in alphabetic letters rather than katakana letters. In orthography, therefore, they look the same as alphabetic acronyms used in English and other languages.

Alphabetic acronyms used in Japanese can be divided into two groups, those that are borrowed from other languages, notably English, and those that are coined in Japanese itself. These are illustrated in (4.10a) and (4.10b), respectively. However, these two types of alphabetic acronyms do not show any difference, either prosodically or otherwise.

(4.10) a. ET 'Extra Terrestrial', FA 'free agent', FM 'frequency modulation', PC 'personal computer', SF 'science fiction', PTA 'parent-teacher association', FBI 'Federal Bureau of Investigation', YMCA 'Young Men's Christian Association'

b. OL 'office lady, female office worker', SL 'steam locomotive', JR 'Japan Railways', NHK 'Nippon Hoso Kyokai', NTT 'Nippon Telegraph and Telephone Corporation', JTB 'Japan Travel Bureau'

In Japanese, these alphabetic acronyms show a high degree of prosodic variation depending on the dialect where they are spoken. Typical examples are given in (4.11).

26 In this book, the term 'acronym' is used to refer to an abbreviation formed from a string of initials, for which other terms such as 'initialism' and 'alphabetism' are sometimes used in the literature. 'alphabetic acronyms', therefore, refer to abbreviated words made up of the initial alphabetic letters of compound expressions, especially those that are pronounced as individual letters rather than words, i.e. *ET* as [i:ti:] not as [et].

(4.11)		/e.hu.ee/ 'FA'	/e.su.e.hu/ 'SF'	/pii.tii.ee/ 'PTA'
	Tokyo	e.HU.Ee	e.SU.E.HU	PII.TII.Ee
	Osaka	E.HU.Ee	e.su.e.HU	PII.TII.Ee
	KagJ	e.HU.ee	e.su.E.hu	pii.tii.EE
	KosJ-Teuchi	E.hu.Ee	E.su.E.hu	PII.tii.Ee

The prosodic variations in (4.11) contrast sharply with the situation of English and other Germanic languages, where alphabetic acronyms almost uniformly take the phrasal stress pattern, i.e., they receive a main stress on the final element and a secondary stress on the initial element.[27] As far as I know, English exhibits very little dialectal variation in this regard:

(4.12) ET [i:tí:], PC [pi:sí:], PTA [pì:ti:éi], YMCA [wàiemsi:éi]

The phrasal stress pattern in (4.12) may be related to the prosody of dvandva compounds, i.e. compound nouns with a coordinate structure, which generally take the phrasal stress pattern in many languages including English and other Germanic languages: e.g. *còca cóla, kìng-émperor, prodùcer-diréctor*. In other words, it is possible to analyze alphabetic acronyms in Germanic languages as a kind of dvandva compound.

Given the prosodic uniformity of alphabetic acronyms in these languages, one may naturally wonder about the source of the dialectal variations in Japanese alphabetic acronyms as shown in (4.11) and, more specifically, how alphabetic acronyms are processed by native speakers of the language. The data of each dialect are ambiguous in one way or another. The prosodic forms of alphabetic acronyms in one dialect can be ambiguously attributed to the loanword accent rule and the compound accent rule, whereas those of another dialect can be attributed to the stress pattern of the source language, i.e. English, as well as the compound accent rule of the dialect itself. My previous work (Kubozono 2010) demonstrated that alphabetic acronyms are generally processed as compound nouns in all the dialects examined. Dialectal differences such as those in (4.11) are relatively superficial differences that can be accounted for by the fact that different dialects have different rules of compound accent and different accent patterns for alphabetic letters.

Before discussing KosJ and other dialects, let us understand the phonological structure of alphabetic letters in Japanese. Alphabetic letters, all of which are pronounced with at least two moras in the language, fall into the three groups in

27 I owe this observation to Carlos Gussenhoven (personal communication). See English dictionaries for the stress pattern of alphabetic acronyms in the language.

(4.13) according to the number of syllables and moras they involve. No difference can be found among dialects in this respect.

(4.13) a. monosyllabic, bimoraic
ee (A), bii (B), sii [ʃiː] (C), dii (D), ii (E), zii [dʒiː] (G), ai (I), zyee [dʒeː] (J) kee (K), oo (O), pii (P), kyuu [kjɯː] (Q), tii [tiː] (T), yuu [jɯː] (U), bui (V), wai (Y)

b. disyllabic, bimoraic
e.hu (F), e.ru (L), e.mu (M), e.nu (N), e.su (S)

c. three or four moras
ei.ti~et.ti [ettʃi] (H), aa.ru (R), zet.to (Z), da.bu.ryuu (W), ek.ku.su (X)

4.2.2 Alphabetic acronyms in KosJ

In KosJ, English alphabets are all pronounced with the Type A pattern, a pattern with a (primary) H tone on the penultimate mora: e.g. *E.mu* 'M', *Oo* 'O', *WAi* 'Y'. Alphabetic acronyms follow the same pattern. In KosJ-Teuchi and other mainstream varieties of KosJ today, however, they exhibit apparently complex prosodic patterns that are quite different from those of the corresponding expressions in KagJ and other dialects. Specifically, many alphabetic acronyms display two pitch peaks or H tones rather than one in this dialect. Typical patterns are given in (4.14).

(4.14) a. E.su.E.hu 'SF', PII.tii.Ee 'PTA', EI.ti.BIi 'HB, hard and black (pencil)', BII.bii.SIi 'BBC, British Broadcasting Corporation', E.NU.EI.ti.KEe 'NHK', DA.BU.RYUU.EI.ti.Oo 'WHO, World Health Organization'

b. PII.SIi 'PC', II.TIi 'ET', BII.E.su 'BS, broadcasting satellite'

c. BUI.tii.Aa.ru 'VTR, video-tape recorder', EE.tii.Aa.ru 'ATR, Advanced Telecommunications Research (Institute)'

d. ZYEE.Aa.ru 'JR', PII.Aa.ru 'PR, public relations', AI.Ei.ti 'IH, induction heating'

As can be seen from the foregoing discussion, the basic pattern is the HLHL pattern given in (4.14a): the penultimate mora is H-toned, it is preceded by a L-toned syllable, and all syllables preceding this L-toned syllable are H-toned. On the whole, the H tone at the beginning of the word spreads over one or more syllables, while the H tone near the end is realized on just one mora. This HLHL pattern

is not observed if there is only one (heavy) syllable before the H-toned penultimate mora, as in (4.14b). In such a case, the initial syllable becomes H-toned, too. This second pattern can be interpreted as a special case of the basic pattern in (4.14a), namely, a case where the HLHL pattern shrinks to a simple HL pattern due to the lack of sufficient phonetic material for an intervening L tone.

Alphabetic acronyms show a deviation from the basic pattern in one more way. This third prosodic pattern occurs if the penultimate mora happens to be the second mora of a heavy syllable. In such a case, the H tone moves one mora to the left, as shown in (4.14c). The resulting pitch pattern resembles the standard HLHL one. This pattern can also be seen as a subtype of (4.14a), with the second peak shifted one mora to the left due to the inability of a non-syllabic mora to bear a H tone on its own. This is reminiscent of the relationship between the mora and accent in Tokyo Japanese, where the second, i.e. non-syllabic, mora of heavy syllables cannot bear an accent, triggering a leftward shift of the lexical accent or H tone (Section 2.3). In (4.14c), the first H tone moves to the left in accordance with the shift of the second H tone, so that the two H tones are separated by one L-toned syllable. This clearly indicates that the second H tone near the end of the word is phonologically predominant over the first H tone and that the domain of the first H tone is determined only after the location of the second H tone is fixed (Section 2.7).

The prosodic pattern illustrated in (4.14d) represents a combined effect of (4.14b) and (4.14c). Here, the second H tone is on the third mora from the end of the word since, like (4.14c), the penultimate mora is the second mora of a heavy syllable. Unlike (4.14c), however, this H-toned mora is preceded by only one (heavy) syllable. The word-initial syllable becomes H-toned, just as it does in (4.14b).

Having generalized the apparently complex prosodic patterns of alphabetic acronyms, let us point out that these variant patterns are not uniquely observed in alphabetic acronyms. Rather, they are observed in Type A words in general, reflecting the general principles regarding the interactions between the syllable/mora and accent in KosJ. Loanwords, for example, exhibit all the variant patterns in (4.14), as shown in (4.15). (4.15a) represents the most basic pattern, where the two H tones are separated by a single intervening L-toned syllable. (4.15b) exhibits no intervening L-toned syllable since there is only one syllable before the second H tone in Type A. (4.15c) involves the second H tone on the antepenultimate mora since the penultimate mora is the second mora of a heavy syllable.[28] Finally, (4.15d) represents the case where the effects of (4.15b) and (4.15c) are combined.

28 As mentioned in Section 4.1 above, this adjustment rule applies to Type A words, but not to Type B words because it would neutralize the two accent patterns if it had occurred in Type B as well: *MI.kaN*, **mi.KAn* 'orange' (Type B) vs. *zi.KAn* 'time' (Type A).

(4.15) a. MA.KU.DO.na.RU.do ‘McDonald’s’
WA.sin.TOn ‘Washington’
BA.DO.min.TOn ‘badminton’

b. RON.DOn ‘London’
SAI.DAa ‘lemonade’

c. A.ru.KOo.ru ‘alcohol’

d. AN.KOo.ru ‘encore’
WAN.PIi.su ‘one piece’

Having seen the prosodic patterns of loanwords – the basic pattern in (4.15a) and its variant patterns in (4.15b-d) – we can now understand how the prosodic patterns of alphabetic acronyms in KosJ come about. A comparison between (4.14) and (4.15) reveals that alphabetic acronyms display the prosodic patterns of Type A words in the main-stream varieties of KosJ. In other words, alphabetic acronyms in this dialect are processed as Type A words and are given the prosodic patterns characteristic of Type A.

This raises a question of why alphabetic acronyms in KosJ all take Type A pattern. Most loanwords in this dialect take the same accent pattern, but some take Type B pattern as shown in (4.16). This means that the uniform accent pattern of alphabetic acronyms cannot be attributed to the loanword accent rule.

(4.16) KOO.hiI ‘coffee’, AI.roN ‘iron’, HU.ran.SU ‘France’

More interestingly, alphabetic acronyms in the sister dialect of KagJ exhibit both accent types as illustrated in (4.17).

(4.17) a. Type A
e.su.E.hu ‘SF’, e.nu.ei.TI.kee ‘NHK’, da.bu.ryuu.ei.TI.oo ‘WHO’

b. Type B
pii.SII ‘PC’, bii.e.SU ‘BS’, bii.bii.SII ‘BBC’, pii.tii.EE ‘PTA’

These accent patterns can be attributed to the accent patterns of the initial members. Unlike KosJ, not all alphabetic letters are pronounced with Type A in this dialect. Rather, most monosyllabic letters are pronounced with Type B (H tone on the final syllable). What this means is that the two accent patterns in (4.17) can be attributed to the left-dominant compound accent rule of this dialect, the rule that preserves the accent pattern of the initial member in compounds

(Section 2.5). This analysis is illustrated in (4.18), where subscripts $_{(A)}$ and $_{(B)}$ denote that the word takes Type A or Type B, respectively.

(4.18) a. Type A
E.su $_{(A)}$ + E.hu $_{(A)}$ → e.su.E.hu $_{(A)}$ 'SF'
E.nu $_{(A)}$ + EI.ti $_{(A)}$ + KEE $_{(B)}$ → e.nu.ei.TI.kee $_{(A)}$ 'NHK'
da.BU.ryuu $_{(A)}$ + EI.ti $_{(A)}$ + OO $_{(B)}$ → da.bu.ryuu.ei.TI.oo $_{(A)}$ 'WHO'

b. Type B
PII $_{(B)}$ + SII $_{(B)}$ → pii.SII $_{(B)}$ 'PC'
BII $_{(B)}$ + E.su $_{(A)}$ → bii.e.SU $_{(B)}$ 'BS'
BII $_{(B)}$ + BII $_{(B)}$ + SII $_{(B)}$ → bii.bii.SII $_{(B)}$ 'BBC'
PII $_{(B)}$ + TII $_{(B)}$ + EE $_{(B)}$ → pii.tii.EE $_{(B)}$ 'PTA'

It is interesting that unlike KosJ, this dialect assigns Type B to some alphabetic letters. While it is not clear where this dialectal difference comes from, the accent patterns exhibited by alphabetic acronyms in this dialect can best be explained by its compound accent rule (Kubozono 2010). The same analysis accounts for the pitch patterns that alphabetic acronyms exhibit in KosJ. Namely, the data given in (4.14) above can also be accounted for in a principled manner if we assume that alphabetic acronyms are processed as compounds in this system, too, and are subject to its left-dominant compound accent rule. This is illustrated below.

(4.19) a. E.su $_{(A)}$ + E.hu $_{(A)}$ → E.su.E.hu $_{(A)}$ 'SF'
b. PIi $_{(A)}$ + SIi $_{(A)}$ → PII.SIi $_{(A)}$ 'PC'
c. BUi $_{(A)}$ + TIi $_{(A)}$ + Aa.ru $_{(A)}$ → BUI.tii.Aa.ru $_{(A)}$ 'VTR'
d. PIi $_{(A)}$ + Aa.ru $_{(A)}$ → PII.Aa.ru $_{(A)}$ 'PR'

The idea that alphabetic acronyms follow the compound accent rule across dialects can be further supported by the analysis of Tokyo Japanese (Kubozono 2003). This standard dialect displays entirely different pitch patterns for the same alphabetic acronyms, as we saw in (4.11) above. Most alphabetic acronyms in this dialect attract an accent on the initial syllable of their final member. This accent pattern can best be explained by its compound accent rule, this time a right-dominant accent rule whereby compounds preserve the lexical accent of their rightmost elements (Section 2.5). This is illustrated in (4.20), where surface pitch patterns are given in parentheses for comparison with those of KosJ and KagJ. As in KosJ, all alphabetic letters are pronounced with a pitch fall in this dialect, i.e. as lexically accented words as opposed to unaccented words. Alpha-

betic acronyms preserve the lexical accent of their rightmost member just like ordinary compound nouns illustrated in (4.21).[29]

(4.20) a. i'i + ti'i → ii.ti'i (II.TIi) 'ET'
b. bi'i + bi'i + si'i → bii.bii.si'i (BII.BII.SIi) 'BBC'
c. pi'i + a'a.ru → pii.a'a.ru (PII.Aa.ru) 'PR'
d. da'.bu.ryuu + e'i.ti + o'o → da.bu.ryuu.ei.ti.o'o (da.BU.RYU.EI.TI.Oo) 'WHO'

(4.21) a. re'mon + ti'i → remon-ti'i ~ remo'n-tii 'lemon tea'
b. di'.zu.nii + si'i → di.zu.nii-si'i 'Disney Sea'
c. zyu'u + a'a.ru → zyuu-a'aru '10 are (area)'

Note that the accent pattern in the outputs of (4.20) and (4.21) is distinct from that of morphologically simplex loanwords which, as shown in (4.22), attract an accent on the syllable containing the antepenultimate mora (McCawley 1968) or, equivalently, on the rightmost, non-final foot (Kubozono 2008a).

(4.22) a. pa'a.tii (PAa.tii) 'party'
b. kya'n.dii (KYAn.dii) 'candy'
c. i'i.zii (Ii.zii) 'easy'

Thus, there is a remarkable accentual difference between ordinary loanwords and alphabetic acronyms in Tokyo Japanese. Alphabetic acronyms in this dialect can be attributed to its compound accent rule.

In summary, alphabetic acronyms are pronounced in different ways in different Japanese dialects, but their accentuation can be explained in a principled manner by the compound accent rule across the dialects. The surface differences that different dialects exhibit for alphabetic acronyms are due to the fact that they pronounce alphabetic letters in different ways and, moreover, have different compound accent rules, i.e. left-dominant vs. right-dominant rules.

29 Tokyo Japanese admits the unaccented pattern in some alphabetic acronyms. For example, e.g. *e.su.e.hu* 'SF' in (4.11) exhibits no pitch fall. This second accent pattern emerges in very restricted phonological contexts, i.e. in four-mora alphabetic acronyms ending in a sequence of two light syllables (Kubozono 2003, 2010). It cannot be attributed to the compound accent rule in question.

4.3 Diphthongs

4.3.1 Background

'Diphthong' is a popular notion in phonology and is defined rather clearly in the literature: 'a vowel where there is a single (perceptual) noticeable change in quality during a syllable, as in English *beer*, *time*, *loud*' (Crystal 2008: 146). In many phonological studies, it is defined more simply as 'a tautosyllabic sequence of two vowels of different qualities', or a vowel sequence that belongs to the same syllable (Kubozono 2015a: 215).

Despite these definitions, however, 'diphthong' remains a fuzzy notion since its definitions hinge upon the vague notion of the 'syllable'. Crystal (2008: 467) defines this latter notion as 'a unit of pronunciation typically larger than a single sound and smaller than a word', but admits at the same time that 'providing a precise notion of the syllable is not an easy task'.

This raises a serious question in the studies of what McCawley (1978) called 'mora-counting languages' since the notion of the syllable is particularly difficult to define in these languages. Modern Japanese is no exception. For one thing, native speakers of the language have very little intuition about the syllable and syllable boundaries. For another, word accent and other phonological phenomena in Tokyo Japanese and most other Japanese dialects refer primarily to the mora and mora boundaries, while they refer to the syllable or syllable boundaries in very restricted ways. To take some examples, native speakers of Tokyo Japanese generally have a clear intuition about the number of moras in the words in (4.23), whereas they cannot answer with certainty how many syllables there are in the same words (/-/ and /./ indicate mora and syllable boundaries, respectively).

(4.23) Moras and syllables in Japanese

Mora count	Syllable count	gloss
to-yo-ta (3 moras)	to.yo.ta (3 syllables)	Toyota
ho-n-da (3)	hon.da (2)	Honda
ni-s-sa-n (4)	nis.san (2)	Nissan
o-ba-ma (3)	o.ba.ma (3)	Obama
to-ra-n-pu (4)	to.ran.pu (3)	Trump
bu-s-syu (3)	bus.syu (2)	Bush
ba-i-de-n (4)	bai.den (2?)	Biden
ka-a-ta-a (4)	kaa.taa (2)	Carter
ba-re-n-ta-i-n (6)	ba.ren.tain (3?)	Valentine

In (4.23), the number of syllables is particularly difficult to define in *baiden* 'Biden' and *barentain* 'Valentine' because of the diphthong-like vowel sequences involved: it is not clear how many syllables there are in /ai/ and /tain/ – or, equivalently, whether /ai/ is a legitimate diphthong in the language.

This shows up clearly in the lack of consensus in the literature of Japanese phonetics and phonology, where different scholars make different claims about the diphthongs permitted in the language. Kawakami (1977), for example, claimed that Japanese has the six diphthongs in (4.24). These sequences all appear in native Japanese morphemes as in *ai* 'Japanese indigo plant, indigo blue', *oi* 'nephew', *kui* 'pile', *mae* 'front', *ao* 'blue', and *koe* 'voice', although the language permits other vowel sequences, too, in its native morphemes, i.e. *ie* 'house', *ue* 'up, above', and *uo* 'fish'.[30]

(4.24) ai, oi, ui, ae, ao, oe

In contrast, Saito (1997) posited the five vowel sequences in (4.25) as the diphthongs in the same language. The first four are included in Kawakami's inventory in (4.24), while Saito added /au/ to the list although it does not generally appear in native or Sino-Japanese morphemes.

(4.25) ai, oi, ui, ae, au

Kibe (2000) and Kubozono (2004), on the other hand, argued that Japanese only has the three diphthongs in (4.26), on the basis of accentual evidence from KagJ. The three vowel sequences they posit as diphthongs are also included in the inventories in (4.24) and (4.25).

(4.26) ai, oi, ui

The situation is made more complicated by the fact that Japanese dialects rely on the syllable and syllable boundaries in different ways and to different degrees. At one end of a continuum, one finds a purely moraic dialect like Nagasaki Japanese where, as we saw in Sections 2.3 and 4.1 above, the syllable seems to play no role. Most loanwords in this dialect, for example, exhibit the Type A pattern in this two-pattern system and bear a H tone on the second *mora*, whether it is the head

30 In contrast, Sino-Japanese morphemes permit only two vowel sequences, /ai/ and /ui/.

mora or a non-head mora of the relevant syllable[31] (Matsuura 2014). This is shown in (4.27), where H-toned moras/syllables are denoted by capital letters.[32]

(4.27) ba.NA.na 'banana', iN.do 'India', paA.tii 'party', pa.REe.do 'parade', roN.don 'London', o.BA.ma 'Obama', to.RAn.pu 'Trump', BUs.syu 'Bush', baI.den 'Biden', kaA.taa 'Carter'

While Nagasaki Japanese has a purely moraic system, its sister dialect, KagJ, is located at the other end of the mora-syllable continuum. This latter system is known as a purely syllabic system in which the syllable is used both as a counting and a tone-bearing unit. Thus, Type A words bear a H tone on the second *syllable* counted from the end of the word.[33]

(4.28) ba.NA.na 'banana', IN.do 'India', PAA.tii 'party', pa.REE.do 'parade', RON.don 'London', o.BA.ma 'Obama', to.RAN.pu 'Trump', BUS.syu 'Bush', BAI.den 'Biden', KAA.taa 'Carter'

All pitch accent systems of Japanese can be defined between Nagasaki and KagJ on the same mora-syllable continuum: most of them are basically moraic in the sense that they use the mora as a counting unit, while also showing sensitivity to the syllable to a certain extent. As we saw in (4.2) above, for example, standard Tokyo Japanese places a lexical pitch accent (or underlying H* tone) on the third mora from the end of the word in many words including loanwords. This is illustrated in (4.29a). This rule admits exceptions if the antepenultimate mora is a non-head mora of the syllable. In this case, the accent 'shifts' one mora to the left, i.e. to the head mora of the same syllable, as shown in (4.29b) (McCawley 1968). This prompted McCawley (1978) to analyze Tokyo Japanese as a 'mora-counting, syllable language'.

31 As mentioned in Section 1.4, non-head moras in Japanese generally fall into four types: the second half of long vowels and diphthongs, the moraic nasal, and the first half of geminate (or long) consonants. Head moras are the most sonorous sound and the leftmost mora in the relevant syllable, e.g. /a/ in /an/, /a/ in /ai/.

32 According to Matsuura (personal communication), coda obstruents as in *bus̲.syu* 'Bush' and *kot̲.ton* 'cotton' cannot carry a H tone by themselves in Nagasaki Japanese. In such cases, the H tone on the second mora shifts to the initial mora in trimoraic words, e.g. *BUs.syu*, **buS.syu*, and to the third mora in longer words, e.g. *kot.TOn,*koT.ton.*

33 This Right-to-Left tone assignment is another feature of KagJ which is not shared by Nagasaki Japanese.

(4.29) a. BA.na.na ‘banana’, In.do ‘India’, pa.REe.do ‘parade’, O.ba.ma ‘Obama’, to.RAn.pu, ‘Trump’, BUs.syu ‘Bush’

b. PAa.tii, *paA.tii ‘party’, ROn.don, *roN.don ‘London’, BAi.den ‘Biden’, KAa.taa ‘Carter’

Although the Tokyo system seems rather simple, the situation surrounding Japanese as a whole is not so simple or straightforward because different dialects are sensitive to the syllable and syllable boundaries in different ways and to different degrees. Seen conversely, this means that we need to look at each pitch accent system carefully in order to use dialectal data as evidence for syllable structure in the language. In the discussion of diphthongs, we need to proceed with our analysis in the following two steps:

(4.30) a. to clarify how each Japanese dialect is sensitive to the syllable and syllable boundaries.

b. to use the knowledge thus obtained to clarify in each system which vowel sequence belongs to the same syllable, i.e. behaves like *too* and *man*, and which involves a syllable boundary, i.e. behaves like *ka.ki* and *ma.do*.

Using this methodology, this section examines six pitch accent systems which differ considerably from each other in prosodic organization (see Map 5 for the location of each dialect): three systems in KosJ (Section 4.3.2), KagJ (Section 4.3.3.1), Kobayashi Japanese (Section 4.3.3.2), and Tokyo Japanese (Section 4.3.3.3). Section 4.3.4 discusses implications of Japanese data for the analysis of other languages. It also gives a summary of the major findings and remaining questions for future work.

4.3.2 Diphthongs in KosJ

4.3.2.1 KosJ-Taira

We first look at three pitch-accent systems of KosJ: (i) the one-peak system of KosJ-Taira, (ii) the two-peak system of main stream of KosJ as represented by

Map 5: Locations of the four dialects.

KosJ-Teuchi, and (iii) the two-peak system of KosJ-Kuwanoura.[34] These systems are sensitive to the syllable and syllable structure in different ways.

As already mentioned, KosJ-Taira is a variety of KosJ spoken by about 200 people in the sole village of Taira on the central island. Isolated from the other villages by the sea, this village has a pitch accent system different from the systems of all other villages in assigning only one H tone per word. Rather, it is similar to the KagJ system except that it counts the number of *moras*, and not *syllables*, when computing the position of the H tone: in other words, it is a moraic version of the KagJ system. Thus, Type A words bear a H tone on the penultimate *mora*, while their Type B counterparts have a H tone on the final *mora*. Hyphens here denote major morpheme boundaries within compounds.

34 The analysis of KosJ developed in this section is based upon the data of at least two speakers from each village, who read many words for each vowel sequence.

(4.31) a. Type A
A.me ‘candy’, o.NA.go ‘woman’, zi.KAn ‘time’, ba.REe ‘volleyball’, ni.gii-ME.si ‘rice ball’, na.tu-ya.SU.mi ‘summer holiday’

b. Type B
a.ME ‘rain’, o.to.KO ‘man’, ha.ru-ya.su.MI ‘spring holiday’

While it is basically a mora-counting dialect, it is sensitive to the syllable in one noticeable way. As described in (4.3) above, repeated below, the H tone assigned to the non-head mora of a heavy syllable spreads to its head mora. Because of this H tone spreading, Type A words bear a H tone on the syllable containing the penultimate mora if this mora is a non-head mora, while their Type B counterparts are H-toned on the entire syllable containing the final mora.

(4.32) H tone spreading in KosJ-Taira
a. Type A
puU.ru → PUU.ru ‘swimming pool’
paN.tu → PAN.tu ‘underpants’
raI.su → RAI.su ‘rice’
to.raN.pu → to.RAN.pu ‘trump, Trump’

b. Type B
ni.hoN → ni.HON ‘Japan’
ya.saI → ya.SAI ‘vegetable’
a.o.sin.goO → a.o.sin.GOO ‘green signal’

We can use this rule to examine which vowel sequence forms a diphthong in this one-peak system. This analysis shows that /ai/, /oi/, and /ui/ behave as diphthongs, whereas all other sequences do not.[35] This is exemplified in (4.33) and (4.34), respectively, where Type B words are marked with a lower case $_{(B)}$.

(4.33) a. /ai/ pu.RAI.do ‘pride’, a.ri.BAI $_{(B)}$ ‘alibi’
b. /oi/ DOI.tu ‘Germany’, KOI $_{(B)}$ ‘carp’
c. /ui/ KUI.zu ‘quiz’, SUI.ka ‘watermelon’[36]

35 /ei/ may be a fourth diphthong in the language, but it is excluded here because it is usually realized as a long vowel, i.e. [e:]. This book therefore interprets [ei] as a variant of the underlying long vowel, /ee/ or/e:/.

36 *suika* ‘watermelon’ is a Type A morpheme in this dialect, although it is a Type B morpheme in other KosJ varieties as well as KagJ.

(4.34) a. /au/ a.U.to, *AU.to ‘out’; pu.ra.U.do, *pu.RAU.do ‘proud’
b. /ae/ ka.E.de, *KAE.de ‘maple’; ma.E, *MAE $_{(B)}$ ‘front’
c. /ao/ ta.O.ru, *TAO.ru ‘towel’; a.sa.ga.O, *a.sa.GAO $_{(B)}$ ‘morning glory’
d. /oe/ a.ro.E-ga, *a.ROE-ga ‘aloe-NOM’; ko.E, *KOE $_{(B)}$ ‘voice’

To take one pair of examples, the Type A word *puraido* ‘pride’ in (4.33a) is H-toned on /rai/ rather than just /i/, indicating that the bimoraic sequence of /rai/ forms one syllable, i.e. the ‘syllable containing the penultimate non-head mora’. On the other hand, the word *puraudo* ‘proud’ in (4.34a) attracts a H tone only on /u/, which indicates that this single mora rather than the bimoraic sequence of /rau/ forms one syllable.

Similarly, Type B words like *aribai* ‘alibi’ and *koi* ‘carp’ in (4.33) are H-toned on the final two moras, which indidates that these two moras form the final syllable. In contrast, their counterparts in (4.34) such as *mae* ‘front’, *asagao* ‘morning glory’, and *koe* ‘voice’ are H-toned only on the very final moras. This indicates that /ae/, /ao/, and /oe/ are disyllabic sequences involving a syllable boundary. Thus, word accent provides clear evidence that /ai/, /oi/, and /ui/ constitute diphthongs in the mora-counting system of KosJ-Taira, while all other vowel sequences split into two syllables.

4.3.2.2. KosJ-Teuchi

Like KosJ-Taira, KosJ-Teuchi also has a two-pattern system in which a H tone is assigned on a moraic basis: on the penultimate and final moras in Type A and Type B, respectively. However, it is different from KosJ-Taira in being sensitive to the syllable in two unique ways.

First, the H tone near/at the end of the word shifts one mora to the left if it is linked to a non-head mora by rule. As illustrated in (4.4) above and repeated below, this H tone shift rule has the same function as H tone spreading in (4.32): it occurs to avoid rising contour tones sketched in (4.6) above, or a configuration where a H tone is linked to the less prominent mora of heavy syllables. H tone retraction in (4.35) remedies this marked structure by relinking the H tone to the more prominent mora within the same syllable in Type A words.

(4.35) H tone shift in KosJ-Teuchi
puU.ru → PUu.ru ‘swimming pool’
paN.tu → PAn.tu ‘underpants’
raI.su → RAi.su ‘rice’
to.raN.pu → to.RAn.pu ‘trump, Trump’

Second, KosJ-Teuchi differs from KosJ-Taira in displaying a secondary H tone at the beginning of three-mora or longer words (Sections 2.7 and 3.1). This secondary H tone is sensitive to the syllable in an interesting way: namely, it is separated from the following primary H tone by one syllable or at least by one head mora of a syllable. In other words, it spreads over multiple syllables at the beginning of the word, after the H tone shift in (4.35) has fixed the position of the primary H tone. This can be seen from the following examples.

(4.36) a. Type A
NI.GI.ri-ME.si 'rice ball'
NI.gii-ME.si 'rice ball (colloquial)'
WA.sin.TOn 'Washington'
WA.sin.TOn-ga 'Washington-NOM'
WA.SIN.ton-KA.ra 'from Washington'

b. Type B
AN.saN 'elder brother'
AN.san-GA 'elder brother-NOM'
AN.SAN-ka.RA 'from (the) elder brother'

In sum, KosJ-Teuchi is sensitive to the syllable in two ways: (a) it undergoes H tone shift in (4.35) to avoid a H tone on the non-head mora of a syllable, and (b) the two H tones are separated by a L-toned *syllable*. These syllable-sensitive features can be used to define syllable boundaries and, consequently, diphthongs in the system.

This analysis shows that in this system, too, /ai/, /oi/, and /ui/ readily form diphthongs, while other vowel sequences do not. For example, /ai/, /oi/, and /ui/ undergo H tone retraction if their second mora happens to be the target of the primary H tone in Type A words. This is illustrated in (4.37), where Type A words are H-toned on the antepenultimate mora rather than the penultimate one, e.g. *puRAido* 'pride', which is the evidence that H tone retraction has taken place. In contrast, /au/ and other vowel sequences fail to undergo this tone rule, as shown in (4.38): e.g. *PUraUdo* 'proud'. The data in (4.37) and (4.38) demonstrate that only /ai/, /oi/, /and /ui/ constitute tautosyllabic vowel sequences in this system.

(4.37) Accent test 1: H tone shift
a. /ai/ RAi.to, *ra.I.to 'right, light'; pu.RAi.do, *PU.ra.I.do 'pride'
b. /oi/ DOi.tu, *do.I.tu 'Germany'; ROi.do, *ro.I.do 'Lloyd'
c. /ui/ KUi.zu, *ku.I.zu 'quiz'; su.KUi.zu, *SU.ku.I.zu 'squeeze (in baseball)'

(4.38) a. /au/ PU.ra.U.do, *pu.RAu.do ‘proud’; RA.ba.U.ru, *ra.BAu.ru ‘Rabaul [place name]’
b. /ae/ ka.E.de, *KAe.de ‘maple’; A.KA-ga.E.ru, *A.ka-GAe.ru ‘red frog’
c. /ao/ ta.O.ru, *TAo.ru ‘towel’; ka.O.ri, *KAo.ri ‘scent’
d. /oe/ A.ro.E-ga, *a.ROe-ga ‘aloe-NOM’

The same results are obtained from a second accent test whereby syllable boundaries are defined by the domain of the L tone intervening between the secondary and primary H tones. For example, /rai/ rather than /i/ is L-toned in the middle of the Type A word *guraidaa* ‘glider’ in (4.39a), suggesting that this bimoraic sequence forms one syllable, i.e. a diphthong. Likewise, /oi/ and /ui/ are L-toned in (4.39b) and (4.39c), respectively, suggesting that these sequences, too, are legitimate diphthongs in this system.

(4.39) Accent test 2: Intervening L tone
a. /ai/ GU.rai.DAa ‘glider’
b. /oi/ NI.SI.doi.TU-ga ‘West Germany-NOM’
c. /ui/ A.O-sui.KA $_{(B)}$ ‘green water melon’

On the other hand, other vowel sequences fail to bear the intervening L tone as shown in (4.40). For example, *donau-gawa* ‘Danube River’ attracts the intervening L tone on /u/ rather than /nau/, indicating that /au/ splits into two syllables. The same is true of /ae/, /ao/, and /oe/.

(4.40) a. /au/ DO.NA.u-GA.wa, *DO.nau-GA.wa ‘Danube River’
b. /ae/ KA.e-U.ta, *kae-U.ta ‘parody of a song’
c. /ao/ TA.o.RU-ga, *tao.RU-ga ‘towel-NOM’
d. /oe/ A.RO.e-SYOo, *A.roe-SYOo ‘aloe dealer’

4.3.2.3 KosJ-Kuwanoura

The observation that only /ai/, /oi/, and /ui/ form diphthongs can also be borne out by the data from KosJ-Kuwanoura, spoken in a remote village in the north-western edge of the northern island (see Map 2 on page 6). This variety basically looks like KosJ-Teuchi sketched in the preceding subsection: it is a mora-counting, two-peak system subject to the H tone retraction in (4.35).

Yet, it is different from KosJ-Teuchi and other two-peak systems of KosJ in some crucial respects concerning the secondary H tone, as we saw in Sections 3.3 and 4.1. First, the secondary H tone is assigned to the initial two moras rather than spreading to the third and following moras. Second, it may clash with the

primary H tone, which is assigned from the end of the word. These facts suggest that the two H tones are assigned independently of each other. They also suggest that the secondary H tone at the beginning of the word is still a kind of boundary tone marking the word/phrase onset. These features are illustrated in (4.41), where KosJ-Teuchi forms are given in brackets for comparison.

(4.41) a. KE.DA.MOn [KE.da.MOn] 'wild animal'
b. KE.DA.mon-ka.RA-mo [KE.DA.MON-ka.RA-mo] 'from the wild animal, too'
c. NA.TU-ya.SU.mi [NA.TU-ya.SU.mi] 'summer holiday'
d. NA.TU-ya.su.mi-KA.ra [NA.TU-YA.SU.mi-KA.ra] 'from the summer holiday'
e. HA.RU-ya.su.MI [HA.RU-YA.su.MI] 'spring holiday'
f. HA.RU-ya.su.mi-ka.RA [HA.RU-YA.SU.MI-ka.RA] 'from the spring hoiday'

The secondary H tone at the beginning of words is sensitive to the syllable in such a way that it spreads to the third mora if this mora belongs to the same syllable as the second mora. In other words, the syllable containing the second mora is H-toned in addition to the initial mora in both accent types. This can be seen from the comparison of *NI.GI.ri-ME.si* 'rice ball' and its colloquial form *NI.GII-ME.si* in (4.42): the word-initial H tone spreads to the third mora in (4.42b), but not in (4.42a).

(4.42) a. NI.GI.ri-ME.si 'rice ball'
NI.GI.ri-me.SI-ga 'rice ball-NOM'

b. NI.GII-ME.si 'rice ball (colloquial)'
NI.GII-me.SI-ga 'rice ball (colloquial)-NOM'

Using this syllable-sensitive H tone spreading rule, we can readily examine which vowel sequence forms a syllable and which one involves a syllable boundary in this system. Results of this accent test are exemplified in (4.43) and (4.44). Again, only three vowel sequences – /ai/, /oi/, and /ui/ – exhibit a monosyllabic behavior. The secondary H tone spreads to the third mora in (4.43). Other vowel sequences fail to undergo this spreading rule, as in (4.44), indicating that there is a syllable boundary within the sequences.

(4.43) a. /ai/ KA.ZAI-MOn, *KA.ZA.i-MOn 'decoration'
b. /oi/ MA.GOI-KA.ra, *MA.GOi-KA.ra 'from the black carp'
c. /ui/ SU.KUI.ZU-ga, *SU.KU.i.ZU-ga 'squeeze-NOM'

(4.44) a. /au/ DO.NA.u-GA.wa, *DO.NAU-GA.wa ‘Danube River’
b. /ae/ TE.MA.e-KA.ra, *TE.MAE-KA.ra ‘from this side’
c. /ao/ MA.KA.o-KA.ra, *MA.KAO-KA.ra ‘from Macau’
d. /oe/ A.RO.e-SYOo, *A.ROE-SYOo ‘aloe dealer’

In addition to this, KosJ-Kuwanoura is sensitive to syllable boundaries in the same way as KosJ-Teuchi with its primary H tone being subject to H tone retraction in (4.35). This accent test shows exactly the same results as those obtained for KosJ-Teuchi given in (4.37)-(4.38). In sum, the two accent tests in this system – one for the secondary H tone and the other for the primary H tone – show the same results as to dipthonghood: /ai/, /oi/, and /ui/ behave the same way as /aa/ and /an/, while other vowel sequences pattern with disyllabic sequences such as /a.ka/.

In summary, the three pitch-accent systems of KosJ today – the one-peak system of KosJ-Taira, the two-peak system of KosJ-Teuchi, and the two-peak system of KosJ-Kuwanoura – all show one and the same result as to which vowel sequence is integrated into one syllable. These three systems are sensitive to the syllable and syllable boundaries in different ways and to different degrees, but they all unambiguously show that only /ai/, /oi/, and /ui/ form legitimate diphthongs in KosJ.

4.3.3 Diphthongs in other Japanese dialects

4.3.3.1 KagJ

KagJ allows us to look into syllable structure in a more straightforward manner because, as already mentioned, it is a ‘syllable-counting, syllable dialect’. Recall that it is a two-pattern system that permits only two accent types or classes – Types A and B – regardless of the length of the word. These two classes bear a H tone on the penultimate and final *syllables*, respectively: e.g. *a.ka-SIN.goo* ‘red signal’ (Type A) and *a.o-sin.GOO* ‘green signal’ (Type B).

Like KosJ and unlike Tokyo Japanese, KagJ defines accent patterns within *bunsetsu*, or a basic syntactic phrase consisting of a content word (noun, verb, adjective, etc.) with one or more optional grammatical particles like the nominative particle *ga* (Section 2.2). Thus, the Type A morpheme *a.me* ‘candy’ takes a H tone on the penultimate syllable in the *bunsetsu* domain: *A.me* ‘candy’, *a.ME-ga* ‘candy-NOM’, *a.me-KA.ra* ‘from (the) candy’, etc. This domain feature is also shared by Kobayashi Japanese to be discussed in the next subsection.

Being sensitive directly to syllable boundaries, this dialect allows us to see in a direct way which vowel sequence belongs to one syllable and which to two syllables. This test reveals that the syllable-counting system is identical to the mora-counting systems of KosJ in permitting only /ai/, /oi/, and /ui/ as diph-

thongs. This is shown in (4.45). Other sequences behave like a sequence of two syllables, as shown in (4.46) (see Kubozono 2015a for more data showing that this observation holds across the two accent types and different lexical strata).[37] Again, lower case $_{(B)}$ means that the word takes a Type B pattern; unmarked words are Type A words.

(4.45) a. /ai/ a.KA-gai 'arch shell', pu.RAI.do 'pride', ni.mai-GAI$_{(B)}$ 'bivalve (shellfish)'
b. /oi/ ROI.do 'Lloyd', ni.wa.TOI$_{(B)}$ 'chicken', ni.OI$_{(B)}$ 'smell'
c. /ui/ SUI.su 'Switzerland', KE.mui 'smoke', ku.SUI$_{(B)}$ 'medicine'

(4.46) a. /au/ do.NA.u 'Danube', pu.ra.U.do 'proud'
b. /ae/ ka.E.de 'maple', ki-GA.e 'changing of clothes'
c. /ao/ mas-SA.o 'pale face', a.sa.ga.O$_{(B)}$ 'morning glory'
d. /oe/ a.RO.e 'aloe', oo-go.E$_{(B)}$ 'loud voice'
e. /eo/ bi.DE.o 'video', bi.de.O-ten 'video shop'

To take a few examples, *a.KA-gai* (Type A) in (4.45a) is H-toned on *ka*, which indicates that *gai* (voiced form of *kai* 'shellfish') forms a final syllable. Its Type B counterpart, *ni.mai-GAI*, is H-toned on *gai*, confirming that /ai/ functions as one syllable. The same is true of /oi/ and /ui/, too. On the other hand, /au/ and other vowel sequences behave like a sequence of two syllables. The Type A word *donau* 'Danube', for example, attracts a H tone on *na*, which means that its penultimate syllable consists of this single mora. Likewise, *pu.RAI.do* 'pride' in (4.45a) and *pu.ra.U.do* in (4.46a) clearly show that /au/ behaves differently from /ai/ in this system, too.

In sum, analysis of KagJ reveals the same picture as that of KosJ despite the fact that it is a syllable-counting dialect as opposed to a mora-counting one. Despite this difference, only /ai/, /oi/, and /ui/ constitute diphthongs in this dialect, too.

4.3.3.2 Kobayashi Japanese

Kobayashi Japanese is spoken in Kobayashi City in Miyazaki Prefecture, adjacent to Kagoshima Prefecture where both KosJ and KagJ are spoken. Despite this vicinity, Kobayashi Japanese is different from KosJ and KagJ (and also from Tokyo Japanese) in that it has a one-pattern pitch accent system permitting only one

37 That said, it must be added that /au/ appears only in loanwords, while /ae/, /ao/, /oe/, and /eo/ are not legitimate sequences in Sino-Japanese morphemes.

accent type (Section 2.1). This accent type had been known to involve a H tone in word-final position (Hirayama 1951: 218), but it was not certain whether this tone is assigned on a moraic or syllabic basis. A recent fieldwork study[38] has shown that it is a syllable-counting system with a H tone on the final *syllable* in every word, i.e. that all words are pronounced like Type B words in KagJ.[39] Some examples are given in (4.47).

(4.47) ron.DON 'London'
wa.sin.TON 'Washington',
syoo.TYUU 'elementary and secondary (schools)'
syoo.TYUU '*shochu* alcohol'

Having established that it is a syllable-counting system, one can now examine the behavior of various vowel sequences in word-final position. This analysis has shown the results in (4.48) and (4.49): the three vowel sequences in (4.48) readily form diphthongs, whereas other sequences in (4.49) refuse being integrated into one syllable. Again, /ai/, /oi/, and /ui/ are tautosyllabic vowel sequences in this syllable-counting, one-pattern system just as in the mora-counting, two-pattern systems of KosJ and the syllable-counting, two-pattern system of KagJ.

(4.48) a. /ai/ a.ri.BAI, *a.ri.ba.I 'alibi'; ne.ku.TAI, *ne.ku.ta.I 'necktie'
b. /oi/ ha.tu-KOI, *ha.tu-ko.I 'first love'; ni.wa.TOI, *ni.wa.to.I 'chicken'
c. /ui/ ku.SUI, *ku.su.I 'medicine'; bun.RUI, *bun.ru.I 'classification'

(4.49) a. /au/ do.na.U, *do.NAU 'Danube'; noo.ha.U, *noo.HAU 'know-how'
b. /ae/ ma.E, *MAE 'front'; kan.ga.E, *kan.GAE 'idea'
c. /ao/ ka.O, *KAO 'face'; a.sa.ga.O, *a.sa.GAO 'morning glory'
d. /oe/ oo-go.E, *oo-GOE 'loud voice'; a.ro.E, *a.ROE 'aloe'
e. /eo/ re.O, *REO 'Reo or Leo [proper name]'; bi.de.O, *bi.DEO 'video'

38 I did this fieldwork with Toshio Matsuura and Kumiko Sato.

39 We observed that, unlike Type B words in KagJ, words in Kobayashi often involve a pitch fall in final position when pronounced in isolation. Thus, *rondon* 'London' permits variant patterns like /ron.DOn/ or even /RON.don/. However, this word-final pitch fall disappears before another word or grammatical particle in connected speech, in which context we only observe a H tone on the final syllable, i.e. /ron.DON/. This suggests that the final pitch fall observed in citation form is a phrasal pitch feature signaling the end of the clause or utterance.

4.3.3.3 Tokyo Japanese

Unlike the dialects we have considered so far, Tokyo Japanese has a multi-pattern pitch accent system, or a system that permits a larger number of accent patterns or classes as the word becomes phonologically longer: two accent patterns for monosyllabic nouns, three patterns for disyllables, four patterns for trisyllables, etc. (Section 2.1). These patterns are differentiated from each other in terms of the presence or absence of an abrupt pitch fall as well as its position (Section 2.6). Disyllabic nouns, for example, fall into three accent classes: initially-accented words with a pitch fall before the second syllable, finally-accented words with a pitch fall between the second syllable and the following particle, and unaccented words with no abrupt pitch fall even when followed by a particle. As mentioned in Sections 2.3 and 4.1.1 above, this system is sensitive to the syllable in such a way that an accent assigned to non-head moras of heavy syllables usually shifts to the head mora of the same syllable.[40]

Using this syllable-sensitivity, Kubozono (2015a) analyzed which vowel sequence constitutes a diphthong in the system. This analysis revealed that /ai/, /oi/, and /ui/ are subject to the accent shift as shown in (4.50), while other vowel sequences are resistant to the process, as exemplified in (4.51). Apostrophes indicate word accent in the system, or the position where an abrupt pitch fall occurs.

(4.50) a. /ai/ syoo.na'i-ga.wa 'Shonai River'
ma.sa'i-zo.ku 'the Masais'
b. /oi/ o.si.ro'i-ba.na 'marvel-of-Peru (flower)'
to.ru.su.to'i-den 'biography of Leo Tolstoy'
c. /ui/ kai.su'i-yo.ku 'swimming in the sea'
ko.tu.zu'i-e.ki 'bone marrow fluid'

(4.51) a. /au/ do.na.u'-ga.wa, *do.na'u-ga.wa 'Danube River'
rin.da.u'-zin, *rin.da'u-zin 'people of Lindau'
b. /ae/ ki.ga.e'-si.tu, *ki.ga'e-si.tu 'changing room'
na.e'-u.ri, *na'e-u.ri 'seedling seller'
c. /ao/ a.sa.ga.o'-i.ti, *a.sa.ga'o-i.ti '*asagao* (morning glory) market'
sa.o'-da.ke, *sa'o-da.ke 'bamboo pole'
d. /oe/ a.ro.e'-i.ti, *a.ro'e-i.ti 'aloe market'
e. /eo/ bi.de.o'-ten, *bi.de'o-ten 'video shop'

40 This 'accent shift' is obligatory for many native speakers but is an optional one for some (conservative) speakers. It is also obligatory for many words but not for some. This optionality is not directly relevant to the discussion here.

The idea that /ai/, /oi/, and /ui/ are the only real diphthongs in Tokyo Japanese can be further borne out by an analysis of baseball chants. According to Tanaka (1999), the phrase that baseball fans chant to cheer their favorite players consists of three musical notes plus a following pause ($). In the normal chant, this phrase corresponds to the player's name. Three-mora names show a straightforward alignment pattern whereby each mora is associated with a musical note irrespective of the syllable structure involved: (4.52a) consists of three monomoraic syllables, (4.52b) is a disyllabic name ending in a bimoraic syllable, and (4.52c) starts with a bimoraic syllable followed by a monomoraic one.

(4.52) a. |♩ ♩ ♩ $| b. |♩ ♩ ♩ $| c. |♩ ♩ ♩ $|
su zu ki sa ta n sa n ta
'Suzuki' 'Satan' 'Santa'

This mora-to-note correspondence is broken if the player's name consists of four or more moras (see Ito et al. 2019 for a theoretical analysis). The basic rule in such cases is to assign the name's last syllable to the last musical note. Thus, the last note corresponds to the last *syllable* of the player's name, whether it is a heavy syllable as in (4.53a) or a light one as in (4.53b).

(4.53) a. |♩ ♩ ♩ $| |♩ ♩ ♩ $|
i ti roo da a win
'Ichiro' 'Darwin'

b. |♩ ♩ ♩ $| |♩ ♩ ♩ $| |♩ ♩ ♩ $|
na gasi ma zu ree ta sa nta na
'Nagashima' 'Zureta' 'Santana'

/ai/ and /au/ display different patterns with respect to this syllable-to-note association rule. Namely, /ai/ is assigned to the last musical note, but /au/ splits into two, with /a/ and /u/ being associated with different notes. This fact is illustrated in (4.54), where *o.ti.ai* in (4.54a) patterns with *i.ti.roo* in (4.53a), whereas *rin.da.u* in (4.54b) behaves like *san.ta.na* in (4.53b). This demonstrates that /au/ functions as a sequence of two syllables.

(4.54) a. |♩ ♩ ♩ $| b. |♩ ♩ ♩ $|
o ti ai ri nda u
'Ochiai' 'Lindau'

This analysis can be extended to vowel sequences other than /ai/ and /au/. Although people's names seldom end in a vowel sequence, we can readily use common nouns as test words instead. In (4.55)-(4.56), chunks corresponding to each musical note are separated by a dash /—/. This analysis shows that *makiroi* 'McIlroy' and *kinsui* 'Kinsui' in (4.55) pattern with *i.ti.roo* 'Ichiro' and *daa.win* 'Darwin' in (4.53a). This, in turn, suggests that /oi/ and /ui/ form one syllable on their own. On the other hand, *masanao* 'Masanao' in (4.56a) patterns with *na.ga.si.ma* in (4.53b), suggesting that there is a syllable boundary between /a/ and /o/ in /ao/. Other vowel sequences in (4.56) also involve a syllable boundary.

(4.55) a. /oi/ ma—ki—roi 'McIlroy [proper name]'
b. /ui/ ki—n—sui 'Kinsui [proper name]'

(4.56) a. /ao/ ma—sa.na—o, *ma—sa—nao 'Masanao [proper name] '
b. /ae/ ma—tu.ma—e, *ma—tu—mae 'Matsumae [proper name]'
c. /eo/ i—wa.se—o, *i—wa—seo 'Iwaseo [proper name]'
d. /oe/ ka—wa.go—e, *ka—wa—goe 'Kawagoe [proper name]'

4.3.4 Conclusions and implications

In this section (Section 4.3), we analyzed five pitch accent systems of Japanese which differ from each other in prosodic organization. The three systems of KosJ are mora-counting systems like Tokyo Japanese, but with only two contrastive pitch patterns like KagJ. Moreover, two of the three systems display two H tones – secondary and primary – in relatively long words. KagJ and Kobayashi Japanese, in contrast, are syllable-counting dialects as opposed to mora counting, with two distinctive accent patterns in the former and just one pattern in the latter. Finally, Tokyo Japanese is different from all these systems in permitting multiple accent patterns. Like KosJ, it uses the mora as a counting unit and the syllable as an accent-bearing unit.

In addition to these differences, the five systems also differ in the ways they are sensitive to the syllable and syllable structure. The two syllable-counting dialects – KagJ and Kobayashi – allow us to define syllable boundaries in an unambiguous manner. KosJ and Tokyo Japanese, on the other hand, refer to the syllable to a lesser extent than the mora and, moreover, they are sensitive to the syllable in different ways and to different degrees. Tokyo Japanese is subject to an accent shift rule if the accent is placed on the non-head, i.e. second, mora of heavy syllables, to avoid the marked structure with a phonological prominence on a phonologically weak (or less sonorous) mora in heavy syllables. This accent shift rule provides an accent test for syllable boundaries. As for KosJ, the two-peak systems

of KosJ-Teuchi and KosJ-Kuwanoura exhibit a leftward shift of the primary H tone within heavy syllables to avoid the same marked structure. In contrast, the one-peak system of KosJ-Taira shows H tone spreading rather than H tone shift for the same purpose. Furthermore, KosJ-Kuwanoura is additionally subject to the rightward spreading of the secondary H tone in word-initial position.

Despite these differences, the five pitch accent systems show one and the same result with respect to diphthonghood. The accent tests all indicate that they permit only three vowel sequences, i.e. /ai/, /oi/, and /ui/, as diphthongs, or tautosyllabic vowel sequences (see Footnote 35). In the future, we need to expand the scope of the current study to analyze other pitch accent systems of the language, first by clarifying how each pitch accent system is sensitive to the syllable and syllable boundaries and, secondly, what their syllable-sensitivity reveals about diphthongs and other issues pertaining to the syllable.

Our analysis of diphthongs in Japanese dialects has some implications for the analysis of other languages. One implication is that we can say something conclusive about diphthongs and syllable structure in languages in which the mora plays dominant roles. Except for purely moraic languages like Nagasaki Japanese, mora-counting languages rely on the syllable at least to some extent. What one can do is to understand how the language is sensitive to the syllable and/or syllable boundaries and then to use that knowledge to clarify syllable structure in the system. Using these two steps, it is possible to analyze syllable structure of mora languages.

Another implication concerns the interesting discrepancy between /ai/ and /au/ across Japanese dialects. More generally, vowel sequences ending in /i/ readily form diphthongs, whereas those ending in /u/ do not, at least not in the Japanese dialects we considered. Previous studies showed that this discrepancy in modern Japanese can be accounted for from a historical viewpoint and also can be seen in various phonological phenomena other than word accent (Kubozono 2005, 2008b, 2015a). We can expand this analysis to other languages to see if they might also exhibit an analogous asymmetry.

It is worth pointing out in this regard that Kubozono (2005) looked at three languages and confirmed that /ai/ and /au/ behave differently in each language. In English, for example, while /ai/ and /au/ both form legitimate diphthongs, they nevertheless show marked differences in terms of frequencies and cooccurrence restrictions with the following consonant (Hammond 1999). Korean displays patterns more similar to Japanese. Present-day Korean has no diphthongs, but Middle Korean had six (Lee and Ramsey 2011: 161): /ɨi/, /ui/, /əi/, /oi/, /ai/, and /ʌi/. Interestingly, all these sequences end in [i], which suggests that sequences ending in [u] are somehow unstable as tautosyllabic vowel sequences in Korean, too. Kubozono (2005, 2015a) adds that Romanian exhibits a similar asymmetry between [ai] and [au]. [ai] and [au] may be legitimate diphthongs in some lan-

guages like English, but a careful analysis may reveal that they nevertheless show some critical differences. If the discrepancy in question is attested in a fairly wide range of languages, one can then ask why such a discrepancy may occur at all.

4.4 Superheavy syllables

4.4.1 Background

In the preceding section we discussed what vowel sequence forms a diphthong in KosJ and other Japanese dialects. Another interesting issue about syllable structure in Japanese is whether and to what extent superheavy, i.e. trimoraic, syllables are permitted. As mentioned in Section 1.2.2, syllable weight is a notion combining the mora and the syllable, traditionally used in the description of ancient Greek (Allen 1973). Specifically, it assumes three types of structures depending on their phonological weight or length which can be structurally defined.

(4.57) a. light syllables
b. heavy syllables
c. superheavy syllables

By definition, these types of syllables consist of one, two, and three moras, respectively. What counts as a heavy syllable varies slightly from one language to another (Zec 1995, 2011, Hayes 1995): in Latin and most Japanese dialects including Tokyo Japanese, heavy syllables consist of (i) open syllables with a long vowel or diphthong or (ii) closed syllables with a short vowel.

While superheavy syllables form a third type of syllable in the theory of syllable weight, the existence of superheavy syllables is controversial since many languages exhibit a tendency to avoid them. This is very evident in the history of European languages. Latin, for example, attempted to avoid this marked structure by turning long vowels into short ones in closed syllables. This process, generally known as 'closed syllable vowel shortening', had an effect of changing trimoraic syllables into bimoraic ones. Another process affecting the weight of syllables is 'open syllable vowel lengthening', by which short vowels became long in open syllables. These two processes are illustrated in (4.58), where /ŏ/ and /ō/, for example, denote short and long vowels, respectively (Martinet 1955, Kubozono 1995a).

(4.58) a. Open syllable vowel lengthening (Light → Heavy)
rŏ.ta → rō.ta ‘wheel’

b. Closed syllable vowel shortening (Superheavy → Heavy)
stēl.la → stĕl.la ‘star’

The two processes in (4.58) are two sides of a single coin: they conspired to transform the trichotomous system in (4.57) into a system which only permits the intermediate syllable weight, i.e. heavy syllables. They also served to make vowel length a redundant and predictable feature in the system: long and short vowels appear in a complementary manner in the new system, as long vowels occur only in open syllables and short vowels only in closed syllables.[41] This lack of phonological contrast in vowel length is known as ‘isochrony’ (or ‘isochronie’) in the literature (Martinet 1955).

The history of ‘isochrony’ can be more clearly reconstructed in English, where the two processes in (4.58) occurred over more than one thousand years. Specifically, open syllable vowel lengthening first occurred in monosyllabic words and spread to polysyllabic words, whereas closed syllable vowel shortening occurred in the opposite direction (Árnason 1980, Kubozono 1995a). The state of isochrony was not fully established in this language since the two processes, especially closed syllable vowel shortening in monosyllabic words, did not occur completely.

(4.59) a. Open syllable vowel lengthening in stressed syllables (Light → Heavy)
hwă → hwā ‘who’ (4th century~)
nŏ.se → nō.se ‘nose’ (12–14th century)

b. Closed syllable vowel shortening in stressed syllables (Superheavy → Heavy)
gōd spell → gŏdspell ‘gospel’ (6–7th centry)
kēp.te → kĕp.te ‘kept’; mēt.te → mĕt.te ‘met’ (11th century)
gōn → gŏn ‘gone’; dūn → dŭn ‘done’ ; sēd → sĕd ‘said’ (15–16th century)

Given the general tendency towards heavy syllables in European languages, one might wonder if Japanese would show the same tendency, particularly the tendency to avoid superheavy syllables. This question was not at issue in Japanese phonology until quite recently. The main reason is that long vowels and diph-

41 This is closely related to the well-known fact that vowels in closed syllables are phonetically shorter than those in open syllables across languages (Maddieson 1985).

thongs cannot take a coda consonant in native and Sino-Japanese morphemes. In historical perspectives, neither long vowels/diphthongs nor coda consonants existed in Old Japanese and they did not co-occur in a syllable even after they were introduced into the language (Kubozono 1995a). Because superheavy syllables did not exist in the history of the language, this type of syllable weight was not discussed in Japanese phonology. If one looks at loanword phonology, however, one finds several seemingly independent phenomena that can all be attributed to the tendency against this syllable type. These phenomena are described in (4.60), where relevant syllables are underlined (Kubozono 1995a, 1999, 2015b).

(4.60) a. Consonant gemination and antigemination
kap.pu 'cup' vs. kaa.pu, *kaap.pu 'carp'
bak.ku 'back' vs. bai.ku, *baik.ku 'bike'

b. Pre-nasal vowel shortening
su.ten.re.su, *su.tein.re.su 'stainless'
tyen.zi, *tyein.zi 'change'
ken.bu.riz.zi, *kein.bu.riz.zi 'Cambridge'
kon.bii.fu, *koon.bii.fu 'corned beef'
gu.rin.pii.su, *gu.riin.pii.su 'green peas'
men.te.nan.su, *?mein.te.nan.su 'maintenance'

c. Nasal deletion
a.rai.men.to. *?a.rain.men.to 'alignment'
en.taa.tei.men.to, *?en.taa.tein.men.to 'entertainment'

d. Vowel insertion
ai.su.ku.rii.mu, *ai.su.ku.riin 'ice cream'

e. Vowel coalescence (au → o)
pon.do, *paun.do 'pound'
on.su, *aun.su 'ounce'

The phenomenon in (4.60a) shows a contrast between gemination and so-called 'antigemination'. Gemination is a very common process in Japanese loanwords which takes place after short vowels but not after long vowels or diphthongs (Lovins 1975, Quackenbush and Ohso 1990, Kubozono, Takeyasu and Giriko 2013, Kawagoe 2015). This restriction was attributed to a phonotactic constraint prohibiting long vowels/diphthongs from co-occuring with geminate obstruents, but this generalization is merely a restatement of a fact that is far from an explanation. Seen from the viewpoint of syllable weight, gemination after short vowels yields heavy syllables in words that would otherwise have light syllables: e.g.

kap.pu, **ka*.pu 'cup'. On the other hand, non-gemination after long vowels and diphthongs also results in heavy syllables, while gemination in this context would yield trimoraic syllables: e.g. *kaa.pu*, **kaap*.pu 'carp'. Considered together, consonant gemination after short vowels and non-gemination after long vowels and diphthongs exerted a common effect: they both produced heavy syllables in preference to light and superheavy syllables. Seen in this light, the occurrence or non-occurrence of consonant gemination in Japanese loanwords achieves the same function that vowel lengthening in open syllables and vowel shortening in closed syllable played in the systems of Latin and English above.

Vowel shortening in (4.60b) can also be interpreted in the same way. English tense vowels and diphthongs are usually borrowed as long vowels and diphthongs in Japanese, but they tend to be shortened when they are followed by a coda nasal. In other words, Japanese generally convert CVVC syllables (where coda C is a nasal) into CVC by shortening long vowels or deleting the second half of diphthongs. Lovins (1975) called this process 'pre-nasal vowel shortening', but this does not explain why long vowels and diphthongs tend to be shortened in this particular context. On the other hand, an analysis based on syllable weight provides a principled account. Under this analysis, the bimoraic vowel sequences are converted to monomoraic length because they would otherwise create superheavy syllables together with the coda nasal. Vowel shortening in this context yields heavy syllables out of superheavy ones: **su.tein.re.su* → *su.ten.re.su* 'stainless' (see the next section for exceptions).

The processes in (4.60c-e) are minor ones, each of which accounts only for sporadic examples. In (4.60c), coda nasals were deleted in syllables which would otherwise have resulted in superheavy ones (CVVC): e.g. **en.taa.tein.men.to* → *en.taa.tei.men.to* 'entertainment'.[42] The word 'ice cream' in (4.60d) shows an interesting history, too. This word first entered Japanese as *ai.su.ku.rin*, whose final syllable consisted of a short vowel and a moraic nasal. In the course of time, however, the vowel became long probably because it comes from a tense vowel in the source language. Interestingly, this change was accompanied by a change in the status of the final consonant: it changed from the coda nasal into an onset consonant to form a new syllable together with the following epenthetic vowel. This seemingly peculiar phenomenon can be accounted for in a reasonable way if interpreted in terms of syllable weight. Since Japanese did not tolerate superheavy syllables in the final position, i.e. */riin/, it chose to divide it into two syllables by inserting an epenthetic vowel at the end, turning the nasal into the onset

42 Coda nasals were deleted in these words probably because of the nasal /m/ in the immediately following syllable.

of a new syllable: i.e. */riin/ → /rii.mu/. Finally, (4.60e) shows sporadic instances of vowel coalescence in loanwords whereby /au/ was shortened to /o/ (see Kubozono 2015a for more details about vowel coalescence). This change, too, exerted an effect of creating heavy syllables out of strings that might otherwise have yielded trimoraic ones: e.g. *<u>paun</u>*.*do* → *<u>pon</u>*.*do* 'pound' (which is now homophonous with *pon.do* 'pond' in the language).

In summary, all the phenomena in (4.60) can be generalized in a principled manner under the analysis of syllable weight. In segmental terms, they represent different processes that seem unrelated to each other. If seen from the viewpoint of syllable weight, however, they can be seen to occur for a common target – to avoid creating superheavy syllables. This is a case of 'conspiracy' in Kisseberth's terminology (Kisseberth 1970). In the current framework of Optimality Theory, all the phenomena in (4.60) can be accounted for by the universal constraint in (4.61) (Prince and Smolensky 1993/2004).

(4.61) Trimoraic syllable ban (*$\sigma_{\mu\mu\mu}$)

Seen conversely, the five cases in (4.60) have demonstrated a wide range of options that languages can take to avoid superheavy syllables. Vowel shortening in closed syllables in (4.58b) and (4.59b), which is widely observed in European languages, is certainly not the only solution to avoid this marked syllable structure. Japanese data can thus contribute to general linguistics by showing that the marked structure can be avoided in multiple ways in a single language. The data and discussions in the following section reinforce this argument.

4.4.2 Pseudo superheavy syllables

Given the arguments for the constraint banning superheavy syllables in Japanese, one might point out that this marked syllable structure is still observed in a good number of loanwords in the language. This is exemplified in (4.62), where what appears to be a trimoraic syllable is underlined without syllable boundaries. These words, which apparently failed to undergo the processes in (4.60), may be either morphologically simplex as in *toon* 'tone', *<u>supein</u>* 'Spain', *<u>hoissuru</u>* 'whistle' or complex as in *<u>supein</u>-kaze* 'Spanish flu' and *<u>rain</u>-gawa* 'Rhine River', in the language. The three words ending in /kko/ – *tookyookko* 'a native of Tokyo' in (4.62a), *gendaikko* 'a child of the new generation' in (4.62b), and *rondonkko* 'a native of London' in (4.62c) – involve a geminated /k/ that emerged as two words are combined to form a compound: e.g. *tookyoo* + *ko* → *too.kyoo-kko*.

(4.62) a. long vowel + coda nasal/obstruent
toon ‘tone’, koon ‘corn’, roon ‘loan’, to.ron.boon ‘trombone’, rin.kaan ‘Lincoln’, gu.riin ‘green’, too.kyook-ko ‘a native of Tokyo, Tokyoite’

b. diphthong + coda nasal/obstruent
sain ‘sign, signature’, rain ‘line, Rhine’, koin ‘coin’, su.pein ‘Spain’, ko.kain ‘cocaine’, hois.su.ru ‘whistle’, san.doit.ti ‘sandwich’; su.pein-ka.ze ‘Spanish flu’, koin-syoo ‘coin dealer’, rain-ga.wa ‘Rhine River’, de.zain-ha.ku ‘Design Exposition’, gen.daik-ko ‘a child of the new generation’

c. short vowel + coda nasal + coda obstruent
ron.donk-ko ‘Londoner, a native of London’

The existence of these words may suggest that superheavy syllables do exist in Japanese and are tolerated rather freely despite the arguments to the contrary in the preceding section. However, phonological analyses of these words reveal that most, if not all, of the trimoraic sequences are composed of two syllables rather than one unified syllable.

4.4.2.1 Accent test in KosJ-Taira

As discussed in Section 4.3.2 above, different varieties of KosJ are sensitive to the syllable and syllable boundaries in different ways. Of these, the one-peak system of KosJ-Taira is subject to H tone spreading in (4.32), as we saw above. Thus, the H tone assigned to the penultimate mora in Type A words spreads to the entire syllable if this mora is a non-head mora of the syllable: *puU.ru* → *PUU.ru* ‘swimming pool’. The process helps us to understand which mora is the head mora and which is a non-head one and, consequently, where syllable boundaries lie in the word.

This accent test shows that the trimoraic sequences underlined in (4.62) behave like a sequence of two syllables. This is illustrated in (4.63), where all are Type A words. For example, *sandoitti* in (4.63a) attracts a H tone on the penultimate mora by rule, which is the moraic obstruent /t/. This H tone actually spreads to /i/ but not up to /o/, indicating that there is a syllable boundary between these two vowels. The same is true of other trimoraic sequences in (4.63).

(4.63) a. /oiC/ san.do.IT.ti ‘sandwich’
ho.IP.pu ‘whip’

b. /aiC/ gen.da.IK.ko ‘a child of the new generation’

c. /VnC/ ron.do.NK.ko ‘Londoner’

d. /VVn/ rin.ka.An ‘Lincoln’, rin.ka.AN-ga ‘Lincoln-NOM’

e. /ain/ de.za.IN-ga, *de.ZAIN-ga ‘design-NOM’

f. /oin/ ko.IN-ga, *KOIN-ga ‘coin-NOM’
saa.ro.IN-ga, *saa.ROIN-ga ‘sirloin-NOM’

g. /uin/ tu.IN-ga, *TUIN-ga ‘twin-NOM’

What is truly interesting in (4.63) is the behavior of /ai/, /oi/, and /ui/. These vowel sequences form diphthongs in this system and behave as one syllable just like /an/ and /aa/ as we saw in Section 4.3.2.3. However, the same vowel sequences split into two syllables when they are followed by a coda consonant: e.g. /a.in/, /o.in/, and /u.in/. This resyllabification can best be attributed to the constraint against superheavy syllables.

One may wonder here why /ain/ splits into /a/ and /in/ rather than /ai/ and /n/. This can be explained in terms of the relative well-formedness of the second syllable, namely, that /i/ forms a better syllable nucleus than /n/ because of its higher sonority: i.e. /a.in/ >> /ai.n/

4.4.2.2 Accent test in KosJ-Teuchi

The two-peak system of KosJ-Teuchi exhibits the same result although it is sensitive to the syllable in different ways. As we saw in Section 4.3.2.2, this system is sensitive to the syllable in two ways. First, it undergoes primary H tone shift in (4.35) to avoid a H tone on the non-head mora of a syllable: *puU.ru* → *PUu.ru* ‘swimming pool’. Second, the primary and secondary H tones are separated by a L-toned *syllable*: namely, the secondary H tone spreads at the beginning of the word with one L-toned syllable intervening before the primary H tone. These syllable-sensitive features can be used to define syllable boundaries in the trimoraic sequences in question.

For example, the word *barentain* ‘Valentine’ is expected to produce /BA.ren.TAin/ if /tain/ forms one syllable: the primary H tone originally assigned to the penultimate mora, i.e. /i/, would shift to the head mora of the same syllable, i.e. /ta/, while the secondary H tone would be realized on /ba/ with /ren/ as an intervening L-toned syllable. Similarly, the word *barentain-dee* ‘Valentine’s Day’

would yield /BA.REN.tain-DEe/ if /tain/ formed one syllable. These predictions cannot be borne out, however. What is actually observed instead is *BA.REN.ta.In* and *BA.REN.TA.in-DEe*, which indicate that /tain/ consists of two syllables, /ta/ plus /in/. The same results are obtained for other types of trimoraic sequences involving a diphthong-like vowel sequence in (4.62b).

(4.64) a. /ain/
sa.In, *SAin 'sign, signature', sa.In-ga, *SAin-ga 'sign-NOM'
DE.za.In-ga, *de.ZAin-ga 'design-NOM'
DE.ZA.in-HA.ku, *DE.zain-HA.ku 'Design Expo'

b. /ein/
SU.pe.In, *su.PEin 'Spain'
SU.PE.in-KA.ze, *SU.pein-KA.ze 'Spanish flu'
SU.PE.in-ZIn, *SU.pein-ZIn 'Spanish people'

c. /oin/
ko.In, *KOin 'coin'
SAA.ro.In, *SAA.ROin, *saa.ROin 'sirloin'
KO.in-SYOo, *KOIN-SYOo, *koin-SYOo 'coin dealer'
HI.ro.In, *hi.ROin 'heroine'
HI.RO.in-KA.ra, *HI.roin-KA.ra 'from the heroine'

d. /uin/
tu.In, *TUin 'twin', tu.In-ga, *TUin-ga 'twin-NOM'
U.in.NAa, *UIN.NAa 'wiener sausage'
KU.in-BIi, *KUIN-BIi 'Queen bee'

That said, one must hasten to add that other types of trimoraic sequences in (4.62) exhibit slightly different patterns. First, trimoraic sequences consisting of a long vowel and a coda consonant tend to form one syllable in this dialect, contra to what we observed in KosJ-Taira above. They actually yield the accent patterns in (4.65) where /CVVC/ exhibits a monosyllabic behavior. (4.65a,b), for example, show that /keen/ forms one syllable with /ke/ as its head mora. (4.65c) indicates more clearly that /keen/ forms one syllable as it is L-toned between the two H tones. Overall, long vowels are integrated into one syllable together with the following coda consonant in this system, thus supporting the interpretation of /CVVC/ as a superheavy syllable. The only exception to this is the variant pattern in (4.65f), i.e. *RIN.KA.an-KA.ra*, where /kaan/ splits into two syllables, /ka/+/an/.

(4.65) a. HA.ri.KEen, *HA.RI.ke.En ‘hurricane’
b. HA.ri.KEen-ga, *HA.RI.ke.En-ga ‘hurricane-NOM’
c. HA.RI.keen-KA.ra, *HA.RI.KE.en-KA.ra ‘from (the) hurricane’
d. RIN.KAan, *RIN.ka.An ‘Lincoln’[43]
e. RIN.KAan-ga, *RIN.ka.An-ga ‘Lincoln-NOM’
f. RIN.kaan-KA.ra~RIN.KA.an-KA.ra ‘from Lincoln’

Long vowels often permit two accent patterns, as illustrated in (4.66), if they appear in three-mora-long words. The first variants in these examples are H-toned on the initial mora. This suggests that the initial mora forms a syllable with the second mora, which, in turn, means that the long vowels form one syllable. On the other hand, the second moras are H-toned in the second variants in (4.66a,b). This accent pattern suggests that the second mora functions as a head mora, which, in turn, indicates that the long vowels split into two syllables.

(4.66) a. ROon~ro.On ‘loan’
b. TYEen~tye.En ‘chain’

Trimoraic sequences involving a moraic obstruent (or geminate consonant) also fluctuate between monosyllabic and disyllabic patterns, as shown in (4.67), where /Q/ denotes the first half of a geminate consonant. For instance, the accent pattern in (4.67a) shows that the first mora of /daik/, i.e. /da/, is the head mora, whereas the second and third moras of the same trimoraic sequence are not.[44] On the other hand, /oiQ/ sequences in (4.67c) – /oip/, /ois/, /oit/ – exhibit a disyllabic behavior rather than a monosyllabic one, with a syllable boundary between the first and second moras.

(4.67) a. /aiQ/ GEN.DAik-ko, *GEN.da.Ik-ko ‘a child of the new generation’
b. /onQ/ RON.DOnk-ko, *RON.do.Nk-ko ‘Londoner’
c. /oiQ/ ho.Ip.pu, *HOip.pu ‘whip’, HO.is.SU.ru, *HOIS.SU.ru ‘whistle’, SAN.do.IT.ti, *SAN.DOit.ti ‘sandwich’

43 The secondary H tone is realized on the word-initial heavy syllables in (4.65d,e), with no intervening L-tone syllable before the primary H tone. This is a pattern very often observed in words where there is only one heavy syllable left before the primary H tone (Section 4.2.2).
44 Again, the secondary H tone is realized on the word-initial heavy syllable in (4.67a,b), with no intervening L-tone syllable before the primary H tone.

In summary, KosJ-Teuchi consistently divides /CVVC/ into two syllables, /CV/ and /VC/, if /VV/ consists of a diphthongal vowel sequence. It is similar to KosJ-Taira in this respect. This is highly interesting because /ai/, /oi/, and /ui/ belong to one and the same syllable when they appear in open syllables, but split into two syllables in closed syllables. On the other hand, the same system shows a fluctuation between monosyllabic and disyllabic patterns if /VV/ involves a long vowel. This is a situation similar to the one we observe for Tokyo Japanese, where long vowels often belong to the same syllable even when they are followed by a coda consonant (Sections 4.4.3.3 and 4.4.3.4 below).

4.4.2.3 Accent test in KosJ-Kuwanoura

As we saw in Section 4.3.2.3 above, the two-peak system of KosJ-Kuwanoura is sensitive to the syllable in two ways. First, like KosJ-Teuchi we have just seen, the primary H tone is subject to retraction if it is assigned to a non-head mora: e.g. *puU.ru* → *PUu.ru* 'swimming pool'. Second, the secondary H tone is sensitive to the syllable in such a way that it basically falls on the first two moras of the word but spreads to the entire syllable containing the second mora: e.g. *NI.GI.ri.ME.si* 'rice ball', *NI.GI.ri.me.SI-ga* 'rice ball-NOM' vs. *NI.GII.ME.si* 'rice ball (colloquial)', *NI.GII.me.SI-ga* 'rice ball-NOM (colloquial)'. These two processes reveal where syllable boundaries are in this system.

The behavior of the primary H tone is summarized in (4.68). It demonstrates that diphthongal /VV/ plus a moraic nasal splits into two syllables, e.g. /a.in/, rather than one integrated syllable, e.g. /ain/. For example, *barentain* 'Valentine' in (4.68a) receives a primary H tone on /i/ rather than /ta/, which suggests that /i/ is the head mora of the syllable. Again, /ai/, /oi/, and /ui/ split into two syllables when followed by a coda consonant although they otherwise form a syllable on their own.

(4.68) a. /aiN/ BA.REN.ta.In, *BA.REN.TAin 'Valentine'
b. /ein/ MI.NA.mi-su.pe.In, *MI.NA.mi-su.PEin 'south Spain'
c. /oin/ SAA.ro.In, *SAA.ROin 'sirloin'
d. /uin/ tu.In, *TUin 'twin', tu.In-ga, *TUin-ga 'twin-NOM'

On the other hand, trimoraic sequences involving a long vowel fluctuate between a monosyllabic behavior and a disyllabic one, as shown in (4.69).

(4.69) a. KOon ~ ko.On 'corn'
b. ZYUU.ta.ku-ROon ~ ZYUU.ta.ku-ro.On 'home loan'

Likewise, trimoraic sequences ending in a moraic obstruent sometimes behave like a single syllable, as in (4.70a,b), and sometimes like a disyllabic sequence, as in (4.70c).

(4.70) a. /aiQ/ GEN.DAik.ko, *GEN.da.Ik.ko ‘a child of the new generation’
b. /onQ/ RON.DOnk.ko, *RON.do.Nk.ko ‘Londoner’
c. /oiQ/ SAN.do.It.ti, *SAN.DOit.ti ‘sandwich’

In addition to the primary H tone at/near the end of the word, the secondary H tone at the beginning of the word also gives us a hint as to the syllable structure of trimoraic sequences. First, sequences consisting of a diphthongal /VV/ and a moraic nasal always display a disyllabic behavior. In the first example in (4.71a), for instance, the secondary H tone stays on the word-initial two moras and does not spread to the third mora, suggesting that /ka/ and /in/ do not belong to the same syllable. In contrast, the same H tone spreads to the third mora in the second example in (4.71a), *SAIN-ka.RA.mo* ‘from the sign, too’, suggesting that /in/ in /ain/ readily forms one syllable. Similarly, /oin/ in (4.71b) and /ein/ in (4.71c) exhibit a disyllabic pattern with a syllable boundary between the first and second moras. (Relevant data were not obtained for /uin/).

(4.71) a. /ain/ KO.KA.in-KA.ra, *KO.KAI.n-KA.ra, *KO.KAIN-KA.ra ‘from cocain’
SA.IN-ka.RA.mo ‘from the sign, too’
b. /oin/ HI.RO.in-KA.ra, *HI.ROI.n-KA.ra, *HI.ROIN-KA.ra ‘from the heroine’
c. /ein/ SU.PE.in-KA.ze, *SU.PEIN-KA.ze ‘Spanish flu’

On the other hand, trimoraic sequences involving a long vowel usually exhibit a monosyllabic pattern with respect to the secondary H tone. This is exemplified in (4.72). In (4.72a), for example, the secondary H tone spreads to the entire trimoraic sequence of /riin/, which suggests that this sequence constitutes one syllable.

(4.72) a. GU.RIIN-KA.ra, *GU.RI.in-KA.ra ‘from green’
b. U.IIN-KA.ra, *U.I.in-KA.ra ‘from Vienna’

In summary, KosJ-Kuwanoura shows sensitivity to syllable boundaries in two processes, one concerning the leftward spreading of the primary H tone and the other regarding the rightward spreading of the secondary H tone. Both rules show that trimoraic sequencies consisting of a diphthongal vowel sequence plus a moraic nasal behave like a sequence of a monomoraic syllable and a bimoraic one, i.e. /a.in/, /o.in/, and /u.in/. This contrasts sharply with the monosyllabic

behavior of /ai/, /oi/, and /ui/ in open syllables. On the other hand, the two processes display somewhat ambiguous results with respect to other types of trimoraic sequences, namely, those consisting of a long vowel plus a moraic nasal and those involving a diphthong plus a moraic obstruent. Both the primary and secondary H tones exhibit ambiguous results in these trimoraic sequences, fluctuating between monosyllabic and disyllabic patterns. This is essentially the same as what we observed in KosJ-Teuchi above.

All the data we have seen about KosJ demonstrate that superheavy syllables are not freely allowed in KosJ. On the contrary, this type of syllable structure is highly disfavored in this dialect to the extent that what looks like a tautosyllabic trimoraic sequence actually functions as a string of two syllables, a monomoraic syllable plus a bimoraic one, in most cases.

4.4.3 Accent tests in other dialects

4.4.3.1 Accent test in KagJ

We have seen how superheavy syllables are avoided in the mora-counting systems of KosJ. KagJ, KosJ's closest sister dialect, provides more compelling evidence that superheavy syllables are disfavored in the language. As repeatedly mentioned, this dialect is different from KosJ, Tokyo Japanese, and many other Japanese dialects in that it computes the position of H tone by counting the number of *syllables* from the end of the word.

Referring directly to syllable boundaries, this dialect can show how the trimoraic syllables in (4.62) are syllabified. This analysis reveals that all the pseudo superheavy syllables function as two syllables.[45] This is demonstrated in (4.73), which shows that all three groups of trimoraic sequences in (4.62a-c) are decomposed into a monomoraic syllable plus a bimoraic one in this system.

(4.73) a. de.ZA.in, *DE.zain 'design'; de.za.IN-tyoo 'design notebook'
b. ba.ren.TA.in, *ba.REN.tain 'Valentine'; ba.ren.ta.IN-dee 'Valentine's Day'
c. su.PE.in, *SU.pein 'Spain'; su.pe.IN-zin 'Spanish people'
d. ko.IN-syoo, *KOIN-syoo 'coin dealer'
e. u.IN.naa, *UIN.naa 'wiener sausage'
f. a.na.UN.saa, *a.NAUN.saa 'announcer'
g. rin.KA.an, ʔRIN.kaan 'Lincoln' (cf. RIN.kan)

45 This analysis is based on the author's fieldwork study employing five native speakers of the dialect.

h. rin.ka.AN-hai, *rin.KAAN-hai ‘Lincoln Cup’
i. to.ron.BO.on, ?to.RON.boon ‘trombone’ (cf. to.RON.bon)
j. ha.ri.KE.en, *ha.RI.keen ‘hurricane’
k. gen.da.IK-ko, *gen.DAIK-ko ‘a child of the new generation’ (cf. gen.DAI-ko)
l. ron.do.NK-ko, *ron.DONK-ko ‘Londoner’ (cf. ron.DON-ko)

In particular, long vowels as well as diphthongal vowel sequences split into two syllables as in (4.73g-j),[46] often showing an alternation between two accent patterns depending on whether the vowels are actually pronounced as long or short: e.g. *rin.KA.an~RIN.kan* ‘Lincoln’, *to.ron.BO.on~to.RON.bon* ‘trombone’. Similarly, trimoraic sequences ending in a moraic obstruent show the same segmentation pattern, as shown in (4.73k, l). These instances, too, show an alternation between two accent patterns depending on whether they involve a gemination or not: *gen.da.IK-ko~gen.DAI-ko* in (4.73k) and *ron.do.NK-ko~ron.DON-ko* in (4.73l). This suggests that long vowels and the following coda consonant cannot co-occur in the same syllable.

Not surprisingly, the same accent test shows that trimoraic sequences split into two syllables in inflected forms of verbs, too, which apparently form superheavy syllables in Tokyo Japanese. The accent patterns in (4.74) clearly demonstrate that long vowels form one syllable when followed by no coda but split into two syllables if followed by a coda consonant.

(4.74) a. ko.OT.ta, *KOOT.ta ‘froze, frozen’ (cf. KOO.ru ‘to freeze’)
b. o.OT.ta. *OOT.ta ‘covered’ (cf. OO.u ‘to cover’)
c. su.ki.to.OT.ta, *su.ki.TOOT.ta ‘became transparent’ (cf. su.ki.TOO.ru ‘to become transparent’)

To summarize, all the trimoraic sequences that seem to form superheavy syllables at the surface actually function as a sequence of two syllables in KagJ. In fact, even those consisting of a long vowel and a coda consonant form two syllables, a light syllable followed by a heavy one, i.e. /CV.VC/. It is very interesting that long vowels and diphthongs split into two syllables when followed by a coda consonant although they are otherwise integrated into one syllable. This clearly indicates that the constraint banning superheavy syllables (4.61) is at play in this system, too.

46 Long vowels tend to be shortened when they are combined with the following coda consonant: e.g. /RIN.kaan/~/RIN.kan/ ‘Lincoln’.

4.4.3.2 Accent test in Kobayashi Japanese

Like KagJ, Kobayashi Japanese spoken in the vicinity of Kagoshima provides a straightforward answer to the syllable structure of what looks like a superheavy syllable in (4.62). This one-pattern system assigns a H tone on the final syllable in every word. Using this accent rule, we can easily see whether the trimoraic sequences in question form one syllable or two syllables. The results of this accent test are summarized in (4.75), which indicate that what looks like a trimoraic syllable actually consists of two syllables—a monomoraic syllable plus a bimoraic one—regardless of whether it involves a diphthongal sequence as in (4.75a-f) or a long vowel as in (4.75g, h).[47]

(4.75) a. sa.IN, *SAIN 'sign, signature'
b. de.za.IN, *de.ZAIN 'design'
c. ko.IN, *KOIN 'coin'
d. saa.ro.IN, *saa.ROIN 'sirloin'
e. tu.IN, *TUIN 'twin'
f. ku.IN, *KUIN 'queen'
g. ro.ON, *ROON 'loan'
h. ha.ri.ke.EN, *ha.ri.KEEN 'hurricane'

Again, the three diphthongal vowel sequences – /ai/, /oi/, and /ui/ – split into two syllables when followed by a moraic consonant, although they otherwise form legitimate diphthongs in the system as we saw in Section 4.3.3.2. In this particular context, they behave like disyllables consisting of a monomoraic syllable plus a bimoraic one. In sum, this system does not tolerate /ain/, /oin/, and /uin/ in single syllables but resyllabifies them into two separate syllables with a syllable boundary within the vowel sequences: /a.in/, /o.in/, and /u.in/. This indicates that superheavy syllables are prohibited in this system, too.

4.4.3.3 Accent test in Tokyo Japanese

Basically the same effect of the trimoraic syllable ban in (4.61) is observed in the mora-counting, syllable system of Tokyo Japanese. As mentioned in (4.2b) above, this system does not permit word accent to be assigned to non-head moras of syllables. If an accent is placed by a certain rule on such a mora, it usually shifts to the head mora of the relevant syllable: e.g. *ron'.don* → *ro'n.don* 'London', *a.ma.zon'-ga.wa* → *a.ma.zo'n-ga.wa* 'Amazon River'.

47 No data are available for trimoraic sequences ending in a moraic obstruent since moraic obstruents do not occur word-finally in Japanese.

This accent rule can be used to test the syllable structure of the trimoraic sequences in (4.62). Compound nouns with a monomoraic or bimoraic second member generally attract a default compound accent on the final syllable of the non-final member: e.g. *te.mu.zu'-ga.w*a 'Thames River' and *a.ma.zo'n-ga.wa* 'Amazon River'. This test reveals that most of the trimoraic sequences in question constitute two syllables, i.e. a light syllable followed by a heavy syllable, instead of a single trimoraic syllable. This is shown in (4.76), where the input forms are not syllabified. The word *rain-gawa* 'Rhine River' in (4.76a), for example, is accented on /i/ rather than /ra/, suggesting that /i/ is the head mora of /in/, whereas /ra/ forms an independent syllable on its own. Native speakers' intuition fluctuates in some words, e.g. (4.76e-f), but even in such cases, the most natural accent pattern is the one with an accent on the second mora of the trimoraic sequences in question. That is, the compound accent does not move onto the first mora of the trimoraic sequences.

(4.76) a. rain'-gawa → ra.i'n-gawa, *ra'in-gawa 'Rhine River'
b. supein'-kaze → su.pe.i'n-kaze (~su.pe.in'-ka.ze), *su.pe'in-ka.ze 'Spanish flu'
c. koin'-syoo → ko.i'n-syoo (~ko.in'-syoo), *ko'in-syoo 'coin dealer'
d. gendaik'-ko → gen.da.i'k-ko, *gen.da'ik-ko 'a child of the new generation'
e. rondonk'-ko → ron.do.n'k-ko, ?ron.do'nk-ko 'Londoner'
f. rinkaan'-hai → rin.ka.a'n-hai (~rin.ka.an'-hai), ?rin.ka'an-hai 'Lincoln Cup'
g. hois'suru → ho.i's.su.ru, *ho'is.su.ru 'whistle'
h. sandoi'tti → san.do.i't.ti, *san.do'it.ti 'sandwich'
i. kui'kku → ku.i'k.ku, *ku'ik.ku 'quick'

One potential exception to the general pattern in (4.76) is the past tense form of the verb *to'o.ru* 'to pass', i.e. *toot-ta*, where the accent placed at the end of the stem moves to the left by two moras rather than one: *to'ot-ta*, *?*to.o't-ta* 'passed'. This is a case similar to the variant accent pattern in (4.76f), i.e. *rin.ka'an-hai* 'Lincoln Cup', where the trimoraic sequence constitutes one single syllable if the first two moras form a long vowel. Long vowels thus seem to be more resistant than diphthongal vowel sequences to being split into two syllables: in other words, they are more likely to be integrated into one syllable than diphthongal sequences.

In summary, Tokyo Japanese has a quite heavy constraint against superheavy syllables. Because of this constraint, long vowels and diphthongal vowel sequences behave differently depending on whether they appear in open syllables or in closed syllables. They behave like one syllable, e.g. /ai/ and /aa/, when followed by no coda consonant, but they behave like two syllables, e.g. /a.in/ and

/a.an/, when they are followed by a coda consonant. This peculiar behavior can best be explained by the general constraint prohibiting superheavy syllables in (4.61).

4.4.3.4 Kattobasee test

It is probably worth looking at the *kattobasee* test in the baseball chant, a non-accentual test that refers directly to the syllable. As mentioned in Section 4.3.3.3, this chant is sensitive to the syllable structure of words if they are four moras long or longer. The basic rule employed in such cases is to link the last *syllable* of the name to the third X slot in the template (Tanaka 1999). Applying this rule to the names with the pseudo superheavy syllables in (4.62) yields the results summarized in (4.77), where /—/ denotes boundaries in segmentation.

(4.77) a. su—pe—in, ʔsu—pei—n, *su—u—pein 'Spain'
b. de—za—in, ʔde—zai—n, *de—e—zain 'design'
c. ko—ka—in, ʔko—kai—n, *ko—o—kain 'cocain'
d. se—me.da—in, ʔse.me—dai—n, *se—me—dain 'Cemedine'
e. kya—ro.ra—in, ʔkya.ro—rai—n, *kya—ro—rain 'Caroline'
f. rin—kaa—n, ri—n—kaan, *ri—n.ka—an 'Lincoln'
g. ha.ri—kee—n, ha—ri—keen, *ha—ri.ke—en 'Hurricane'

Overall, the trimoraic sequences in question split into two chunks, with only the last two moras being linked to the third X slot in the three-X template. This is by far the best option for sequences involving a diphthong-like sequence, as shown in (4.77a-e). This means that three-mora sequences consisting of a diphthongal vowel sequence and a coda consonant are actually composed of two syllables, i.e. a light syllable followed by a heavy one, just as we saw in the accent test above. The second best option in these instances is the one dividing the same trimoraic sequences into a bimoraic syllable plus a monomoraic one, e.g. /su—pei—n/, where the moraic nasal constitutes a syllable by itself. In contrast, the option that integrates the three mora sequences into one syllable, e.g. /kya—ro—rain/, is the worst.

However, the situation is slightly different if the trimoraic sequences involve a long vowel as in (4.77f,g). In these instances, the option dividing them into Heavy-Light bisyllables is the best, e.g. /kaa—n/, and so is the option accommodating them into one syllable, e.g. /kaan/. This suggests that in this phonological test, long vowels show resistance to being split into two syllables even when they are followed by a coda consonant.

4.4.4 Summary

Our discussion regarding superheavy syllables can be summarized in the following three points. First, while Japanese did not have any morphemes containing a trimoraic syllable, this does not mean that the language is free from the constraint banning this type of syllable structure. On the contrary, careful analyses of the phonological structure of loanwords reveal that superheavy syllables have been avoided in various ways as they entered the language. This includes the non-gemination of voiceless obstruents after long vowels and diphthongs as well as vowel shortening before coda nasals.

Second, the language nevertheless permits three-mora sequences at the surface that appear to form superheavy syllables, but these sequences actually function as a sequence of two syllables. This can be tested by accent tests across dialects and the *kattobasee* test in the baseball chant. In most cases, these trimoraic sequences form a sequence of a light syllable and a heavy one. Japanese does not show noticeable inter-dialectal differences as far as trimoraic sequences involving a diphthong-like sequence are concerned: e.g. *ra.in* 'Rhine, line'. Here, /ai/ splits into two syllables – /a/ and /i/ – when followed by a coda consonant, while it functions as one syllable in open syllables. This clearly shows that superheavy syllables are disfavored across Japanese dialects.

Third, trimoraic sequences involving a long vowel often behave differently from those involving a diphthong-like vowel sequence: they behave as a sequence of two syllables in many cases, but they are sometimes integrated into one syllable, i.e. a superheavy syllable. Interestingly, this type of trimoraic sequences shows a variation in phonological patterning between one dialect and another as well as between one phonological process and another within the same dialect (and maybe between one speaker and another, too).

Although we looked at only a handful of dialects in this chapter, Japanese has many more dialects which are diverse in the organization of pitch accent systems. Like the dialects we considered in this chapter, these dialects will probably be sensitive to the syllable and syllable boundaries in different ways and to different degrees. In this respect, studies of Japanese dialects have great potential to reveal a wide range of possibilities and variations regarding how superheavy syllables are avoided. The diversity of pitch accent systems in Japanese can thus contribute to our better understanding of phonological structure.

5 Postlexical deletion of lexical H Tone

This chapter examines the process of primary H tone deletion that is found in the two-peak systems of KosJ. This process was not reported by Kamimura (1937, 1941) eighty years ago, which suggests that it is a relatively new development in the history of the dialect. Interestingly, it deletes the primary H tone of a phrase in non-final position, i.e. when the phrase is followed by another phrase in the same sentence, consequently promoting the secondary H tone of the non-final phrase to its primary H tone. Different varieties of KosJ manifest this interesting process in slightly different ways, but the process as a whole is quite similar to the well-known rhythm rule of English (Liberman and Prince 1977, Gussenhoven 1991).

5.1 H tone deletion in KosJ-Teuchi

5.1.1 Phonological dominance

As mentioned in Chapter 3, most varieties of KosJ today have two-peak systems where relatively long words exhibit two pitch peaks or H tones in both accent classes. Type A and Type B words can thus be described as having $H_2L_2H_1L_1$ and $H_2L_2H_1$ underlying melodies, respectively. Of the two H tones, H_1 represents the primary accent or H tone that corresponds to the sole H tone in short words. The position of this H tone is distinctive, i.e. distinguishes Type A from Type B, as it usually appears on the penultimate mora in Type A and on the final mora in Type B.

In KosJ-Teuchi and most other two-peak systems in KosJ, H_2 and H_1 are usually separated by one L-toned syllable (L_2) (Sections 3.2, 4.2, and 4.3). H_1 is manifested on one mora, while H_2 can spread over multiple syllables. In these varieties, in fact, H_2 spreads over a larger number of syllables as the word becomes longer. In this sense, H_2 is dependent on H_1 since H_2's domain can only be predicted from the position of H_1. This can be seen very clearly from the examples in (5.1) and (5.2), where the pitch pattern of a word or phrase is compared with that of its colloquial form which involves the elision of the intervocalic /r/ and the resulting loss of a syllable.

(5.1) Type A
  a. [illegible]A.ri.MOn 'decoration'
  b. [illegible]ai.MOn 'decoration (colloquial)'

https://doi.org/10.1515/9783110730074-006

(5.2) Type B
a. I.NA.BI.KA.ri-GA 'lightening-NOM'
b. I.NA.BI.kai-GA 'lightening-NOM (colloquial)'

H_2 is assigned to the initial two syllables in (5.1a) but only to the initial one syllable in (5.1b) because the L tone between the two H tones is assigned to one syllable immediately before H_1 in both cases. Similarly, H_2 spreads over the first four syllables in (5.2a) but over the first three syllables in its colloquial form in (5.2b). In this case, too, the domain of H_2 can be computed only after the position of H_1 is determined.

The dominance of the H_1 over H_2 can be seen more clearly in words and phrases that are subject to H tone shift discussed in Chapter 4. The primary H tone (H_1) manifests itself on one mora, but it cannot appear on the second mora of a heavy syllable in Type A words due to a general constraint prohibiting a rising contour tone in a syllable.[48] If such a marked structure is expected, it is avoided by H tone shift, i.e. by shifting the H tone to the head mora of the same syllable. This is exemplified by the pair of expressions in (5.3) one of which is a colloquial form of the other.

(5.3) a. KE.DA.mo.NO-ga 'wild animal-NOM'
b. KE.da.MOn-ga, *KE.DA.moN-ga 'wild animal-NOM (colloquial)'

In (5.3b), H_1 is realized on the third mora from the end of the phrase since the penultimate mora is the second mora of a heavy syllable. This difference yields a difference in the position of L_2: *mo* in (5.3a) vs. *da* in (5.3b). This, in turn, gives rise to a difference in the domain of H_2: *KE.DA* in (5.3a) vs. *KE* in (5.3b). Seen conversely, the domain of H_2 cannot be defined before the position of H_1 is determined.

In sum, H_2 occurs concomitantly with H_1 in KosJ-Teuchi and its sister varieties. H_1 is primarily responsible for the lexical distinction between the two accent types, Types A and B, while H_2 is entirely dependent on H_1 and signals the lexical distinction only redundantly. This point turns out to be very crucial when we compare word-level and sentence-level forms in the next section.

48 Recall that Type B words are not subject to the H tone shift rule since they would become tonally indistinguishable from their Type A counterparts (Sections 2.3 and 4.1).

5.1.2 Postlexical H tone deletion

So far, we have considered the dominance relationship between the two H tones at the lexical level, i.e. when words and phrases are pronounced in isolation or as a one-word/phrase sentence. The situation becomes more complicated if one examines how they are pronounced within a sentence. In sentence-level phonology, each phrase can have only one H tone except in sentence-final position in KosJ-Teuchi and its sister varieties.[49] In other words, one of the two H tones must undergo deletion in sentence-medial position. Surprisingly, it is always the primary H tone (H_1) that is the target of deletion in both accent types.[50]

The H tone deletion process is described in (5.4)-(5.5), where the H-toned mora affected by this process is underlined. (5.6) schematically shows this process, whereas Figure 5.1 compares the F0 contours of the Type B word *NI.WA.toI* 'chicken' in sentence-final and non-final positions.[51]

(5.4) Type A

a. /ke.da.mo.no/ 'wild animal' vs. /ke.da.mon/ 'wild animal (colloquial)'

Position \ Input	ke.da.mo.no$_{(A)}$	ke.da.mon$_{(A)}$
Sentence-final	KE.da.MO.no	KE.da.MOn
Sentence non-final	KE.da.<u>mo</u>.no #YAN.NEe 'It's a wild animal, isn't it'	KE.da.<u>mo</u>n #YAN.NEe 'It's a wild animal, isn't it'

b. /ke.da.mo.no-ga/ vs. /ke.da.mon-ga/ 'wild animal-NOM'

Position \ Input	ke.da.mo.no$_{(A)}$-ga	ke.da.mon$_{(A)}$-ga
Sentence-final	KE.DA.mo.NO-ga	KE.da.MOn-ga
Sentence non-final	KE.DA.mo.<u>no</u>-ga #MI.e.TA 'A wild animal was seen'	KE.da.<u>mo</u>n-ga #MI.e.TA 'A wild animal was seen'

49 One question that naturally arises is whether this positional distinction is based on the sentence or the utterance. I tentatively generalize the data here on the basis of the sentence since H tone deletion seems to readily occur in utterance-final phrases involving a long pause or hesitation.

50 One native speaker commented that the presence of H_1 in non-final position is acceptable while the deletion of the same H tone in sentence-final position is unacceptable.

51 Note that *niwatori* 'chicken' and its colloquial form *niwatoi* are Type A morphemes in some KosJ varieties; see how these words are pronounced in the KosJ accent database (Kubozono et al. 2016).

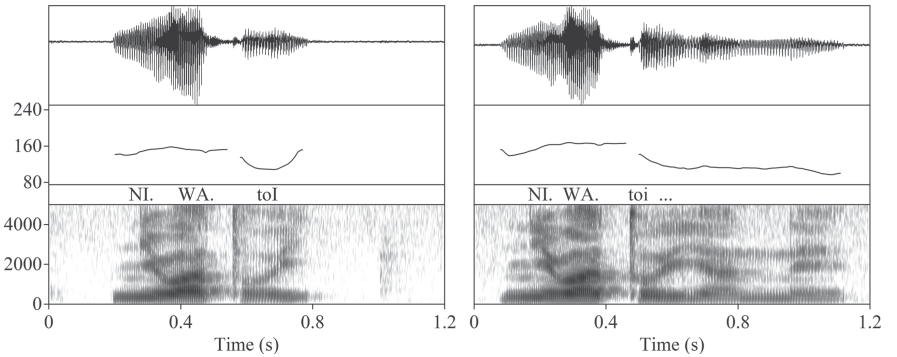


Figure 5.1: Typical F0 contours of *NI.WA.toI* 'chicken (colloquial)' in two positions, sentence-final (left) and non-final (right).

(5.5) B-type words

a. /ni.wa.to.ri/ 'chicken' vs. /ni.wa.toi/ 'chicken (colloquial)'

Position \ Input	ni.wa.to.ri$_{(B)}$	ni.wa.toi$_{(B)}$
Sentence-final	NI.WA.to.RI	NI.WA.toI
Sentence non-final	NI.WA.to.ri #YAN.NEe 'It's a chicken, isn't it'	NI.WA.toi #YAN.NEe 'It's a chicken, isn't it'

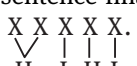
b. /ni.wa.to.ri-ga/ vs. /ni.wa.toi-ga/ 'chicken-NOM'

Position \ Input	ni.wa.to.ri$_{(B)}$-ga	ni.wa.toi$_{(B)}$-ga
Sentence-final	NI.WA.TO.ri-GA	NI.WA.toi-GA
Sentence non-final	NI.WA.TO.ri-ga #MI.e.TA 'A chicken was seen'	NI.WA.toi-ga #MI.e.TA 'A chicken was seen'

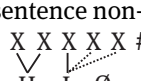
(5.6) High tone deletion in non-final position

a. Type A

sentence-final position



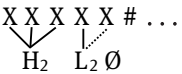
sentence non-final position



b. Type B

sentence-final position

sentence non-final position



H-tone deletion in non-final position is a salient postlexical property of KosJ-Teuchi and its sister varieties. One notable exception to this process is one-peak phrases, that is, relatively short words with only one H tone. In this case, the sole H tone is not subject to deletion and remains intact in any context. In (5.7), for example, *a.ME-ga* 'candy-NOM' (Type A) and *me-GA* 'eye-NOM' (Type B) do not undergo H tone deletion even if followed by another phrase in the same sentence.

(5.7) a. a.ME-ga # MI.e.TA 'A candy was seen'
b. me.GA # MI.e.TA 'An eye was seen'.

It should be noted that the H tone deletion process does not neutralize the two tonal patterns despite the deletion of the primary H tones. Although the number of H-toned syllables in word-initial position is variable, as we saw above, the two tonal patterns nevertheless remain distinct from each other because of this secondary prominence. As shown in (5.6), the domain of H_2 is always one syllable longer in Type B than in Type A, if all other phonological structures are identical such as word length (number of moras) and the syllabic composition of the word. In this sense, H_2 plays a distinctive role in non-final position.

Returning to the H tone deletion process per se, this process presents a challenging case, i.e. a case of 'opacity' (Kiparsky 1973, Cole and Hualde 2011, Kaisse and McMahon 2011). In word-level phonology, the primary H tone dominates the secondary H tone in the sense that the domain of the latter can be defined only with reference to the position of the former. In sentence-level phonology, however, the secondary H tone dominates the primary one in that the latter, but not the former, is suppressed in non-final position. The dominance relationship between the primary and secondary H tones is thus reversed at the postlexical level.

In this system, the roles of H tones also change between word-level and sentence-level phonology. At the word level, the position of the primary H tone plays a distinctive role by which Type A and Type B are distinguished from each other. At the sentence level, on the other hand, the distinctive role is played by the secondary H tone, whereas the primary H tone largely serves as a boundary tone signaling the end of the sentence or, stated conversely, its lack signals non-finality of the sentence. I will analyze this paradoxical situation in the next two subsections.

5.1.3 Lexical vs. boundary tone

The paradoxical situation in question is due primarily to the fact that H_1 in the underlyling melodies of $H_2L_2H_1L_1$ (Type A) and $H_2L_2H_1$ (Type B) is a distinctive tone

at the word level but undergoes deletion at the sentence level. One way of solving this problem may be to assume that H_1 is not a lexical tone and, hence, that the peculiar rule of H tone deletion does not exist at all. This alternative analysis posits only H_2 as a lexical tone and assumes that H_1 is inserted as a boundary tone in sentence-final position rather than being deleted in non-final position. This analysis may sound reasonable since the sentence-final position is often a target of many phonological and/or phonetic processes across languages involving, for instance, question prosody and sentence-final lengthening.

Under this analysis, the picture given in (5.4)-(5.6) will be reversed, and the second H tone (H_1) is inserted in sentence-final position as a boundary tone rather than being deleted in non-final position. This is illustrated in (5.8).

(5.8)

a. word level		b. sentence level (sentence-final position)	
(Type A)			
KE.da.mo.no	→	KE.da.MO.no	'wild animal'
KE.da.mon	→	KE.da.MOn	'wild animal (colloquial)'
(Type B)			
NI.WA.to.ri	→	NI.WA.to.RI 'chicken'	
NI.WA.toi	→	NI.WA.toI 'chicken (colloquial)'	

While this analysis might seem quite orthodox, it runs into several difficulties when it is considered more carefully. In the first place, it needs to refer to lexical information in sentence-level phonology in such a way that it assigns the boundary tone, H_1, to the penultimate mora in Type A words and to the final mora in Type B words. In other words, this analysis ends up assuming that the sentence-level rule of H tone insertion is sensitive to lexical tonal distinctions.

A more serious problem with the alternative analysis in (5.8) is that it cannot define the domain of H_2 in a general way. The examples in (5.8) may suggest that H_2 is linked with the initial syllable in Type A words and with the initial two syllables in Type B words. However, this cannot be generalized to words and phrases of other phonological lengths since the domain of H_2 is entirely dependent on the position of H_1, but not vice versa. The non-final forms in (5.4)-(5.5) can therefore be determined on the basis of their corresponding sentence-final forms. This means that the analysis in (5.8) is wrong and that both of the two H tones in sentence-final forms are lexical tones, not boundary ones. This, in turn, supports the idea of H tone deletion in non-final position.

5.1.4 Word-level and sentence-level interaction

The preceding discussion raises a challenging and difficult question: why does H tone deletion target the primary H tone, which is a lexically distinctive tone and dominates the secondary H tone at the word level? To answer this question, we need to consider phonological factors behind the sentence-level process and understand how word-level prosodic structure interacts with sentence-level structure. To do this, let us compare our data with those that Kamimura (1937, 1941) presented in his description eighty years ago.

As mentioned in Section 3.1, Kamimura conducted fieldwork on the Koshikijima Islands in 1937. He examined the accent patterns of many words in many villages of the Islands including Teuchi Village and his native village of Nakakoshiki. Based on this fieldwork, he described the main features of KosJ as in (5.9).

(5.9) a. All varieties of KosJ exhibit two distinctive accent patterns or classes.

b. Across KosJ varieties, the 'primary accent' (our primary H tone) appears on the penultimate mora in one accent class (our Type A) and on the final mora in the other accent class (our Type B).

c. All varieties except KosJ-Taira exhibit a 'secondary accent' in addition to the primary accent in relatively long words.

d. In two-peak systems which he calls the 'main stream' of KosJ, the secondary accent appears on the second mora from the beginning of the word in both accent classes. The only exception to this is when the primary accent is placed on the third mora, in which case the secondary accent is retracted to the initial mora.

e. In both accent classes, the secondary H tone is lower in pitch than the primary accent.

The 'main stream' of KosJ is illustrated in (5.10).

(5.10)

Accent type/class	pitch pattern	gloss
A	NA.tu	summer
	o.NA.go	woman
	A.ma.ZA.ke	fermented rice drink
	na.TU.ya.SU.mi	summer holiday

B	ha.RU	spring
	O.to.KO	man
	a.SA.ga.O	morning glory
	ha.RU.ya.su.MI	spring holiday

Kamimura focused on word prosody and did not describe pitch patterns at the postlexical level. As for the primary vs. secondary distinction, he only observes that the primary accent at/near the end of the word is always more prominent than the secondary accent that appears on the second mora. It can be assumed from these descriptions that both the primary and secondary H tones were readily manifested at the surface in connected speech.

There are several crucial differences between Kamimura's data eighty years ago and our data today. First of all, Kamimura (1937, 1941) does not mention H_1 deletion in his report, which suggests that this process is a rather new development in the prosodic system of KosJ. Secondly, the domain of H_2 differs crucially between our data and Kamimura's. In the system Kamimura described, the default location of H_2 is the second mora in both Type A and Type B, and does not move or spread either to the left or to the right even in long words unless it is immediately adjacent to the primary H tone (H_1) (Kamimura 1941: 13). In this system, H_2 is independent of H_1 and does not function to distinguish between the two accent types, as exemplified in (5.11).

(5.11) a. Type A
na.TU.ya.SU.mi 'summer holiday'
mu.KA.si.ba.NA.si 'old tale'

b. Type B
ha.RU.ya.su.MI 'spring holiday'
i.RO.en.pi.TU 'color pencil'

In the present-day system, in contrast, H_2 can spread over more than one syllable at the beginning of the word and is, more crucially, dependent on H_1: the two H tones are separated by one and only one low-toned syllable. Consequently, H_2 as well as H_1 bears a distinctive role. This can be seen from the present-day counterparts of the words in (5.11), given in (5.12).

(5.12) a. Type A
NA.TU.ya.SU.mi 'summer holiday'
MU.KA.SI.ba.NA.si 'old tale'

b. Type B
HA.RU.YA.su.MI ‘spring holiday’
I.RO.EN.pi.TU ‘color pencil’

The two crucial differences between Kamimura’s system eighty years ago and the system we find today are not unrelated. On the contrary, they are closely tied with each other since H_1 deletion would have neutralized the two tonal patterns in the old system as shown in (5.13). In other words, H_1 deletion at the sentence level could not have occurred in Kamimura’s old system because of potential tonal neutralization between the two tonal patterns. This is another place where we find a force to avoid neutralization in the prosodic system of KosJ (see Sections 2.3, 4.1.1, and 7.2).

(5.13) Hypothetical H_1 deletion in Kamimura’s system
a. Type A
na.TU.ya.SU.mi . . . → na.TU.ya.su.mi . . .
mu.KA.si.ba.NA.si . . . → mu.KA.si.ba.na.si . . .

b. Type B
ha.RU.ya.su.MI . . . → ha.RU.ya.su.mi . . .
i.RO.en.pi.TU . . . → i.RO.en.pi.tu . . .

Seen in this light, we can easily understand why the H tone deletion rule was absent in the old system but can be present in the current system.[52] The pivotal factor that prompted this sentence-level process is the word-level change that affected the domain of H_2.[53] While it remains unclear why H_2 has changed its domain from (5.11) to (5.12), it is clear that this word-level change made it possible for the sentence-level process of H_1 deletion to take place without neutralizing the lexical tonal contrast. This presents an interesting case showing how a word-level process can interact with a sentence-level process.

52 Note that this historical development has made the endangered system of KosJ more complex in terms of ‘opacity’, but simpler in terms of tonal representations: tonal representations at the sentence level are much simpler now than they were eighty years ago due to the deletion of H_1 in non-final positions.

53 It may be possible to think the other way round, namely, that the growing tendency to delete H_1 helped encourage the development of H_2 spreading.

5.1.5 Comparison with English rhythm rule

To deepen our understanding of the nature of postlexical H tone deletion in KosJ, it is worth comparing it with the so-called rhythm rule of English illustrated in (5.14). The underlined syllables indicate where stress has been deleted or reduced.

(5.14) a. Jàpanése—Jàpanese péople
b. thìrtéen—thìrteen mén

The rhythm rule in (5.14) is a stress phenomenon characteristically observed in stress-accent languages and is believed to take place to avoid a stress clash between the primary stress of one word and the stress of the following word (Liberman and Prince 1977). On the other hand, H tone deletion in KosJ is a tonal phenomenon observed in a pitch-accent language. Despite this difference, however, the two processes resemble each other in several crucial respects.

First of all, in both cases, the primary prominence disappears or weakens at the postlexical level while the syllable with the secondary prominence survives as the most prominent syllable in the word. In (5.12a), for example, the primary prominence on *SU* is subject to deletion and the prominence on *NATU* is promoted to the sole prominence in the word *NATUyaSUmi* 'summer holiday' in non-final position. Likewise, the primary prominence on *-ése* in *Jàpanése* is reduced while the secondary prominence on *Jàp* remains intact if the word is followed by another word in (5.14a). In both cases, the dominance relationship between the primary and secondary prominences at the lexical level is reversed at the postlexical level.

Secondly, the secondary prominence – secondary stress in English and secondary H tone (H_2) in KosJ – usually appears before the primary prominence within a word, not after it, in both languages. Thirdly, the position of the secondary prominence is more or less predictable from the position of the primary prominence in both cases. In English, the secondary stress is usually separated from the primary stress by at least one unstressed syllable if there is more than one syllable before the primary stress. Likewise, the two prominences are separated by one L-toned syllable in KosJ.

Fourth, the two processes in question do not occur in sentence-final positions. Both H tone deletion in KosJ and the rhythm rule in English take place only when one or more words/phrases follow in the same sentence. In English, for example, the primary prominence of the word *Japanese*, i.e. *-ése*, usually remains intact if it appears in sentence-final position. The same is true of KosJ, where the primary H tone at/near the end of the word remains intact in sentence-final position.

Finally, H tone deletion in KosJ and the rhythm rule in English do not occur if the first word in the relevant sequence bears only one prominence, i.e. the

primary one. In KosJ, for example, the primary H tones in (5.15a) disappear in connected speech, while the corresponding tones in (5.15b) do not.

(5.15) a. NA.TU.ya.SU.mi # YAN.NEe
→ NA.TU.ya.su.mi # YAN.NEe 'It's the summer holiday, isn't it?'
HA.RU.YA.su.MI # YAN.NEe
→ HA.RU.YA.su.mi # YAN.NEe 'It's the spring holiday, isn't it?'

b. NA.tu # YAN.NEe → *na.tu # YAN.NEe 'It's the summer, isn't it?
ha.RU # YAN.NEe → *ha.ru # YAN.NEe 'It's the spring, isn't it?'

The same is true of the primary stress in English, as can be seen from the pair in (5.16): *thìrtéen* in (5.16a) undergoes the stress reduction (or deletion) rule but the monosyllabic word *thrée* in (5.16b) does not. This suggests that both the H tone deletion process in KosJ and the rhythm rule in English are blocked if they would yield a word with no prominence in the output.

(5.16) a. thìrtéen mén → thìrteen mén
b. thrée mén → *three mén

As mentioned above, the rhythm rule in English is characterized as a solution to stress clash, a clash between the prominence of one word and the prominence of the immediately following word. This prosodic solution is known to occur even when the two prominent syllables are not immediately adjacent to each other. In (5.17a), for example, the first word ends in an unstressed syllable. In (5.17b), the second word starts with an unstressed syllable. Despite these intervening unstressed syllables, the rhythm rule readily applies in both cases to resolve the stress clash across the two words.

(5.17) a. Pìccadílly Círcus → Pìccadilly Círcus
b. Jàpanése cantéen → Jàpanese cantéen

Having understood the striking similarities between H tone deletion in KosJ and the rhythm rule in English, let us now consider why we observe such similar phenomena in the pitch accent system of Japanese and the stress accent system of English. The striking similarities in question can best be understood if we interpret the two processes as solutions to prominence clashes, that is, if they are attributed to a constraint prohibiting two prominent positions from occurring too close to each other. In KosJ, this constraint prohibits two H tones from appearing too close to each other, whereas it militates against two stresses competing with each other in English.

That said, it is important to point out that the nature of the secondary prominence is different between KosJ and English. As argued in Section 3.2, the secondary H tone in KosJ historically arose as a boundary tone marking the beginning of a new phrase. The secondary stress in English, on the other hand, occurs basically for a rhythmic reason, to change a monotonous sequence of unstressed syllables into a rhythmic structure where stressed and unstressed syllables alternate. It is truly interesting to find that KosJ and English are equally subject to a constraint banning prominence clash – H tone clash and stress clash – despite all the differences between pitch accent and stress accent languages.

Recall that in KosJ, the NoClash constraint is operative at the lexical level, too, to avoid placing primary and secondary H tones immediately adjacent to each other in one and the same word (Chapter 3: see also Section 7.3). Thus, a L-toned syllable usually intervenes between the two H tones in KosJ-Teuchi and its sister varieties: A.ma.ZA.ke 'fermented rice drink', O.to.KO 'man'. The data in this chapter show that a similar NoClash constraint is at work across two words/phrases, too, this time resulting in the deletion of one of the two competing H tones at the postlexical level.

5.2 H tone deletion in KosJ-Kuwanoura

Given the view that postlexical H tone deletion in KosJ is a solution to H tone clash, one may naturally wonder if the two accent types – Type A and Type B – might be subject to this prosodic process to differing degrees. The crucial difference between the two accent types is that Type A ends in a L tone, while Type B ends in a H tone. This means that Type A words have an extra L-toned mora before the next word at the postlexical level, as illustrated below, which, in turn, implies that H tone clash with the following word should be weaker if the word is Type A than if it is Type B.

(5.18) a. Type A
NA.TU.ya.SU.mi # YAN.NEe 'It's the summer holiday, isn't it?'

b. Type B
HA.RU.YA.su.MI # YAN.NEe 'It's the spring holiday, isn't it?'

Given this difference in the input structure, one would expect to find that H tone deletion in connected speech occurs to a greater extent in Type B than in Type A in KosJ. This cannot be borne out in present-day KosJ-Teuchi, but it can be borne out in present-day KosJ-Kuwanoura, the variety spoken at the north-western edge

of the Koshikijima Islands (Map 2 on page 6). In KosJ-Kuwanoura today, postlexical H tone deletion actually takes place in Type B words, but not in Type A words (Kubozono 2019). This is illustrated in (5.19).

(5.19) Postlexical H_1 deletion in KosJ-Kuwanoura today

Type A	S-final:	NA.TU.ya.SU.mi
	Non-final:	NA.TU.ya.SU.mi . . . (no deletion)
Type B	S-final:	HA.RU.ya.su.MI
	Non-final:	HA.RU.ya.su.mi . . . (deletion)

One may wonder why KosJ-Kuwanoura is different from other two-peak systems of KosJ in this respect. This question can be answered in a reasonable way if one recalls that H_2 does not correlate with H_1 in this system. As mentioned in Sections 3.3 and 4.3.2.3, H_2 appears on the initial two moras in both accent types and is hence non-distinctive in this system. If both accent types should undergo H_1 deletion in connected speech, they would lose their tonal contrast. In the two examples in (5.19), for instance, *NATU.ya.SU.mi* and *HA.RU.ya.su.MI* would become *NA.TU.ya.su.mi* and *HA.RU.ya.su.mi*, respectively, and would, hence, become tonally indistinguishable from each other. By applying the H tone deletion rule only to one accent class, the system has succeeded in preserving the lexical contrast at the postlexical level.

In addition, that this deletion rule targets Type B but not Type A follows from the fact mentioned above, namely, that H tone clash is more severe when it involves Type B words than when it involves Type A words. The asymmetry between Type A and Type B in KosJ-Kuwanoura thus supports our account of H tone deletion in KosJ in general, an account that characterizes the deletion process as a remedy of H tone clash between H_1 in one phrase with a H tone in the following phrase.

5.3 Conclusion

This chapter discussed the paradoxical relationship between the primary and secondary H tones in the two-peak systems of KosJ. In KosJ-Teuchi and its sister varieties, the primary H tone that appears at or near the end of the word is distinctive at the word level and, moreover, determines the domain of the secondary H tone. In this sense, the primary H tone dominates the secondary H tone in the word domain. At the sentence level, however, the primary H tone is deleted in both accent types, except in sentence-final position. What this means is that at the sentence level, the secondary H tone at the beginning of the word comes to bear a lexically distinctive role, while the primary H tone (if manifested) serves as

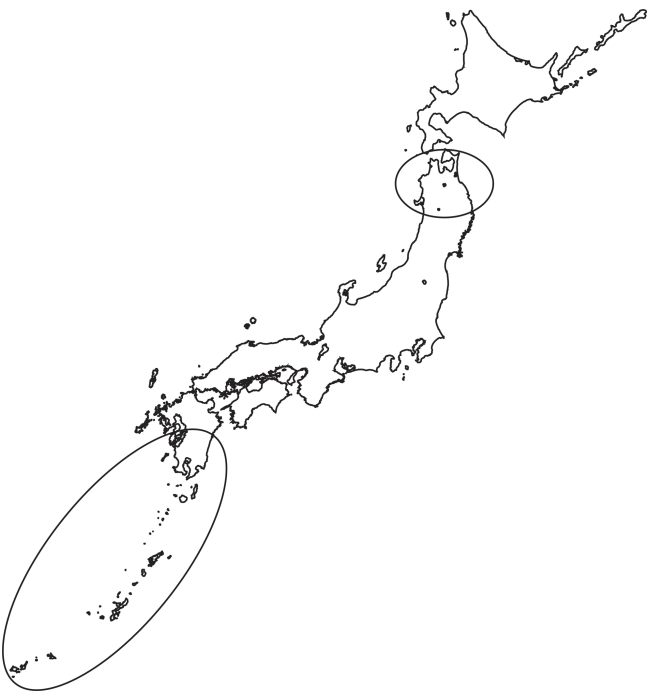
a boundary tone signaling the end of the sentence. We analyzed this case from a historical point of view by comparing our data with those that Kamimura reported eighty years ago (Kamimura 1937, 1941) in which H tone deletion was not detected. We also considered synchronic variations of postlexical H tone deletion in contemporary KosJ, by comparing KosJ-Teuchi with KosJ-Kuwanoura where H tone deletion targets only Type B words. We attributed this synchronic variation to the differences in word prosody, that is, the differences in the domain and roles of the secondary H tone at the word level.

6 Question and vocative prosody

6.1 Question prosody

6.1.1 Typology

Japanese dialects fall into two groups with respect to the pitch feature used to denote questions as opposed to statements. One group, represented by Tokyo Japanese, raises pitch at the end of interrogative sentences, while the other group, represented by KagJ and its sister dialects, lowers pitch in the same position. According to my preliminary survey, the first group is widely spread in the central part of Japan, whereas the second group is found mostly in the southern part (Kyushu and Ryukyu) and partially in the north (northern Tohoku) (see Map 6).



Map 6: Areas with a falling pitch pattern for questions.

The two types of question prosody can be exemplified by the one-word sentences in (6.1) and (6.2), where *no* and *ka* are typical sentence-final particles for questions in each dialect. As mentioned in Section 1.4.1, privative representations are adopted

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for the description of tones in this book, with only distinctive tones specified in the lexicon. In the case of Tokyo Japanese, the distinctive pitch feature is an abrupt pitch fall represented by H*L in the autosegmental model (Pierrehumbert and Beckman 1988). Lexically 'accented' words have this specification, while 'unaccented' words lack it and simply bear a boundary H tone on the second mora/syllable. In KagJ, in contrast, it is generally assumed that one syllable at/near the end of the word is lexically marked as H-toned, while other syllables are redundantly L-toned.

(6.1) Tokyo Japanese

a. it.TA-NO '(Has s/he) gone?'
H H%

b. KI.ta-NO '(Has s/he) come?
H*L H%

(6.2) KagJ

a. IT.ta-ka '(Has s/he) gone?'
H L%

b. ki.TA-ka '(Has s/he) come?
H L%

At the word level, the two dialects in (6.1) and (6.2) assign different pitch patterns to the individual words: Tokyo has a surface LH melody for *itta* and HL for *kita*, whereas KagJ has HL for *itta* and LH for *kita*. In fact, most verbs and nouns of native origin exhibit opposite pitch patterns between the two dialects: those that exhibit a pitch fall in Tokyo do not exhibit that feature in KagJ, and vice versa. At the sentence level, in contrast, the two dialects more crucially differ in how they implement questions as opposed to statements: in Tokyo, question particles are accompanied by H%, whereas they are accompanied by L% in KagJ.

Interestingly, this difference remains even when the question particles are omitted in colloquial speech. This can be explained by positing that intonational tones originally assigned to the question particles—H% in Tokyo and L% in KagJ—are relinked to the last syllable of the preceding words. The situation in Tokyo is illustrated in (6.3).

(6.3) Tokyo Japanese

a. it.TA '(Has s/he) gone?'
H H%

b. KI.ta '(Has s/he) come?
H*L H%

The additional H% raises the pitch of the final syllable further in (6.3a), whereas it is combined with the lexical L tone to create a rising pitch on the final syllable in (6.3b). In temporal terms, the final vowel in (6.3b) is usually lengthened to a two-mora length to implement the two tones on the same syllable. This lengthening is not obligatory when the final syllable is realized as an extra high level pitch rather than a rising pitch in (6.3a) and when the L-H% sequence is realized as a mid-level pitch rather than a rising pitch in (6.3b) (see Section 7.1.1 for further discussion).

Basically the same occurs in KagJ in (6.4). In (6.4a), the intonational L% lowers the final syllable further, often optionally raising the preceding syllable higher at the same time. In (6.4b), in contrast, the combination of the lexical H tone and the intonational L% tone creates a falling pitch on the final syllable, with the final syllable obligatorily lengthened to realize the two tones. Vowel lengthening of this kind does not obligatorily occur in (6.4a).

(6.4) KagJ

a. IT.ta '(Has s/he) gone?'
H L%

b. ki.TA '(Has s/he) come?
H L%

Question particles are omitted quite freely in Tokyo Japanese, especially in colloquial speech. When they are omitted, the prosodic features illustrated above serve to distinguish interrogative sentences from declarative ones. In KagJ, in contrast, question particles are largely obligatory and cannot be deleted among elderly speakers (eighty years old or older). For these speakers, interrogative sentences can be distinguished from declarative ones primarily by morphology and secondarily by prosody. On the other hand, middle-aged and younger generations often delete question particles, due probably to the influence of Tokyo Japanese. For these speakers, prosodic features – pitch and duration – are the primary cues available to distinguish interrogative sentences from other types of sentences.

Given that opposite pitch features are used for questions, i.e. pitch rise and pitch fall, across different dialects, it would not be surprising to find communication problems when speakers from one prosodic group talk to speakers from the other group. This often happens, in fact, when speakers of a Tokyo-type dialect meet with those of a KagJ-type dialect because the former

type is sociolinguistically more prestigious than the latter type. To take one example, the words in (6.5) all end with a H tone lexically but involve pitch lowering on the final syllables in KagJ when question particles are omitted in questions. The question forms in KagJ are very often confused with statements by speakers of Tokyo-type dialects because they are quite similar to the statement forms in Tokyo.

(6.5) KagJ vs. Tokyo Japanese

KagJ		**Tokyo**		**gloss**
Lexical form	Question form	Lexical form	Question form	
ZOO	ZOo	ZOo	ZOoO	elephant
KYOO	KYOo	KYOo	KYOoO	today
dai.zyoo.BU	dai.zyoo.BUu	DAI.ZYOo.bu	DAI.ZYOo.buU	all right
wa.ka.RU	wa.ka.RUu	wa.KA.ru	wa.KA.ruU	understand
a.O	a.Oo	A.o	A.oO	blue

The distribution of KagJ-type question prosody in Map 6 may be taken as suggesting that question prosody of this type is exceptional and marginal. This is not true if we consider question prosody beyond Japanese. Grice et al. (2000) demonstrated that low-ending (HL%) question prosody is not exceptional in Europe, especially in Eastern Europe. Moreover, Rialland (2007) reports that both high-ending and low-ending prosodies are observed in Africa, too, as variations across languages. What is interesting in Japanese is that both types of prosody co-exist in a single language as shown in Map 6. This is a striking fact seen from cross-linguistic or typological perspectives. It would not be surprising to find that this intra-language variation often causes confusion when a speaker of one prosodic type meets with a speaker of the other type.

As a more naïve question one may ask why Japanese exhibits such a diversity in question prosody. This question is reinforced by the fact that Japanese exhibits tremendous variability across dialects in lexical prosody as well (Kubozono 2012b, 2015c, 2018f): we saw in Chapter 2 that one and the same word is pronounced in different ways in different dialects and, in fact, often with opposite tonal melodies as we saw in (6.1)-(6.2) just above. This fundamental question can be answered at least in part if we look at the geographical stretch of the Japanese Archipelago. As we saw in Chapter 2 (Map 4 on page 27), Japan lies in a long stretch that would cover many countries in Europe. Given this, it would not be very surprising to find huge variability in prosody among Japanese dialects.

6.1.2 Basic pattern in KosJ

Having understood that Japanese dialects fall into two groups in terms of question prosody, let us examine the question prosody of KosJ. Since KosJ is a sister dialect to KagJ, it naturally belongs to the KagJ-type group in the typology of question prosody. Just like KagJ, KosJ does not easily omit question particles at the end of interrogative sentences, at least in its traditional grammar. This means that questions are distinguished from statements and other types of syntactic structures primarily by morphology. Some typical examples are given in (6.6) from the data of KosJ-Teuchi.

(6.6) KosJ questions

a. Type A

IT.ta-ka ‘(Has s/he) gone?’
H L%

A.me-ka ‘(Is it) candy?’
H L%

b. Type B

ki.TA-ka ‘(Has s/he) come?’
H L%

a.ME-ka ‘(Is it) raining?’
H L%

On the other hand, middle-aged and younger speakers of KosJ sometimes omit sentence-final particles, although it may not be as frequently as in KagJ. When those particles are omitted, interrogative sentences can be distinguished from statements only by prosody. Like KagJ and Tokyo Japanese, KosJ accomplishes this by realizing the intonational tone on the final syllable of the final word. This is illustrated in (6.7) where the final light syllables are lengthened to bimoraic length in Type B words in order to realize a H-L% sequence.

(6.7) KosJ questions

a. Type A

IT.ta? ‘(Has s/he) gone?’
H L%

A.me? ‘(Is it) candy?’
H L%

b. Type B
ki.TAa? '(Has s/he) come?'
H L%
a.MEe '(Is it) raining?'
H L%

KosJ looks exactly the same as KagJ so far. However, the two sister dialects exhibit striking differences when the final word ends in a heavy syllable. As mentioned in Chapter 2 (Section 2.3) and Chapter 4 (Section 4.1), they differ at the word level in the position where the lexical tones are assigned. In KagJ, the lexical H tone is linked to the penultimate *syllable* (Type A) and the final *syllable* (Type B). In KosJ, the same lexical tone is realized on the penultimate *mora* (Type A) and the final *mora*, (Type B). This lexical prosodic difference gives rise to a difference in the position where the interrogative L% is associated and consequently manifested. (6.8) compares the forms of KagJ with those of KosJ-Teuchi: to make a direct comparison, the secondary H tone at the beginning of the word in KosJ-Teuchi is temporarily removed from the representation since it does not affect question prosody per se.

(6.8) KagJ vs. KosJ-Teuchi

Accent type	KagJ		KosJ-Teuchi		gloss
	Lexical form	Question form	Lexical form	Question form	
Type A	BAA.tyan (H)	BAA.tyan? (H L%)	baa.TYAn (H)	baa.TYAn? (H L%)	grandma
	a.NE.san (H)	a.NE.san? (H L%)	a.ne.SAn (H)	a.ne.SAn? (H L%)	elder sister
Type B	sen.SEI (H)	sen.SEi? (H L%)	sen.seI (H)	sen.seI? (H L%)	teacher
	a.ni.SAN (H)	a.ni.SAn? (H L%)	a.ni.saN (H)	a.ni.saN? (H L%)	elder brother

Let us look at KagJ first. As shown in (6.8), the postlexical L% is linked to the final syllable in both accent types in this dialect. This syllable carries the postlexical L% in Type A and the sequence of the lexical H and the postlexical L% in Type B. If it is lexically bimoraic, as *sei* in *sensei* 'teacher' or *san* in *anisan* 'elder brother', it can readily carry these tones. Specifically, the final heavy syllables in Type B realize the sequence of the two tones (H L%) as a falling pitch pattern without

undergoing vowel lengthening. This suggests that bimoraic syllables are phonologically long enough to accommodate two tones. Moreover, the two accent types are clearly differentiated from each other despite the fact that both involve a pitch fall in questions. At the word level and in declarative sentences, they are differentiated in the presence (Type A) or absence (Type B) of a pitch fall. In interrogative sentences, in contrast, they are differentiated in terms of the location where a pitch fall occurs: between the final two syllables (Type A) and within the final syllable (Type B).

Turning to KosJ, this dialect displays somewhat different patterns because of the moraic basis of tone assignment. In the two-peak system of KosJ-Teuchi, the primary lexical H tone is linked to the penultimate *mora* in Type A and to the final *mora* in Type B. In interrogative sentences, the intonational L% is linked to the final mora in both cases. This causes no problem in Type A since the final mora is not assigned any lexical tone. However, it creates a tonal crowding situation in Type B since the final mora now carries both the lexical H tone and the postlexical L% tone. Type B attempts to resolve this situation by lengthening the final mora.[54] Thus, the second half of the diphthong *ei*, i.e. *i*, in *sensei* 'teacher' and the moraic nasal *n* in *anisan* 'elder brother' is lengthened to carry the two tones in question. As in KagJ, the two lexical accent types are still differentiated from each other at this postlexical level in terms of the position of the pitch fall. Unlike KagJ, KosJ manifests this pitch fall between the final two *moras* in Type A and within the final (lengthened) *mora* in Type B. As a consequence, tonal neutralization is avoided in interrogative sentences in this dialect, too.

6.2 Vocative prosody

Vocative prosody refers to the prosodic patterns that speakers use when calling someone else. It is also called 'vocative chant' (Liberman 1979, Gussenhoven 2004) or 'calling contours' (Ladd 1996, 2008) in the literature.[55] Vocative prosody remains a largely understudied area in Japanese phonetics and phonology. In fact, there is very little work on this topic even in the standard variety of Tokyo

54 This peculiar lengthening of the final mora may be explained at least in part by comparing interrogative prosodic forms with vocative ones to be discussed in the next section. L% is assigned to the final syllable in the latter forms, too, but it triggers H tone spreading to resolve tonal crowding (see Sections 6.2.2 and 7.1.1 for details).

55 See Sonnenhauser and Hanna (2013) for the linguistic features that vocative constructions exhibit across languages. See also Hayes & Lahiri (1991a,b) who suggest that durational properties play an important role in vocatives in English and Bengali.

Japanese, much less in regional varieties such as KagJ and KosJ that are discussed in this book. Any serious discussion on the topic must inevitably be based on original fieldwork.

6.2.1 Background

6.2.1.1 Typology

Unlike interrogative sentences, vocative constructions do not involve any particular particle to distinguish themselves from other constructions in modern Japanese. In Old Japanese, they were accompanied by vocative particles *ya* or *yo*, whose traces can be found in some frozen expressions such as *boo-ya* 'boy' and *baa-ya* 'grandmother, old woman'. These expressions used to be employed when calling *boo* 'boy' or *baa* 'old woman', that is, as vocative forms meaning 'boy!' and 'grandma!', respectively. However, they are now used as morphologically simplex nouns meaning simply 'boy' and 'grandmother, old woman', respectively. This old vocative particle *ya* may have the same root as the Korean vocative particle *ya* which is still used in the language when calling the speaker's close friend or family member: e.g. *Haruo-ya* 'Haruo!'. In morphological terms, these vocative particles are similar in function to the vocative grammatical cases in Latin, e.g. *Brutus* 'Brutus' (nominative) vs. *Et tu Brute!* 'You, too, Brutus!' (vocative), or in Bulgarian, e.g. *mama* 'mother' (nominative) vs. *mamo*! 'mother!' (vocative).

Modern Japanese no longer uses vocative morphological markers, yielding many pairs of ambiguous sentences including the one in (6.9). Here, the grammatical or pragmatic function of the word *obaatyan* 'grandma' is ambiguous: the speaker is talking to Grandma herself in (6.9a), whereas she is talking to somebody else about Grandma in (6.9b). This raises a question of how these sentences are prosodically distinguished in Japanese dialects.

(6.9) a. vocative
obaatyan! genki?
grandma well
'Are you well, Grandma?'

b. nominative
obaatyan genki?
grandma well
'Is Grandma well?'

6.2.1.2 Tokyo Japanese

Like question prosody, vocative prosody seems to display variability among Japanese dialects although it is a topic largely understudied in Japanese phonology. Recent research shows that Tokyo Japanese exhibits three pitch patterns for vocatives, which are termed Patterns α, β, and γ by Kubozono and Mizoguchi (2019) (Figure 6.1). Of these, Pattern α enhances the pitch range of the phrase as compared with lexical or citation forms. In contrast, Pattern β involves an additional pitch rise on the final syllable, triggering vowel lengthening of the final syllable if it is monomoraic. Pattern γ is distinct from Pattern β in displaying a pitch fall in addition to the pitch rise on the final syllable. Word-final vowels are often lengthened in this pattern.

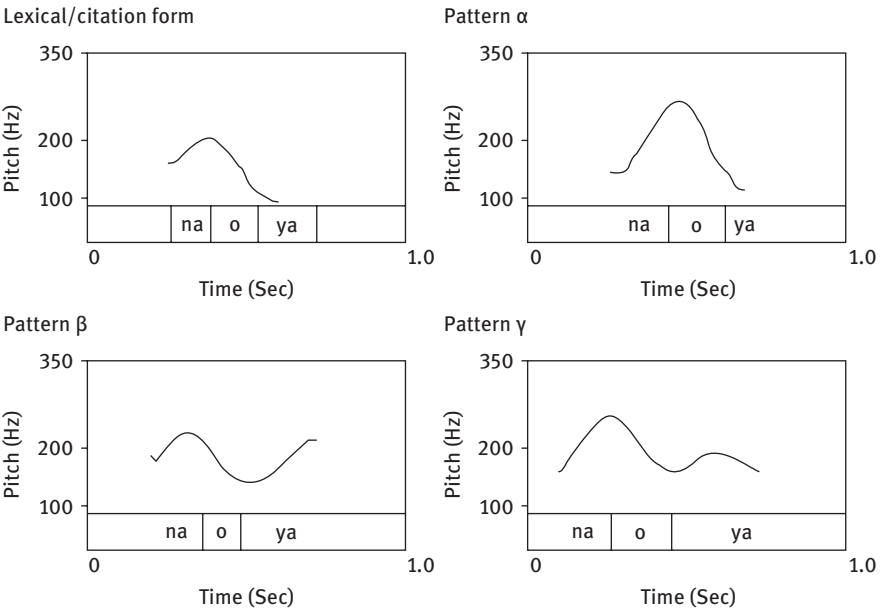


Figure 6.1: Lexical/citation form and three vocative patterns (α, β, γ) in the lexically accented name *na'.o.ya* 'Naoya' in Tokyo Japanese.

Seen from pragmatic viewpoints, Pattern α represents a neutral vocative pattern since it is used in a wide range of pragmatic contexts. Patterns β and γ, in contrast, are used in rather restricted pragmatic contexts. Pattern β is typically used when the speaker attempts to catch the attention of someone who has not noticed her or when she wants to confirm the presence of the hearer. Pattern γ is used typ-

ically when the speaker intends to show her affection to the hearer, which often gives an impression of childish speech.

All these three patterns signify vocative forms as distinct from the lexical/citation form. Hence, the ambiguous sentences in (6.9) can be distinguished from each other rather well if any one of the vocative pitch patterns is used for (6.9a). This is particularly true when Patterns β and γ are used for (6.9a).[56]

Basically the same observation can be made with lexically unaccented words like *naomi* 'Naomi'. As shown in Figure 6.2, unaccented words only differ from their accented counterparts in lacking the lexical pitch fall on non-final syllables in both lexical and vocative forms. The pragmatic function of each vocative pattern is basically the same as in the case of lexically accented words in Figure 6.1.

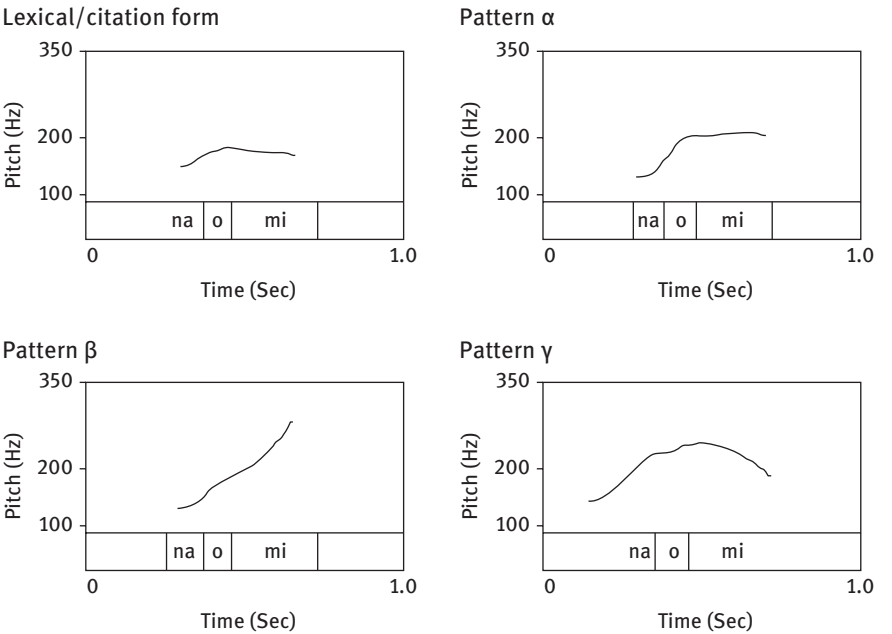


Figure 6.2: Lexical/citation form and three vocative patterns in the lexically unaccented word *na.o.mi* 'Naomi' in Tokyo Japanese.

Note that phonetic features other than pitch can be added to these pitch patterns. For example, final vowels can be prolonged as much as the speaker wants,

56 Pattern α may be misinterpreted as a non-vocative form with emphasis, that is, as an emphatic form of the lexical/citation form in Figure 6.1.

depending on how much emphasis she wants to convey to the person she is speaking to. Vowel lengthening of this kind is phonetic in nature rather than phonological. It can occur in both accent types and it can take place in a gradient fashion rather than a binary fashion.

6.2.1.3 Kobayashi Japanese

While Tokyo Japanese employs three distinct pitch patterns for vocative forms depending largely on pragmatic contexts, not all dialects show such pragmatic variations. In Kobayashi Japanese spoken in the vicinity of KagJ (Map 5 on page 98), only one pitch pattern is used for vocatives.

Kobayashi Japanese has the simplest word-prosodic system among Japanese dialects in exhibiting only one pitch pattern, i.e. it is a one-pattern accent system. Thus, every word is H-toned on the final syllable at the lexical level, while vocative forms additionally exhibit a pitch fall on the same syllable (Figures 6.3 and 6.4).

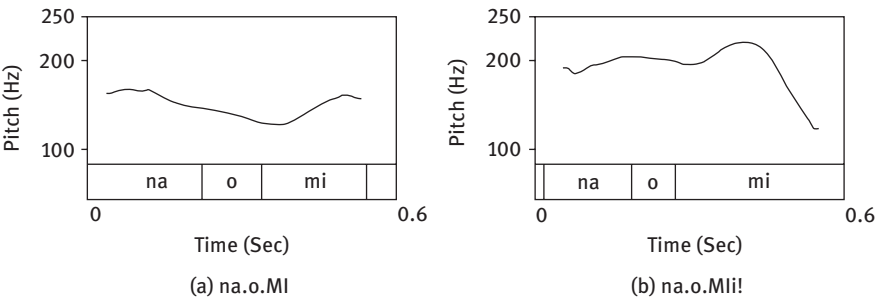


Figure 6.3: Pitch contours of *na.o.mi* 'Naomi' in Kobayashi Japanese: (a) declarative form vs. (b) vocative form.

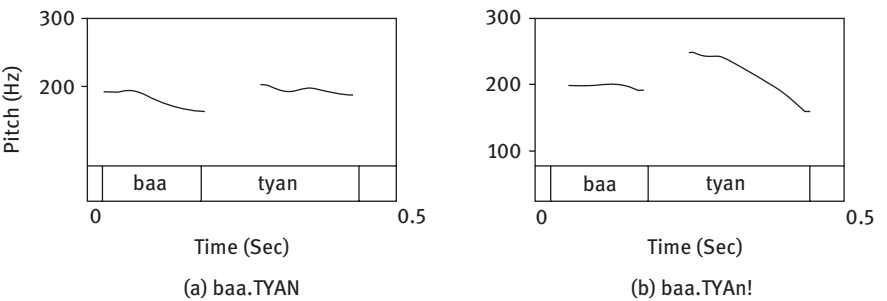


Figure 6.4: Pitch contours of *baa.tyan* 'grandma' in Kobayashi Japanese: (a) declarative form vs. (b) vocative form.

In tonal terms, word-final syllables carry a lexical H tone at the lexical level, as shown in (6.10a) and (6.11a), while they additionally carry an intonational L% in vocative forms, as illustrated in (6.10b) and (6.11b). The final syllables obligatorily undergo vowel lengthening if they are monomoraic as in (6.10b) (Figure 6.3b), while lengthening is not obligatory if they are lexically bimoraic as in (6.11b) (Figure 6.4b). This suggests that final light syllables have resolved tonal crowding by mora augmentation, that is, by acquiring one more mora via vowel lengthening. This process is illustrated in (6.12).

(6.10) Kobayashi Japanese: words with a monomoraic final syllable

a. Lexical form
na.o.MI 'Naomi'
H

b. Vocative form
na.o.MIi 'Naomi!'
HL%

(6.11) Kobayashi Japanese: words with a bimoraic final syllable

a. Lexical form
baa.TYAN 'grandma'
H

b. Vocative form
baa.TYAn! 'grandma!'
H L%

(6.12) Vowel lengthening as mora augmentation

na.o.MI! → na.o.MIi!
μ μ μ
H L% H L%

Some may wonder here if the vowel lengthening in (6.10b) might simply be a phonetic phenomenon rather than a phonological one. This idea can be refuted for several reasons. First of all, it obligatorily occurs in words with a final light syllable, and not in those with a final heavy syllable. It is thus phonologically conditioned. Second, the obligatory vowel lengthening in final light syllables neutralizes vowel length contrast so that underlyingly short vowels as in

kengo! 'Kengo!' become indistinguishable from underlyingly long vowels as in *kengoo!* 'Kengoo!' in the vocative form. In fact, native speakers of Japanese readily perceive an extra mora in the prolonged short vowels, while they do not perceive any extra mora in corresponding heavy syllables including the one in Figure 6.4(b).

Third, phonetic vowel lengthening can optionally occur on top of the lengthening in (6.10b). In fact, it occurs regardless of whether the final syllable is monomoraic as in (6.10b) or bimoraic as in (6.11b). Fourth, phonetic lengthening of this kind occurs in a gradient fashion. Thus, the vowels in the final syllables in (6.10b) and (6.11b) can both be prolonged as much as the speaker wants to, depending on how much emphasis she wants to express: e.g. *na.o.MIi! ~ na.o.MIIi! ~ na.o.MIIIi!* 'Naomi!', *baa.TYAn! ~ baa.TYAAn! ~ baa.TYAAAn!* 'Grandma!'. Finally, this kind of gradient lengthening does not change the pitch of the vowel itself. In (6.11b), for example, the vowel is high-pitched no matter how much it is prolonged, followed by a low-pitched coda nasal.

In summary, the obligatory vowel lengthening in (6.10b) is a phonological process that takes place in a binary fashion, while the optional vowel lengthening is a phonetic process that takes place in a gradient fashion in both (6.10b) and (6.11b). Given this distinction, it can be claimed that the vowel lengthening in (6.10b) is a process of mora augmentation by which one mora is phonologically added to the word-final syllable. In other words, the lexical H and the postlexical L% are assigned to different moras: the former is assigned to the original mora and the latter to the added mora. Likewise, the word-final heavy syllable in (6.11b) accommodates the tonal string as its first mora bears the lexical H tone and its second mora bears the postlexical L%. This interpretation is quite compatible with the above-mentioned observation that phonetic lengthening does not change the pitch of the relevant mora. Thus, the final vowel in (6.11b) is high-pitched no matter how much it is emphasized and prolonged.

The fact that vowel lengthening is thus sensitive to the weight of the final syllable has two implications. First, it implies that one mora can take one tone in principle. Bimoraic syllables do not need to undergo vowel lengthening because they are phonologically long enough to carry two tones (see Section 7.1 for further discussion). Secondly, it also implies that Kobayashi Japanese is a quantity-sensitive system although it is a syllable-counting dialect at the lexical level. 'Quantity sensitivity' and 'syllable-counting' are thus two independent notions: a system can be sensitive to the mora despite the fact that it is insensitive to it in word prosody. This idea is supported by the analysis of vocative prosody in KagJ in the next section.

In sum, vocative intonation in Kobayashi Japanese involves tonal crowding whereby the final syllable of the noun bears two tones, the lexical H tone and the postlexical L% tone. This crowding situation is tolerated in words whose final

syllable is bimoraic. However, it is resolved by phonological vowel lengthening if the final syllable is monomoraic, i.e. by adding one mora to the final syllable.

Finally, it is worth pointing out that, unlike Tokyo Japanese, Kobayashi Japanese displays only one pitch pattern for vocative forms in every pragmatic context. That is, its speakers employ the pitch patterns in (6.10b) and (6.11b) whether they are trying to catch the attention of someone who has not noticed them, they want to show affection to the hearer, etc. In this dialect, these pragmatic factors seem to be manifested in phonetic features other than pitch fall, such as vowel duration, intensity, voice quality, and maybe different degrees of pitch rise. Systematic research is called for on this subject.

6.2.1.4 KagJ

KagJ resembles Kobayashi Japanese in employing pitch fall as a vocative prosodic marker. In this syllable-based, two-pattern system, this pitch fall occurs between the final two syllables in Type A words and within the final syllable in Type B, just as in its question prosody that we saw in Section 6.1.1 above. In fact, vocative prosody is often indistinguishable from question prosody in this system (Kubozono 2022), with some exceptions to be described shortly. In tonal terms, this can be interpreted as a L% being linked to the final syllables in both accent types, as illustrated below:

(6.13) KagJ: Type A words

a. Lexical form

na.O.mi ‘Naomi’	BAA.tyan ‘grandma’
H	H

b. Vocative form

na.O.mi! ‘Naomi!’	BAA.tyan! ‘grandma!’
H L%	H L%

(6.14) KagJ: Type B words

a. Lexical form

ha.ru.O ‘Haruo’	o.baa.TYAN ‘grandma’
H	H

b. Vocative form

ha.ru.O! ‘Haruo!’	o.baa.TYAn! ‘grandma!’
H L%	H L!

The Type A pattern in (6.13) is rather straightforward. The final syllables are free from tones in the lexical forms and are associated with the boundary L% in vocative forms.

In the latter, the boundary L% has a phonetic effect of lowering the final syllable and also making the penultimate syllable higher in pitch as compared with lexical forms.

In comparison, Type B words exhibit rather complicated behaviors. First, final syllables undergo vowel lengthening obligatorily if they are monomoraic. In contrast, bimoraic heavy syllables are exempt from this lengthening: their first mora bears the lexical H tone while their final mora carries the postlexical L% tone. This is the same situation as the one we saw in Kobayashi Japanese just above. It is illustrated in (6.15a) and (6.15b).

(6.15) Vowel lengthening as a solution to tonal crowding

a. ha.ru.O! → ha.ru.Oo! 'Haruo!'
H L% H L%

b. o.baa.TYAn! → o.baa.TYAn! *o.baa.TYAAn! 'Grandma!'
H L% H L% H L%

As in Kobayashi, vowel lengthening illustrated in (6.15) is a binary phonological process that must be clearly distinguished from phonetic lengthening. The latter type of lengthening can occur optionally in every vocative form, regardless of the accent type – Type A or Type B – and the phonological length of the final syllable – monomoraic or bimoraic. Moreover, it can take place to various degrees depending on the pragmatic context of the utterance, e.g. if one is trying to call someone in the distance. For example, Type A words can lengthen their final vowels in a gradient manner: e.g. [naomi:]~[naomi::]~[naomi:::]. Likewise, final heavy syllables in Type B words can be phonetically lengthened: e.g. [obaatya:n]. Furthermore, phonetic lengthening of this kind does not change the pitch value of the relevant vowel. For instance, [tya:] in the phonetically lengthened variant [obaatya:n] is high-pitched, whereas the final coda, [n], is low-pitched, just as in the unlengthened variant of the utterance. All these considerations confirm the view that vowel lengthening illustrated in (6.15a) is a phonological process whereby one mora is added to the final syllable.

This suggests that final syllables must be bimoraic in order to implement the two tones (lexical H and postlexical L%) in this system, too. In other words, tonal crowding occurs only in monomoraic syllables and is resolved by making the final syllables phonologically bimoraic via vowel lengthening at the expense of the contrast between underlyingly long (bimoraic) and short (monomoraic) vowels. In contrast, this temporal strategy preserves the lexical tonal contrast between Type A and Type B: the pitch fall occurs between the final two syllables in the former, while it occurs within the final syllable in the latter. These points will be explored further in Chapter 7 (Sections 7.1 and 7.2).

Another complication of Type B words concerns the second prosodic pattern that they exhibit in vocative forms. Specifically, the lexical H tone is often retracted, i.e. shifted one more to the left (Figure 6.5). This is a process not shared by Kobayashi Japanese.

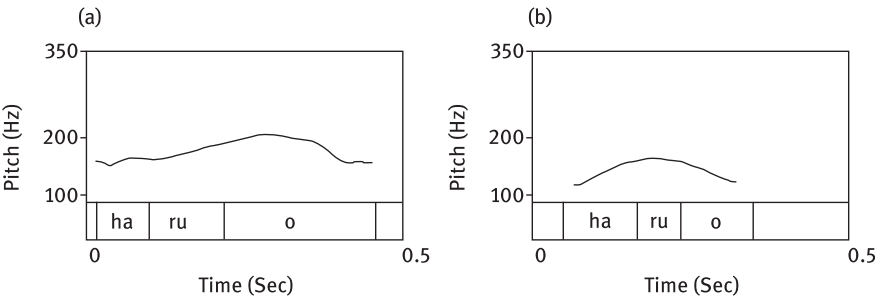


Figure 6.5: Vocative forms of *ha.ru.o* 'Haruo' in KagJ: (a) vowel lengthening pattern and (b) H tone retraction pattern.

Interestingly, the tonal process of H tone retraction is permitted if the final syllables are monomoraic as in (6.16a), but not if they are bimoraic as in (6.16b). The weight of the final syllable is thus crucial. On the other hand, the weight of the penultimate syllable seems irrelevant to this tonal process.

(6.16) a. ha.ru.O! → ha.RU.o! 'Haruo!'
H L% H L%

yoo.KO! → YOO.ko! 'Yoko!'
H L% H L%

b. o.baa.TYAn! → *o.BAA.tyan! 'Grandma!'
H L% H L%

sen.SEi! → *SEN.sei! 'teacher!'
H L% H L%

H tone retraction in (6.16) has a side effect of neutralizing the two lexical accent types: the output forms of (6.16a), *ha.ru.o!* 'Haruo!' and *yoo.ko!* 'Yoko', are tonally indistinguishable from their Type A counterparts, e.g. *na.o.mi!* 'Naomi' and *ryoo.ko!* 'Ryoko'. In other words, the lexical tonal contrast between Type A and Type B is lost in words with a final monomoraic syllable if Type B words choose the H tone retraction pattern in (6.16a) for their vocative forms.

Note that the tonal process in (6.16a) shares one important feature with vowel lengthening in (6.15a): they are both triggered only by monomoraic final syllables. This confirms that tonal crowding in this dialect occurs when monomoraic syllables come to bear two tones – lexical H and postlexical L% in the case under discussion.

Another important point to note about the two processes is that they do not co-occur. Final light syllables in Type B words undergo either vowel lengthening as in (6.15a) or H tone retraction as in (6.16a). In this way, the two processes are mutually exclusive: H tone retraction does not occur when vowel lengthening occurs, and vice versa. This strengthens our view that they take place to accomplish the same goal, that is, to resolve the situation of tonal crowding where monomoraic syllables bear two tones.

Of the two solutions to tonal crowding, the temporal solution in (6.15a) is employed in the question prosody of this dialect, too, as we saw in Section 6.1.1. above, while the tonal solution in (6.16a) is unique to its vocative prosody. This means that question and vocative prosody are clearly distinguished from each other if the tonal process in (6.16a) is chosen for vocatives.

6.2.2 Vocative prosody in KosJ: One-peak system

Having looked at the vocative patterns of intonation in three Japanese dialects with different word-prosodic systems – the multi-pattern system of Tokyo, the one-pattern system of Kobayashi, and the two-pattern system of KagJ – let us now examine vocative intonation in KosJ. KosJ resembles its sister dialect (KagJ) and another geographically adjacent dialect of Kobayashi Japanese in showing an abrupt pitch fall at the end of the word in vocative intonation.

Let us first consider the patterns in KosJ-Taira, the sole KosJ variety which exhibits only one peak or H tone per word. Recall that in this one-peak system, the two lexical accent types can be distinguished by the presence or absence of a pitch fall at the word level: Type A has a pitch fall between the final two moras, while Type B exhibits no such feature. More specifically, Type A has a H tone on the penultimate mora if this mora is the head mora of a syllable, e.g. *na.TU.o* 'Natsuo', or on both the penultimate and antepenultimate moras if these two moras form one syllable, e.g. *RYOO.ko* 'Ryoko' (see Sections 2.3 and 4.1.1 for the details about this lexical H tone spreading). Type B words, on the other hand, have a H tone on final mora if they end in a light syllable, e.g. *ha.ru.O* 'Haruo', and on the final two moras if they form a heavy syllable, e.g. *sen.SEI* 'teacher'.

In vocative intonation, every word displays a pitch fall between the final two moras in this system. That is, Type B as well as Type A comes to show a pitch fall between the final two moras. This is illustrated in Table 6.1, where an intonational L% is attached to the final mora in both Type A and Type B.

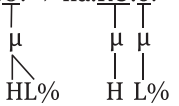
Table 6.1: Vocative intonation in the one-peak system of KosJ-Taira.

Accent type	Lexical form	Vocative!	gloss
Type A	na.TU.o H	na.TU.o! H L%	Natsuo [boy's name]
	baa.TYAn H	baa.TYAn! H L%	grandma
	a.ne.SAn H	a.ne.SAn! HL%	elder sister
Type B	ha.ru.O H	ha.RU.o! H L%	Haruo [boy's name]
	sen.SEI H	sen.SEi! HL%	teacher, professor, doctor
	o.baa.TYAN H	o.baa.TYAn! H L%	grandma

In Type A, the intonational L% falls on the final mora to which no tone was assigned at the lexical level. In Type B, in contrast, the final syllables exhibit a falling pattern if they are heavy, e.g. *sen.SEi* 'teacher!'. This can be understood easily if we assume that the penultimate and final moras bear the lexical H and the postlexical L%, respectively. In other words, heavy syllables can readily carry the two tones.

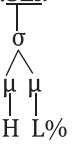
What is interesting is the behavior of Type B words ending in a light syllable, e.g. *ha.ru.o*. 'Haruo'. In this case, the lexical H tone is always retracted from the final mora to the penultimate mora, while the vocative L% is fixed onto the final mora. This retraction is analogous to the H tone retraction that takes place in KagJ, i.e. (6.16a). In other words, it can be analyzed as a solution to tonal crowding within the final monomoraic syllable. As shown in (6.17), the input represents a situation of tonal crowding which is remedied by pushing out the lexical H tone to the immediately preceding mora. As a result of this tonal change, the output comes to bear one tone on one mora.

(6.17) ha.ru.O! → ha.RU.o!



In contrast, Type B words ending in a heavy syllable do not undergo H tone retraction. They simply bear the sequence of H and L% on the final syllable: to be more precise, the final mora attracts the intonational L% and the penultimate mora bears the lexical H tone, as shown in (6.18). This suggests that tonal crowding does not occur in heavy syllables since they can readily accommodate two tones.

(6.18) sen.SEi!



Recall that final light syllables show tonal crowding in Kobayashi and KagJ, too, as we saw in the preceding sections. Interestingly, this marked tonal structure is resolved in different ways in the three dialects: i.e. solely by vowel lengthening in Kobayashi as in (6.12), solely by H tone retraction in KosJ-Taira as in (6.17), and by either vowel lengthening (6.15a) or H tone retraction (6.16a) in KagJ. Vowel lengthening and H tone retraction are obviously triggered by a force to resolve the same situation of tonal crowding where one mora carries multiple tones. In other words, vowel lengthening and H tone retraction are both triggered by a constraint prohibiting one mora from carrying multiple tones.

That said, it is important to emphasize that different dialects employ different strategies to solve one and the same problem. H tone retraction in (6.16a) and (6.17) is not permitted in Kobayashi Japanese, while vowel lengthening in (6.12) and (6.15a) is not an available option in KosJ-Taira. How can we explain these choices? One possible explanation may be that vowel lengthening is not permitted in KosJ-Taira because of its high sensitivity to syllable weight in lexical prosody, while it is permitted in the syllable-counting systems of Kobayashi and KagJ. KosJ-Taira is a mora-counting system where light and heavy syllables behave differently in the computation of lexical accent. It is easy to understand why mora augmentation is not freely permitted in such a system. On the other hand, Kobayashi and KagJ have a quantity-insensitive system at the word level where the distinction between the two types of syllables is basically irrelevant. In

this latter type of system, mora augmentation by vowel lengthening should not cause a serious problem.

Recall in this connection that vowel lengthening was an available option in question intonation in KosJ (Section 6.1.2). That the same dialect does not permit this option in vocative intonation may be attributable to the need to distinguish between vocative and question intonation in the same system or, alternatively, to the more grammaticalized nature of vocative intonation and the more paralinguistic nature of question intonation.

Finally, it is important to emphasize that the two lexical accent patterns are totally neutralized in the vocative prosody of KosJ-Taira. Not only Type A words but also Type B words show an abrupt pitch fall between the final two moras – or, in tonal terms, the lexical H tone is assigned to the penultimate mora and the intonational L% to the final mora in both accent types. One variation of this basic pattern is found in words ending in a sequence of heavy and light syllables. In this case, too, Type A and Type B are completely neutralized, with a pitch fall between the final two moras, as illustrated in (6.19).

(6.19) a. Type A

Lexical RYOO.ko
H

Vocative RYOO.ko!
H L%

b. Type B

Lexical yoo.KO
H

Vocative yoo.KO! → (H tone retraction) YOO.ko!
H L% H L%

While H tone retraction is the only solution to tonal crowding in this dialect, it is worth adding that phonetic lengthening can occur quite freely in this system, too. Interestingly, it is not the final vowel but the vowel of the H-toned syllable that undergoes this lengthening. It occurs in both accent types and does not change the pitch of the relevant vowel, as shown in (6.20). This temporal variant occurs for pragmatic purposes when, for example, the speaker calls the hearer from a distance. It is therefore qualitatively different from the phonological vowel

lengthening observed in Kobayashi (6.12) and KagJ (6.15a) which takes place obligatorily to resolve tonal crowding in word-final syllables.

(6.20) a. Type A
na.TU.o! → na.TUU.o! 'Natsuo!'

b. Type B
ha.RU.o! → ha.RUU.o! 'Haruo!'

6.2.3 Vocative prosody in KosJ: Two-peak systems

As mentioned above, varieties of KosJ other than KosJ-Taira permit two H tones in relatively long words. Since these two-peak systems exhibit subtle differences from each other, let us focus on the variety spoken in Teuchi (KosJ-Teuchi), the southernmost village on the islands (see Map 2 on page 6). The two accent patterns are illustrated in (6.21), where both long and short words are given.

(6.21) a. Type A
na.TU.o 'Natsuo', po.PAi 'Popeye', ru.PAn 'Lupin', go.ROo 'Goro [boy's name]
A.ne.SAn 'elder sister', WA.sin.TOn 'Washington', KA.TOO.sen.SEi 'Professor Kato'

b. Type B
HA.ru.O 'Haruo', MI.kaN 'orange, A.NI.saN, 'elder brother', SEN.seI 'teacher'

As can be seen from the comparison with the data in Table 6.1, the H tone that appears at or near the end of the word in this two-peak system corresponds to the sole H tone found in the one-peak system of KosJ-Taira (and also that of KagJ), suggesting that this is the primary H tone in the phonological system. In KosJ-Teuchi, too, this H tone is assigned to the penultimate mora in Type A words and to the final mora in Type B words. As mentioned in the preceding chapters (Sections 2.3, 4.3, and 4.4), this basic rule permits exceptions in Type A words if their penultimate and antepenultimate moras form one heavy syllable: e.g. *syoo.zi* 'Shoji [boy's name]' and *kan.to* 'Kant'. In such a case, the H tone assigned to the penultimate mora shifts one mora to the left, i.e. to the head mora of the same syllable. This leftward H tone shift, illustrated in (6.22), is a lexical process.

(6.22) syoO.zi → SYOo.zi 'Shoji [boy's name]'
kaN.to → KAn.to 'Kant'

As we saw in Chapter 3 above, the distribution of the H tone at the beginning of the word is also rule-governed. In KosJ-Teuchi and most other two-peak systems of KosJ, this secondary H tone can spread to multiple syllables in long words. In principle, it is linked to the syllables before the primary H tone in such a way that a L-toned syllable (or a L-toned head mora of heavy syllables) intervenes between the two H tones as if to prevent a clash between them.

Having recalled the basic structure of word prosody in this dialect, let us now consider its vocative intonation. Like Kobayashi Japanese and KosJ-Taira, vocative prosody in this two-peak KosJ system shows a pitch fall at the end of the word, specifically between the final two moras, just as in the one-peak system of KosJ-Taira (Table 6.1). This is summarized in Table 6.2.[57]

Table 6.2: Vocative intonation in the two-peak system in KosJ-Teuchi.

Accent type	Lexical form	Vocative!	gloss
Type A	na.TU.o H	na.TU.o! H L%	Natsuo [boy's name]
	BAA.TYAn H H	BAA.TYAn! H H L%	grandma
	A.ne.SAn H H	A.ne.SAn! H H L%	elder sister
Type B	HA.ru.O H H	ha.RU.o! H L%	Haruo [boy's name]
	SEN.seI H H	SEN.SEi! H H L%	teacher, professor, doctor
	A.NI.saN H H	A.ni.SAn! H H L%	elder brother
	O.BAA.tyaN H H	O.baa.TYAn! H H L%	grandma

It must be noted that H tone retraction illustrated in (6.17) occurs in all Type B words in this system, too: it takes place whether the final syllable is light as in (6.23a) or heavy as in (6.23b). This compares with the fact that in KosJ-

57 The vocative form of *SEN.seI* 'teacher' is *SEN.SEi!* rather than *SEn.SEi!*: namely, the entire heavy syllable before the primary H tone receives the secondary H tone (see also *BAA.TYAn* in Type A). This is due to an interesting interaction between syllable weight and tone in this system: the entire heavy syllable is H-toned if this is the sole syllable before the primary H tone, while light syllables in the same position are L-toned (*SEN.SEi!* vs. *ha.RU.o!*).

Taira, only word-final light syllables involve tonal crowding and are subject to H tone retraction. This difference comes from the fact that at the word level, the final heavy syllables in Type B words are entirely H-toned in KosJ-Taira, e.g. *sen.SEI* 'teacher', *a.ni.SAN* 'elder brother', whereas they carry the primary lexical H tone only on the final mora in KosJ-Teuchi, e.g. *SEN.seI* and *A.NI.saN*. Tonal crowding in the latter system and its resolution are illustrated in (6.23). Note that the secondary H tone at the beginning of the word in (6.23a) is also retracted to the left: it disappears or becomes a floating tone[58] if there is no phonological material to which it can attach.

(6.23) a. HA.ru.O! → ha.RU.o!
H H L% H L%

b. A.NI.saN! → A.ni.SAn!
H H L% H H L%

As a result of H tone retraction in (6.23), every word, whether it is lexically Type A or Type B, comes to bear the primary lexical H tone on the penultimate mora and the postlexical L% on the final mora.[59] This is the same output as the one we found in the one-peak system of KosJ-Taira (Table 6.1). The presence or absence of the secondary H tone thus exerts no effect on the way the vocative L% is manifested.

This system is also similar to KosJ-Taira in permitting phonetic lengthening to occur for pragmatic reasons, e.g. for emphasis. This lengthening can occur on the vowel with the primary H tone both in Type A and Type B words. Here, again, the phonetically lengthened vowels do not change the pitch of the input vowel. This is exemplified in (6.24). These facts imply that phonetic lengthening applies after the phonological process of H tone retraction in (6.23) takes place.

(6.24) Phonetic lengthening in KosJ-Teuchi vocatives
a. Type A
na.TU.o! → na.TUU.o! 'Natsuo!'
A.ne.SAn! → A.ne.SAAn! 'elder sister!'

58 No evidence can be found to motivate a choice between these two possibilities.
59 Words in (6.22) exceptionally bear the lexical H tone on the antepenultimate mora, or the head mora of the syllable containing the penultimate mora: *SYOo.zi!* and *KAn.to!*.

b. Type B
ha.RU.o! → ha.RUU.o! 'Haruo!'
A.ni.SAn! → A.ni.SAAn! 'elder brother!'

We have so far seen vocative patterns in the two-peak system of KosJ-Teuchi. It is probably worth describing some regional differences among the two-peak systems of KosJ. There are two differences worth mentioning here. One concerns the pitch of the vowels phonetically lengthened for pragmatic purposes. In KosJ-Teuchi, vowel lengthening of this kind does not change the pitch of the vowel itself as we saw just above. While this is true in the two-peak system of KosJ-Kuwanoura on the northern island and those of KosJ-Nagahama and KosJ-Sesenoura on the southern island as well as in the one-peak system of KosJ-Taira on the central island (Map 2 on page 6), this is not true of all two-peak systems of KosJ. I looked at vocative prosody in two other two-peak varieties, KosJ-Sato and KosJ-Nakakoshiki, both of which exhibit pitch lowering *within* the lengthened vowels if the syllable is underlyingly monomoraic, e.g. *na.TUu.o!* 'Natsuo', while showing no pitch change vowel-internally if the syllable is underlying bimoraic, e.g. *A.ne.SAAn!* 'elder sister!'. This is illustrated in (6.25). It is not clear why the vowels in the underlying monomoraic and bimoraic syllables behave differently with respect to this lengthening-pitch interaction in the two KosJ varieties in question.

(6.25) Phonetic lengthening in KosJ-Sato and KosJ-Nakakoshiki vocatives
a. Type A
na.TU.o! → na.TUu.o! 'Natsuo!'
A.ne.SAn! → A.ne.SAAn! 'elder sister!'

b. Type B
ha.RU.o! → ha.RUu.o! 'Haruo!'
A.ni.SAn! → A.ni.SAAn! 'elder brother!'

A comparison between (6.24) and (6.25) reveals regional differences with respect to the pitch of the phonetically-lengthened vowels: e.g. *na.TUU.o!* vs. *na.TUu.o!* 'Natsuo!', *ha.RUU.o!* vs. *ha.RUu.o!* 'Haruo!'. These differences are not mutually permissible between the two groups of KosJ varieties. Namely, *na.TUU.o!* and *ha.RUU.o!* are not permitted in KosJ-Sato and KosJ-Nakakoshiki, whereas *na.TUu.o!* and *ha.RUu.o!* are not acceptable to the speakers of other KosJ varieties – KosJ-Teuchi, KosJ-Nagahama, and KosJ-Sesenoura (southern island) and KosJ-Kuwanoura (northern island). It is intriguing to find this pitch difference within the two-peak varieties of KosJ, especially between KosJ-Sato/KosJ-Nakakoshiki and KosJ-Kuwanoura, which are only 10 km apart from each other on the northern island.

Another noticeable variation in the two-peak KosJ systems concerns an unusual H tone retraction in KosJ-Sato, KosJ-Nakakoshiki, and KosJ-Kuwanoura, the three varieties whose vocative prosody I examined on the northern island. In all these northern varieties, the primary H tone in (6.23) is often further retracted to the left in both accent types, as illustrated in (6.26).

(6.26) Further H tone retraction on the northern island
  a. Type A
     na.TU.o! → NA.tu.o! 'Natsuo'
  b. Type B
     ha.RU.o! → HA.ru.o! 'Haruo'

This variant pitch pattern is totally unacceptable to the speakers on the central and southern islands. It is therefore interesting to ask what role the tonal variation in (6.26) plays and how it is phonologically motivated. As for the first question, some speakers on the northern island comment that they use the input form in (6.26) when shouting at someone in a distance, often with vowel lengthening, e.g. *na.TUuo!* and *ha.RUu.o!*, while using the output form in (6.26), e.g. *NA.tu.o!* and *HA.ru.o!* when talking to someone near them. As for the second question, it is difficult to explain the change in (6.26) in tonal terms, since the input forms are free from the type of tonal crowding found in Table 6.2 and (6.23a) above. A more detailed study is called for to answer these questions.

6.3 Summary

In summary, both the one-peak system of KosJ-Taira and the two-peak system of KosJ-Teuchi resolve tonal crowding in Type B words by retracting the lexical H tone one mora to the left. Word-final heavy syllables undergo this process only when the final mora carries both the lexical H tone and the postlexical L% as in (6.23b), but not when the final heavy syllable carries the same tonal string as in *sen.sei* and *o.baa.tyan* in Table 6.1 and (6.18). This reinforces our claim that the mora is the basic tone-bearing unit, with each mora being capable of carrying only one tone.

As for neutralization, the two accent types are totally neutralized in the vocative intonation of KosJ as a whole, as can be seen from Tables 6.1 and 6.2. In both one-peak and two-peak systems, vocative intonation involves an abrupt pitch fall basically between the final two moras in both accent classes. The neutralization between the two accent types is due basically to the process of H tone retraction that takes place in Type B words, as shown in (6.17) and (6.23). This topic will be discussed in more depth in Section 7.2

7 Other aspects of sentence prosody

7.1 Syllable-tone relations

7.1.1 Tonal crowding and its resolution

In his influential book, Ladd (1996, 2008) examines tonal crowding situations in the context of tune-text relationships. Tonal crowding refers to situations where multiple tones are assigned to one syllable, typically monosyllabic words. Ladd suggests that there are two strategies to cope with these marked situations. One is 'compression' as found in question intonation in English which accommodates the multiple tones, probably by way of lengthening the syllable to a considerable extent. The other strategy is 'truncation' which, as found in question intonation in Hungarian, simplifies the complex tonal structure to some extent, possibly without changing the temporal structure. As for the latter type, Ladd (1996: 132, 2008: 182) makes a statement as follows (emphasis mine):

> In some languages . . . . . there seems to be a limit to the number of tones that can be realised on a single syllable, *the most common limit being two*.

In this section (Section 7.1), I demonstrate that Japanese is a typical language that is subject to the limit Ladd mentions, or to be more specific, a language where only one or two tones can be realized on one syllable. In Japanese, this limitation is attributable to two independent mechanisms. One of them concerns the observation I have made in the analysis of vocative intonation in Japanese dialects above (Section 6.2), namely, that one mora can carry only one tone. The other mechanism is the constraint prohibiting trimoraic syllables, or the constraint whereby one syllable can consist of maximally two moras (Section 4.4). These two mechanisms conspire to yield the effect of the constraint suggested by Ladd (1996, 2008). I discuss the first mechanism in the rest of this section (Section 7.1.1) and the second one in the following section (Section 7.1.2).

In Section 6.2, we saw that tonal crowding occurs in vocative intonation when the final syllable of the word carries more than one tone, typically a lexical tone and a postlexical one. In the three southern dialects we saw – KosJ, KagJ, and Kobayashi – tonal crowding is sensitive to the weight of the syllable itself, occurring in monomoraic syllables, but not in bimoraic ones.

In the two-pattern system of KosJ-Taira (Section 6.2.2), for example, tonal crowding is defined in Type B words ending in a monomoraic syllable and is resolved by the retraction of the lexical H tone, as shown in (7.1b). The weight of

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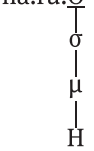
the penultimate syllable is irrelevant here as the lexical H tone spreads over this syllable whether it is monomoraic or bimoraic.

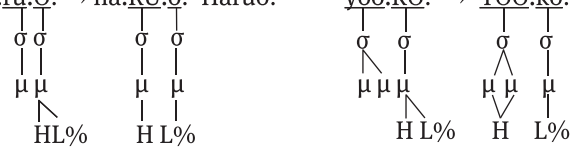
(7.1) a. lexical form

ha.ru.O ‘Haruo’ yoo.KO ‘Yoko’



b. vocative form

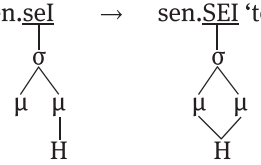
ha.ru.O! → ha.RU.o! ‘Haruo!’ yoo.KO! → YOO.ko!



No comparable tonal phenomenon is observed in words ending in a bimoraic syllable. At the word level, the lexical H tone docks on the entire final syllable in Type B words rather than their final mora due to H tone spreading (Sections 2.3 and 4.1) to avoid a rising contour tone within a syllable. This is shown in (7.2).

(7.2) H tone spreading at the lexical level

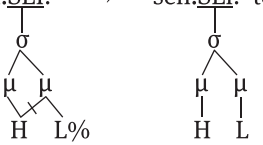
sen.seI → sen.SEI ‘teacher’



What happens in vocative prosody is that the intonational L% is realized on the final mora, while the lexical H tone is restricted to the penultimate mora. This is shown in (7.3). A comparison of (7.1b) and (7.3) shows that bimoraic syllables can readily carry both H and L%, whereas their monomoraic counterparts cannot. The latter resorts to the tonal solution in (7.1b) to resolve tonal crowding.

(7.3) Vocative form

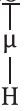
sen.SEI! → sen.SEi! ‘teacher!’



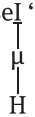
Essentially the same tonal solution is found in the two-peak system of KosJ-Teuchi. As discussed in Section 5.1, Type B words bear the lexical H tone on the final mora at the lexical level, in monomoraic and bimoraic syllables alike. This structure, illustrated in (7.4a) and (7.4b), is the lexical structure of Type B words: the secondary H tone at the beginning of the word is ignored here since it perfectly correlates with the primary H tone in this system (Sections 3.2 and 5.1). (7.4b) obviously involves a rising contour tone on the final syllable, but this is tolerated in this system to avoid tonal neutralization with Type A (Sections 2.3 and 4.1).

(7.4) Type B words in KosJ-Teuchi

a. ha.ru.O ‘haruo’

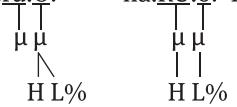


b. sen.seI ‘teacher’

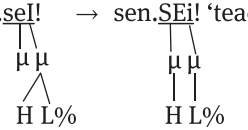


In vocative prosody, the primary lexical H at the end of the word is pushed out of the final mora onto the penultimate mora in both (7.4a) and (7.4b), as illustrated in (7.5).

(7.5) a. ha.ru.O! → ha.RU.o! ‘Haruo!’



b. sen.seI! → sen.SEi! ‘teacher!’



As a result, this dialect displays the same vocative patterns as KosJ-Taira (except, of course, for the presence of a secondary H tone at the beginning of the word). Namely, the final two moras come to bear the lexical H tone and the intonational L%, respectively: e.g. *ha.RU.o!* ‘Haruo!’ and *SEN.SEi!* ‘teacher!’.[60] In sum, one mora can bear only one tone in KosJ. Both the one-peak system and two-peak system of the dialect are subject to this constraint.

60 *SEN* in *SEN.SEi* ‘teacher!’ is due to the secondary H tone (Sections 3.2 and 4.2.2).

This argument can be supported by the evidence from other Japanese dialects. In Kobayashi and KagJ discussed in Section 6.2.1, tonal crowding occurs only in words that end in a monomoraic syllable bearing two tones, the lexical H tone and the intonational L% tone. They display different solutions to this crowded structure. The one-pattern system of Kobayashi resolves the marked structure by lengthening the final vowel and thus changing the temporal structure of the input. KagJ, on the other hand, employs two solutions that are mutually exclusive: temporal strategy (vowel lengthening) as in Kobayashi or tonal strategy (H tone retraction) as in KosJ. Despite these strategic differences, tonal crowding occurs in exactly the same context across the dialects, that is, in final monomoraic syllables. In contrast, bimoraic syllables can readily accommodate the two tones without appealing to either the temporal or tonal strategy. These observations confirm our claim that one mora is capable of carrying only one tone in Japanese.

Interestingly, the same constraint is at work in Tokyo Japanese, too, despite its markedly different word-prosodic system from the southern dialects we have just seen (see Chapter 2). In this dialect, vocative prosody exhibits three independent patterns of which Pattern β – H% on the final syllable – and Pattern γ – HL% on the same syllable – potentially create tonal crowding (Section 6.2.1.2). Of these two patterns, tonal crowding occurs in restricted contexts in Pattern β since lexical pitch accent – or H*L sequence – usually appears a few moras before the end of the word, typically on the antepenultimate and penultimate moras because of Nonfinality (Kubozono 1995b, 2008a). Simply adding H% onto the final syllable does not usually give rise to a crowded situation, as shown in (7.6b). To be more precise, the final syllable is phonetically longer in (7.6b) than in (7.6a) at the surface (Fig. 7.1a vs. 7.1b), but it can be a monomoraic length according to the native speakers' intuitions.

(7.6) a. lexical form

na.o.ya 'Naoya'	kei.ko 'Keiko'
H*L	H*L

b. vocative form (Patter β)

na.o.ya! 'Naoya!'	kei.ko! 'Keiko!'
H*L H%	H*LH%

c. vocative form (Patter γ)

na.o.ya! 'Naoya!'	kei.ko! 'Keiko!'
H*L HL%	H*LHL%

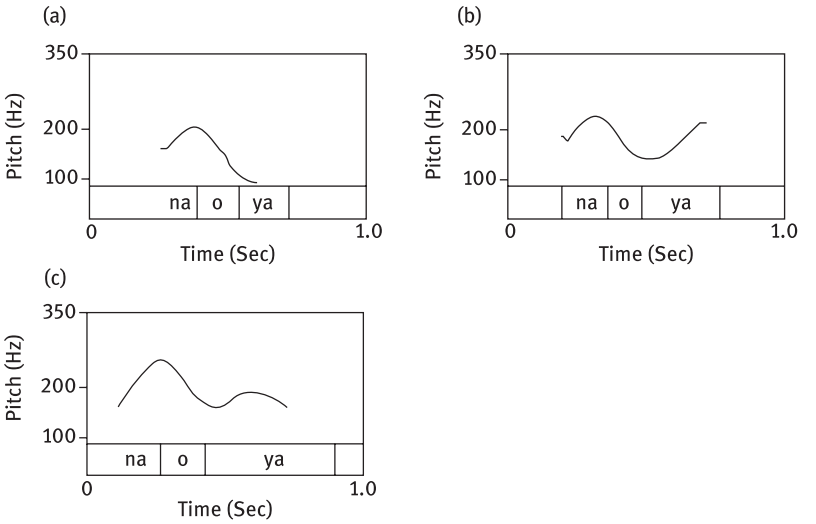


Figure 7.1: Various forms of Naoya 'Naoya': (a) declarative form, (b) vocative pattern β, and (c) vocative pattern γ.

On the other hand, the final vowel is considerably lengthened in Pattern γ in (7.6c) (Figure 7.1c) to accommodate a HL% sequence added to the final syllable. This lengthening occurs obligatorily and very clearly. In temporal representation, it turns the monomoraic final syllable into a bimoraic one. It has a side effect of temporally neutralizing underlyingly monomoraic and bimoraic final syllables: *naoya!* in (7.6c) becomes indistinguishable from the hypothetical word *naoyaa!* 'Naoyaa!' in which the final vowel is underlyingly long. For the same reason, *syoo.ta* 'Shota' and *syoo.taa* 'Shorter' becomes indistinguishable from each other if they are pronounced with Pattern γ although they can be readily distinguished by the length of the final vowel in the lexical form as well as in the vocative pattern β.

Again, lengthening of this kind does not occur obligatorily if the final syllable is bimoraic as in (7.7b), where the penultimate and final moras are H-toned and L-toned, respectively.

(7.7) a. lexical form

kaa.san 'Mom'	syoo.taa 'Shorter [English surname]'
H*L	H*L

b. vocative form (Pattern γ)

kaa.san! 'Mom!'	syoo.taa! 'Shorter!'
H*L HL%	H*LHL%

The situation in (7.6)-(7.7) is comparable to the one we saw in the southern dialects despite the fact that the final syllable bears two intonational tones in Tokyo as against the sequence of a lexical tone and an intonational tone in the latter dialects. What is common with all these dialects is that bimoraic syllables can readily accommodate two tones without vowel lengthening, while monomoraic syllables cannot.

In Tokyo, more serious cases of tonal crowding occur in short words as in (7.8).

(7.8) a. lexical form
ma.ma 'Mom'
H* L

b. vocative form (Pattern β)
ma.ma! 'Mom!'
H* L H%

c. vocative form (Pattern γ)
ma.ma! 'Mom!'
H* L HL%

In (7.8b), the final syllable is lexically monomoraic and bears a sequence of the lexical L and the intonational H% in the vocative. This vocative form usually manifests itself in two mutually-exclusive ways, (a) by lengthening the final vowel/syllable or (b) by tonal coalescence, as illustrated in (7.9a) and (7.9b), respectively.

(7.9) a. temporal solution (vowel lengthening)
ma.ma! → ma.maa! 'Mom!'
σ σ → σ σ
μ μ → μ μ μ
H*L H% → H* L H%

b. tonal solution (coalescence)
ma.ma! → ma.ma! 'Mom!'
σ σ → σ σ
μ μ → μ μ
H*L H% → H* M%

(7.9a) is a temporal solution by which the final syllable becomes bimoraic via vowel lengthening (Figure 7.2a). As in the southern dialects, it results in a temporal neu-

tralization between the underlying short and long vowels in the final syllable, e.g. between *mama* and the hypothetical *mamaa*, or between the underlying *riri* and *ririi*.

Alternatively, the tonal crowding situation can also be remedied by amalgamating the two tones, L H%, into a tone with an intermediate value, i.e. M(id), as in (7.9b) (Figure 7.2b). The temporal and tonal solutions in Figure 7.2 are mutually exclusive: when vowel lengthening occurs, tonal coalescence does not occur, and vowel lengthening does not occur when tonal coalescence occurs.

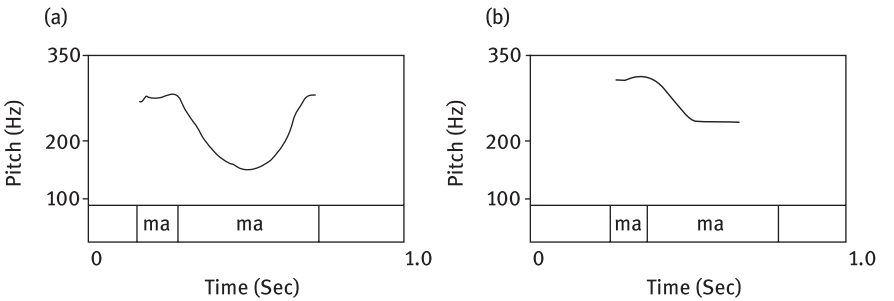
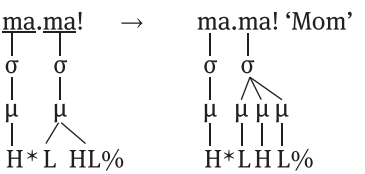


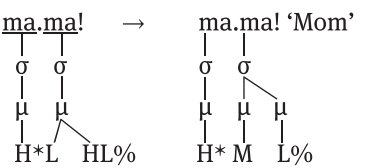
Figure 7.2: Two vocative patterns of *ma.ma!* 'Mom!' (Pattern β): (a) vowel lengthening and (b) tonal coalescence.

Pattern γ in (7.8c) exhibits similar surface patterns. If the three tones on the final syllable are fully manifested at the surface, the syllable is markedly lengthened – to a trimoraic length – as in (7.10a) (Figure 7.3). More often, the final syllable undergoes tonal coalescence whereby the sequence of three tones – L HL% – turns into a sequence of two tones – ML%, as in (7.10b). In this case, the output is not three moras long, but two moras long according to native speakers' intuition.

(7.10) a. temporal solution



b. tonal solution



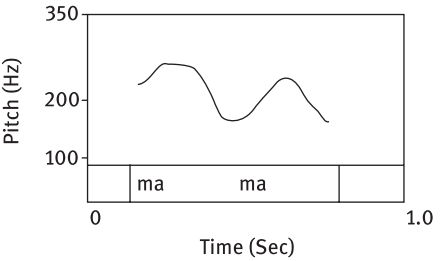
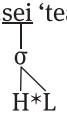


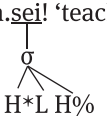
Figure 7.3: Vocative pattern of *ma.ma!* 'Mom!' in (7.10a) (Pattern γ).

Vocative prosody in Tokyo Japanese also yields serious cases of tonal crowding in long words that are lexically accented on the final syllable as in (7.11). This accent pattern is very rare in the dialect because of the nonfinality constraint banning phonological prominence on the final syllable. In vocative prosody, the final syllable becomes very crowded with three tones as in (7.11b) (Pattern β) or with four tones as in (7.11c) (Pattern γ). That is, (7.11b) involves the lexical sequence of H*L and the vocative H% on the final syllable, whereas (7.11c) has the same lexical sequence plus the vocative sequence of HL% in the same position. The latter represents the most crowded situation in this dialect.

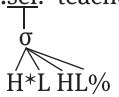
(7.11) a. lexical form
sen.sei 'teacher'



b. vocative form (Pattern β)
sen.sei! 'teacher!'



c. vocative form (Pattern γ)
sen.sei! 'teacher!'

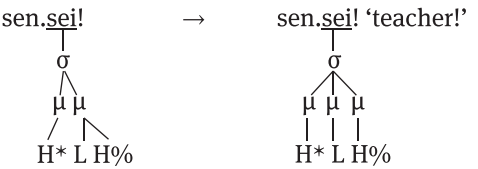


The crowded situations in (7.11b) and (7.11c) can both be resolved in multiple ways. First, the final syllable may be lengthened to a three-mora length in the

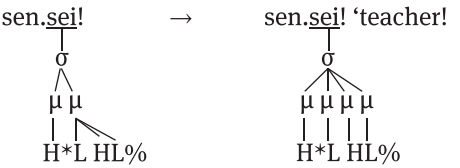
case of (7.11b) (Figure 7.4a) or to a four-mora length in the case of (7.11c) (Figure 7.4b). These temporal solutions are formalized in (7.12a) and (7.12b).

(7.12) temporal solution

a. Pattern β



b. Pattern γ



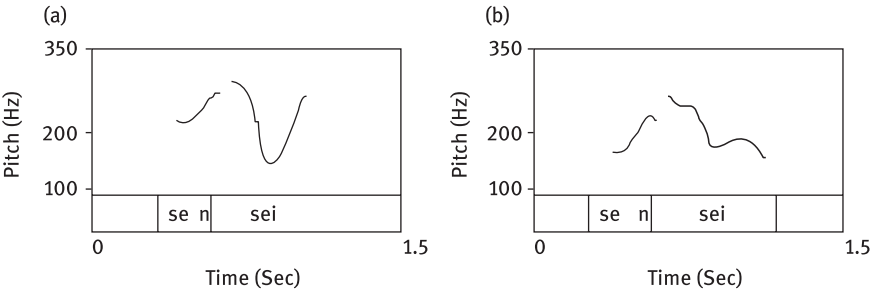
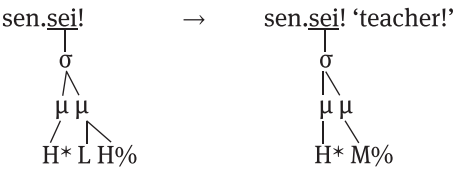


Figure 7.4: Vocative patterns of (7.11b) (Pattern β, (a)) and (7.11c) (Pattern γ, (b)) with final vowel lengthening.

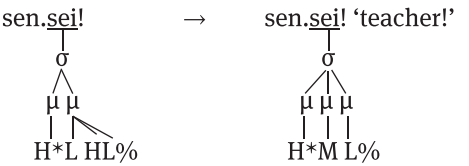
However, this temporal solution is not generally favored but is often overridden by tonal coalescence whereby the second half of the lexical sequence, i.e. L in H*L, merges with the postlexical H% into a Mid tone, M%. This is illustrated in (7.13) and Figure 7.5.

(7.13) tonal solution

a. Pattern β



b. Pattern γ



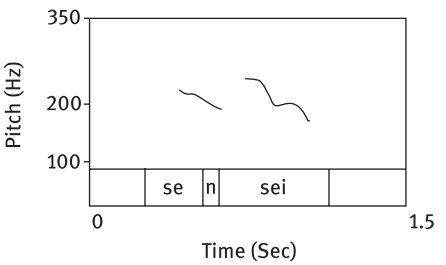
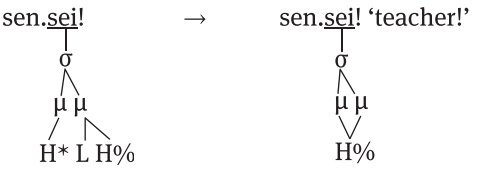


Figure 7.5: Tone coalescence in Tokyo: Pattern γ (with coalescence) in *sense'i!* 'teacher!'.

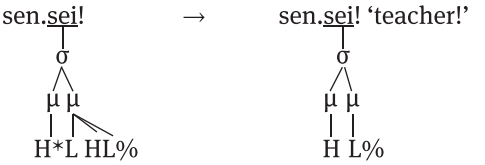
A more radical tonal solution than tonal coalescence is often observed here. It is a second tonal solution whereby the lexical tone string – H*L – is deleted altogether. This is illustrated in (7.14) and Figure 7.6. In (7.14a) and (7.14b), the outputs involve only the intonational H% and HL%, respectively, without showing no effect of the lexical pitch accent (H*L). Without the lexical property, they come to exhibit the same pitch patterns as the vocative forms of lexically unaccented words such as *o.ba.san!* 'aunt!' and *o.zi.san!* 'uncle!' whose tonal representation is shown in (7.15). In other words, the deletion of the lexical pitch accent has an effect of neutralizing lexically accented and unaccented words in vocative prosody.

(7.14) Accent (H*L) deletion

a. Pattern β



b. Pattern γ



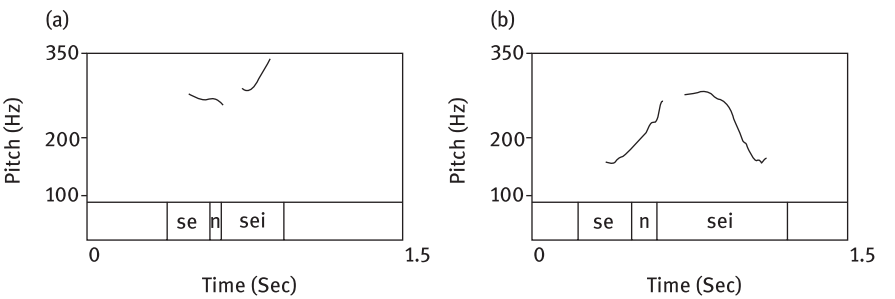
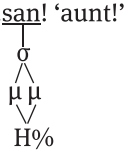


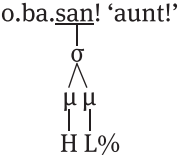
Figure 7.6: Lexical accent (H*L) deletion in Tokyo: (a) Pattern β and (b) Pattern γ of *sense'i!* 'teacher!'.

(7.15) Lexically unaccented words

a. Pattern β



b. Pattern γ



In sum, Tokyo Japanese attempts to resolve the tonally crowded situation in (7.11b) and (7.11c) in three independent ways: (7.12) temporal solution (final lengthening), (7.13) tonal coalescence, and (7.14) accent deletion. The latter two are tonal solutions that make the output structure tonally lighter than the input, by one

tone in (7.13) and two tones in (7.14). Consequently, they assign up to two tones to the final heavy syllables. The fact that these tonal solutions often override the temporal solution suggests that Tokyo Japanese, too, is subject to the tune-text constraint whereby one mora can bear only one tone.

7.1.2 Constraint against trimoraic syllables

In addition to the observation that one mora can bear only one tone in KosJ and other Japanese dialects, another important observation is that superheavy, i.e. trimoraic, syllables are generally prohibited in the language. We saw some evidence for this in Section 4.4 where we discussed the status of superheavy syllables in KosJ and other dialects in relation to diphthongs. What is most crucial in this respect is the fact that /ai/, /oi/, and /ui/ constitute legitimate diphthongs – or tautosyllabic vowel sequences – when they appear in open syllables, but split into two syllables in closed syllables. Thus, /ain/, /oin/, and /uin/ form two syllables with a syllable boundary between the two vowels: i.e. /a.in/, /o.in/, and /u.in/. These unusual patterns of syllabification are observed across Japanese dialects, as demonstrated in Section 4.4.

Let us take one example from KosJ-Taira, which is a mora-counting dialect with a H tone spreading rule. In this system, H tone basically appears on the penultimate mora in Type A and on the final mora in Type B. H tone spreading occurs if the second and third moras from the end of the word form a heavy syllable in Type A and if the final two moras form a heavy syllable in Type B. Some examples are given in (7.16).

(7.16) a. Type A
po.PAi ‘Popeye’, PUU.ru ‘pool’, PAN.tu ‘underpants’, RAI.su ‘rice’, DOI.tu ‘Germany’, KUI.zu ‘quiz’

b. Type B
o.to.KO ‘man’, sin.GOO ‘signal’, ni.HON ‘Japan’, ku.SUI ‘medicine’

While /ai/, /oi/, and /ui/ are readily integrated into a syllable in these examples, the same vowel sequences are not subject to H tone spreading if they are followed by a coda consonant, as demonstrated in (7.17). /sain/ ‘sign, signature’ (Type A), for example, consistently behaves as a disyllabic word with a syllable boundary between the first and second moras, i.e. /sa.in/, not as a monosyllabic one, i.e. /sain/.

(7.17) a. Type A
sa.In ‘sign, signature’, sa.IN-ga ‘sign-NOM’, de.za.In ‘design’, de.za.IN-ga ‘design-NOM’, ko.In ‘coin’, ko.IN-ga ‘coin-NOM’, tu.In ‘twin (room)’, tu.IN-ga ‘twin-NOM’

b. Type B
ni.se-sa.IN ‘fake signature’, ni.se-ko.IN ‘fake coin’, ni.se-tu.IN ‘fake twin (room)’

As demonstrated in Section 4.4, the two-peak accent system of KosJ-Teuchi, as well as other Japanese dialects, exhibit the same behavior although they all differ in prosodic organization at the word level and are specifically sensitive to the syllable and syllable boundaries in different ways.

That superheavy syllables are disfavored in Japanese can be further supported by evidence from some non-accentual phenomena. In Tokyo Japanese, for example, consonant gemination in loanwords is sensitive to the syllable weight of the word in which it occurs (Kubozono 1999). While this process has an effect of adding a coda consonant to the immediately preceding syllable, it is blocked if the preceding syllable is already bimoraic, that is, if it already has a long vowel or diphthong. In other words, it readily takes place if the preceding syllable is monomoraic as in (7.18a), but not if it is bimoraic as in (7.18b).

(7.18) a. ‘back’ → bak.ku
‘pack’ → pak.ku

b. ‘bike’ → bai.ku, *baik.ku
‘park’ → paa.ku, *paak.ku

In addition to consonant antigemination in (7.18b), Tokyo Japanese is also subject to vowel shortening in loanwords as they enter Japanese with a trimoraic syllable. Thus, long vowels with a coda nasal are often shortened in Japanese, as shown in (7.19) (Section 4.4.1). This phenomenon, called ‘pre-nasal vowel shortening’ (Lovins 1975), has an effect of converting trimoraic syllables (underlined) into bimoraic ones as they enter the language.

(7.19) ‘change’ → tyen.zi, *tyein.zi
‘stainless’ → su.ten.re.su, *su.tein.re.su
‘corned beef’ → kon bii.hu, *koon bii.hu
‘green peas’ → gu.rin pii.su, *gu.riin pii.su

Phenomena analogous to (7.18) and (7.19) are observed in KagJ, too. Unlike Tokyo Japanese and KosJ, it is essentially a syllable-counting dialect, but it is nevertheless sensitive to moras and syllable weight. This shows up very clearly in the contraction of the genitive *no*, which is a very productive morphological process in casual speech (Kubozono 2018d). As shown in (7.20), it has an effect of adding a mora to the preceding syllable just like consonant gemination in (7.18), thus creating a heavy syllable out of a sequence of two light syllables.

(7.20) a. to.na.ri-no ne.ko → to.na.rin ne.ko 'neighbor-GEN cat=neighbor's cat'

b. a.ta.si-no ka.sa → a.ta.sin ka.sa 'I-GEN umbrella=my umbrella'

c. i.gi.ri.su-no mi.ya.ge → i.gi.ri.sun mi.ya.ge 'Britain-GEN souvenir=souvenir from Britain'

Interestingly, this process is usually blocked if the noun to which *no* is attached ends in a diphthong. This is exemplified in (7.21), where *tonai* and *atai* are casual forms of *tonari* 'neighbor' and *atasi* 'I' in (7.20a,b), respectively.

(7.21) a. to.nai-no ne.ko → *to.<u>nain</u> ne.ko 'neighbor-GEN cat=neighbor's cat'

b. a.tai-no ka.sa → *a.<u>tain</u> ka.sa 'I-GEN umbrella=my umbrella'

c. ha.wai-no mi.ya.ge → *ha.<u>wain</u> mi.ya.ge 'Hawaii-GEN souvenir=souvenir from Hawaii'

This phenomenon is crucially similar to the blocking of consonant gemination in Tokyo Japanese in (7.18): The two processes are blocked in the context where they would yield trimoraic syllables (underlined in (7.21)).

no-contraction in KagJ is also blocked if the genitive particle is preceded by a long vowel, but it is exceptionally permitted when the long vowel is shortened. Here, vowel shortening without *no*-contraction is not permitted, either, which suggests that vowel shortening is prerequisite to the morphological change.

(7.22) a. a.tai.gee-no ne.ko → a.tai.gen ne.ko, *a.tai.<u>geen</u> ne.ko, *a.tai.ge.no ne.ko 'my house-GEN cat=a cat we keep'

b. ta.roo-no ka.sa → ta.ron ka.sa, *ta.<u>roon</u> ka.sa, *ta.ro.no ka.sa 'Taro-GEN umbrella=Taro's umbrella'

c. too.kyoo-no mi.ya.ge → too.kyon mi.ya.ge, *too.kyoon mi.ya.ge, *too.kyo.no mi.ya.ge 'Tokyo-GEN souvenir=souvenir from Tokyo'

It is clear why *no*-contraction is permitted before a short vowel, but not before a long one: *no*-contraction in the latter context would yield trimoraic syllables, as underlined in (7.22). In this sense, it is identical to vowel shortening that takes place before a coda nasal in Tokyo Japanese, i.e. (7.19): both processes are triggered by a force to avoid creating superheavy syllables.

In sum, trimoraic syllables are avoided rather strictly in Japanese, in both mora-counting and syllable-counting systems of the language.

7.1.3 Arguments for Ladd's (1996, 2008) claim

It was argued in Section 7.1.1 that one mora can bear only one tone. We actually saw that multiple strategies – both temporal and tonal – are employed in Japanese dialects to avoid multiple tones being realized on one syllable. These strategies have a common target of limiting the number of tones to one per mora. In Section 7.1.2, on the other hand, we saw evidence that Japanese is subject to a constraint prohibiting trimoraic syllables. Here, multiple phenomena conspire to limit syllables to at most two-mora length in Japanese dialects, both mora-counting and syllable-counting systems alike.

To summarize, one mora can carry only one tone in Japanese, while one syllable can be at most bimoraic in the same language. These are observations independent of each other. When combined, however, they point to one thing: one syllable can carry at most two tones. This supports Ladd's observation mentioned at the beginning of Section 7.1, repeated below (emphasis mine):

> In some languages . . . there seems to be a limit to the number of tones that can be realised on a single syllable, *the most common limit being two*.

Our current study has provided strong evidence for Ladd's observation. Specifically, it has shown that Japanese is a typical language that is subject to the constraint he proposes and that its effect comes from a combination of two independent factors, a constraint concerning the number of tones that a mora can carry and another constraint regarding the number of moras permitted per syllable in the language.

7.2 Tonal neutralizations

In the preceding chapters, we saw some cases of tonal neutralization whereby two (or more) distinctive pitch patterns lose their contrast. In this section, we examine the extent to which tonal neutralization occurs as well as the linguistic contexts where it occurs in KosJ and other Japanese dialects. We also explore the reasons for neutralization or lack of it.

7.2.1 Tonal neutralization in lexical prosody

Tonal neutralization does not generally occur at the word level in KosJ, in both the one-peak system of KosJ-Taira and the two-peak system of KosJ-Teuchi. A typical example showing the avoidance of tonal neutralization is the asymmetrical behavior of Type A and Type B in KosJ-Teuchi and other two-peak systems of KosJ discussed in Section 2.3. These KosJ varieties exhibit leftward shift of the primary H tone to avoid a rising contour tone, a configuration where tonal prominence appears only on the second mora of bimoraic syllables. This is illustrated in (7.23).

(7.23) H tone shift in KosJ-Teuchi
puU.ru → PUu.ru 'swimming pool'
paN.tu → PAn.tu 'underpants'
raI.su → RAi.su 'rice'

This H tone shift occurs only in Type A words including those in (7.23). Type B words fail to undergo the same process, as illustrated in (7.24).

(7.24) Type B words in KosJ-Teuchi: blocking of H tone shift
iN → *In 'dog'
MI.kaN → *mi.KAn 'orange'
NI.hoN → *ni.HOn 'Japan'
A.O.SIN.goO → *A.O.sin.GOo 'green signal'

The reason for this asymmetry between the two accent types is clear. The hypothetical output forms in (7.24) are identical to those of Type A words with the same phonological structure given in (7.25). This means that H tone shift is blocked in Type B because it would result in tonal neutralization, or the loss of the lexical tonal contrast.

(7.25) Type A in KosJ-Teuchi
In ‘seal, stamp’
zi.KAn ‘time’
KE.da.MOn ‘wild animal’
A.KA.sin.GOo ‘red signal’

This interpretation can be supported by the fact that KosJ-Taira shows no such tonal asymmetry. As discussed in Section 2.3, this one-peak system undergoes H tone spreading rather than H tone shift to avoid the same marked structure of rising contour tones. This is illustrated in (7.26).

(7.26) H tone spreading in KosJ-Taira
a. Type A
puU.ru → PUU.ru ‘swimming pool’
paN.tu → PAN.tu ‘underpants’
raI.su → RAI.su ‘rice’

b. Type B
iN → IN ‘dog’
mi.kaN → mi.KAN ‘orange’
ni.hoN → ni.HON ‘Japan’
ku.suI → ku.SUI ‘medicine’
a.o.sin.goO → a.o.sin.GOO ‘green signal’

In this system, Type B forms in (7.26) are tonally distinct from those of the corresponding Type A words shown in (7.27). The contrast between KosJ-Teuchi in (7.23)-(7.25) and KosJ-Taira (7.26)-(7.27) clearly shows that the lack of H tone shift in Type B in the former system and the resultant asymmetry between the two accent types are attributable to a force to prohibit tonal neutralization at the lexical level.

(7.27) Type A
In ‘seal, stamp’
zi.KAn ‘time’
ke.da.MOn ‘wild animal’
a.ka.sin.GOo ‘red signal’

Having said that the tonal distinction between Type A and Type B is well preserved in KosJ, one can point out a notable exception to this. This is a neutralization in monomoraic words mentioned in passing in Section 2.6. Namely, monomoraic words show a contrast between the two accent types when pronounced with one

or more grammatical particles like the nominative particle *ga* as shown in (7.28a), but not when they are pronounced in isolation, as in (7.28b). The neutralized pattern in the latter exhibits a flat pitch that would be expected in Type B words, not a pattern with an abrupt pitch fall that would be characteristic of Type A.

(7.28) Monomoraic words in KosJ
  a. Forms with a particle
     Type A: HI-ga 'sun-NOM', HA-ga 'leaf-NOM'
     Type B: hi-GA 'fire-NOM', ha-GA 'tooth-NOM'
  b. Bare forms
     Type A: HI 'sun', HA 'leaf'
     Type B: HI 'fire', HA 'tooth'

There are three facts worth mentioning about the neutralization in this context. First, neutralization of this type is limited to monomoraic words in KosJ. The tonal contrast is clearly preserved in monosyllables if they consist of two moras. This is illustrated in (7.29) for KosJ-Teuchi and in (7.30) for KosJ-Taira.

(7.29) Bimoraic monosyllables in KosJ-Teuchi
  a. Type A
     TOo 'ten', KIn 'gold', GIn 'silver', BAn 'evening', TOi 'bird'
  b. Type B
     toO 'tower', doO 'bronze', baN 'turn, lookout', kaI 'shellfish'

(7.30) Bimoraic monosyllables in KosJ-Taira
  a. Type A
     TOo 'ten', KIn 'gold', GIn 'silver', BAn 'evening', TOi 'bird'
  b. Type B
     TOO 'tower', DOO 'bronze', BAN 'turn, lookout', KAI 'shellfish'

A second point worth mentioning is the fact that exactly the same neutralization occurs in Tokyo Japanese. This standard dialect also exhibits a tonal contrast between so-called 'accented' and 'unaccented' patterns in monomoraic words if they are followed by a grammatical particle: accented words show an abrupt pitch fall between the noun and the particle, as illustrated in (7.31a).[61] In contrast,

61 Most monomoraic words are of native origin. They exhibit opposite pitch patterns between Tokyo Japanese and KosJ/KagJ in that those words that exhibit a pitch fall (accented) in Tokyo do

bare forms no longer show a tonal contrast and are realized in a flat pitch pattern that would be expected for unaccented words.

(7.31) Monomoraic words in Tokyo
a. Forms with a particle
Accented: HI-ga 'fire-NOM', HA-ga 'tooth-NOM'
Unaccented: hi-GA 'sun-NOM', ha-GA 'leaf-NOM'

b. Bare forms
Accented: HI 'fire', HA 'tooth'
Unaccented: HI 'sun', HA 'leaf'

Finally, tonal neutralization in monomoraic words does not occur in every dialect of Japanese. KagJ is a sister dialect to KosJ, but it can readily distinguish between the two accent types in the bare forms of monomoraic monosyllables just as in the bare forms of bimoraic monosyllables. This is exemplified in (7.32) where Type A and Type B contrast in the presence or absence of a pitch fall: *à* denotes that the vowel /a/ involves a pitch fall, whereas *ā* denotes a flat pitch.[62]

(7.32) Monomoraic words in KagJ (older generation)
a. Forms with a particle
Type A: HI-ga 'sun-NOM', HA-ga 'leaf-NOM', KA-ga 'mosquito-NOM'
Type B: hi-GA 'fire-NOM', ha-GA 'tooth-NOM', ka-GA 'department-NOM'

b. Bare forms
Type A: hì 'sun', hà 'leaf', kà 'mosquito'
Type B: hī 'fire', hā 'tooth', kā 'department'

Note that vowel length contrast is also preserved in monosyllabic words in KagJ as the vowels in (7.32b) are all pronounced considerably shorter than corresponding long vowels as in (7.33).

not exhibit a pitch fall in KosJ and KagJ, i.e. Type B. Likewise, most unaccented native words in Tokyo belong to Type A in KosJ and KagJ.

62 In tonal terms, monomoraic Type A words apparently involve two tones, H and L, which may be interpreted as evidence against the one-mora-one-tone principle discussed in the preceding section (Section 7.1). The underspecified analysis of tone adopted in this book (Section 1.4.1) predicts that monomoraic words would be tonaly neutralized since they all should involve only one lexical tone, i.e. H, whether Type A or Type B. This prediction is correct with young speakers of the dialect, as discussed shortly below, but not with its traditional speakers being discussed here.

(7.33) Bimoraic words with a long vowel in KagJ
a. Type A
TOo ‘ten’, ZYUu ‘gun’, KAa ‘car’
b. Type B
TOO ‘tower’, ZYUU ‘ten’, DOO ‘bronze’

The fact in (7.32b) demonstrates that the tonal contrast between the two accent types is well preserved in the bare forms of monomoraic words in KagJ. That said, it is important to add that younger generations of this dialect no longer keep the contrast. According to Kubozono (2018b), most speakers under 30 pronounce bare monomoraic forms with a flat pitch regardless of their accent type as shown in (7.34b), although they still keep the tonal contrast in forms with a grammatical particle as in (7.34a).

(7.34) Monomoraic words by the younger generation of KagJ
a. Forms with a particle
Type A: HI-ga ‘sun-NOM’, HA-ga ‘leaf-NOM’, KA-ga ‘mosquito-NOM’
Type B: hi-GA ‘fire-NOM’, ha-GA ‘tooth-NOM’, ka-GA ‘department-NOM’
b. Bare forms
Type A: hī (HI) ‘sun’, hā (HA) ‘leaf’, kā (KA) ‘mosquito’
Type B: hī (HI) ‘fire’, hā (HA) ‘tooth’, kā (KA) ‘department’

The situation in (7.34) is identical to what we observed in KosJ in (7.28) and in Tokyo in (7.31). What is shared by these three cases is that monomoraic words have lost a tonal contrast in bare forms although they can manifest it when followed by a particle. The difference between the older and younger generations in KagJ – (7.32) vs. (7.34) – indicates that in this dialect, tonal neutralization occurred in bare monomoraic forms quite recently. It also suggests that tonal neutralization has taken place in the same fashion in the history of KosJ and Tokyo Japanese.

7.2.2 Tonal neutralization in postlexical H tone deletion in non-final position

We saw in the preceding section that tonal neutralization does not occur in the lexical prosody of KosJ except in monomoraic words. Avoidance of tonal neutralization is observed at the postlexical level, too. This is particularly evident in the postlexical process of H tone deletion discussed in Chapter 5.

KosJ-Teuchi and many other varieties of KosJ exhibit two H tones in relatively long words, one at the beginning of the word (called H_2) and the other near its end (H_1). In these two-peak systems, H_1 is lexically primary in the sense that its position primarily distinguishes between the two accent types: the penultimate mora (Type A) vs. the final mora (Type B). Moreover, it corresponds to the sole H tone in relative short words in the same systems, as well as the sole H tone in the one-peak system of KosJ-Taira and that of KagJ. These points are shown in (7.35).

(7.35) Comparison of KosJ-Teuchi, KosJ-Taira and KagJ

Accent type	**KosJ-Teuchi**	**KosJ-Taira**	**KagJ**	**gloss**
Type A	A.me	A.me	A.me	candy
	KE.da. MO.no	ke.da. MO.no	ke.da. MO.no	wild animal
	NA.TU. ya.SU.mi	na.tu. ya.SU.mi	na.tu. ya.SU.mi	summer holiday
Type B	a.ME	a.ME	a.ME	rain
	A.SA.ga.O	a.sa.ga.O	a.sa.ga.O	morning glory
	HA.RU. YA.su.MI	ha.ru. ya.su.MI	ha.ru. ya.su.MI	spring holiday

In contrast, H_2 is secondary at the lexical level. In KosJ-Teuchi, it spreads over multiple syllables at the beginning of the word but does not clash with H_1 because of an intervening L tone that appears on one syllable or head mora. More crucially, it can distinguish between the two accent types in an indirect manner: it spreads over one more syllable in Type B than Type A if other phonological structures are identical. *HA.RU.YA.su.MI* 'spring holiday' (Type B), for example, has three H-toned syllables at the beginning, while *NA.TU.ya.SU.mi* 'summer holiday' (Type A) has just two in the same position.

While H_1 is thus lexically more dominant than H_2, it is nevertheless subject to deletion at the postlexical level, as discussed in Section 5.1.2. Specifically, H_1 is deleted when the word is followed by another word in the same sentence. This is exemplified below, where sentence final forms are compared with non-final forms in KosJ-Teuchi.

(7.36) H tone deletion at the postlexical level in KosJ-Teuchi

Accent type	Sentence-final form	Non-final form	gloss
Type A	KE.da.MO.no	KE.da.mo.no	wild animal
	KE.da.MOn	KE.da.mon	wild animal (colloquial)
	NA.TU.ya.SU.mi	NA.TU.ya.su.mi	summer holiday
Type B	NI.WA.to.RI	NI.WA.to.ri	chicken
	I.NA.BI.kaI	I.NA.BI.kai	lightening
	HA.RU.YA.su.MI	HA.RU.YA.su.mi	spring holiday

The contrast between sentence-final and non-final forms suggests that manifestation of H_1 signals sentence finality in this system. To be more precise, a second H tone within a word signals that the word is the very final word in the sentence. In contrast, its absence denotes that the word is to be followed by another word in the sentence.

Deletion of the lexically dominant H tone (H_1) at the sentence level is peculiar indeed. What is most important for our current discussion is that the lexical contrast between Type A and Type B is nevertheless preserved in sentence non-final positions just as in the final position. If other phonological structures are identical, Type B always involves one more H-toned syllable than Type A in non-final positions. The domain of this H tone was potentially distinctive at the lexical level, as mentioned above, but its distinctiveness shows up very clearly in non-final positions at the sentence level.

Absence of tonal neutralization at the postlexical level is observed in other KosJ varieties, too. As mentioned in Section 5.2, KosJ-Kuwanoura also undergoes H_1 deletion, but only in Type B words. This is illustrated in (7.37), where this variety is compared with KosJ-Teuchi. To take one example, KosJ-Kuwanoura shows H_1 deletion in *HA.RU.ya.su.mi* 'spring holiday' (Type B) just as KosJ-Teuchi does, but fails to undergo the process in its Type A counterpart *NA.TU.ya.SU.mi* 'summer holiday'.

(7.37) H_1 deletion in non-final positions: KosJ-Teuchi vs. KosJ-Kuwanoura

Accent type	KosJ-Teuchi	KosJ-Kuwanoura	gloss
Type A	KE.da.mo.no	KE.DA.MO.no	wild animal
	NA.TU.ya.su.mi	NA.TU.ya.SU.mi	summer holiday
Type B	I.NA.BI.kai	I.NA.bi.kai	lightening
	HA.RU.YA.su.mi	HA.RU.ya.su.mi	spring holiday

The difference between the two KosJ varieties with respect to postlexical H_1 deletion and the asymmetry between the two accent types in KosJ-Kuwanoura can both be accounted for in a principled way if we compare the lexical forms of these dialects. As mentioned in Section 5.2, KosJ-Kuwanoura obeys a considerably different rule from other KosJ varieties as to the domain of H_2 at the lexical level. Specifically, H_2 is basically limited to the initial two moras and does not spread to the third mora unless the second and third moras form one syllable. Moreover, H_2 is allowed to clash with H_1 in this system so that the two tones can appear adjacent to each other without any intervening L tone. More crucially, H_2 spreads in the same way in both Type A and Type B words, which means that this H tone is not distinctive at all at the word level. This can be seen from the comparison of the two varieties at the word level:

(7.38) Comparison of lexical forms in KosJ-Teuchi and KosJ-Kuwanoura

Accent type	KosJ-Teuchi	KosJ-Kuwanoura	gloss
Type A	KE.da.MO.no	KE.DA.MO.no	wild animal
	KA.zai.MOn	KA.ZAI.MOn	decoration
	KA.zai.MOn-ga	KA.ZAI.MOn-ga	decoration-NOM
	NA.TU.ya.SU.mi	NA.TU.ya.SU.mi	summer holiday
Type B	O.to.KO	O.TO.KO	man
	O.TO.ko-GA	O.TO.ko-GA	man-NOM
	I.NA.BI.kaI	I.NA.bi.kaI	lightening
	HA.RU.YA.su.MI	HA.RU.ya.su.MI	spring holiday

Seen in this light, it is easy to explain why postlexical H_1 deletion occurs in only one accent type in KosJ-Kuwanoura: if it took place in both accent types, it would result in tonal neutralization. For example, *NA.TU.ya.SU.mi* 'summer holiday' and *HA.RU.ya.su.MI* 'spring holiday' would be tonally indistinguishable from each other: **NA.TU.ya.su.mi* vs. *HA.RU.ya.su.mi*.

This account of anti-neutralization can also explain the total absence of H_1 deletion in the old system that Kamimura (1937, 1941) described. He included KosJ-Teuchi as belonging to what he calls 'KosJ mainstream', together with his native variety of KosJ-Nakakoshiki. In this description, the system of 'KosJ mainstream' eighty years ago differed from the present-day system of KosJ-Teuchi and KosJ-Nakakoshiki in two notable ways, both concerning the location of H_2 (Kubozono 2019). First, in Kamimura's old system, H_2 appeared basically on the second mora from the beginning of the word in both accent types, regardless of whether the target mora was a head mora of a syllable or the second, i.e. non-head, mora of a bimoraic syllable. Secondly, this basic rule admitted an exception when H_2 occurred immediately before H_1 in relatively short words. In such a case, H_2 was retracted to the initial mora, obviously to avoid a tonal clash with the primary H tone (H_1) that followed. This is illustrated in (7.39), where the old system is compared with the present-day systems of KosJ-Teuchi and KosJ-Kuwanoura.

(7.39) Kamimura's (1937, 1941) system

Accent type	**Kamimura (1937, 1941)**	**KosJ-Teuchi**	**KosJ-Kuwanoura**	**gloss**
Type A	KE.da.MO.no	KE.da.MO.no	KE.DA.MO.no	wild animal
	ka.ZAi.MOn	KA.zai.MOn	KA.ZAI.MOn	decoration
	na.TU.ya.SU.mi	NA.TU.ya.SU.mi	NA.TU.ya.SU.mi	summer holiday
Type B	O.to.KO	O.to.KO	O.TO.KO	man
	o.TO.ko-GA	O.TO.ko-GA	O.TO.ko-GA	man-NOM
	i.NA.bi.kaI	I.NA.BI.kaI	I.NA.bi.kaI	lightening
	ha.RU.ya.su.MI	HA.RU.YA.su.MI	HA.RU.ya.su.MI	spring holiday

As is clear from the comparison, Kamimura's old system resembles the present-day system of KosJ-Kuwanoura in that H_2 is basically fixed to a certain position in both accent classes. Because of this, H_2 is not distinctive in either system. On the other hand, the old system looks more like the system of present-day KosJ-Teuchi (and unlike KosJ-Kuwanoura) in that H_2 is not allowed to clash with H_1. This clash situation is resolved by H_2 retraction in both systems: e.g. *O.to.KO*, **O.TO.KO* 'man'.

That H_2 was not distinctive at the word level in Kamimura's old system accords well with the fact that he made no mention of H_1 deletion at the sentence level. In fact, he provided a rather detailed description of KosJ accent systems, but never mentioned anything like H_1 deletion. The reason for this lack of H_1 deletion is clear. If it had occurred in the old system, it would have resulted in tonal neutralization between the two accent types at the sentence level. For example, *na.TU.ya.SU.mi* 'summer holiday' (Type A) and *ha.RU.ya.su.MI* 'spring holiday' (Type B) would have been tonally indistinguishable from each other: **na.TU.ya.su.mi* vs. **ha.RU.ya.su.mi*. Absence of H_1 deletion in the old system thus suggests that this system was also subject to the constraint prohibiting tonal neutralization.

7.2.3 Tonal neutralization in question prosody

Having confirmed that the deletion of the lexical H tone at the sentence level does not trigger tonal neutralization, let us consider other postlexical processes and their relation to tonal neutralization in KosJ. In Section 6.1, we saw several characteristics of question prosody in this dialect. One of them was the obligatory use of question particles, typically *ka*, in the traditional grammar so that interrogative and declarative sentences were clearly distinguished in terms of the presence or absence of a question particle. Since question particles are simply added at the end of the sentence without changing the pitch pattern of the preceding content word, the lexical pitch contrast is clearly preserved. (7.40) compares interrogative forms with declarative (or lexical) forms of one-word sentences in KosJ-Teuchi.

(7.40) Declarative vs. interrogative forms in KosJ-Teuchi

Accent type	Declarative form	Interrogative form	gloss
Type A	TOo	TOo-ka	ten
	A.me	A.me-ka	candy
	o.NA.go	o.NA.go-ka	woman
Type B	toO	toO-ka	tower
	a.ME	a.ME-ka	rain
	O.to.KO	O.to.KO-ka	man

The only exception to this generalization is monomoraic words which, as mentioned in Section 7.2.1, have already lost a tonal contrast in lexical forms although they still keep the contrast when followed by a grammatical particle. This is shown in (7.41).

(7.41) Monomoraic words in KosJ-Teuchi

Accent type	Declarative form (bare form)	Declarative form with a grammatical particle	Interrogative form	gloss
Type A	GO	GO-ga	GO-ka	five
	HI	HI-ga	HI-ka	sun, sunshine
Type B	GO	go-GA	GO-ka	Go, Igo board game
	HI	hi-GA	HI-ka	fire

What is truly interesting about monomoraic words is that they readily show a tonal contrast in a basic phrase form with a grammatical particle, e.g. *GO-ga* 'five-NOM' vs. *go-GA* 'Go game-NOM', while they have lost this contrast in interrogative forms with a sentence-final particle, e.g. *GO-ka* 'five?' and *GO-ka* 'Go game?' as well as in bare declarative forms, e.g. *GO* 'five' and *GO* 'Go game'. This indicates that question particles are qualitatively different from grammatical particles. This observation can be extended to other KosJ varieties where grammatical particles generally participate in word accent assignment, while question particles

do not.[63] This is a feature that is also shared by KagJ. The difference between grammatical and question particles in this sister dialect is shown in (7.42), where bimoraic words are used for illustration.

(7.42) Bimoraic words in KagJ

Accent type	Declarative form (bare form)	Declarative form with a grammatical particle	Interrogative form	gloss
Type A	A.me	a.ME-ga	A.me-ka	candy
	HA.na	ha.NA-ga	HA.na-ka	nose
Type B	a.ME	a.me-GA	a.ME-ka	rain
	ha.NA	ha.na-GA	ha.NA-ka	flower

So far we have seen interrogative sentences with a question particle. While question particles are obligatory in interrogative sentences in the traditional grammar, they are more or less optional among middle-aged or younger speakers, due presumably to their exposure to the socially more prestigious dialects of Tokyo Japanese and KagJ. The lexical tonal contrast between Type A and Type B is nevertheless quite well preserved in such cases. This is illustrated in (7.43).

(7.43) Question forms without a question particle in KosJ-Teuchi

Accent type	Declarative form	Interrogative form	gloss
Type A	TOo	TOo	ten
	BAn	BAn	evening
	A.me	A.me	candy
	o.NA.go	o.NA.go	woman
Type B	toO	toOo	tower
	baN	baNn	turn, outlook
	a.ME	a.MEe	rain
	O.to.KO	O.to.KOo	man

63 This seems basically true of Japanese sentence-final particles in general. That they do not generally participate in the assignment of word accent may be attributed to their pragmatic functions, that is, the fact that they differ from grammatical functions in using pitch on their own to show differences in modality, etc.

Phonetically, the lexical H tone tends to be realized with a higher pitch in interrogative forms than in declarative ones in both accent types. In addition, the final mora is realized in a lower pitch in the former than in the latter in Type A. These phonetic features, which are probably found across languages and dialects, serve to distinguish interrogative forms from declarative ones in Type A words. In Type B, in contrast, the final syllable is lengthened and comes to involve a pitch fall in interrogative forms: *O.to.KO* (declarative) vs. *O.to.KOo* (interrogative). These facts can be accounted for in a principled manner if we assume that an intonational L% originally associated with the question particle is relinked to the end of the preceding word if the final question particle is segmentally deleted. This is illustrated in (7.44). In Type A, this relinked L% exerts a phonetic effect of raising the preceding H tone further and lowering the final mora. In Type B, the same L% triggers lengthening of the final mora so that the final mora can carry the two tones – lexical H tone and intonational L% – which may count as an exception to the one-mora-one-tone principle proposed in the preceding section.

(7.44) a. Type A

A.me-ka	A.me ‘candy?’
H L%	H L%

b. Type B

a.ME-ka	a.ME ‘rain?’
H L%	H L%

Bimoraic or longer words thus preserve the lexical tonal contrast in interrogative sentences even without a question particle. On the other hand, monomoraic words exhibit no tonal contrast in the same context. They undergo vowel lengthening and manifest the two tones in the same way in both accent types: e.g. GOo ‘five?’ (Type A) and GOo ‘Go game?’ (Type B). This would not be surprising since they have already lost a contrast in the forms with a question particle, too, as we saw in (7.41) above.

7.2.4 Tonal neutralization in vocative prosody

In Section 6.2 we discussed vocative prosody in KosJ and other Japanese dialects and discovered that vocative prosodic forms are considerably different from their corresponding lexical forms in each dialect. In KosJ and its sister dialect of KagJ, they involve an abrupt pitch fall at the end of the word in both accent types (Type A and Type B). In KosJ, this pitch fall occurs between the final two moras in both

accent types, thus totally neutralizing the lexical tonal contrast. This is illustrated in Tables 7.1 and 7.2 for the one-peak system of KosJ-Taira and the two-peak system of KosJ-Teuchi, respectively. In fact, the one-peak and two-peak systems only differ in the absence or presence of an additional H tone (H_2) at the beginning of the word, which is their biggest difference at the word level.

Table 7.1: Vocative intonation in the one-peak system of KosJ-Taira.

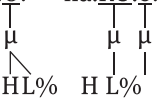
Accent type	Lexical form	Vocative!	gloss
Type A	na.TU.o H	na.TU.o! H L%	Natsuo [boy's name]
	baa.TYAn H	baa.TYAn! H L%	grandma
	a.ne.SAn H	a.ne.SAn! HL%	elder sister
Type B	ha.ru.O H	ha.RU.o! H L%	Haruo [boy's name]
	sen.SEI H	sen.SEi! HL%	teacher, professor, doctor
	o.baa.TYAN H	o.baa.TYAn! HL%	grandma

Table 7.2: Vocative intonation in the two-peak system in KosJ-Teuchi.

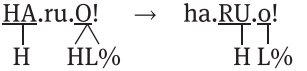
Accent type	Lexical form	Vocative!	gloss
Type A	na.TU.o H	na.TU.o! H L%	Natsuo [boy's name]
	BAA.TYAn H H	BAA.TYAn! H H L%	grandma
	A.ne.SAn H H	A.ne.SAn! H H L%	elder sister
Type B	HA.ru.O H H	ha.RU.o! H L%	Haruo [boy's name]
	SEN.SEi H H	SEN.SEi! H H L%	teacher, professor, doctor
	A.NI.saN H H	A.ni.SAn! H H L%	elder brother
	O.BAA.tyaN H H	O.baa.TYAn! H H L%	grandma

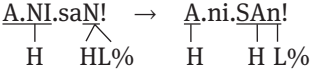
What is important here is that the two accent types are clearly differentiated from each other at the word level, primarily in terms of the presence (Type A) or absence (Type B) of a lexical pitch fall – or, equivalently, in terms of the position of the lexical H tone, i.e. penultimate (Type A) or final (Type B). This tonal contrast is completely lost in vocative forms in both one-peak and two-peak KosJ systems since the two accent types both involve an intonational pitch fall between the final two moras. The tonal neutralization in this context is to be attributed to H tone retraction in Type B, illustrated in (7.45) and (7.46) for the two types of systems, respectively. The two types of KosJ systems differ from each other in whether this tonal process takes place in all Type B words (two-peak system in Table 7.2) or only in Type B words ending in a monomoraic syllable (one-peak system in Table 7.1). This, however, simply reflects their difference at the word level: the final heavy syllable in Type B is entirely H-toned in the one-peak system, whereas its final mora is H-toned in the two-peak system: *a.ni.SAN* 'elder brother' (one-peak system) vs. *A.NI.saN* (two-peak system) (Section 7.2.1).

(7.45) H tone retraction in vocative forms in KosJ-Taira



(7.46) H tone retraction in vocative forms in KosJ-Teuchi

a. 

b. 

In any case, it is important to emphasize that the two accent types are completely neutralized in vocative forms across KosJ varieties. This contrasts remarkably with the fact discussed in the preceding sections, that tonal neutralization is avoided as much as possible both in the lexical and postlexical prosody of the dialect. This may suggest that neutralization is far less likely to be communicatively troublesome in vocatives than in normal non-vocative utterances.

That said, it is equally important to point out that other Japanese dialects do not exhibit such a complete neutralization in vocative forms. What is interesting indeed in this respect is the difference between KosJ and its sister dialect

of KagJ both of which employ word-final pitch fall (or L%) as a vocative prosodic marker. In KagJ, tonal neutralization occurs in limited contexts since the two accent types basically differ from each other in the position of the vocative pitch fall: between the final two syllables in Type A and within the final syllable in Type B (Table 7.3). To this extent, tonal neutralization does not occur in this system.

This marked difference between KosJ and KagJ can be attributed to two factors. The first reason relates to the organization of lexical prosody in the two dialects. KosJ is a mora-counting dialect where the lexical H tone is placed basically on the penultimate mora (Type A) or final mora (Type B). KagJ, in contrast, is a syllable-counting dialect that bears the H tone on the penultimate syllable (Type A) or final syllable (Type B). Since the vocative L% is added to the final syllable in both accent types, Type A can be tonally distinguished from Type B in KagJ in terms of the position of the pitch fall: e.g. *BAA.tyan!* (Type A) vs. *o.baa.TYAn!* (Type B). The same does not hold in KosJ, however, since Type A has a lexical H tone on the penultimate mora: e.g. *baa.TYAn!* (Type A) vs. *o.baa.TYAn!* (Type B).

Table 7.3: Vocative intonation in KagJ.

Accent type	Lexical form	Vocative!	gloss
Type A	na.TU.o H	na.TU.o! H L%	Natsuo [boy's name]
	BAA.tyan H	BAA.tyan! H L%	grandma
	a.NE.san H	a.NE.san! HL%	elder sister
Type B	ha.ru.O H	ha.ru.Oo! H L%	Haruo [boy's name]
	sen.SEI H	sen.SEi! HL%	teacher, professor, doctor
	o.baa.TYAN H	o.baa.TYAn! HL%	grandma

A second reason for the difference between KosJ and KagJ lies in the ways tonal crowding is resolved in the two dialects. Both dialects are equally subject to the constraint prohibiting one mora from bearing more than one tone (Section 7.1). This means that Type B words ending in a light syllable involve tonal crowding in both dialects since this syllable is forced to carry both the lexical H tone and the

vocative L% tone. KosJ resolves this marked situation by retracting the lexical H tone onto the penultimate mora, e.g. *ha.ru.O!* → *ha.RU.o!* 'Haruo!'. This has an effect of yielding the same vocative form as Type A words: e.g. *na.TU.o!* (Type A) vs. *ha.RU.o!* (Type B). On the other hand, KagJ remedies the same marked structure using a temporal strategy rather than a tonal one. Namely, it lengthens the final vowel, e.g. *ha.ru.O!* → *ha.ru.Oo!*, and thereby makes the final syllable bimoraic in Type B: *na.TU.o!* (Type A) vs. *ha.ru.Oo!* (Type B). The two dialects thus differ in the ways they resolve the same marked tonal structure, and this difference is partially responsible for tonal neutralization in KosJ and its lack in KagJ.

Having accounted for the difference between the two sister dialects in this way, one must hasten to add that tonal neutralization does occasionally occur in KagJ, too. As discussed in section 6.2.1, this dialect actually employs two mutually exclusive solutions to avoid the marked structure of tonal crowding: (i) vowel lengthening mentioned just above and (ii) H tone retraction. The second solution yields the same result as in KosJ, thus neutralizing the tonal contrast between the two accent types in words with a final monomoraic syllable: e.g. *na.TU.o!* (Type A) vs. *ha.RU.o!* (Type B).

7.3 Lexical vs. postlexical competitions

Before we conclude this chapter and the entire volume, let us consider another interesting issue in postlexical prosody, this time concerning the competition between lexical and postlexical tones. In the case of KosJ, the competition can be divided into two types, one concerning the clash between a lexical H tone and a postlexical H tone (H%), i.e. situations where the two H tones appear immediately adjacent to each other. Another type of competition occurs in tonal crowding situations where lexical and postlexical tones dock on a single syllable (Section 7.1). These two types of competition will be discussed below, in Sections 7.3.1 and 7.3.2, respectively.

7.3.1 H tone clash in short words

In KosJ, two H tones appear adjacent to each other when a secondary H tone stands adjacent to the primary in two-peak systems. In all two-peak systems of the dialect, a secondary H tone appears at the beginning of the word and 'clashes' with the primary H tone at/near the end of the word in relatively short words as discussed in Chapter 3.

Let us first look at the old system that Kamimura (1937, 1941) described. In this system, the secondary H tone was fixed basically to the second mora (Chapter 3 and Section 7.2.2). Being fixed in the same place in both accent types, this tone was not distinctive but simply functioned as an intonational tone, i.e. H%, signaling the onset of a new word or phrase. As a postlexical tone, it should in principle be independent of the lexical H tone that plays a distinctive role at the lexical level. However, these two tones exhibit an interesting interaction when they appear immediately adjacent to each other in relatively short words. This is exemplified in (7.47) where the lexical, distinctive H tone appears on the penultimate mora (Type A) or final mora (Type B).

(7.47) Kamimura's (1937, 1941) system

Accent type	**Expected pattern**	**Reported pattern**	**gloss**
Type A	ke.DA.MO.no	KE.da.MO.no	wild animal
	ke.DA.mo.NO-ga	ke.DA.mo.NO-ga	wild animal-NOM
	ka.ZAi.MOn	ka.ZAi.MOn	decoration
	na.TU.ya.SU.mi	na.TU.ya.SU.mi	summer holiday
	na.TU.ya.su.MI-ga	na.TU.ya.su.MI-ga	summer holiday-NOM
Type B	o.TO.KO	O.to.KO	man
	o.TO.ko-GA	o.TO.ko-GA	man-NOM
	i.NA.bi.kai-GA	i.NA.bi.kai-GA	lightening-NOM
	ha.RU.ya.su.MI	ha.RU.ya.su.MI	spring holiday
	ha.RU.ya.su.mi-GA	ha.RU.ya.su.mi-GA	spring holiday-NOM

When the two H tones clash with each other, the boundary H tone is retracted to the initial mora. This happens in both Type A and Type B: e.g. *KE.da.MO.no* 'wild animal' (Type A) and *O.to.KO* 'man' (Type B). This means that the system is subject to the NoClash constraint that militates against two H tones standing immediately adjacent to each other. In terms of competition, the same fact suggests that the lexical H tone on the right wins over the postlexical H tone on the left.

NoClash is at work in the present-day system of KosJ-Teuchi, too. In this system, the secondary H tone is allowed to spread over multiple syllables at the beginning of the word in such a way that a L-toned syllable intervenes between it and the primary H tone (Sections 3.2 and 7.2.2). This is shown in (7.48).

(7.48) KosJ-Teuchi today

Accent type	Accent pattern	gloss
Type A	KE.da.MO.no	wild animal
	KE.DA.mo.NO-ga	wild animal-NOM
	KA.zai.MOn	decoration
	NA.TU.ya.SU.mi	summer holiday
	NA.TU.YA.su.MI-ga	summer holiday-NOM
Type B	O.to.KO	man
	O.TO.ko-GA	man-NOM
	I.NA.BI.kai-GA	lightening-NOM
	HA.RU.YA.su.MI	spring holiday
	HA.RU.YA.SU.mi-GA	spring holiday-NOM

Since the two tones are correlated with each other, the secondary H tone is potentially distinctive and is, indeed, promoted to a distinctive tone when the primary H tone is deleted in non-final positions at the sentence level, as discussed in Chapter 5: e.g. *NA.TU.ya.su.mi* (Type A) vs. *HA.RU.YA.su.mi* (Type B). As compared with the secondary H tone in Kamimura's old system, the secondary H tone in this system is more or less lexical since it serves to distinguish between the two accent types. Despite this difference, the secondary H tone remains dependent on the primary H tone in KosJ-Teuchi, too, in the sense that its position/domain is determined by the position of the latter H tone, and not vice versa. To this extent, the H tone on the right wins over the H tone on the left which was originally a phrasal tone.

It is important to note here that the H-tone interaction observed in Kamimura's old system and the present-day system of KosJ-Teuchi does not hold in every KosJ variety. Among present-day KosJ varieties, KosJ-Kuwanoura is an apparent exception to this. In this system, the secondary H tone at the beginning of the word is entirely independent of the following primary H tone and is actually allowed to clash with the primary H tone (Sections 3.3, 5.2 and 7.2.2). Specifically, it appears on the first two moras and spreads to the next mora only if the second and third moras form one heavy syllable in both accent types. This is shown in (7.49). This system is thus similar to Kamimura's old system in that the secondary H tone is entirely a boundary tone and is not distinctive at all. On the other hand, it is dissimilar to Kamimura's (and also the present-day system of KosJ-Teuchi) in that it is *not* subject to NoClash and is hence neutral to the competition between lexical and postlexical H tones.

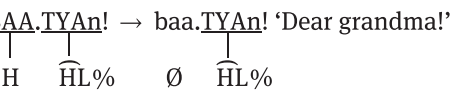
(7.49) KosJ-Kuwanoura today

Accent type	Accent pattern	gloss
Type A	KE.DA.MO.no	wild animal
	KE.DA.mo.NO-ga	wild animal-NOM
	KA.ZAI.MOn	decoration
	NA.TU.ya.SU.mi	summer holiday
	NA.TU.ya.su.MI-ga	summer holiday-NOM
Type B	O.TO.KO	man
	O.TO.ko-GA	man-NOM
	I.NA.bi.kai-GA	lightening-NOM
	HA.RU.ya.su.MI	spring holiday
	HA.RU.ya.su.mi-GA	spring holiday-NOM

The data about Kamimura's old system and KosJ-Teuchi today may be taken as suggesting that lexical tones win over postlexical tones in KosJ. However, the same data can also be interpreted as meaning that the H tone on the right defeats the H tone on the left if they compete at all. It is therefore important to examine which account is more appropriate. This question can be answered by looking at similar clash situations in other Japanese dialects.

KagJ presents two contexts where lexical and postlexical H tones clash with each other, one concerning the affective vocative prosody of Type A words (Kubozono 2022) and the other regarding focus prosody (Kubozono 2018g). As for vocative prosody, intonational $\widehat{\text{HL}}$% is added to the final syllable as a vocative tone when the speaker attempts to show affection to the hearer. This affective tone sequence is identical to the same tone sequence denoting speaker's affection in Tokyo Japanese in both its form and function (i.e. Pattern γ discussed in Sections 6.2.1 and 7.1.1). In KagJ, when $\widehat{\text{HL}}$% is added to Type A words such as *BAA.tyan* 'grandma', it creates a clash with the lexical H tone on the penultimate syllable. What actually surfaces in this case is only the intonational tone sequence, rather than a sequence of the lexical H tone and the intonational one: e.g. *baa.TYAn!*, **BAA.TYAn!* 'dear grandma!'. This output can be explained by positing H tone deletion as in (7.50), where the lexical H tone is overridden by the postlexical $\widehat{\text{HL}}$% that follows. Here, the lexical H tone on the left is overridden by the postlexical H tone on the right.

(7.50) H tone clash in vocative prosody in KagJ



A second context where two H tones clash in KagJ can be found in its focus prosody (Kubozono 2018g). To take one example, interrogative sentences in this dialect usually end in a question particle (Q) which is L-toned, as shown in (7.51a) (Section 6.1). If the Wh element is focused, however, the question particle is H-toned, while the word immediately before it becomes entirely L-toned. This is illustrated in (7.51b), where the focused element is underlined.

(7.51) Question prosody in KagJ

a. Neutral

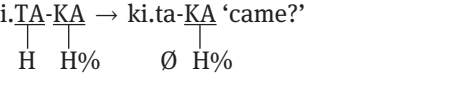
DAI-ga ki.TA ka
who-NOM came Q
‘Who came (here)?’

b. Focus

DAI-ga ki.ta KA
who-NOM came Q
‘Who on earth came (here)?’

This peculiar deletion of the lexical H tone can be accounted for by positing that the lexical H tone is deleted before a H-toned question particle, as shown in (7.52). Under this analysis, the sentence-final particle becomes H-toned in focus constructions, triggering a H tone clash with the H tone on the pre-particle element. This clash is resolved by deleting the H tone on the left.

(7.52) H tone deletion in focus prosody in KagJ



This H tone clash analysis can be supported by various kinds of evidence. First and foremost, H tone deletion does not occur if the final particle remains L-toned. Secondly, it does not occur, either, if the pre-particle word does not end in a H-toned syllable. That is, Type A words do not undergo the process even if the question particle is H-toned as in (7.53b). These two facts indicate that the H tone deletion in question is triggered by H tone clash.

(7.53) Absence of H tone deletion in Type A words

a. Neutral
DAI-ga IT.ta ka
who-NOM went Q
'Who went (there)?'

b. Focus
DAI-ga IT.ta KA
who-NOM went Q
'Who on earth went (there)'

Not surprisingly, deletion of a lexical H tone is observed not just in Wh constructions but in a wide range of focus constructions in the dialect (Kubozono 2018g). For example, H tone deletion takes place in a declarative focus construction in (7.54b) where an emphatic adverb *mo.HE* 'already!' and a declarative (DEC) sentence-final particle *do* are used. This compares with non-focus constructions like (7.54a), which involves a neutral adverb MOO 'already'. Here, too, the lexical H tone on the pre-particle word disappears before the H tone on the particle. Moreover, no comparable H tone deletion is observed if the particle is preceded by Type A words like *IT.ta* 'went' which do not end in a H-toned syllable.

(7.54) Focus vs. non-focus (neutral) constructions

a. Neutral
MOO ki.TA do
already came DEC
'(He) has already come.'

b. Focus
mo.HE ki.ta DO
already! came DEC
'(He) has come ALREADY!'

One generalization that can be obtained for focus prosody in KagJ is that focus makes the sentence-final particles H-toned and triggers deletion of a lexical H tone immediately before a H-toned sentence-final particle to resolve H tone clash. This is consistent with the fact about the affective vocative in (7.50) in the same dialect, where a lexical H tone undergoes deletion when it clashes with the following postlexical H tone.

These observations give a hint as to the interpretation of the H tone retraction in KosJ discussed in (7.47)-(7.48). The H tone retraction in KosJ involves the leftward shift of the (originally) postlexical H tone in clash with the following lexical

H tone. This rendered two interpretations: (i) the lexical H tone wins over the postlexical H tone, and (ii) the H tone on the right wins over the H tone on the left. The facts about KagJ suggest that the second interpretation is more appropriate than the first.

This generalization can be extended further to account for similar H tone clash phenomena in other Japanese dialects. In Kinki Japanese spoken in Kyoto and Osaka, for example, an interesting phenomenon of H tone deletion occurs when a phrase ending in a H tone is immediately followed by a phrase beginning with a H tone. In the two sentences in (7.55), for example, the word *ne.zu.MI* 'mouse' can be followed by a L-beginning verb as in (7.55a) or a H-beginning verb as in (7.55b). This word itself is H-toned on the final syllable when pronounced in isolation and keeps this lexical H tone in the former context, but not in the latter. In other words, the lexical H tone is deleted if followed by another H tone. This process, which is quite general and productive in Kinki Japanese, can best be understood as a result of H tone clash which is remedied by the deletion of the lefthand H tone.

(7.55) H tone deletion in Kinki Japanese
a. ne.zu.MI mi.RU
mouse see
'(I) see a mouse'
b. ne.zu.mi MI.ta
mouse saw
'(I) saw a mouse'

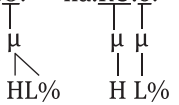
H tone deletion in (7.55) is different from the H tone retraction in (7.47)-(7.48) in KosJ in three respects: it involves deletion rather than retraction; it occurs across phrases rather than within a word; and the two H tones involved are both lexical ones in (7.55). Yet, the two processes resemble each other in one crucial respect: the H tone on the right wins over the H tone on the left in clash situations. This generalization is further discussed in the following section.

7.3.2 Tonal crowding in vocatives

So far we have considered cases of H tone clash where two H tones stand adjacent to each other. In KosJ, this marked structure is resolved by retracting the lefthand H tone while keeping the righthand H tone intact. Interestingly, tonal crowding situations in the same dialect exhibit H tone retraction in a similar fashion.

In discussing vocative prosody in Sections 6.2 and 7.1.1, we saw that the final syllable of Type B words becomes tonally crowded with the lexical H tone and the vocative L%. This crowded situation is resolved by retracting the lexical H tone to the left while the intonational L% remains intact. This process, repeated in (7.56), is observed across KosJ, both in its one-peak system (Section 6.2.2) and two-peak systems (Section 6.2.3).

(7.56) ha.ru.O! → ha.RU.o!



Tonal crowding occurs in the vocative prosody of other Japanese dialects, too. In KagJ, essentially the same situation occurs in the vocative forms of Type B words and it is resolved in the same way as in KosJ, i.e. by retracting the lexical H tone to the left while keeping the following postlexical L% tone intact (Section 6.2.1.4).

Tokyo Japanese also involves tonal crowding in vocative forms when the word-final syllable is overburdened with three or four tones. It attempts to resolve this marked structure in more than one way, the most radical one involving the deletion of the lexical string H*L (Section 7.1.1). As we saw in (7.14) above, this tonal solution preserves the postlexical tones on the right at the expense of the lexical tone string on the left.

In sum, Japanese dialects generally disfavor tonal crowding in vocative forms and attempt to resolve it by retracting the lexical tone as in (7.56) or deleting it as in (7.14). What is shared by these prosodic processes is that the lexical tone on the left is defeated by the postlexical tone on the right. Again, this generalization is ambiguous between a lexical/postlexical competition or a positional competition. The first interpretation is that postlexical tones win over lexical ones when they compete with each other, while the second one assumes that the righthand tone wins over the lefthand one.

In conjunction with the discussion of tonal clash in the preceding section, it will be safe to take the positional account and generalize that the tone on the right wins over the tone on the left in Japanese when they compete with each other, either in the form of H tone clash or tonal crowding (see also Gussenhoven 2018). This generalization seems to hold whether the process involved is tone retraction or deletion.

8 Summary and prospect

In this book, I have described the diversity of prosodic systems in Japanese, both at the word and sentence levels, with main focus on the endangered dialect of KosJ. This endangered dialect is different from its sister dialects and standard Tokyo Japanese in many striking ways and, moreover, exhibits a high degree of variation within itself.

The high degree of variation in word prosody among Japanese dialects is truly remarkable, as we saw in the first half of the book (Chapters 2–4). They are different not simply in surface phonetic forms but in their prosodic organization and rules, and are potentially very important for the typological analysis of speech prosody. For example, some dialects permit a larger number of lexical accent patterns as the word becomes longer just like in English and other stress accent languages, while others including KosJ permit only a few word-prosodic patterns regardless of the word length just like Chinese and other tone languages.

Moreover, some dialects use the mora to measure phonological distances in word accent computation, while others use the syllable for the same purpose. Interestingly enough, this variation is found within a small dialect group of which KosJ is a member: KosJ is a mora-counting dialect, while its closest sister dialect, KagJ, is a typical syllable-counting dialect. What is worth special attention here is the fact that mora-counting dialects are nevertheless sensitive to the syllable or syllable boundaries, but to different degrees and in different ways. It turns out that this variability provides an important insight into the nature of diphthongs in Japanese, or the question of which vowel sequence forms a tautosyllabic vowel sequence across Japanese dialects (Chapter 4).

Furthermore, some dialects compute the position of tonal prominence from the left edge of the word, while many others including KosJ and its sister dialects from the right edge. The same is true of compound accent/tone rules: KosJ and its sister dialects have a left-dominant compound rule and keep the lexical accent pattern of the leftmost element in compounds, while other dialects including Tokyo Japanese have a right-dominant compound rule and look only at the prosodic property of the rightmost element. This situation is complicated by the existence of 'hybrid systems' that have both the left-dominant and right-dominant compound accent/tone rules (Chapter 2).

Japanese dialects also display variability with respect to the distinctive pitch feature at the word level: most dialects including KosJ and Tokyo Japanese are sensitive to an abrupt pitch fall, but some are sensitive to an abrupt pitch rise. Japanese dialects are also different from each other in terms of the number of pitch peaks or H tones in a word. While most dialects obey the general principle of culminativity and exhibit only one pitch peak or H tone per word, some

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dialects including KosJ display two H tones per word. KosJ exhibits interesting dialect-internal variations in this regard, showing two H tones per word in all but one variety (Chapter 3). The sole variety showing only one H tone per word provides crucial evidence for the long-standing question of why the mora-counting and syllable-counting systems co-exist within the small dialect group in the south of Japan (Chapter 4). The evidence from KosJ and its sister dialects suggests that a mora-counting system can change into a syllable-counting system much more easily than might generally be thought.

Prosodic diversity among Japanese dialects is not restricted to word prosody, as we have seen in the second half of the book (Chapters 5–7). Looking beyond the word, we find some striking regional differences in phrase or sentence prosody such as question and vocating intonation (Chapter 6). In question prosody, for example, many dialects including Tokyo Japanese raise pitch (or assign H%) at the end of interrogative sentences to distinguish them from declarative ones, while KosJ and its sister dialects lower pitch (or assign L%) in the same position for the same purpose. Similarly, they also display regional variations in vocative or calling intonation: Tokyo Japanese exhibits pitch rise or rise-and-fall at the end of the word (name) when calling someone to draw her attention, while KosJ and its sister dialects display pitch fall in a consistent manner. The latter group of dialects nevertheless differ from each other in the position where the pitch fall occurs as well as in the way the pitch change interacts with temporal changes. These dialectal differences can be attributed largely to their differences in the organization of lexical pitch accent systems, thus shedding light on the general relationship between lexical and postlexical prosody.

The interactions between lexical and postlexical tones in Japanese dialects provide crucial insights into some general questions in prosodic research, such as how many tones one syllable can bear, how neutralizations of lexical tonal contrasts occur at the sentence level, and how lexical and postlexical tones compete when they are in conflict with each other (Chapter 7). KosJ and other Japanese dialects shed new light on these general question because of their remarkable regional variations.

Regarding the interactions between word and sentence prosody, we have also seen an interesting process of H tone deletion that two-peak varieties of KosJ exhibit at the postlexical level (Chapter 5). This process involves the deletion of the primary H tone of a phrase when the phrase is followed by another phrase in the same sentence, consequently promoting the secondary H tone of the non-final phrase to its primary one at the sentence level. This process, too, exhibits some regional variation within KosJ which is closely related with the historical development of the secondary H tone in the dialect. As a whole, this postlexical process of H tone deletion can best be interpreted as a result of H tone clash, that

is, a clash between the primary H tone of a phrase and the H tone of the following phrase. Moreover, it is strikingly similar to the well-known rhythm rule or iambic reversal in English in terms of its motivation, context, and consequences. Seen from the viewpoint of prosodic typology, it suggests some commonality between pitch accent and stress accent languages.

In summary, prosodic variations in Japanese dialects present very important cases and implications for prosodic research in general and for prosodic typology in particular. At the same time, research on the prosody of other individual languages and the theory of prosodic typology often gives critical hints as to how the various prosodic systems of Japanese and the interesting processes they exhibit are to be analyzed.

That said, it must also be emphasized that this book covered only a handful of dialects in Japanese. The language has many more regional dialects, most of which are endangered but remain largely undocumented or unanalyzed, just like KosJ which I targeted in this book. If documented and analyzed properly, these dialects will show us a wider picture of prosodic variability in Japanese and, more generally, how much a language can vary in prosodic organization and patterning.

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