Typology of Prosodic Phrasing in Japanese Dialects

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1. INTRODUCTION

The purpose of the present work is to develop an intonational typology of the Japanese dialects with focus on their prosodic phrasing. Although there is a tremendous amount of literature on word-level prosody of the dialects, study on their intonation is one of the most underdeveloped areas of Japanese linguistics. Since dialects in Japan show a surprisingly rich variety of prosodic systems, the typological comparison between these dialects would have as much value as that between different languages, and thus it would benefit intonational research in general.

Cross-linguistic comparison of intonation is now in ferment more intense than ever. The findings from typologically different languages expressed in comparative terms have contributed to intonational theory in general (Gussenhoven 2004; Jun 2005). This has become possible since the emergence of a common framework, the Autosegmental Metrical (AM) model (Pierrehumbert 1980; Ladd 1996). It is well known that Japanese has played a leading role in the development of the AM theory of intonational phonology (Poser 1984; Beckman and Pierrehumbert 1986; Pierrehumbert and Beckman (P&B) 1988). What should not be ignored in this regard is the fact that current works on Japanese intonation are built on long-time research on prosody in Japan (Yamada 1892; Sakuma 1919; Jinbo 1925; Miyata 1928; Hattori 1929; Kindaichi 1937; Arisaka 1941). Importantly, it is the description of *Japanese dialects* that had stimulated the traditional prosodic works. As an introduction to the present paper, it might be legitimate to briefly review the history of prosodic research in Japanese dialectology.

Prosodic research in Japan at its dawn was motivated by the comparative reconstruction of tonal patterns in the Japanese protolanguage (Hatori 1929, 1931, 1933). Extensive research has been done to describe the prosodic systems of all existing dialects (Hirayama 1960, among many others). The accumulation of dialectal data made it possible to propound theories on how the prosodic system of the protolanguage has diverged into the dialects of today (Kindaichi 1937, 1943, 1974; Tokugawa 1962). Researchers also proposed a grouping of dialects on the basis of their genetic relationship, and it is now recognized as an established model for classifying the prosodic systems of the Japanese dialects. The classification is well summarized in the form of the "accent map", which shows geographical distribution of dialectal group (Hirayama 1960; Kindaichi 1974; for review in English, see Shibatani 1990: Chap. 9).

The 1980's saw a renewal of interest in purely *synchronic* analysis of dialectal prosody, in

which linguists make comprehensive description of the prosodic systems of theoretically interesting dialects (among many others, Uwano 1985; Nitta 1985; Nakai 1987; Kibe 2000). This contrasts with the earlier diachronic works, whose description was limited to a small list of words. It is worth noting here that some of the researchers proposed a prosodic classification of dialects without regard to their historical development (Uwano 1989, 1998a; Hayata 1999). What we recognize from these works is that the prosodic system of one dialect can be so different from another "as if they were different languages" (Sugito 2001).

Despite great effort devoted to the description of *word-level* prosody, surprisingly few studies have been devoted to *phrase-level* prosody, or intonation of dialects. It seems that Japanese dialectology has not been able to break with tradition, whose central concerns are the description of tonal pattern of the word and the consideration of their historical development. An exception can be found in a pioneering work by Uwano (1984), where he gives a short impressionistic description about the prosodic phrasing of nearly twenty dialects. There is also a small number of works which analyze dialectal intonation on the basis of sound methodology. They include the works on the intonation of Osaka Japanese (Kori 1987) and those on so-called "accentless" dialects, i.e. the dialects without lexically specified pitch such as Fukui and Kumamoto Japanese (Maekawa 1990 et seq.; Kori 2007).

The dialects which play an important part in the intonational typology proposed in this paper are the so-called "accentless" dialects, whose prosodic structure has been sparsely examined. These dialects are typologically similar to Seoul Korean (Jun 1998) in that they have neither stress nor lexical pitch accent. Since their linguistic pitch controls are not interfered by lexical pitch specification, the "accentless" dialects are expected to provide valuable materials for the intonational investigation and to give important implications to our understanding of the nature of prosodic phrasing in Japanese.

In Section 2, previous works on word-level prosody is recapitulated as an introduction to the intonational typology proposed in this paper, with special focus on the past division between so-called "one-pattern accent" and "accentless" dialects, which gives implication to the intonational typology. Also, prosodic trees at the level of prosodic word and below are proposed for representative dialects, on the basis of the AM theory. Section 3 overviews the methodology for data collection in my fieldwork research. Section 4, the previously proposed framework for intonation of Tokyo Japanese (P&B 1988) is reconsidered and revised so that it can be applied all the dialects being examined. Based on the framework, an intonational typology is propounded, describing the intonational structure of the dialects. The main claim here is that some dialects lack the prosodic grouping at the level of *accentual phrase*. Section 5 points out the differences between currently proposed framework concerning prosodic phrasing and its predecessor. Section 6 concludes the discussion.

2. PROSODIC TYPLOGY: FROM WORD-LEVEL TO PHRASE-LEVEL

2.1. Introduction

In this section, I will recapitulate past works on *word-level* prosody as an introduction to the intonational typology proposed in this paper. I will also propose their phonological representation of the prosodic structure at the level of the word and below, on the basis of the AM theory.

   Fig. 2.1 shows Uwano's classification of *word-level* prosodic system of Japanese dialects (Uwano 1989, 1998a), which provide a starting point for our discussion on intonational typology. Here, the major division is made on the basis of the presence or absence of "accent", "accented" and "accentless" dialects. The term "accent" used in his classification (and in most of Japanese literature) can be roughly defined as "regular pitch pattern within a word". This is completely different from the term accent defined in the present paper. In order to avoid terminological confusion, the term "accent" indicating the meaning above will be annotated with quotation marks.

Accented
- Multi-pattern accent
  - With register
    - Three registers — Ibukijima (Kagawa)
    - Two registers — Kyoto, Shiramine (Ishikawa), Tonyuu (Gifu), etc.
  - Without register
    - Syntagma dependent — Shizukuishi (Iwate), Iride (Shizuoka),
    - Syntagma independent — Tokyo and many others
- N-pattern accent
  - Three-pattern — Oki (Shimane), Sadeku (Kagoshima), Sani (Kagoshima), Yonaguni (Okinawa)
  - Two-pattern — Mikuni (Fukui), Kagoshima, Nakazato Wan (Kagoshima), Shuri (Okinawa), etc.
  - One-pattern — Miyakonojo (Miyazaki), Tamanoura (Nagasaki), etc. } Non-distinctive

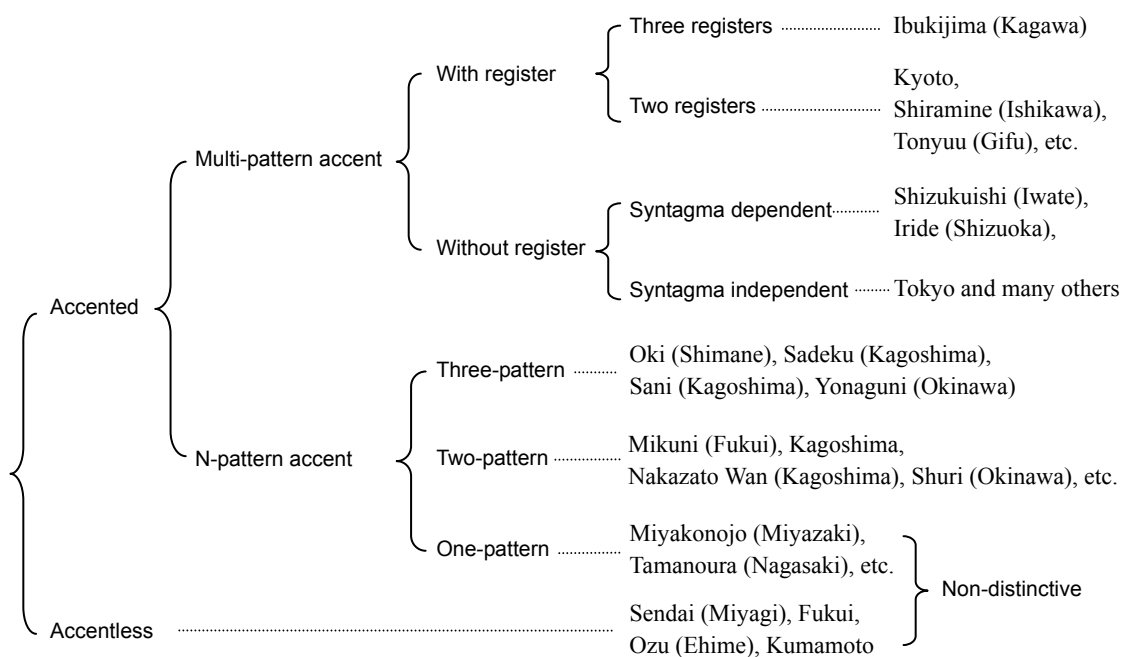Accentless — Sendai (Miyagi), Fukui, Ozu (Ehime), Kumamoto } Non-distinctive

FIGURE 2.1 Z. Uwano's classification of word-level prosodic systems of Japanese dialects (Uwano 1989, 1998a). The words in parentheses are given to indicate the prefecture where the dialect is spoken, if the name of the dialect differs from that of the prefecture.

   The major shortcoming of the hierarchical taxonomy of this sort is that it cannot capture the similarities and differences between categories with different supercategories. For example, this approach cannot grasp similarities, if any, between Kagoshima Japanese ("two-pattern accent") and Kyoto Japanese ("multi-pattern accent with register"), except that they are both "accented". Indeed, Uwano introduces an *ad hoc* category "non-distinctive" which violates the hierarchical structure, so that the "one-pattern accent" and "accentless" could be grouped together. It can

easily be imagined that there are a lot more similarities in the subcategories with different super-categories.

In order to avoid this drawback, I propose a feature-based typology, in which the following three classificatory features are defined: namely, [±lexical tones], [±accent] and [±dephrasing]. The first two features will be defined by reanalyzing past works on word-level prosody. The last one, concerning prosodic phrasing above the word, will be briefly discussed in 2.6 and defined in 4.3. Based on the three features, the dialects are categorized into five groups. The representatives of each category are 1) Tokyo Japanese ("multi-pattern accent without register"), 2) Kyoto-Osaka Japanese ("multi-pattern accent with register"), 3) Kagoshima Japanese ("two-pattern accent"), 4) Miyakonojo-Kobayashi Japanese ("one-pattern accent") and 5) Kumamoto and Koriyama Japanese ("accentless"). I will reanalyze the word-level prosodic system of each dialect in 2.2 - 2.6. Since the distinction between the last two types of dialects provides a good introduction to the proposed intonational typology, we will discuss it in detail in 2.7.

2.2. Tokyo Japanese

Tokyo Japanese, spoken around the present capital, is categorized into the dialects with "multi-pattern accent without register". As Uwano (1989a) points out, many dialects possess a prosodic system similar to Tokyo.

Tokyo involves the distinction between patterns that somewhere have a sharp fall from high pitch to low and the patterns that have no such fall. The words with the former patterns are called *accented words* and those with the latter are *unaccented words* (Haraguchi 1977; Poser 1984; P&B 1988). (2.1) illustrates approximate pitch patterns of words, consisting of from one to three morae. The diacritics above the vowel stand for approximate pitch (é = high, è = low, ê = falling, ě = rising). The words in the second and third columns are added by particles; mono-moraic nominative -*ga* for the second column, and bi-moraic ablative -*kara* for the third. It is customary in Japanese linguistics to consider pitch patterns with particles, since most of the Japanese particles are cliticized to the preceding lexical item, forming a single unit for word-level tones. This word-sized prosodic constituent will be called *prosodic word*.

(2.1) Approximate pitch patterns in Tokyo Japanese (data from Uwano 1989a)

      a. Unaccented words

é	'hundle'	è-gá	è-kárá
kàzé	'wind'	kàzé-gá	kàzé-kárá
sàkáná	'fish'	sàkáná-gá	sàkáná-kárá

      b. Accented words

é	'picture'	**é**-gà	**é**-kàrà
sórà	'sky'	**só**rà-gà	**só**rà-kàrà
yà**má**	'mountain'	yà**má**-gà	yà**má**-kàrà
ínòtì	'life'	**í**nòtì-gà	**í**nòtì-kàrà
sò**bá**yà	'noodle shop'	sò**bá**yà-gà	sò**bá**yà-kàrà
òtó**kó**	'man'	òtó**kó**-gà	òtó**kó**-kàrà

4

The rise from low pitch to high at the beginning of most of (actually all) the words is considered as a property of a prosodic constituent above the word, which will be discussed in depth in 4.4 The presence and absence of sharp fall can be seen from Fig. 2.2 showing fundamental frequency (F0) contours for unaccented word *omiyage* 'souvenir' (left) and accented word *oni'giri* 'rice ball' (right).
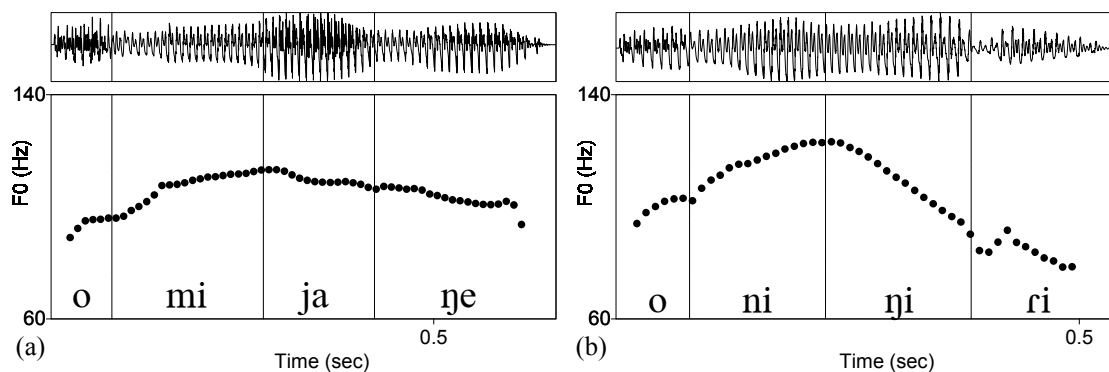

FIGURE 2.2 Waveforms and F0 contours of **Tokyo Japanese**: unaccented word *omiyage* 'souvenir' (a) and accented word *oni'giri* 'rice ball' with accent on the second mora (b), uttered by the author. Vertical lines mark the boundaries of morae. The rise from the initial mora to the second found for both words will be discussed in 4.4.

The location of the fall is unpredictable in Tokyo, and thus the lexicon of this dialect must specify it for each lexical item. In the case of *sórà*, for example, the fall is observed from the initial mora to the second, while in case of *sòbáyà* it is found from the second mora to the third.

Henceforth, lexically specified pitch will be referred to as *lexical tones*, and the specification of a particular mora or syllable for the lexical tones will be called lexical accent, or simply *accent*. Tones that are related to the accent will be called *pitch accent*. In Tokyo, the mora in which pitch starts to fall (*so-* in *sórà* and *-ba-* in *sòbáyà*) is usually recognized as the accented mora (Miyata 1929; Uwano 1975; Haraguchi 1977; Poser 1984; Kubozono 1988; P&B 1988). The accented morae are boldfaced in (2.2)[1]. Henceforth, the accented syllable or mora is noted as an apostrophe at the right shoulder of the vowel, e.g. *soba'ya*. Now, we can define two of the classificatory features touched upon in 2.1: namely, [±lexical tones] and [±accent]. Clearly, Tokyo Japanese is a dialect with [+lexical tones, +accent].

(2.2)   Two of three classificatory features of the proposed typology
   [±lexical tones]:   Presence or absence of lexical tones (lexically specified pitch)
   [±accent]:   Presence or absence of accent (lexical specification of a particular mora/ syllable for lexical tones).

Let us propose the phonological representation of the prosodic structure of Tokyo at the level of the word and below, similar to the one developed for Tokyo by P&B (1988). Fig. 2.3 shows the prosodic trees for unaccented and accented words of Tokyo postulated by P&B (1988). The association of segments with morae or syllables is not discussed in this paper.

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[1] Notice that the fall is truncated when the accented mora is utterance-final (as in the case of the final-accented word *yàmá* pronounced in isolation). The fall of the word with final accent is manifested only when there are other morae following it, for example, when followed by a cliticized particle, as in *yàmá-gà*.
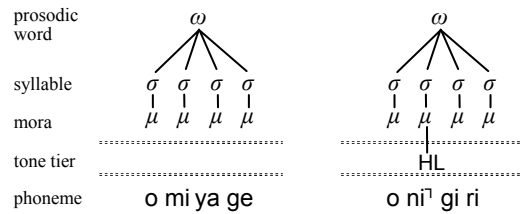
prosodic
word   ω   ω

syllable   σ σ σ σ   σ σ σ σ
           | | | | | | | |
mora   μ μ μ μ   μ μ μ μ

tone tier ....   HL
                                  ....
phoneme   o mi ya ge   o niꜛ gi ri

FIGURE 2.3 Prosodic trees at the level of prosodic word and below proposed by P&B (1988) for **Tokyo Japanese**: unaccented word *omiyage* 'souvenir' (left) and accented word *oni'giri* 'rice ball' (right).

Notice that tones are sparsely distributed relative to minimal tone bearing units (in case of Tokyo they are assumed to be morae). This contrasts with the full specification view adopted in some of the frameworks for Tokyo (Hattori 1954; Kindaichi 1965; McCawley 1968; Haraguchi 1977; Poser 1984; Kubozono 1988), in which every mora acquires tones on the surface. Under the full specification view, various phonological rules such as the tone spreading rule often play a role to account for surface pitch patterns shown in (2.1). The idea of sparse assignment of tones, called surface underspecification, was first discussed in Kawakami (1957). P&B (1988), through their extensive experimental analyses, provide a number of evidence against the full specification view, and based on the results, propose that morae are underspecified for tone even at the most surface level.

As shown in Fig. 2.3, for the accented word (*oni'giri* 'rice ball'), the HL cluster in the tone tier is autosegmentally liked to the second mora *-ni-*, which is lexically specified as accented. This is the only tonal assignment at the level of prosodic word and below. For the unaccented word, on the other hand, no tonal specification is given at this level. The surface pitch patters in (2.1) are accounted for by defining a prosodic phrase hierarchically above the prosodic word, which will be discussed in detail in 4.4.

2.3 Osaka Japanese

The dialects spoken in the Kansai district (the area around the old capital Kyoto) are known to have a much more complex system than Tokyo ("multi-pattern accent with register"). Grouping of most of the dialects in Kansai district together will be referred as Kyoto-Osaka Japanese.

Kyoto-Osaka and Tokyo dialects are similar in that words are divided into accented words (having sharp fall in pitch) and unaccented words (no word-internal fall)[2]. As shown in (2.3), the location of the fall is, just as in Tokyo, unpredictable, and thus the location must be lexically specified in this dialect. Kyoto-Osaka, therefore, shares features [+lexical tones, +accent] with Tokyo. Just as in Tokyo the mora where pitch starts to fall is considered as the accented mora (boldfaced in (2.3)).

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[2] Notice that, unlike in Tokyo, utterance-final accents are often realized as a fall that is completed within the accented mora.

(2.3) Approximate pitch patterns in Kyoto Japanese (Data from Uwano 1989)

    a. High-beginning words

       Unaccented words

ká	'mosquito'	ká-gá	ká-kárá
kázé	'wind'	kázé-gá	kázé-kárá
sákáná	'fish'	sákáná-gá	sákáná-kárá

       Accented words

hî	'sun'	**hí**-gà	**hí**-kàrà
yámà	'mountain'	**yá**mà-gà	**yá**mà-kàrà
míkàñ	'orange'	**mí**kàñ-gà	**mí**kàñ-kàrà
sá**gí**sì	'swindler'	sá**gí**sì-gà	sá**gí**sì-kàrà

    c. Low-beginning words

       Unaccented words

tĕ	'hand'	tè-gá	tè-kàrá
sòrá	'sky'	sòrà-gá	sòrà-kàrá
yàsàí	'vegetable'	yàsàì-gá	yàsàì-kàrá

       Accented words

hà**rû**	'spring'	hà**rú**-gà	hà**rú**-kàrà
ìtígò	'strawberry'	ìtígò-gà	ìtígò-kàrà
màî **tî**	'matchstick'	màî **tí** -gà	màî **tí**-kàrà
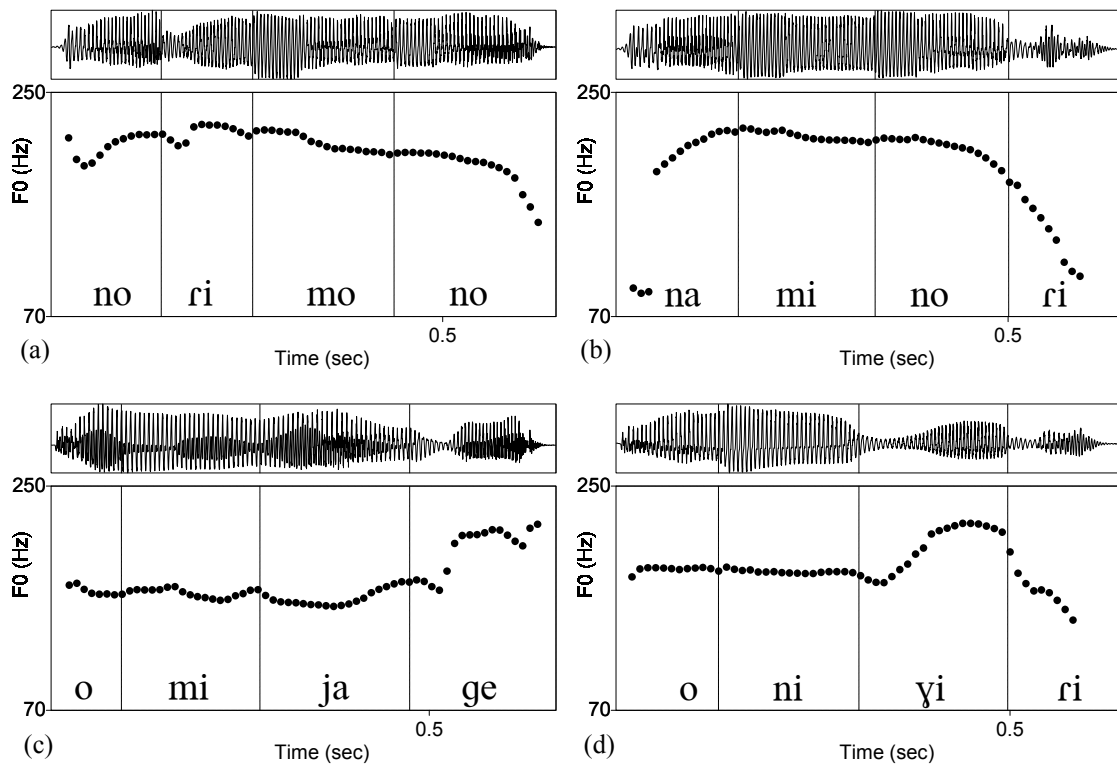
FIGURE 2.4 Waveforms and F0 contours of **Osaka Japanese**: high-beginning unaccented word [H]*norimono* 'vehicle' (a), high-beginning accented word [H]*namino'ri* 'surfing' (b), low-beginning unaccented word [L]*omiyage* 'souvenir' (c) and low-beginning accented word [L]*onigi'rigi* 'rice ball' (d), produced by a 38 year-old female speaker. Vertical lines mark the boundaries of morae.

The major difference from Tokyo is in that Kyoto-Osaka words have a paradigmatic contrast in pitch at its beginning. As shown in (2.3), words can begin either on a high pitch or on a low pitch and this contrast is independent of accent; both high-beginning words and low-beginning words can be either accented or unaccented.[3] The contrast between high-beginning and low-beginning, often called "register" (Ikeda 1942; Wada 1957; Uwano 1989), is determined lexically. Henceforth, register will be indicated by adding a small H (for high-beginning) or L (for low-beginning) at the left shoulder of the beginning of the word. The difference between accented and unaccented words and the contrast between high-beginning and low-beginning can be seen in Fig. 2.4, showing F0 contours of Osaka words pronounced in isolation.

Figure 2.5 illustrates a prosodic tree at the level of the prosodic word and below, proposed by P&B (1988) for Osaka, with some revisions. For accented words, both high- and low-beginning, a HL cluster is liked to the mora which is lexically specified as accented. The contrast between high-beginning and low beginning, is represented by H and L, respectively, which are associated with the left edge of the prosodic word. No association of these peripheral tones with minimal tone bearing units (morae) is postulated.
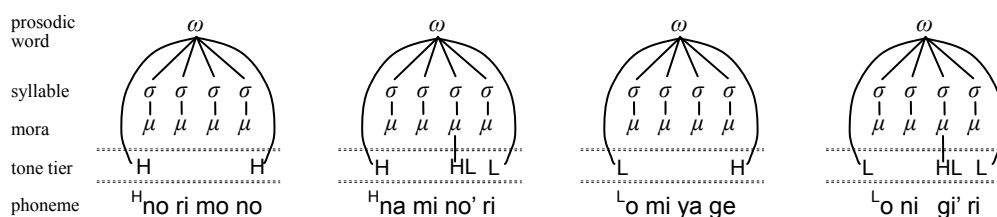

FIGURE 2.5 Prosodic trees at the level of prosodic word and below in **Osaka Japanese**: high-beginning unaccented word ^{H}*norimono* 'vehicle', high-beginning accented word ^{H}*namino'ri* 'surfing', low-beginning unaccented word ^{L}*omiyage* 'souvenir' and low-beginning accented word ^{L}*onigi'rigi* 'rice ball'.

Notice that, while tonal specification in Osaka is denser than Tokyo, not all the morae are assigned for tones. P&B (1988), reanalyzing the data in Kori's (1987) work on Osaka, find no evidence against surface underspecification and thus propose underspecified representations for Osaka as well. For example, a flat high pitch observed throughout the high-beginning unaccented word (Fig. 2.4 (a)) is explained by an interpolation between the left-edge H and the right-edge H. Notice also that the concave shape from low to high found in low-beginning words (Fig. 2.4 (c, d)) is interpreted as a linear interpolation between the left-edge L to the accentual H or to the right edge H. Instead of positing an additional tonal target at the elbow of the concave shape, P&B (1988) attributed it to dialect-specific laryngeal control found by Sugito and Hirose (1978): that is, the usage of sternohyoid activation for voice lowering by Osaka speakers. Leaving the validity of this interpretation aside, P&B's treatment is compatible with other frameworks (e.g. Uwano 1989; Kawakami 1997), in which the movement in question is analyzed as the rise from the beginning to the accented mora (for accented word) or the end of the word (for unaccented word).

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[3] There are several regular gaps in the paradigm of possible combinations; for example, low-beginning words do not have initial accent, and high-beginning words with final accent are quite rare.

The revision I made for the prosodic trees is the L tone associated to the right edge of accented prosodic words. This is necessary to account for the low dip found at the boundary between an accented word and a high-beginning word (see Fig. 4.10 in 4.5).

2.4 Kagoshima Japanese

Kagoshima Japanese, spoken in the most southern prefecture among the four main islands of Japan, developed a unique prosodic system known as the "two-pattern accent" (Hirayama 1951, Uwano 1998; Kibe 2000, 2003). The words of Kagoshima are classified into Type A which exhibits a fall and Type B which shows a rise around the end of the word (2.4)., The minimal tone bearing units of Kagoshima are generally assumed to be syllables (Shibatani 1962).

(2.4) Approximate pitch patterns in Kagoshima Japanese (data from Kibe 2002)

a. Type A

hâ	'leaf'	há-gà	hà-kárà
hánà	'nose'	hàná-gà	hànà-kárà
sàkúrà	'cherry'	sàkùrá-gà	sàkùrà-kárà

d. Type B

há	'tooth'	hà-gá	hà-kàrá
hàná	'flower'	hànà-gá	hànà-kàrá
òtòkó	'man'	òtòkò-gá	òtòkò-kàrá

It can be seen from (2.4) that as the number of syllables is increased by the addition of cliticized particles the location of pitch movement (fall or rise) is shifted rightwards. However, the location is completely predictable; the fall of Type A occurs from the penultimate syllable to the final, and the rise of Type B takes place from the penultimate syllable to the final. In case of the utterance-final mono-syllabic words, the fall is completed within the final syllable for Type A, while for Type B the syllable exhibits high instead of rise. From what follows, the contrast between Type A and Type B will be indicated by putting A or B at the left shoulder of the beginning of the word. The fall in type A and the rise in Type B can be seen in Fig. 2.6.
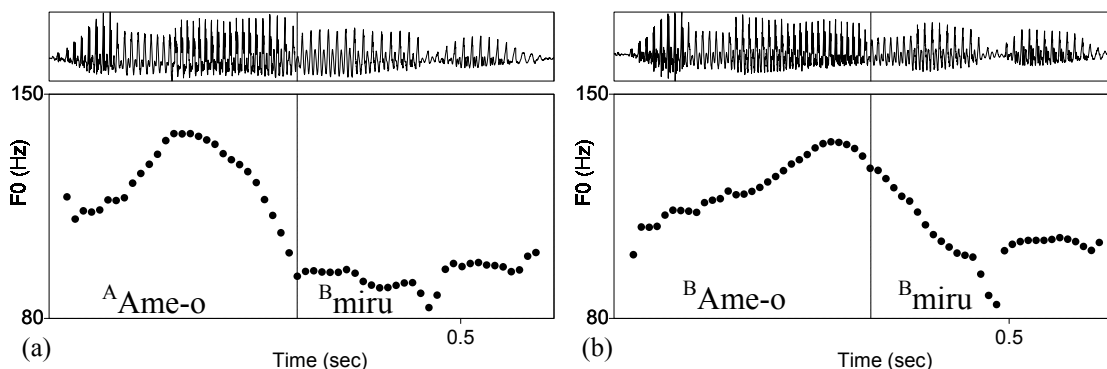

FIGURE 2.6 Waveforms and F0 contours of **Kagoshima Japanese**: utterances with Type A word [A]*Ame-o* [B]*miru.* 'I look at a candy.' (a) and with Type B word [B]*Ame-o* [B]*miru.* 'I look at rain.' (b) at the utterance-initial position, uttered by a 23 year-old male speaker. Vertical lines mark the boundaries of prosodic word.

As a contrast between [A]*ame* 'candy' and [B]*ame* 'rain' well shows, Kagoshima has a lexically specified pitch and thus shares a feature [+lexical tones] with Tokyo and Kyoto-Osaka. Unlike

the latter two dialects, however, the syllable exhibiting the pitch movement is completely predictable, if we know whether the word belongs to Type A or Type B. The lexicon of this dialect, therefore, must not specify a particular syllable as accented (Hayata 1999). Thus this dialect has a feature [-accent].

Figure 2.7 illustrates a prosodic tree at the level of the prosodic word and below. Both Type A and Type B words have L at the left edge of prosodic word, since the words begins with a low pitch. Type B word has L at the right edge of the word to account for the rise at the final syllable. This is the same representation as the low-beginning unaccented word in Osaka.
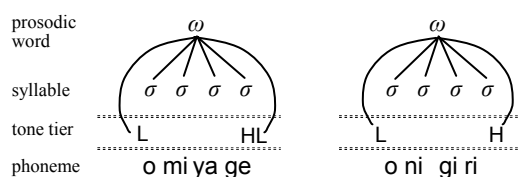
FIGURE 2.7 Prosodic trees at the level of prosodic word and below in **Kagoshima Japanese**: Type A word [A]*omiyage* 'souvenir' (left) and Type B word [B]*onigiri* 'rice ball' (right).

The challenging feature is the fall from the penultimate syllable to the final in Type A. Based on his experimental results for Kagoshima, Ishihara (2004) proposed a direct link between the HL cluster and the penultimate syllable in Type A words for word-level prosodic trees. This formulation is similar to that of the lexical pitch accent in Tokyo propounded by P&B (1988). Its rationales lie in Ishihara's findings that 1) the peak of Type A word is higher than that of Type B word and 2) pitch reduction of the following words is often stronger when the preceding word is Type A than Type B (downstep effect). As Ishihara points out, these different behaviors between Type A and Type B in Kagoshima words are quite similar to those between accented words and unaccented words in Tokyo. Indeed, some of the researchers have recognized the similarities between the Kagoshima's paradigmatic tonal contrast and the Tokyo's accented v.s. unaccented contrast (Haraguchi 1979; Kubozono forthcoming). The HL tone which has a primary association to the syllable may well capture the putative cross-dialectal similarity between the two dialects.

At the same time, however, the direct link of the HL to the syllable might be problematic in the sense that it may easily be misunderstood as *lexical* designation of the locus for the HL in Kagoshima. Recall that the syllable exhibiting the fall is completely predictable in Kagoshima and this dialect has a feature [-accent]. To avoid this misunderstanding, I propose that the HL is peripherally linked to the right-edge of the prosodic word, emphasizing that the HL has no *lexical* specification for a particular syllable and is realized around the end of the word.

The treatment of concaved curve between the L at the left edge and H at the right edge is, as is the case with Osaka's low-beginning words, a subject of further research.

Notice that Kagoshima involves a paradigmatic contrast: its lexicon should specify a given lexical item as either Type A or Type B. This is analogous to the contrast in 'registers' in Kyoto-Osaka Japanese, i.e., the contrast between high-beginning and low-beginning. Because of this similarity, Hayata (1999) proposes a unique typology of word level prosody in which

Kagoshima and Kyoto-Osaka are grouped together as "word tone dialects". Hayata also notices similarity between Tokyo and Kyoto-Osaka in that they both have lexically specified accent locus and classified them as 'accent dialects'. Thus, Tokyo is an "accent dialect", Kagoshima is a "word tone dialect" and Kyoto-Osaka dialect is "accent plus word tone dialect". Hatata's insightful typology will be discussed again in 4.6.

2.5 Miyakonojo-Kobayashi Japanese

The dialects spoken around the boundary between Kagoshima and Miyazaki prefectures are known to have the "one-pattern accent" system[4] (Hirayama 1951, Shibata 1951, Uwano 1989). Miyakonojo Japanese spoken in Miyazaki prefecture is the most well-known among these dialects. Since the author of the present study has data of one of the members of the group, Kobayashi Japanese also spoken in Miyazaki prefecture, the dialectal group at issue will be referred to as Miyakonojo-Kobayashi Japanese.

It is well established that Miyakonojo-Kobayashi has been historically developed from Kagoshima, loosing the contrast between Type A and Type B (Hirayama 1951). As will be shown in (2.5), all the prosodic words exhibit a pitch rise from the penultimate syllable to the final. That is, the words are always realized in a single pitch pattern which is virtually same as Type B of Kagoshima. The pattern with final rise is sometimes called "high-tailed pattern" (Hirayama 1951), which is clearly seen in Fig. 2.8.

(2.5)   Approximate pitch patterns of the words in Miyakonojo-Kobayashi Japanese

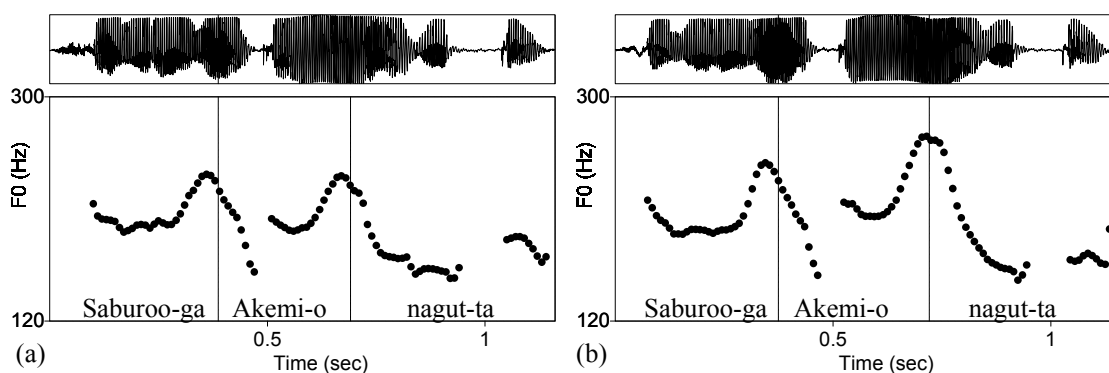| há | 'leaf' | hà-gá | hà-kàrá |
há	'tooth'	hà-gá	hà-kàrá
hàná	'nose'	hànà-gá	hànà-kàrá
hàná	'flower'	hànà-gá	hànà-kàrá
sàkùrá	'cherry'	sàkùrà-gá	sàkùrà-kàrá
òtòkó	'man'	òtòkò-gá	òtòkò-kàrá

FIGURE 2.8 Waveforms and F0 contours of **Kobayashi Japanese**: *Saburoo-ga Akemi-o nagut-ta.* "Saburo punched Akemi', produced by a 23 year-old female speaker. The utterances were produced in response (a) 'What happened?" and (b) 'Whom did Saburo punch?'. Vertical lines mark the boundaries of prosodic word.

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[4] "One-pattern accent" can be paraphrased using a more general term as "fixed accent" as opposed to "free accent". Notice that the term "accent" here again totally different from the one defined in this work.

The tonally prominent syllable in Miyakonojo-Kobayashi is completely predictable. This dialect, therefore, has a feature [-lexical tones], which in turn means that it has no accent.

Figure 2.9 illustrates a prosodic tree at the level of the prosodic word and below, which is the same as that proposed for Type B of Kagoshima. L and H are linked to the left edge and right edge, respectively, of the prosodic word. Notice the tones are associated with the *word node*. As will be clearer below, this tonal association is what differentiates Miyakonojo-Kobayashi from so-called "accentless dialects", both of which share the feature [-lexical tones].
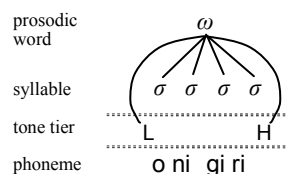

FIGURE 2.9 Prosodic trees at the level of prosodic word and below in **Kobayashi Japanese**: *onigiri* 'rice ball'.

2.6 Kumamoto and Koriyama Japanese

The so-called "accentless" dialects are widely distributed in geographically noncontiguous areas of Japan. They include Kumamoto, Omuta (Fukuoka Prefecture), Fukui, Koriyama (Fukushima prefecture) and Yamagata. The prosodic structure of these dialects has been sparsely investigated. Intriguingly, the division between these "accentless" and "one-pattern" dialects has been a point of controversy in Japanese linguistics (Yamaguchi 1998). In both types of dialect, pitch is not used to distinguish one word from the others, and thus they have one feature [-lexical tones]. How do these types of dialects differ from each other?

A simple conclusion can be made that they differ in *the levels of prosodic phrasing above the word*. Thus it is impossible to explicitly define the two systems at issue within the framework of *word-level* prosody, because their distinction is a matter of the *intonational* systems. In fact, the past researchers, either intentionally or unintentionally, distinguished "accentless" from "one-pattern accent" dialects by virtue of their intonational properties. However, they stopped short of fully exploiting the intonational systems for a more explicit way of distinguishing the two types of dialects.

Ramsey's (1998) comment on the Uwano's (1998a) classification between "one-pattern accent" and "accentless" well illustrates the controversial status of these dialects.

I have never understood, perhaps until now, why Japanese linguists sometimes distinguish between "one-pattern accent" and "accentless". Since there are no pitch distinctions in either case, the difference is only whether phrases in the dialect are pronounced with a characteristic pitch shape. I wonder if Miyakonojo dialect is not described as having "one-pattern accent" because its phrases phonetically resemble those of the B pattern in the two-pattern system of nearby Kagoshima. In my view, calling Miyakonojo an accenting dialect obscures the meaning of accent. (Ramsey 1998: 181)

In the following subsection, I will try to resolve the controversy, because the distinction between the two types of dialects provides a good introduction to the intonational typology proposed in this paper.

2.6 "One-pattern accent" vs. "accentless"

The most widespread division between the "one-pattern accent" system and the "accentless" system is made on the basis of presence or absence of what is generally called "accent" (e.g. Shibata 1955). Recall that "accent" in most of the Japanese literature is defined as a *regular pitch pattern within the word*. Since Miyakonojo-Kobayashi has a single type of "accent" (high-tailed pattern), this dialect is classified as "one-pattern accent". Kumamoto and Koriyama, on the other hand, do not have "accent", and thus they are the "accentless" dialects. The misleading term "accent" has served as a source of controversy and confusion. More crucially, however, the indecisive division between two types of dialects is due to the insufficient consideration to intonational phonology in Japanese dialects. To resolve the controversy, let us introduce four key notions that would lead us to a more transparent discussion: they are *derivation*, *regularity* and *domain*.

Derivation: Ramsey's (1998) comment cited above correctly points out that pitch is not specified in the lexicon both in the "one pattern" and "accentless" dialects. He suspects that Miyakonojo and Kagoshima are grouped together as "accented" dialects, because the pitch pattern of the former dialects resembles Kagoshima's Type B, which lexically contrasts with Type A. All his comments above, however, stems from his misunderstanding brought about by terminological confusion. As has been repeatedly mentioned, the term "accent" here is not necessarily related to lexical specification. Thus derivationally, all the tones that can be posited for the two types of dialect are postlexical. They share the feature [-lexical tones] and can not be distinguished along the lexical vs. post-lexical dimension.

Regularity: What Ramsey calls "characteristic pitch shape" can be paraphrased as "regular pitch pattern", which has been recognized as the defining feature of "one-pattern accent" system. Ramsey probably claims that the regularity *per se* can not be a meaningful classificatory feature for the dialects without lexical tones, and that the "one-pattern accent" and "accentless" should be clumped into a single category. The question, however, remains whether pitch patterns in the "accentless" dialects are not regular at all?

Indeed, there is undocumented but widespread belief in Japanese linguistics that that pitch in the "accentless" dialects is not systematically controlled[5]. Maekawa (1990 et seq.) convincingly exploded the myth. The results of his production experiments revealed for Fukui and Kumamoto ("accentless") that there is a fairly regular linguistic control in pitch pattern (Maekawa 1990, 1997a). The pitch control is equivalent to that in other dialects such as Tokyo, in that syntactic factors such as WH element and branching, as well as textual focus affect pitch patterns. His subsequent perception experiments for Kumamoto confirmed the linguistic regulation of pitch patterns (Maekawa 1994b, 1999). Thus, the "one-pattern accent" and "accentless" dialects can not be differentiated in the light of the presence or absence of regularity in pitch patterns.

Domain: So far, we have seen that the difference between "one-pattern" and "accentless"

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[5] For example, Hirayama (1968) says for the "accentless" dialects that "every word has no rules for accent, and it is pronounced quite freely (non-systematically)". Although his statement is limited to the *word*, the descriptions like this unfortunately have served as a source of the wrong belief about these dialects.

dialects is found neither in derivation (lexical vs. post-lexical tones) nor in regularity (regular vs. irregular pitch patterns). What is the defining feature? The key to resolve the controversy lies behind the fact that traditional work fails to capture the regularity in the pitch patterns in the "accentless dialects".

Since the main interest of traditional works is word-level prosody, their "analysis window" is inevitably word-sized. The regularity captured by the word-sized window is limited to that within the word. Indeed, past researchers have been able to successfully describe the regular pitch patterns in the "one-pattern accent" dialects, whereas it was impossible for them to grasp the regularity in tonal processes in the "accentless" dialects. This leads us to confirm that the *domain* of post-lexical tonal processes is dialect-specific: for the "one-pattern accent" dialects it is prosodic word, whereas for the "accentless" dialects it is a prosodic constituent larger than prosodic word. In short, the difference between two types of dialects at issue actually lies in *the level of prosodic phrasing that serves as the domain for the tonal processes*.

The fact that the prosodic word serves as the domain for the tonal processes in the "one-pattern accent" dialects is exemplified in Fig. 2.8, showing F0 contours for Kobayashi. It can be seen that the high-tailed pattern appears for each prosodic word. Even when focus is on the second prosodic word (b), the high-tailed pattern is realized for each word. What is crucial here is that the pattern is never implemented over two or more prosodic words. In other words, the domain for the pitch pattern can never be prosodic constituent larger than the prosodic word.

Now, let us confirm that the domain for the pitch pattern is a prosodic phrase larger than the prosodic word in the "accentless" dialects. Fig. 2.10 shows F0 contours in Koriyama. From the utterance (a), we can see that each prosodic word has a rising-falling pattern. The situation is superficially the same as that in the "one-pattern accent" dialects. The cross-dialectal difference becomes clear when we see the utterance (b), with focus on the second word. We can see that there are only two rise-falls and, importantly, the second spans over the last two prosodic words. This clearly indicates that its domain is the prosodic phrase above the prosodic word. Also, the boundary of the larger prosodic phrase coincides with that of the prosodic word, meaning that the larger phrase and the prosodic word are hierarchically organized.
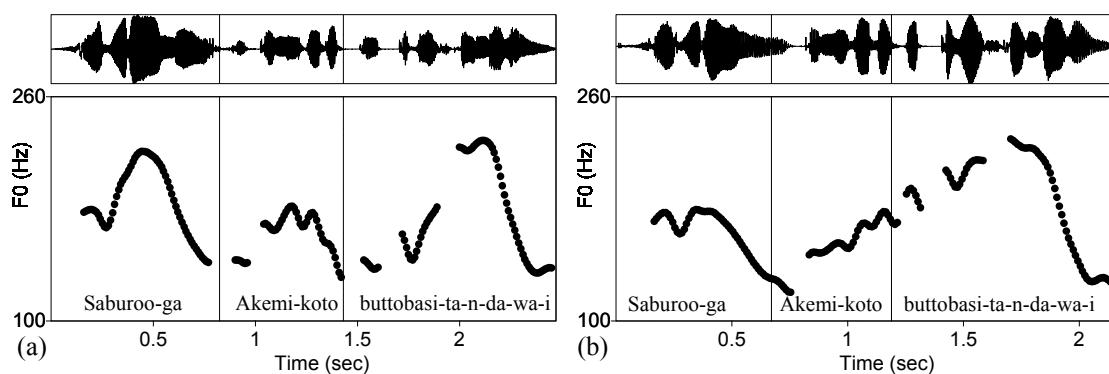

FIGURE 2.10 Waveforms and F0 contours of **Koriyama Japanese**: *Saburoo-ga Akemi-koto buttobasi-ta-n-da-wa-i.* 'Saburo punched Akemi', uttered by a 40 year-old female speaker. The utterances were produced in response (a) 'What happened?" and (b) 'Whom did Saburo punch?'. Vertical lines mark the boundaries of prosodic word.

As will be defined in Section 4, the process in which two or more prosodic words are tonally merged into a single prosodic phrase is called *dephrasing* in the proposed typology. This hierarchically larger prosodic phrase will be called *accentual phrase*. In Koriyama ("accentless" dialect), prosodic words can be conjoined together to form a single accentual phrase, indicating dephrasing. In Kobayashi ("one pattern" dialect), on the contrary, prosodic words can never be dephrased, which means that this dialect lacks the accentual phrase. In the proposed typology, therefore, the distinction between the two types of dialect is made on the basis of the presence or absence of accentual phrase, or [±dephrasing].

The prosodic structure at the level of prosodic word and below being postulated for the "accentless" dialects such as Koriyama is shown in Fig. 2.11. Notice that no tones are associated at this level. All the tones are introduced at the level of accentual phrase and above. This contrasts with the trees for Miyakonojo-Kobayashi ("one-pattern accent"), where tones are linked to the word node. The two types of trees capture the dialect-specific difference in the domain for the post-lexical tones.
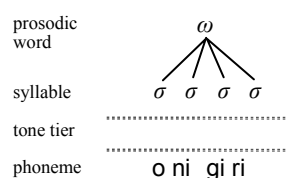

FIGURE 2.11 Prosodic trees at the level of prosodic word and below in **Koriyama Japanese**: *onigiri* 'rice ball'.

The classification of the "one-pattern accent" and "accentless" dialects on the basis of the level of prosodic phrasing is not purely innovation. It has been suggested in Uwano's works. For example, in reply to Ramsey's (1998) comments, Uwano (1998b) states that the difference lies in whether or not the *pitch pattern acts as a demarcation of prosodic words*. He also says for the "accentless" dialects that "[w]hat seems to be the tonal pattern of the word is, in fact, a manifestation of the *phrase* tone pattern superimposed on the word" (Uwano 1989a: 172, emphasis mine). Finally, he suggests the possibility that the "one-pattern accent" and "accentless" in his own classification can be merged into a single supercategory "one-pattern accent", which is subcategorized into "one-pattern accent whose unit is a prosodic word" and "one-pattern accent whose unit is a phrase" (Uwano 1989: fn 2).

What deserves more than passing notice, however, is that the classification based on prosodic phrasing is already beyond the scope of *word-level* prosody; it moves in on the territory of *intonational* phonology. If one stays within the framework of word-level prosody, then the "one-pattern accent" and "accentless" dialects might, as Ramsey (1998) suggests, be clumped into a single category. But if the one takes a step forward to a framework of intonational phonology, then he has to answer the question: why this feature is exploited *only* for classifying the dialects without lexical tones ([-lexical tones])? It is fairly reasonable to suspect that the feature [±dephrasing] could be applied to dialects with lexical tones ([+lexical tones]) as well, so that we would achieve a cross-dialectal generalization.

2.7 Summary

In this section, I recapitulated past works on word-level prosody and proposed phonological representations of the prosodic structure of dialects at the level of the word and below. Dialects can either possess lexically specified pitch [+lexical tones] or lack it [-lexical tones]. Dialects with the feature [+lexical tones] can be further divided into those that have lexical designation for the locus of lexical tones ([+accent] such as Tokyo and Kyoto-Osaka) and those do not ([-accent] such as Kagoshima). We have seen that some dialects with the feature [+lexical tones] involve paradigmatic tonal contrast. In the case of the Kyoto-Osaka, it is the contrast in "register" and in the case of Kagoshima it is the contrast between Type A and Type B. No feature has been currently defined for these paradigmatic contrasts.

We have also seen that dialects without lexical tones ([-lexical tones]) was traditionally divided into two types, "accentless" and "one-pattern accent". I interpreted the differences to be actually in their *intonational* properties: namely in the level of prosodic phrasing that serves as the domain for the post-lexical tonal processes. The "accentless" dialects but not "one-pattern accent" dialects exhibits tonal merging of the prosodic words into a single prosodic phrase, a process I called *dephrasing*. It was suggested that the feature [±dephrasing] can be applied to dialects with lexical tones ([+lexical tones]).

In Section 4, we will see that the feature [±dephrasing], suggested by the studies on word-level prosody, indeed provides an important implication to the development of an intonational typology.

3. DATA COLLECTION

3.1. Introduction

This section overviews the methodology for data collection in my fieldwork research. Since the immediate task is to grasp basic characteristics of intonational systems which have been little investigated, the data I have been collecting so far are mainly recordings of read speech.

It is difficult to elicit natural dialectal speech, because our intuition about intonation is less sharp than that about lexical tones (Gussenhoven 2004), and because most of the speakers are now bilinguals in fluent standard variety. The task applied is a "simulation task", in which the subjects were asked to translate[6] prepared test sentences written in standard Japanese into their dialect,[7] and then asked to read the translated sentences for multiple times as if they were talking to their friends. In older to avoid psychological stress on subjects who are forced to speak dialect in front of a non-native experimenter, they are recommended to participate in the recording with their close friends. So far, the recording has been made successfully.

Since the main focus of my research is the structure of prosodic phrasing in dialects, it is

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[6] The translation process seems to give subjects a chance to think about grammar of their dialect and to function as an activation of their knowledge of their dialects before reading the sentences. At least, "poor" results have been obtained when subjects they are asked to directly read already translated sentences.

[7] Dialect here is defined as "a language that you speak to your close local friends".

necessary to design test sentences with those factors that are supposed to exert effects on intonation. For the sake of cross-dialectal comparison, the same sets of test sentences has been exploited for all the dialects.[8] The sentences contain the factors which are known to affect prosodic phrasing of standard (Tokyo) Japanese. They are focus, WH question, and syntactic branching. These factors will be discussed separately in the following subsections. Other datasets are also designed to examine specific hypotheses for each dialect.

3.3. *Focus*

Focus is one of the main factors that influence on intonation in Japanese (Kindaichi 1951; Kawakami 1957; Poser 1984; P&B 1988; Kori 1989a, 1989b, 1997; Maekawa 1997b; Ito 2002, among others). In Tokyo, pitch range is expanded on the focused word and the post-focal words are prosodically subordinated to the focused word. Similar effects are reported for other dialects such as Osaka (Kori 1987), Kobayashi (Sato 2005; Igarashi 2006), Goshogawara (Igarashi 2007a, b) and Fukuoka (Igarashi forthcoming).

Fig. 3.1 - 3.2 show F0 contours for utterance 'I was punched by a local gang in Inagaki.' in Tokyo (Fig. 3.1) and Goshogawara[9] (Fig. 3.2). The utterances are preceded by 'Which local gang were you punched by?' (a), or 'Who in Inagaki were you punched by?' (b). Focus is on the first (a) or second word (b). It can be seen that pitch range of the focused word is expanded and that of post focal word is considerably reduced.
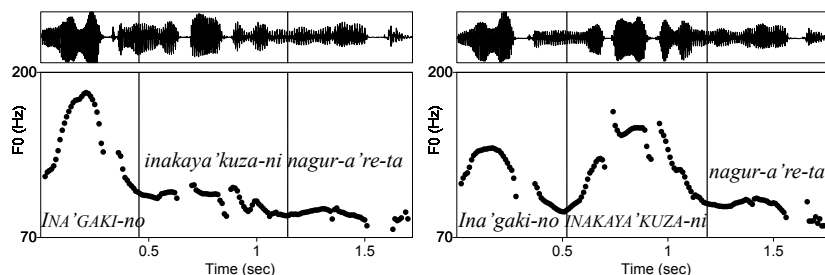

FIGURE 3.1 Waveforms and F0 contours of **Tokyo Japanese**: *INA'GAKI-no inakaya'kuza-ni nagur-a're-ta.* 'I was punched by a local gang in INAGAKI.' (a) and *Ina'gaki-no INAKAYA'KUZA-ni nagur-a're-ta.* 'I was punched by a LOCAL GANG in Inagaki.' (b), produced by the author. Vertical lines mark the boundaries of prosodic words.
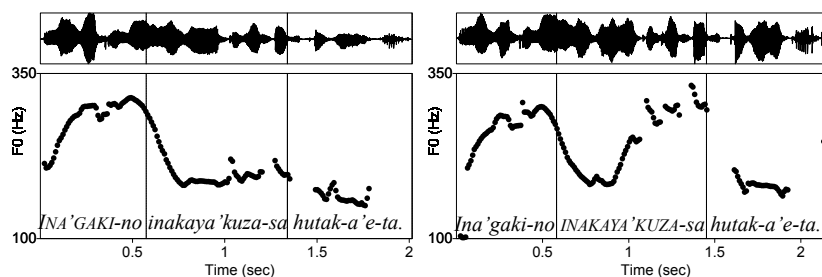

FIGURE 3.2 Waveforms and F0 contours of **Goshogawara Japanese** Data from Igarashi (2007b): *INA'GAKI-no inakaya'kuza-sa hutak-a'e-ta.* 'I was punched by a local gang in INAGAKI.' (a) and *Ina'gaki-no INAKAYA'KUZA-sa hutak-a'e-ta.* 'I was punched by a LOCAL GANG in Inagaki.' (b), produced by a 22 year-old female speaker. Vertical lines mark the boundaries of prosodic words.

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[8] They were primarily borrowed from Maekawa (1991), which were originally designed for "accentless" dialects.

[9] In this dialect (spoken in Aomori prefecture) lexical pitch accent is realized as a rise in pitch (Igarashi 2007a, b).

3.3. *WH question*

In Tokyo, WH word expands its pitch range and reduces that of the following words within the WH scope (Maekawa 1991, 1994a).[10] The pattern for WH question with *na'ni-ga* 'what' well contrasts with that for non-WH question containing "indefinite pronoun" *na'ni-ka* 'anything' which can not receive focus. Fig. 3.4 illustrates this contrast. We see strong pitch range reduction in the second word *mie'ru* 'see' in WH question (a) and expansion in the same word in non-WH question (b). Note that the lexical pitch accent of *mi'eru* following the WH word is not deleted (Maekawa 1994a). Similar processes can be found in Kobayashi ("one-pattern accent") (Fig. 3.5).[11]
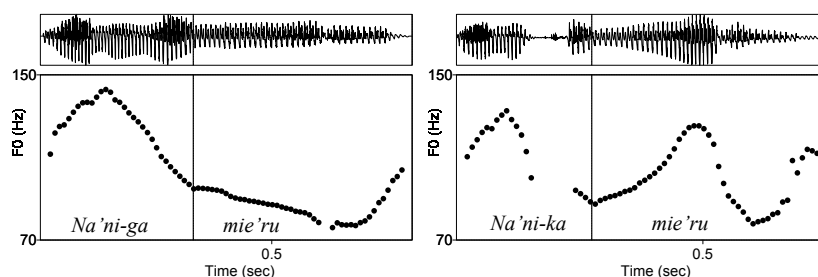

FIGURE 3.4 Waveforms and F0 contours of **Tokyo Japanese**: WH question *Na'ni-ga mie'ru?* 'What do you see?' (a) and non-WH question *Na'ni-ka mie'ru?* 'Do you see anything?' (b), produced by the author. Vertical line marks the boundary of prosodic words.
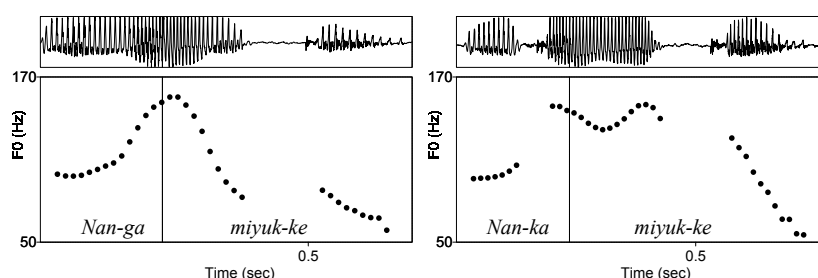

FIGURE 3.5 Waveforms and F0 contours of **Kobayashi Japanese** (Data from Igarashi 2006): WH question *Nan-ga miyuk-ke?* 'What do you see?' (a) and non-WH question *Nan-ka miyuk-ke?* 'Do you see anything?' (b), produced by a 18 year-old male speaker. Vertical line marks the boundary of prosodic words.

At least for Tokyo, and arguably for most of the Japanese dialects, the intonational pattern for WH question is quite similar to that for textual focus discussed in 3.2. Fig. 3.6 compares the patterns for textual focus (a, b) with that for WH question (c) in Tokyo. The focused word located at the beginning of the sentences is lexically unaccented *Yamada* in (a), and accented *Ya'mano* in (b). In (a), focused unaccented word is tonally merged with immediately following word (they are "dephrased" into an accentual phrase, see 4.3) and the pitch range of the remaining words is compressed. In (b), range compression is observed in all the words following the focused word. The pattern for WH question (c) exhibits considerable similarities

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[10] Intonational pattern in WH question in Tokyo is now widely discussed in the light of prosody-syntax interface (Kitagawa 2005; Ishihara forthcoming).
[11] Notice that high pitch of the "high-tailed pattern" (see 2.5) is shifted to the penultimate syllable. This is regular dislocation due to the ending particle (Sato 2005), which is *-ke* in this case.

with that in (b), because the WH word *na'ni-ga* is lexically accented.

Nevertheless, textual focus and WH question should be examined separately. In Fukuoka (aka. Hakata), these two factors affect on intonation in an undoubtedly different manner. Specifically, the lexical pitch accents of the words in the scope of WH word are completely deleted in WH question (Hayata 1985; Kubo 1989, forthcoming).[12] Fig. 3.7 shows the patterns for textual focus (a, b) and that for WH question (c) in Fukuoka, equivalent to those in Tokyo shown in Fig. 3.6. It can be seen that the patterns for textual focus (a, b) in Fukuoka are almost identical to those in Tokyo (Igarashi forthcoming), whereas the pattern for WH in the former drastically differs from that in Tokyo. In Fukuoka, F0 rises form the beginning of the utterance to around the second syllable and then a flat high F0 prevails until the end of the utterance with a gradual fall (probably due to declination). Deletion of lexical pitch accents in WH question has so far been reported only for Fukuoka.[13]
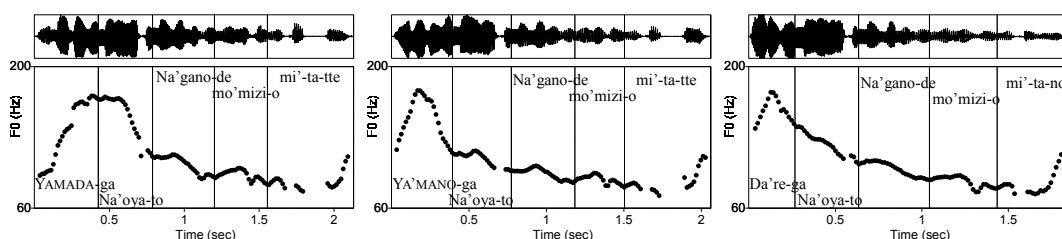

FIGURE 3.6 Waveforms and F0 contours of **Tokyo Japanese**: *YAMADA-ga Na'oya-to Na'gano-de mo'miji-o mi'-ta-tte?* 'Did YAMADA enjoy the autumn leaves with Naoya in Nagano?' (a), *YA'MANO-ga Na'oya-to Na'gano-de mo'miji-o mi'-ta-tte?* 'Did YAMANO enjoy the autumn leaves with Naoya in Nagano?' (b) and *Dare-ga Na'oya-to Na'gano-de mo'miji-o mi'-ta-no?* 'Who enjoyed the autumn leaves with Naoya in Nagano?' (c), produced by the author. Vertical lines mark the boundaries of prosodic words.
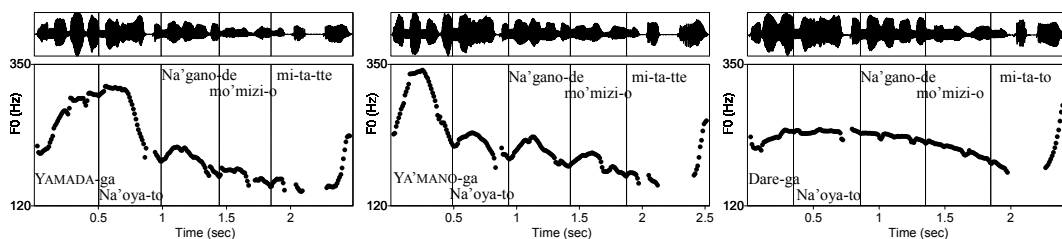

FIGURE 3.7 Waveforms and F0 contours of **Fukuoka Japanese** (Data from Igarashi forthcoming): *YAMADA-ga Na'oya-to Na'gano-de mo'miji-o mi-ta-tte?* 'Did YAMADA enjoy the autumn leaves with Naoya in Nagano?' (a), *YA'MANO-ga Na'oya-to Na'gano-de mo'miji-o mi-ta-tte?* 'Did YAMANO enjoy the autumn leaves with Naoya in Nagano?' (b) and *Dare-ga Na'oya-to Na'gano-de mo'miji-o mi-ta-to?* 'Who enjoyed the autumn leaves with Naoya in Nagano?' (c), produced by a 22 year-old female speaker. Vertical lines mark the boundaries of prosodic words.

3.4. *Syntactic branching*

It is known for Tokyo, prosodic phrasing is sensitive to syntactic branching. Specifically, right-branching boundary brings about pitch range expansion (Kubozono 1988). Fig. 3.7 shows contours for utterances with left-branching boundary (a) and that with right-branching boundary (b) between the first and second prosodic words. In the left-branching utterance (a) a proper noun *Na'gano* 'Nagano' followed by a genitive particle *-no* modifies an immediately following

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[12] This specific intonation pattern is investigated by Smith (2005) in the light of prosody-syntax interface.
[13] This analogous phenomenon is reported for Korean dialects such as Busan Korean (Kubo forthcoming).

noun *oba'atyan* 'grandmother' ([[*Nagano-no obaatyan-ni*] [*ringo-o morat-ta*]]), whereas in the right-branching utterance (b) the *Na'gano* followed by a locative particle *-de* modifies a predicative verb *morat-ta* 'was given' ([*Nagano-de* [*obaatyan-ni* [*ringo-o morat-ta*]]]). We see that the pitch range of the second prosodic word is expanded in (b), whereas it is not in (a). The same processes are observed in Fukuoka as well (Igarashi forthcoming) as shown in Fig, 3.8.
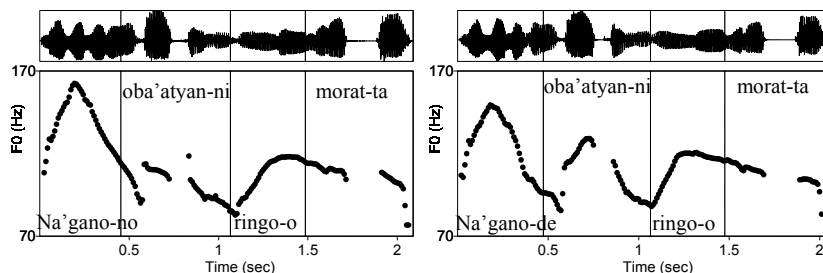

FIGURE 3.7 Waveforms and F0 contours of **Tokyo Japanese**: Left-branching utterance *Na'gano-no oba'atyan-ni ringo-o morat-ta.* 'I was given an apple by the grandmother in Nagano.' (a) and right-branching utterance *Na'gano-de oba'atyan-ni ringo-o morat-ta.* 'In Nagano, I was given an apple by a grandmother.'(b), produced by the author. Vertical lines mark the boundaries of prosodic words.
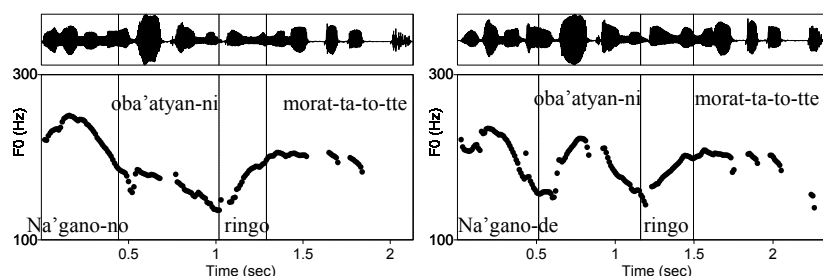

FIGURE 3.8 Waveforms and F0 contours of **Fukuoka Japanese** (data from Igarashi forthcoming): Left-branching utterance *Na'gano-no oba':tyan-ni ringo morat-ta-to-tte.* 'I was given an apple by the grandmother in Nagano.' (a) and right-branching utterance *Na'gano-de oba':tyan-ni ringo morat-ta-to-tte.* 'In Nagano, I was given an apple by a grandmother.'(b), produced by a 22 year-old female speaker. Vertical lines mark the boundaries of prosodic words..

Fig. 3.9 shows utterances in Tokyo, which can be generalized to have different branching structures (Maekawa 1990). In the left-branching utterance (a), a proper noun *Zi'roo* marked by a particle *-ga* serves as the subject for the predicate of the embedded clause *yo'mu* 'read', but does not serve as the subject for the predicate of the main clause *nemuku na'ru* 'get sleepy' ([[Zi'roo-ga yo'mu-to] [nemuku na'ru]]). In the right-branching utterance (b), on the other hand, *ziro:* marked by a particle *-wa* serves as the subject for the predicates of the embedded *no'mu* 'drink' and main clauses *nemuku na'ru* ([Zi'roo-wa [no'mu-to [nemuku na'ru]]]).

It can be seen in Fig. 3.9 that right-branching syntactic boundary which is between the first and second prosodic word, expands pitch range of the second prosodic word (b). Fig. 3.10 demonstrates contours for the utterances in Goshogawara which have the same structure as Fig. 3.8. The intonational process in this dialect bares a remembrance to Tokyo in the presence (b) or absence (a) of pitch range expansion in the second prosodic word.
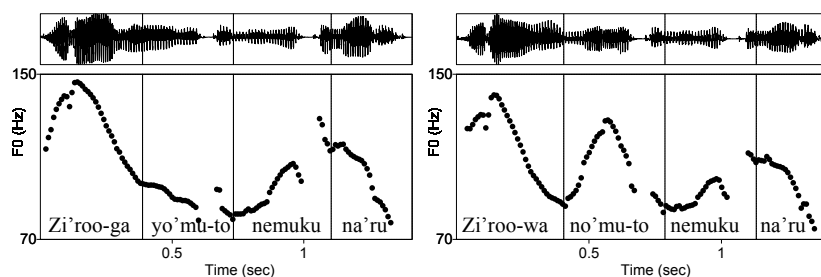
FIGURE 3.9 Waveforms and F0 contours of **Tokyo Japanese**: Left-branching utterance *Zi'roo-ga yo'mu-to nemuku na'ru.* 'I become sleepy if Jiro reads.' (a) and right-branching utterance *Zi'roo-wa no'mu-to nemuku na'ru.* 'Jiro becomes sleepy if he drinks.' (b), produced by the author. Vertical lines mark the boundaries of prosodic words.
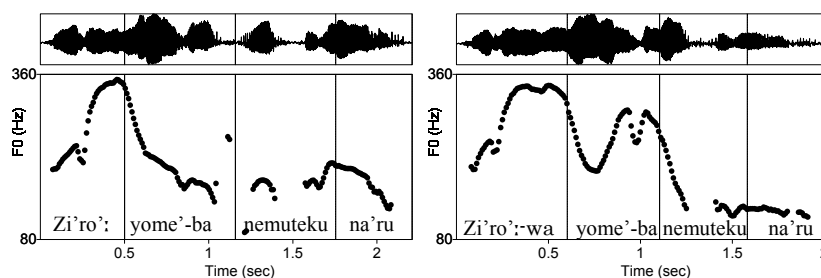

FIGURE 3.10 Waveforms and F0 contours of **Goshogawara Japanese**: Left-branching utterance *Ziro': yome'-ba nemuteku na'ru.* 'I become sleepy if Jiro reads.' (a) and right-branching utterance *Ziro':-wa nome'-ba nemuteku na'ru.* 'Jiro becomes sleepy if he drinks.' (b), produced by a 62 year-old female speaker. Vertical lines mark the boundaries of prosodic words.

4. TYPOLOGY OF PROSODIC PHRASING

4.1. *Introduction*

Prosodic phrasing in general is understood as a phonological grouping from small prosodic constituents (such as prosodic words) to the large (such as accentual phrase). The main focus of the present work is prosodic grouping at the level of *accentual phrase*. As touched upon in 2.6, the process in which prosodic words are conjoined together to form an accentual phrase is called *dephrasing* in this paper. One of the main claims in the proposed typology is that some dialects exhibit no dephrasing: that is, they lack the accentual phrase constituent in their prosodic structure.

In 4.2, the complete prosodic tree proposed by P&B (1989) for Tokyo, which my description of prosodic phrasing in dialects is based on, will be overviewed. The prosodic grouping at the level of accentual phrase, i.e. dephrasing will be discussed in depth in 4.3 exploiting the data from the so-called "accentless" dialects. In 4.4, the dephrasing at the level of accentual phrase will be compared to the phrasing at another level. In 4.5, it will be argued that some dialects including Kyoto-Osaka lack the accentual phrase. It will be suggested in 4.6 that the proposed typology predicts inter-dialectal correlation: dialects with common typological features behave similarly both in the phrase-level prosodic processes.

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4.2. *Prosodic hierarchy*

Following the framework proposed by P&B (1988) for Tokyo, the prosodic structure of Japanese dialects is postulated to be hierarchically organized, possessing *at most* three levels of phrasing above the prosodic word. That is, from higher to lower; *utterance*, *intermediate phrase*, and *accentual phrase* (see Fig. 4.1). Some revision will be made for this original model, so that it can be applied to all the dialects under examination.
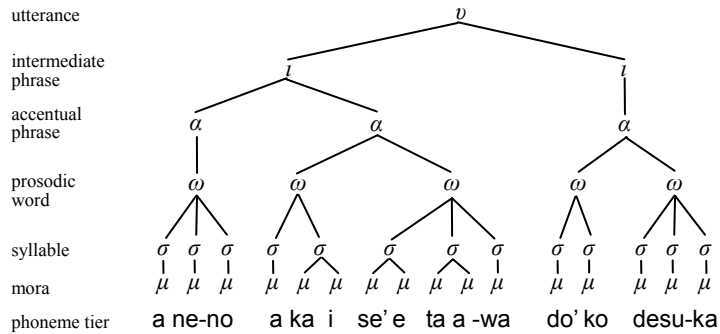

FIGURE 4.1 Prosodic structure for Tokyo Japanese proposed by P&B (1988): *Ane-no akai se'etaa-wa do'ko desu-ka?* 'Where is big sister's red sweater?'.

Utterance is the highest phrase in the prosodic tree. In P&B (1988), the utterance is considered to be the domain for the insertion of the tones which contribute to the pragmatic interpretation of the utterance, such as the question-marking H. These tones are called *boundary pitch movements* (BPMs) in the intonation labeling scheme for Tokyo (standard) Japanese called Japanese Tone and Break Indices (J_ToBI) (Venditti 2005; Maekawa et al. 2003; Igarashi et al. 2006). However, BPM is known to appear also sentence-medially in Tokyo (for discussion, see Venditti et al. forthcoming), and thus the utterance as a domain that licenses BPM is actually not tenable. Since the treatment of BPMs within the AM framework is beyond the scope of the present work, I leave the question open, preserving the P&B's (1988) formulation, in which the BPMs are regarded as the tones associated to the right edge of the utterance.

The original definition of *intermediate phrase* by P&B (1988) for Tokyo heavily relies on the catatheisis or downstep, i.e. pitch range compression induced by lexical pitch accent. They formulate that downstep effect is blocked across the boundaries of this phrase (often called *reset*). However, the intermediate phrase as a domain of downstep is a little problematic. First, it can not be applied to dialects without lexical tones, since downstep, by definition, presupposes lexical tonal contrast (in the case of Tokyo, it is presence or absence of lexical pitch accent). Second, the boundary of intermediate phrase in P&B's framework is determined by the cessation of downstep effect, a concept which is not acceptable to some researchers. The evidence for the insertion of intermediate phrase in P&B's framework is absence of downstep on the word with corrective focus. Their study used now popular protocol of comparing sentences containing accented or unaccented adjective followed by a focused noun (such as *uma'i MAME'* 'good-tasting beans' vs. *amai MAME'* 'sweet beans'). The results show that peak

F0 of the focused noun is not significantly lowered when followed by an accented adjective. However, Kubozono (2007) provides evidence that, while focus (which is WH element in his experiment) induces local pitch range expansion, downstep effect continues across the focused word. The experiment conducted by Ishihara (2007) yield similar results. Therefore, the pitch range modifications of Japanese require further research (for discussion on pitch range compression and expansion in Tokyo, see Venditti et al. forthcoming).

Nevertheless, it is probably true that the Japanese intonational system exploits pitch range reduction and expansion in a linguistically structured manner, and it is not totally groundless to assume that these processes can be formulated as the result of prosodic phrasing. In the present work, intermediate phrase is defined loosely as a domain for pitch range specification. The unity of this phrase is achieved by the reduction of pitch range of the constituents within it (except the leftmost ones).

Since *Accentual phrase* is the main focus of this work, it is necessary to explicitly define it so that it can be applied to all dialects. The accentual phrase is defined as in (4.1).

(4.1)   Definition of accentual phrase:
A prosodic phrase which is immediately above the prosodic word in the prosodic hierarchy, and which has a single type of delimitative/ culminative tones.

The original definition of accentual phrase by P&B (1988) for Tokyo involves a constraint that "it has at most one accent". That is, it can not contain more than two pitch accents. This constraint is not adopted in the proposed framework, because the scope of the present work extends to the dialects without lexical pitch accents, and also, the level of phrasing at issue apparently has, even in Tokyo, more loose connection with accent than previously assumed (see 4.4 and 5.5). The exclusion of accent from the definition of accentual phrase might defy the term, because it has nothing to do with accent any more. While it may be necessary to coin a new term (an alternative might be "tonal phrase"), I nevertheless retain the conventional terminology.[14]

Accentual phrase is hierarchically above the prosodic word. This means that the postulation of accentual phrase to a given dialect presupposes the process in which more than two prosodic words are conjoined together to form an accentual phrase (i.e. dephrasing). What should be emphasized is that it is logically impossible to formulate for a given dialect that "each prosodic word constitutes an accentual phrase".

Accentual phrase has its own tone which functions as its delimitation and culmination. In other words, the tone belonging to the accentual phrase marks its boundaries and prominence, signaling the prosodic unity of the prosodic words merged into it. The absence of accentual phrase boundary in the utterance is signaled by the absence of such tones and *vice versa*.

The accentual-phrase-level tone is, unlike the BPMs, not contrastive. For example, if the tone is LH for a given dialect, then it is always LH, and it can never be, e.g., HL in any conditions.

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[14] I believe the terminology is nevertheless not misleading, since the usage of the term accentual phrase in this way has already been conventionalized in the AM works. For example, accentual phrase postulated for Seoul Korean by Jun (1998) has nothing to do with accent.

The assumption that accentual phrase has *single type* of tone is consistent with frameworks involving accentual phrase for other language such as Basque (Hualde 2003; Gussenhoven 2004) and Seoul Korean (Jun 1998).[15]

Prosodic word, as mentioned in 2.2, is a prosodic unit consisting of a morphological word plus the cliticized postpositional particles. We have already seen in 2.6 that the prosodic word in so-called "accentless" dialects such as Koriyama receives no tonal characterization at all. Unaccented prosodic word in Tokyo is not characterized by tone, either (2.2). Nevertheless, this constituent should be introduced to these dialects as well, because the prosodic word boundaries in these dialects provide potential sites for the insertion of accentual phrase boundaries.

4.3. *Dephrasing*

As has been repeatedly mentioned, the process in which two or more prosodic words are merged into a single accentual phrase is called *dephrasing*, and one of the main claims of this work is that some dialects exhibit no dephrasing. The claim can be paraphrased as such; some dialects lack the prosodic grouping at the level of accentual phrase. Now, we can define all the typological features as in (4.2).

(4.2)   Three classificatory features of the proposed typology
           [±lexical tones]:   Presence or absence of lexical tones (lexically specified pitch)
           [±accent]:   Presence or absence of accent (lexical specification of a particular mora/
                                      syllable for lexical tones)
           [±dephrasing]:   Presence or absence of accentual phrase

Let us consider what dephrasing is, by analyzing the utterances that clearly show this process. The so-called "accentless" dialects serve as good instantiations for dephrasing. The Fig. 4.2 shows F0 contours for WH question (a) and non-WH question (b) in Koriyama. (Both utterances have a question-marking BPM.)
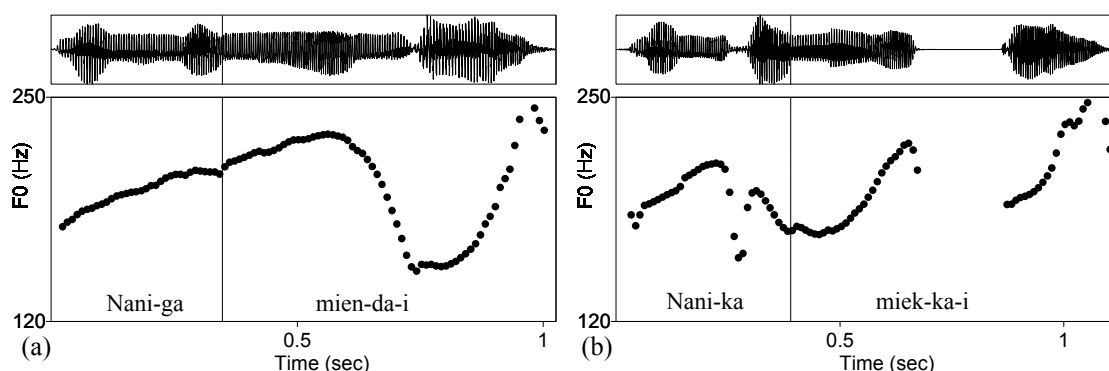
FIGURE 4.2 Waveforms and F0 contours of **Koriyama Japanese**: WH question *Nani-ga mien-da-i?* 'What do you see?' (a) and non-WH queston *Nani-ka miek-ka-i?* 'Do you see anything?' (b), produced by a 40 year-old female speaker. Vertical lines mark the boundaries of prosodic words.

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[15] The tone is LH in Basque (Hualde 2003; Gussenhoven 2004). Jun (1998) postulates that the tonal pattern of accentual phrase in Seoul Korean is THLH (where T stands for H or L, which is determined by laryngeal feature of the phrase-initial consonant). While the pattern is realized variously, the differences results from phonetic implementations.

In WH question (a), the rise-fall pattern (a "pointed hat pattern") spans over the two prosodic words. This means that the two prosodic words are dephrased, with the utterance as a whole constituting a single accentual phrase. The peak of the pointed hat pattern, which appears in the middle of the second prosodic word, culminates the utterance as a whole. In non-WH question (b), on the other hand, we see two patterns, each of which is implemented for each prosodic word. That is, the words in this utterance are not dephrased. The fall and rise between the two prosodic words functions as delimitation, i.e. marks the boundary of the accentual phrases, and each of their peaks function as culminative prominence for the accentual phrases.

Interestingly, the intonational processes in Koriyama is quite similar to Kumamoto (also "accentless") described by Maekawa (1990 et seq.), though the two dialects are geographically far apart. Similarities can be found also in that they both have the pointed hat pattern. Thus the phrasing structure of Koriyama can be formulated by applying Maekawa's (1994b) model for Kumamoto[16], developed from the P&B's (1988) model for Tokyo. Broadly speaking, the former model is the same as that of P&B, except it does not have an accentual HL cluster.

The prosodic tree for the utterances in Fig. 4.2 is shown in Fig. 4.3. The rise of the utterance-initial accentual phrase, just as in P&B (1988), is considered as a combination of the left-edge L of the utterance and the left-edge H of the accentual phrase. This L is linked to the first syllable of the utterance-initial accentual phrase. The rise at the beginning of the non-initial accentual phrase is regarded as the right-ledge L of the preceding accentual phrase (linked to the first syllable) plus the left-ledge H of the accentual phrase.
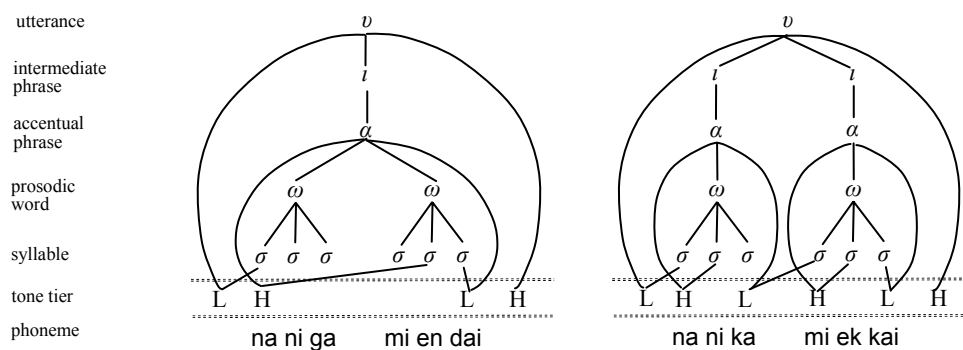
FIGURE 4.3 Prosodic trees of **Koriyama Japanese**: for the utterances shown in Fig. 4.2.

The minor differences from the model for Tokyo are in the secondary association of the edge tones of the accentual phrase to the minimal tone-bearing unit (syllable). In Koriyama the right-edge L of the utterance-final accentual phrase, unlike Tokyo (P&B 1988), is associated with its final syllable to account for the considerably low pitch in the utterance-final syllable. As will be discussed below, the secondary association of the left-edge H is the challenging aspect in "accentless" dialects. Basically in Tokyo, the tone is basically linked to the second sonorant mora of the accented phrase (P&B 1988), whereas in Koriyama the association of the H shows

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[16] Maekawa does not introduce intermediate phrase for Kumamoto. The phrase at this level is defined for the "accentless" dialects in the proposed framework to account for the pitch range reduction of accentual phrase, which Maekawa (1997) also observes for Kumamoto.

variability. The H is associated, at least for these utterances, with the penultimate syllable of the accentual phrase. The prosodic trees in Fig 4.3 can be annotated in shorthand as in (4.3).

(4.3)   a.   { [(<naniga>$_\omega$ <miendai>$_\omega$)$_\alpha$]$_\iota$ }$_\upsilon$ b. { [(<nanika>$_\omega$)$_\alpha$]$_\iota$ [(<miekkai>$_\omega$)$_\alpha$]$_\iota$ }$_\upsilon$

     L$_\upsilon$ H$_\alpha$ L$_\alpha$ H$_\upsilon$ L$_\upsilon$ H$_\alpha$ L$_\alpha$ H$_\alpha$ L$_\alpha$ H$_\upsilon$

Below are more examples from two other "accentless" dialects; one is Yamagata (Fig. 4.4) spoken in Yamagata prefecture, and the other is Omuta (Fig. 4.5) spoken in Fukuoka prefecture. For both dialects, the contours are for utterances with left-branching (a) and right-branching (b) syntactic boundary between the first and second words.
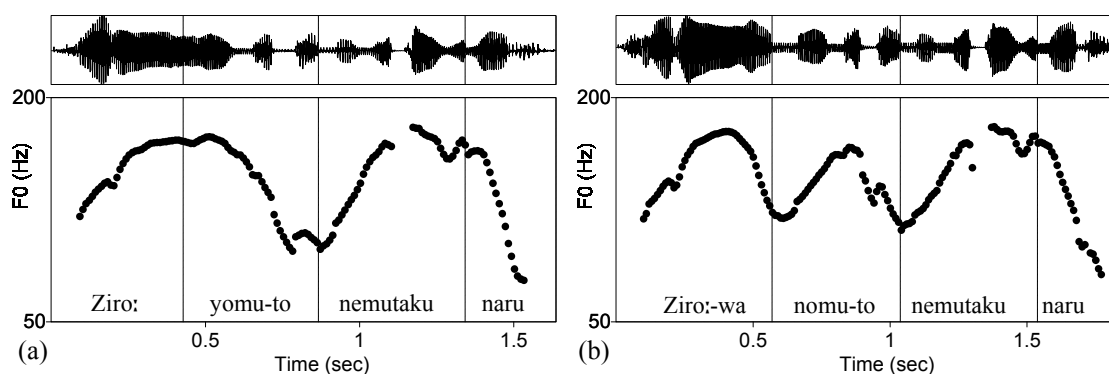
FIGURE 4.4 Waveforms and F0 contours of **Yamagata Japanese**: Left-branching utterance *Ziroː yomu-to nemutaku naru*. 'We get sleepy if Jiro reads.' (a) and right-branching utterance *Ziroː-wa nomu-to nemutaku naru*. 'Jiro gets sleepy if he drinks.' (b), uttered by a 70 year-old male speaker. Vertical lines mark the boundaries of prosodic words.
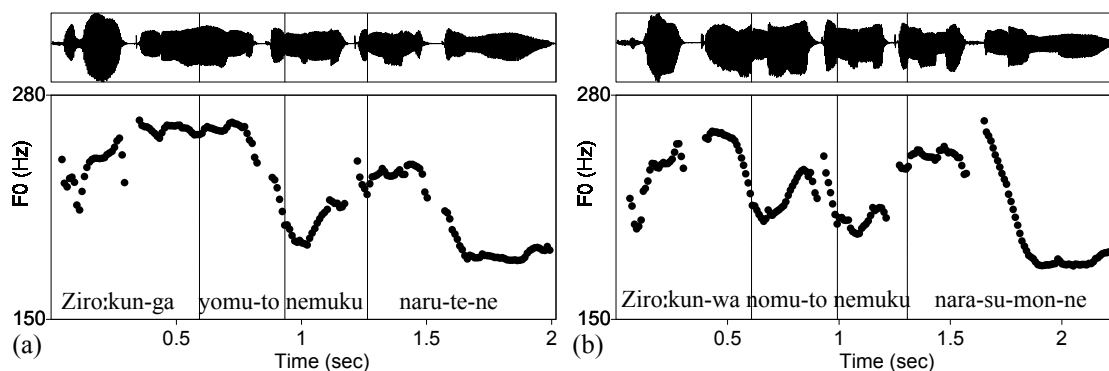
FIGURE 4.5 Waveforms and F0 contours of **Omuta Japanese**: Left-branching utterance *Ziroːkun-ga yomu-to nemuku naru-te-ne*. 'We get sleepy if Jiro reads.' (a) and right-branching utterance *Ziroːkun-wa nomu-to nemuku nara-su-mon-ne*. 'Jiro gets sleepy if he drinks.' (b), uttered by a 23 year-old female speaker. Vertical lines mark the boundaries of prosodic words.

We see that the two "accentless" dialects again exhibit surprising similarities in intonational processes, though they are distributed in geographically non-contiguous areas. In the left-branching utterances (a) a rise-fall pattern with a plateau between them (a "flat hat pattern") spans the first two prosodic words, showing that they are dephrased into a single accentual phrase. Another flat hat pattern is observed over the last two prosodic words, indicating that they are also dephrased. In the right-branching utterances (b), on the other hand, the first two words are not dephrased. They are demarcated by the pointed patterns. This phrasing is due to

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the right-branching syntactic boundary between the two words. The last two words are, just as in (a), dephrased to form a single accentual phrase with a flat hat pattern implemented on it.

In order to formulate these intonational patterns in the AM framework, we may have to take into consideration the difference between the pointed hat pattern and the flat hat pattern. These two patterns have been observed for Kumamoto (Maekawa 1994b, 1997a; Kori 2006). Maekawa proposes the tone spreading rule to account for the high plateau of the flat hat pattern. Applying the rule to Yamagata, the utterances in Fig. 4.4 can be represented as (4.4).

(4.4)   a. $\{ [(<$ziro:$>_\omega <$yomuto$>_\omega)_\alpha]_\iota$ $[(<$nemutaku$>_\omega <$naru$>_\omega)_\alpha]_\iota \}_\upsilon$

        L_υ H_α L_α H_α L_α

       b. $\{ [(<$ziro:wa$>_\omega)_\alpha]_\iota [(<$nomuto$>_\omega)_\alpha]_\iota$ $[(<$nemutaku$>_\omega <$naru$>_\omega)_\alpha]_\iota \}_{\upsilon\upsilon}$

        L_υ H_α L_α H_α L_α H_α L_α
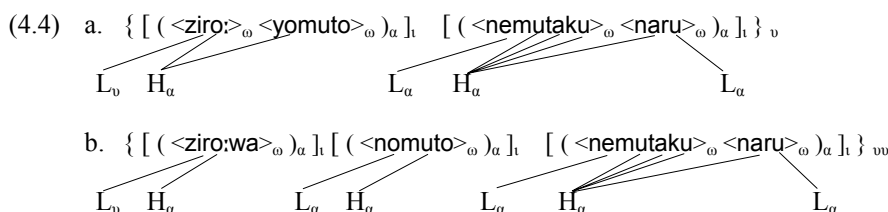
Here, it might be necessary to point out another important aspect regarding the secondary association of the H of the accentual phrase in the "accentless" dialects. Maekawa (1994b) found that in Kumamoto the alignment of the peak of the pointed hat pattern can show considerable variability, a phenomenon that he refers to as the "wandering H". He suggests that there might be no strict specification for the location of the H within the accentual phrase[17]. The "wandering high" is observed for Koriyama as well. Figure 4.6 shows F0 contours for five token of WH question produced by a single speaker. We can see that temporal location of the highest F0 value of the pattern varies from one token to another within the accentual phrase.[18]
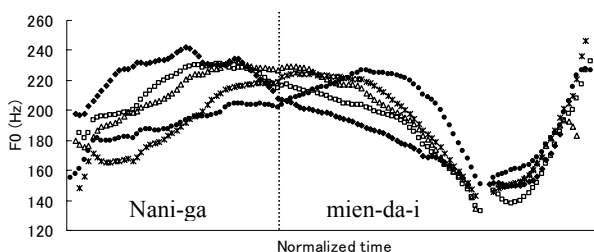
FIGURE 4.6 'Wandering High' in **Koriyama Japanese**: WH question *Nani-ga mien-da-i?* 'What do you see?', produced by a 40 year-old female speaker. Five tokens normalized along the temporal scale. Vertical lines mark the boundaries of prosodic words.

What is of theoretical importance is the treatment within the AM framework of the high plateau and the peak alignment. It is true that they can be accounted for by postulating various rules of secondary association of the H of the accentual phrase, such as the high spreading rule. However, if the variability results from different phonetic implementations of the same phonological representation, it is groundless to propose the secondary association rules. Further research is clearly needed to determine whether the spreading and "wandering" of the H is

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[17] Note that "wandering high" *per se* can not serve as evidence against the regularity of pitch control of the "accentless" dialects discussed in 2.6. There is a regularity of the pattern in that the accentual phrase has a single culminative H, and that the boundaries of the phrase are marked by delimitative L.

[18] The utterance with the earliest peak alignment might be regarded as consisting two accentual phrases which form a single intermediate phrase, with the second accentual phrase having a reduced pitch range.

linguistically structured.[19] It might be possible that the left edge H of accentual phrase in the "accentless" dialects, unlike that in Tokyo, is not linked to any specific syllable.

We have seen that the "accentless" dialects, Koriyama, Yamagata and Omuta clearly exhibit dephrasing, the process in which two or more prosodic words are merged into a single accentual phrase. Thus they are proposed to have the features [+dephrasing].

4.4. *Dephrasing and reduction*

Tokyo exploits both dephrasing at the accentual phrase level and reduction at the intermediate phrase level. As an illustration of dephrasing and reduction, let us consider phrasing in Tokyo.
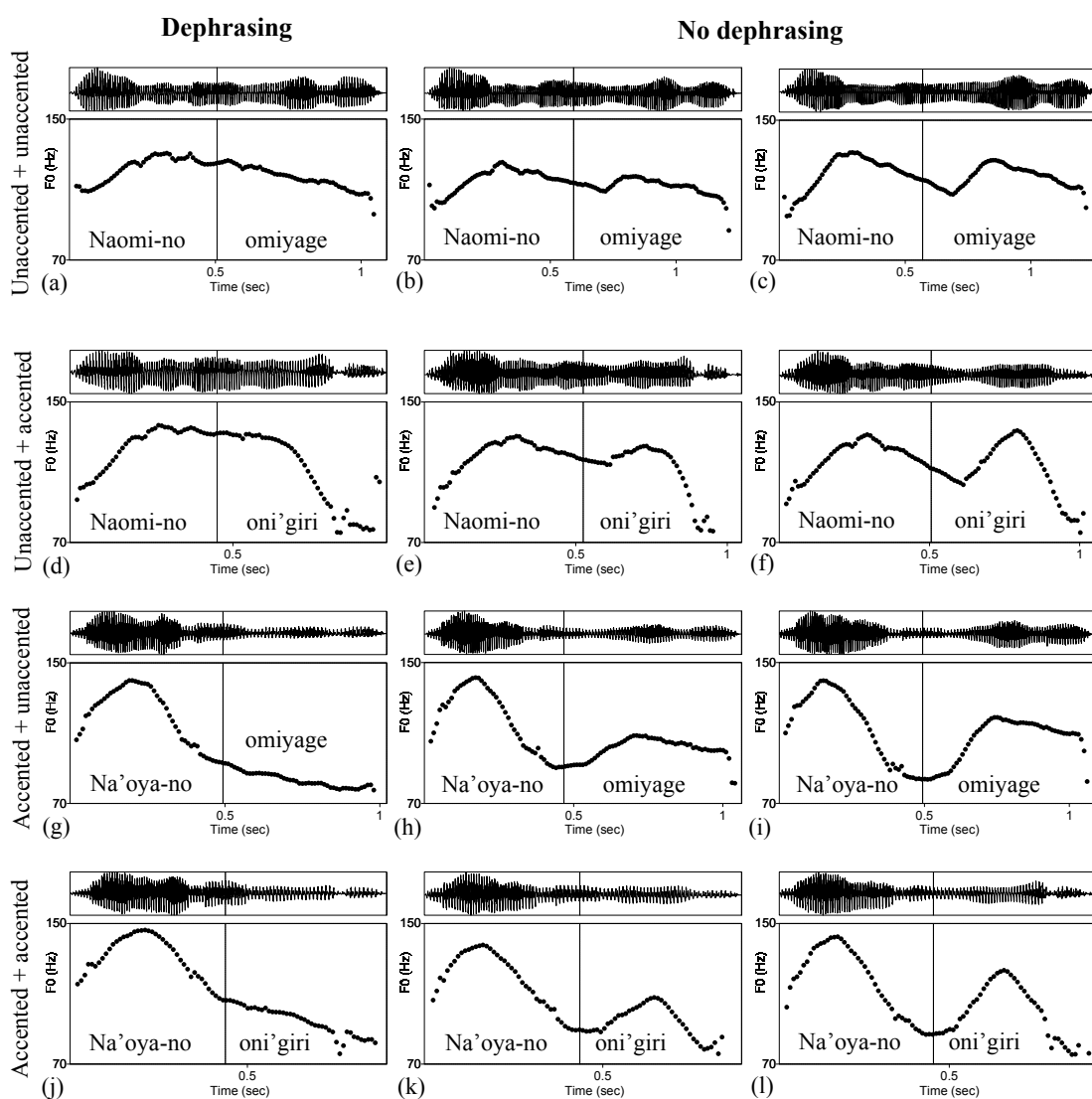
FIGURE 4.7 Waveforms and F0 contours of **Tokyo Japanese**: Possible combinations of accented and unaccented words. The first word is *Naomi-no* 'Naomo's' (unaccented) or *Na'oya-no* 'Naoya's' (accented), and the word is *Omiyage* 'sourvenir' (unaccented) or *oni'giri* 'rice ball' (accented). Produced by the author. Vertical lines mark the boundaries of prosodic words.

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[19] Maekawa (1999) revealed that for Kumamoto the peak alignment difference affects perceived politeness of the utterance, with the later alignment yielding more "polite" judgments.

Fig. 4.7 shows F0 contours for possible combinations unaccented (U) and accented (A) words (*X no Y* 'X's Y', where X and Y stand for a noun), with various degrees of prominence for each word. The columns represent each of the combinations; UU for the first, UA for the second, AU for the third and AA for the fourth.

First let us compare between the first and second columns. We can see a delimitative rise (LH) at the boundary of the two prosodic words in the utterances in the second column (b, e, h, k). The utterances in the first column (a, d, g, j), on the contrary, do not show the LH between the two words. These utterances are often observed when the first word is focused. Thus, the difference between the utterances of first and second columns arises as a result of dephrasing. The two prosodic words in the first column are dephrased; they are joined together to form a single accentual phrase. In the utterances of the second column, two prosodic words are not dephrased. This is not true for the second column, where one sees no dephrasing of prosodic words. The LH between the two prosodic words marks its boundary, and the single culminative peaks observed in each prosodic word indicate the presence of separate accentual phrases.

Applying P&B's model, the phrasing structures of the utterances in the first and second collumns of Fig. 4.7 can be represented as in (4.5).

(4.5)
a. $\{ \, [\, (\, <\text{naomino}>_\omega <\text{omiage}>_\omega \,)_\alpha \,]_\iota \, \}_\upsilon$
$\quad L_\upsilon \, H_\alpha \qquad\qquad\qquad\qquad L_\alpha$

b. $\{ \, [\, (\, <\text{naomino}>_\omega \,)_\alpha \, (\, <\text{omiyage}>_\omega \,)_\alpha \,]_\iota \, \} \, _\upsilon$
$\quad L_\upsilon \, H_\alpha \qquad\qquad L_\alpha \, H_\alpha \qquad\qquad L_\alpha$

d. $\{ \, [\, (\, <\text{naomino}>_\omega <\text{oni'giri}>_\omega \,)_\alpha \,]_\iota \, \}_\upsilon$
$\quad L_\upsilon \, H_\alpha \qquad\qquad\qquad HL \quad L_\alpha$

e. $\{ \, [\, (\, <\text{naomino}>_\omega \,)_\alpha \, (\, <\text{oni'giri}>_\omega \,)_\alpha \,]_\iota \, \} \, _\upsilon$
$\quad L_\upsilon \, H_\alpha \qquad\qquad L_\alpha \, H_\alpha \quad HL \qquad L_\alpha$

g. $\{ \, [\, (\, <\text{na'oyano}>_\omega <\text{omiyage}>_\omega \,)_\alpha \,]_\iota \, \}_\upsilon$
$\quad L_\upsilon \, H_\alpha \; HL \qquad\qquad\qquad L_\alpha$

h. $\{ \, [\, (\, <\text{na'oyano}>_\omega \,)_\alpha \, (\, <\text{omiyage}>_\omega \,)_\alpha \,]_\iota \, \} \, _\upsilon$
$\quad L_\upsilon \, H_\alpha \; HL \qquad\qquad L_\alpha \, H_\alpha \qquad\qquad L_\alpha$

j. $\{ \, [\, (\, <\text{na'oyano}>_\omega <\text{oni'giri}>_\omega \,)_\alpha \,]_\iota \, \}_\upsilon$
$\quad L_\upsilon \, H_\alpha \; HL \qquad\qquad HL \quad L_\alpha$

k. $\{ \, [\, (\, <\text{na'oyano}>_\omega \,)_\alpha \, (\, <\text{oni'giri}>_\omega \,)_\alpha \,]_\iota \, \} \, _\upsilon$
$\quad L_\upsilon \, H_\alpha \; HL \qquad\qquad L_\alpha \, H_\alpha \quad HL \quad L_\alpha$
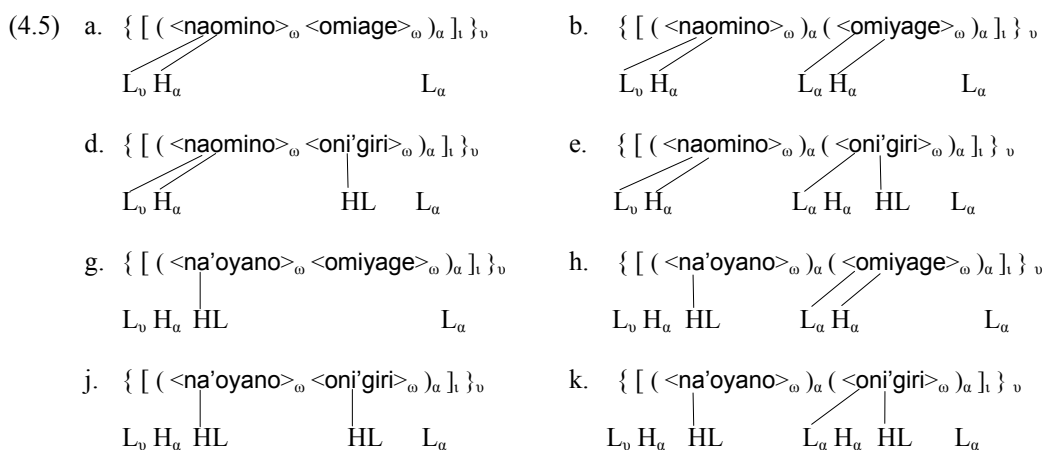
In P&B (1988), the rise at the beginning of the utterance-initial accentual phrase is regarded as the left-edge L of the utterance as well as the left-edge H of the accentual phrase. The rise at the beginning of non-initial accentual phrase is considered as a combination of right-edge L of the preceding accentual phrase and the left-edge H of the accentual phrase. The left-edge L of the utterance is linked to the first mora of the initial accentual phrase, unless the mora is accented (g, h, j, k). The right-edge L of the accentual phrase is linked to the first mora of the following accentual phrase if there is one. Unlike the "accentless" dialects the L is not linked to the utterance-final mora. The left-edge H of accentual phrase is liked to its second mora, unless the first or second mora of the phrase is accented (g, h, j, k, e).

As mentioned in 4.3, the P&B's original theory bore the constraint that "accentual phrase can contain at most one pitch accent". The utterance (j) should, therefore, be interpreted either as consisting of two accentual phrases or as consisting of a single accentual phrase with the second accent deleted. Since the revised framework proposed in this paper carries no such constraint,
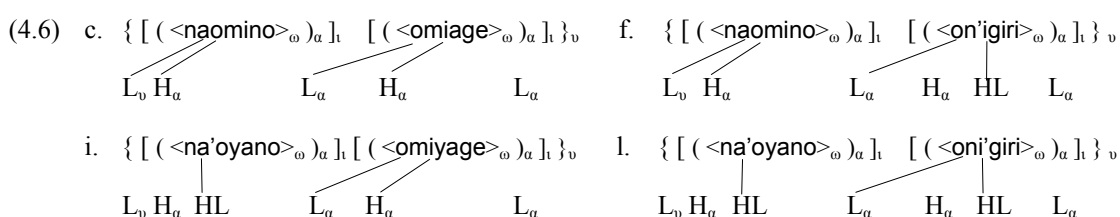
the utterance (j) consists of a single accentual phrase with two pitch accents within it.

The comparison between the utterances in the first and second columns of Fig. 4.7 confirmed dephrasing in Tokyo. Thus this dialect is proposed to have the feature [+dephrasing].

The other process of prosodic phrasing, i.e. reduction at the level of intermediate phrase becomes clear by comparing between the second and third columns. The utterances in the third column is often seen when the second word is focused. We can see the boundary-marking LH between the two prosodic words of the utterances both in the second and third columns. Thus the prosodic words in all the utterances are not dephrased. The difference between the two columns is found in the degree of realization of both accentual and phrasal tones.

The reduction is clear in the utterances in (h) and (k) when compared with those in (i) and (l). In (h), the excursion of the boundary-marking LH at the beginning of the second word is considerably reduced. In (k), not only the LH but also the peak of the accentual HL is reduced. This results from downstep induced by accentual HL of the preceding prosodic word (P&B 1988). In (i) and (l), on the contrary, the LH (i, l) as well as H of the accentual HL (l) is fully realized. In P&B's (1989) model, these utterances are interpreted as having an intermediate phrase boundary between the two accentual phrases, across which downstep is blocked.

Similar differences can be found in the utterances between (b) and (c) as well as in those between (e) and (f). In these cases, reduction is found only in the L of the boundary-marking LH. The L is scaled higher in (b) and (e) than in (c) and (f). Although P&B (1988) gives little description on the pitch range reduction and expansion observed when an unaccented accentual phrase precedes, I interpret the utterances (c) and (f) as having an intermediate phrase boundary between two accentual phrases. Thus, the difference between the second and third columns is in the presence or absence of reduction: the utterances in the third column have an intermediate phrase boundary between the two accentual phrases. The prosodic structure of the utterances in the third column (c, f, i, l) can be represented as in (4.6).

(4.6) c. $\{ [(<\text{naomino}>_\omega)_\alpha]_\iota \quad [(<\text{omiage}>_\omega)_\alpha]_\iota \}_\upsilon$ f. $\{ [(<\text{naomino}>_\omega)_\alpha]_\iota \quad [(<\text{on'igiri}>_\omega)_\alpha]_\iota \}_\upsilon$

$L_\upsilon\ H_\alpha \qquad L_\alpha \quad H_\alpha \qquad L_\alpha \qquad\qquad L_\upsilon\ H_\alpha \qquad L_\alpha \quad H_\alpha\ HL \quad L_\alpha$

i. $\{ [(<\text{na'oyano}>_\omega)_\alpha]_\iota [(<\text{omiyage}>_\omega)_\alpha]_\iota \}_\upsilon$ l. $\{ [(<\text{na'oyano}>_\omega)_\alpha]_\iota \quad [(<\text{oni'giri}>_\omega)_\alpha]_\iota \}_\upsilon$

$L_\upsilon\ H_\alpha\ HL \qquad L_\alpha \quad H_\alpha \qquad L_\alpha \qquad\qquad L_\upsilon\ H_\alpha\ HL \qquad L_\alpha \quad H_\alpha\ HL \quad L_\alpha$

By comparing the utterances shown in Fig. 4.7, we have seen that there are two different way of phrasing in Japanese, dephrasing and reduction. What is important here is that Tokyo ([+lexical tones]) shares the feature [+dephrasing] with so-called "accentless" dialects such as Kumamoto, Koriyama, Yamagata and Omuta ([-lexical tones]). Clearly, [±lexical tone] and [±dephrasing] are independent features. The proposed typology makes it possible to captures similarities across the boundaries of prosodic classification based on word-level prosody. In this framework, dialects without lexical tones ([-lexical tones]), which have been almost excluded from prosodic consideration in past work, share important similarities in the intonational processes with dialects containing lexical tones ([+lexical tones]).

4.4. The dialects without accentual phrase, or [-dephrasing]

We have seen in 2.6 that the high-tailed pattern (pattern with rise at the final syllable) is realized for each prosodic word in so-called "one-pattern accent" dialects, such as Miyakonojo-Kobayashi. Unlike the "accentless" dialects, the domain for post-lexical tonal processes is always the prosodic word. Miyakonojo-Kobayashi is, therefore, proposed to lack the level of grouping at the level of the accentual phrase and to have the feature [-dephrasing].

Sato's (2005) description, however, suggests that dephrasing occurs in Kobayashi when a certain constituent of a sentence is focused. Let us consider possible effect of focus on the phrasing of Kobayashi. Supposing that this dialect exhibits no dephrasing, the utterance *Naomi-n omiyage* 'Naomi's souvenir' with focus on the first word is expected to show the contour schematically demonstrated in (4.7). The high-tailed pattern is realized for each prosodic word, with the pitch range of the post-focal word being reduced. We have already seen this contour in Fig. 2.8 for Kobayashi.

(4.7)

<naomin>$_\omega$ <omiage>$_\omega$
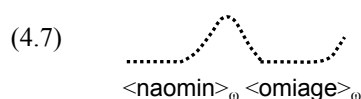
If, on the other hand, the dialect exhibits dephrasing, then the focus on the first word will yield any of the three contours shown in (4.8).

(4.8)

    a. (<naomin>$_\omega$ <omiage>$_\omega$)$_\alpha$ b. (<naomin>$_\omega$ <omiyage>$_\omega$)$_\alpha$ c. (<naomin>$_\omega$ <omiyage>$_\omega$)$_\alpha$

The contour (a), where the high-tailed pattern spans the two prosodic words, would be strong support for dephrasing. However, it is known that this never happens in "one-pattern accent" dialects (Uwano 1998b). The contours (b) and (c) might be taken as evidence for dephrasing in the sense that the high-tailed pattern occurs only once in the two prosodic words. Indeed, the contour (c) is what Sato (2005) claims is found in Kobayashi. She observes that the final rise of the high-tailed pattern is not realized in post-focal words.

Igarashi (2006) analyzed the effect of focus on the intonational pattern in Kobayashi using test sentences similar to Sato (2005). Fig. 4.8 shows the normalized F0 contour produced by a single speaker for the utterances *Mayumi-wa/-ga ringo-o moro-ta-t zyai-yo.* 'Mayumi was given an apple.', with focus on *Mayumi* (a), *ringo* (b) or *moro-ta* (c). Apparently, the contours confirm Sato's observation: the high-tailed pattern is hardly detected on the post-focal words. (The rise in the utterance-final syllable is due to a rising BPM).

The apparent deletion of the rise can, however, be accounted for by articulatory constraint on the full realization of the pattern under strong pitch range reduction of the words with limited numbers of syllables. Igarashi (2006), conducted another production experiment with test sentences which had from four to seven syllables in the post-focal words (e.g. *YANAGIDA-ga miyagemonoya-no ura-ni ot-to-yo.* 'YANAGIDA is behind the souvenir shop.'). Fig. 4.9 illustrates the F0 contours for the post-focal word of the test sentences.
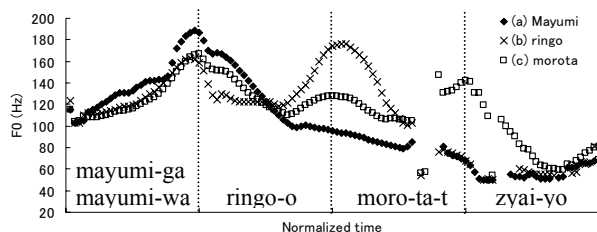
31

Figure 4.8: Normalized F0 contours in **Kobayashi Japanese** (Data form Igarashi 2006). The sentence is *Mayumi-wa/ga ringo-o moro-ta-t za-iyo* 'Mayumi was given an apple', with focus on *Mayumi* (a), *ringo* (b) or *moro-ta* (c). Produced by a male speaker. The normalization was done along temporal as well as frequency scales across the five repetitions.
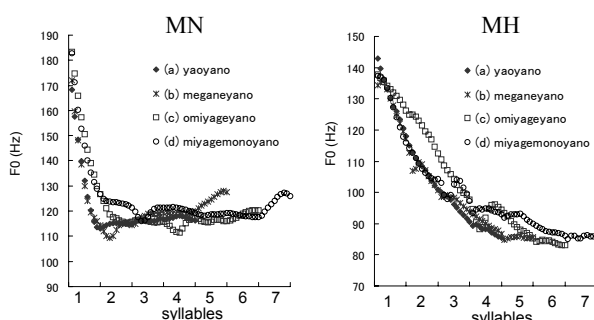

Figure 4.9: Normalized F0 contours for the first post-focal word in **Kobayashi Japanese** (Data from Igarashi 2006). The normalization was done along temporal as well as frequency scales across five repetitions.

As expected, the high-tailed patterns were realized on the post-focal words for one speaker (b). But for the other speaker (b), clear patterns could not be observed. Close inspection of utterance produced by speaker MH, however, revealed that a turning point was *always* observed in the F0 contours at the boundaries of the post-focal prosodic words, which was taken as a trace of the high-tailed pattern. It was concluded that there was no strong support for the deletion of the high-tailed pattern in post-focal words.

Overall, no decisive evidence has been reported for Miyakonojo-Kobayashi ("one pattern accent") exhibiting dephrasing. The dialect is proposed to have the feature [-dephrasing].

Although there has been no experimental works on intonational system of so-called "two-pattern accent" dialects such as Kagoshima, it is, however, speculated that these dialects also lack accentual phrase. At the very least, the contours like (4.8 (b, c)) are not reported for Kagoshima in the careful impressionistic description on word-level prosody of Kagoshima (Hirayama 1951, Kibe 2000) as well as experimental research on lexical tones of this dialect (Ishihara 2004). This lends support to the assumption that Kagoshima also has the feature [-dephrasing].

Finally, let us consider the phrasing of Kyoto-Osaka, which I claim is a dialect typical of not having prosodic grouping at the level of accentual phrase ([-dephrasing]). The possibility that Kyoto-Osaka lacks accentual phrase is already suggested by P&B (1989):

We find little evidence for an accentual phrase level comparable to Tokyo. It is a common observation that in Osaka and the other western dialects the tone patterns of words are much better preserved in running speech, a remark that suggests that these languages do not have the widespread dephrasing that

joins words together into accentual phrases so readily in Tokyo. Indeed, it is likely that Osaka entirely lacks an accentual phrase level. Discounting the lexicalized dephrasings of compound formation processes, there seems to be no low-level phonological grouping of lexical items other than the well-known cliticization of postpositional particles onto the last noun in a noun phrase. (P&B 1989: 229)

The phrase-level tonal processes which are specific for Kyoto-Osaka has been expressed in various terms in past works, which might be interpreted as the lack of dephrasing in this dialects. For example, Yamada et al. (1982), based on a small size of acoustic analysis, conclude that word-level tones are preserved in the sentence. Sugito (2001) points out that for Osaka the tonal patterns of words is clearly retained in the sentence, while in Tokyo the patterns are easily changed depending on the syntactic structure of the sentence. She also says that Osaka can be called "word accent language", while Tokyo has many similarities with what she calls "intonation languages", which include the languages like English.
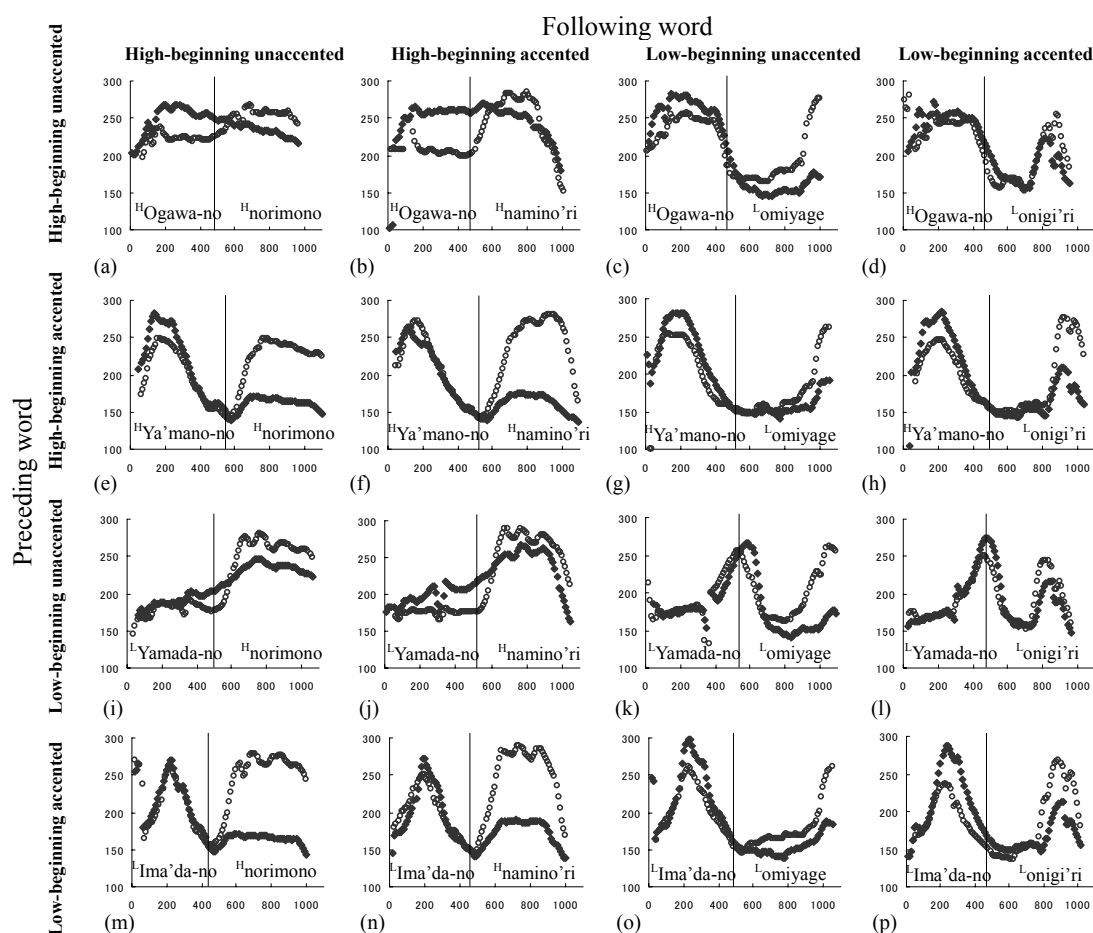

FIGURE 4.10 Waveforms and F0 contours of **Osaka Japanese**: Possible combinations of unaccented vs. accented and high-beginning vs. low-beginning words produced in sentence *X-no Y ya-nen*. 'It's X's Y.', where X is person's name *[H]Ogawa, [H]Ya'mano, [L]Yamada*, or *[L]Ima'da*, and Y is noun, *[H]norimono* 'vehicle', *[H]namino'ri* 'surfing', *[L]omiyage* 'souvenir' or *[L]onigi'ri* 'rice ball'. In each diagram, two contours for the same word combinations are overlaid; one is for the contour with focus on the first word (filled circles), and the other for that with focus on the second (unfilled circles). Produced by a 38 year-old female speaker. Vertical lines mark the boundaries of prosodic words.

Figure 4.10 shows the F0 contours for possible combinations of unaccented vs. accented and high-beginning vs. low-beginning. All the contours are for a specific token produced by one speaker in my pilot experiment. In each diagram, two contours for the same word combinations are overlaid; one is for the contour with focus on the first word, and the other for that with focus on the second. We can see that, though reduction can be observed for the contour with focus on the first word, the word-level tonal patterns shown in Fig. 2.4 are retained for almost all the combinations. This suggests that the absence of dephrasing in this dialect.

Reduction is not so clear for the contours (a), (b), (i), (j). This can be explained lack of downstep in these utterances. P&B (1988) formulated that in Osaka the HL tonal sequence, regardless of whether it is a tone of the pitch accent or of the edge tone of the word, triggers downstep. Indeed, the four utterances mentioned above do not have the HL sequence across the word boundary (see Fig, 2.5).

The combination of high-beginning unaccented word and any high-beginning word (a, b) are misleading. It is true that the two words are phonetically merged to show a high plateau, but the merging is due to the lexical specification of the two successive words. The preceding high-beginning unaccented word is lexically determined to have a flat high pitch throughout the word and the following high-beginning word is lexically specified to exhibit a high pitch at its beginning. If the high-beginning unaccented word is followed by a low-beginning word (c, d), then the two words are not merged at all. Thus the contours (a, b) is not indicative of dephrasing in this dialect.

The combination of low-beginning unaccented word and high-beginning word (i, j) deserves mentioning. Apparently, the rise at the end of the first word (the right-edge H of the word) is deleted, so that two words are tonally conjoined together. The phenomenon has been described by past researchers, and some of them propose the tone deletion rule specific for this combination. The tonal processes at issue might be seen as dephrasing. However, it is not plausible to assume that prosodic grouping at the level of accentual phrase is limited only to specific combinations of words (low-beginning unaccented plus and high-beginning). Moreover, P&B (1989) proposed that the H of the preceding low-beginning unaccented word is not deleted but is associated with the first mora of the following word. In any case, the apparent deletion of the word-final rise is not regarded as evidence for dephrasing in this dialect, because it is limited to only two of the sixteen possible combinations of words.

In general, it is impossible to find a single tonal pattern which merges prosodic words to form an accentual phrase. It can thus safely be concluded that Kyoto-Osaka does not have prosodic grouping at the level of accentual phrase.

One might suppose that the absence of dephrasing ([-dephrasing]) in Kyoto-Osaka is responsible for the preservation of lexical tonal contrasts. Indeed, this dialect possesses much more contrasts than, for example, Tokyo. However, I assume that the feature [±dephrasing] is independent of lexical tone contrast. Recall that Miyakonojo-Kobayashi, which has a feature [-lexical tones], is claimed to lack the accentual phrase ([-dephrasing]). Also Kagoshima is assumed to have a feature [-dephrasing], though tonal contrast in this dialect is merely binary

(Type vs. Type B).

In summary, the Miyakonojo-Kobayashi ("one-pattern accent"), Kagoshima ("two-pattern accent") and Kyoto-Osaka ("multi-pattern accent with register") are proposed to lack the prosodic grouping at the level of accentual phrase; they share the feature [-dephrasing]. It is also shown that [±dephrasing] is the feature which is independent from [±lexical tones].

4.6. *Cross-dialectal generalization and dialect-internal correlation*

Complete typological classification of the intonational systems of the dialects is demonstrated in Table 4.1. For the sake of comparison, Uwano's (1989, 1998a) classification shown in 2.1 and Hayata's typology are also shown.

	Proposed typology			Uwano (1989, 1998a)	Hayata (1999)
	[±lt]	[±acc]	[±deph]		
Tokyo	+	+	+	Multi-pattern accent with register	Accent
Osaka, Kyoto	+	+	-	Multi-pattern accent without register	Accent & word tone
Kagoshima	+	-	-	Two-pattern accent	Word tone
Miyakonojo, Kobayashi	-		-	One-pattern accent	
Kumamoto, Koriyama	-		+	Accentless	

TABLE 4.1 Summary of the proposed intonational typology with its comparison to word-level prosodic classification. [±lt], [±acc] and [±deph] indicate [±lexical tones], [±accent] and [±dephrasing], respectively.

The intonational typology makes it possible to capture similarities and differences across the boundaries of previous categorizations that were based on word-level prosody. Specifically, it permits the inclusion of so-called "accentless" dialects, which have virtually been excluded from typological consideration in the past. If we focus on prosodic phrasing above the word, then we realize that the "accentless" dialects are more like Tokyo than the "one-pattern" dialects, a generalization which past dialectal classifications on the basis of word-level prosody can not achieve.

It is necessary to touch upon Hayata's (1999) word-level typology (the third column of Table 4.1) to show that the currently proposed intonational typology is able to cover it. As mentioned in 2.4, Hayata classifies Japanese dialects into those with accent and those with "word tones". The definition of accent here is, as far as Japanese dialects are concerned, the same as the one proposed in this work. Thus, Tokyo and Kyoto-Osaka have accent. "Word tone" is contrastive pitch such as a high-beginning vs. low-beginning contrast in Kyoto-Osaka and a Type A vs. Type B contrast in Kagoshima. These dialects have what Hayata calls "word tones".

Hayata claims that these properties are correlated with dialect-specific morphological processes that determine tonal patterns in compound words (often called "compound accent rules"). The process in which two words are compounded can be represented as $X + Y \rightarrow Y$, where, X and Y are, respectively, the first and second constituents of the compound word and the Z is the output.[20] In the dialects with accent, such as Tokyo, Y is the determiner of the tonal

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[20] Generally, length of Y is relevant to Japanese compounding rules. The following discussion concerns only the rules applied when *Y* has more than three morae/ syllables.

patterns of *Z*, and *X* has nothing to do with *Z*. Specifically, the accent distribution of Y determines that of *Z* (e.g. *tyu'uka* 'Chinese'+ *ryo'ori* 'food' → *chuukaryo'ori* 'Chinese food'). On the contrary, in the dialects with "word tones", such as Kagoshima, *X* is the determiner of the tonal patterns of *Z* and the Y plays no role. That is, the "word tone" (Type A vs. Type B) of *X* determines that of *Z* (e.g. ^{B}*yama* 'mountain' + ^{A}*sakura* 'cherry blossom' → ^{B}*yamazakura* 'wild cherry blossom'). In the dialects with both "accent" and "word tones", both X and Y are the determiners. Just as Kagoshima, the "word tones" (high-beginning vs. low-beginning) of X determine that of Y, and just as Tokyo, the accent distribution of Y determines that of *Z* (e.g. ^{L}*tyu'uka* 'Chinese'+ ^{H}*ryo'ori* 'food' → ^{L}*chuukaryo'ori* 'Chinese food').

The presence or absence of "word tones" was not adopted in the proposed intonational typology. However, as far as the dialects investigated in this work are concerned, so-called "word tone dialects" have the feature [+lexical tones, -dephrasing] and *vice versa*. Thus Hayata's insight about inter-dialectal correlation in word-level prosody can be incorporated into our intonational typology.

Finally, it is suggested that the proposed intonational typology predicts the same sort of correlation in *intonational* process as well; dialects with common features behave in a similar manner in *prosody-syntax mapping:* namely, the prosodic structure of dialects with the feature [-dephrasing] seem to be less sensitive to syntactic branching than those with the feature [+dephrasing].

The apparent lack of mapping in Osaka [-dephrasing] is suggested by Sugito (2001). Sugito claims that the difference in syntactic structure is not reflected so drastically than Tokyo (see 4.5), and gives examples in which two utterances with different branching structures have the same F0 contours. My pilot experiments (unpublished) on the dialects in the Kansai district, such as Osaka and Mie, failed to show consistent mapping between prosodic phrasing and branching structure. Similar results were obtained for Kobayashi [-dephrasing] as well. Igarashi (2006) used three datasets to examine the mapping at issue. The results were inconsistent across the speakers and datasets. My work in progress on Kagoshima, which is assumed to have [-dephrasing], exhibited inconsistent mapping. This contrasts with Tokyo (Kubozono 1988, Kori 1997), Kumamoto and Fukui (Maekawa 1990), and Fukuoka (Igarashi forthcoming), where the prosodic-syntax mapping is clear and consistent. These dialects are proposed to have [+deprasing].

The putative insensitivity to branching structure, in my view, should not a direct consequence of the absence of accentual phrase ([-dephrasing]). Conceptually, the prosody-syntax mapping in question can be achieved in these dialects as well: namely, by the reduction and expansion of pitch range (phrasing at the level of intermediate phrase). As Fig. 3.7 - 3.10 demonstrate, the right-branching boundary exerts pitch range expansion in Tokyo, Fukuoka and Goshogawara. The pitch range reduction and expansion is exploited also by the dialects with [-dephrasing] for focal prominence (Kori 1987 for Osaka, Sato 2005 and Igarashi 2006 for Kobayashi).[21] Thus it

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[21] This suggests that expansion and reduction of pitch range by focus and those by syntactic boundary might be essentially different processes.

should not be causation, but correlation between independent linguistic properties; namely [±dephrasing] and prosody-syntax mapping.

It should be noted that Kori (1987) claims that the right-branching boundary in Osaka induces pitch expansion in exactly same manner as in Tokyo. Thus the mapping between prosodic phrasing and syntactic branching in Osaka is somewhat controversial.

Nevertheless, there seems to be something intriguing, in my view, in the fact that the results of my research, in which the same test sentences and methodology are exploited, have failed to yield a clear mapping in the dialects with [-dephrasing]. The dialect-specific sensitivity of prosodic phrasing to syntactic structure is worth for further exploration, especially in relation to dialect specific prosodic structure, such as [±dephrasing].

5. OTHER THEORIES ON PROSODIC PHRASING IN JAPANESE

5.2. *Introduction*

In this section, other frameworks that deal with prosodic phrasing in Japanese is discussed to show that the currently proposed framework is able to account for the phenomena that past researchers have been observed by past researchers and to confirm the revision I made for P&B's (1988) model for Tokyo is not exocentric at all.

5.2. *The word tone theory*

It has been assumed that delimitative/ culminative rise (LH) in Tokyo belongs to an accentual phrase. An alternative account is also possible: namely, the tones can be regarded as the property of each prosodic word. This view is often found in old literature. For example, Jinbo's (1929) "quasi accent" (*jun akusento*) and Hattori's (1954) "non-distinctive feature of accent", referring to the LH in Tokyo, are considered to be possessed by each word. More recently, this view is supported by Kori (1989b et seq.).

Under the word property view, it is customary to postulate that the LH in Tokyo is *deleted* in the utterance like in the first column of Fig. 4.5 (a, d, g, j) (Jinbo 1929; Hirayama 1957). In other words, the view usually accompanies a phonological rule that decides the occurrence of the tones depending on the phrasing structure above the word. The word property view may not be crucially incompatible with the proposed typology, so far as it defines a prosodic phrase, whose boundaries are marked by tones. At least for Tokyo Japanese, there seems no decisive evidence against this view. It should be emphasized, however, that the phrasal property view is more elegant than the word property view in that the former has no additional tone deletion rule.

What is crucial for the word property view is that it is quite difficult, if not impossible, to postulate tones for each word for so-called "accentless" dialects ([-lexical tones, +dephrasing]) such as Kumamoto and Koriyama. What tones can be posited for each of the words in the utterances as Fig. 4.7? Burden of proof seems to be on the adherents to the word property view.

5.3. *The dephrasing-only theory*

Tonally defined prosodic phrase hierarchically above the prosodic word ("accentual phrase" in current terminology) in Tokyo was first proposed by Kawakami (1957). He calls the phrase "tone phrase" and refers to the tone belonging to the phrase (LH) as "phrase tone", which has long been understood as a property of the word, as discussed in 5.2. These notions are adopted in a set of works by Uwano (1984, 1989, 1998a).

Kawakami's (1957) finding of the phrase-initial LH in Tokyo Japanese is reminiscent of Bruce's (1977) finding of "phrase accent" in Stockholm Swedish, which has been traditionally regarded as word property. The conception of phrase accent was applied to the Pierrehumbert's (1980) theory of English intonation, which in turn contributed to the development of the AM framework of intonation of Tokyo Japanese (P&B 1988). In the P&B's model, the boundary-marking tone is formulated as left-edge H of the accentual phrase.

There is a crucial difference between Kawakami-Uwano analysis and P&B analysis on prosodic phrasing in Tokyo. That is, Kawakami and Uwano do not define an independent phrase for pitch range specification (intermediate phrase). In this analysis, tonally marked prosodic phrase (i.e. accentual phrase) serves as the domain for pitch range as well. In other words, dephrasing and reduction is interlocked with each other; whenever the LH occurs, pitch range is reset. This theory can be called the "dephrasing-only theory", in the sense that processes of pitch range modifications are not separated from dephrasing.

The dephrasing-only theory gives apparently wrong prediction as to phrasing in Tokyo. The second column of Fig. 4.7 shows utterances which contain the LH utterance-medially without resetting the pitch range. The pitch range of the second accentual phrase is clearly reduced as compared with that in the third column. The discrepancy between the LH and the reset cannot be accounted for by the dephrasing-only theory.

It must be noted, however, that the treatment of pitch range in intonational phonology in Japanese, as discussed in 4.2, is far from settled. Recent studies suggest that range reduction and expansion in Tokyo is quite complicated (see also Venditti et al. forthcoming). Kubozono (2007) points out that the results of his experiments (mentioned in 4.2) can not be accounted for by prosodic hierarchy models propounded to date, and he explores a new model containing an additional level of prosodic phrase between accentual phrase and the phrase for downstep as well as a model with recursive category such as that proposed by Ladd (1996). Future research may reveal that Tokyo has, as Kubozono suggests, a more complex prosodic structure than previously assumed.

At the same time, it is not totally absurd to explore the possibility that some of the differences found in pitch range of accentual phrase actually result from different phonetic implementation of the same phonological representation. For example, the each utterance in the second column of Fig. 4.7 may indeed have the same phrasing structure as the counterpart utterance in the third column. If so, then the dephrasing-only view, in which the LH and pitch range expansion is closely linked, would turn out to be viable.

In any case, the central claim of the present work that some dialects lack accentual phrase remains intact, although intermediate phrase as the domain for pitch range specification may possibly need to be revised in future.

5.4. *The reduction-only theory*

The assumption on prosodic phrasing in the currently proposed framework is directly opposed to Kori's view, in which differences between the utterances as in Fig. 4.5 are accounted for *only by reduction* (Kori 1989b et seq.). He postulates no prosodic grouping at the level of accentual phrase for all the dialects that he has investigated so far: namely, Osaka (Kori 1989b), Tokyo (Kori 1997; 2004) and Kumamoto (Kori 2006). While we have seen in 4.4 that the reduction-only view is valid for Osaka ([-dephrasing]), the latter two dialects were claimed to have accentual phrase ([+dephrasing]).

Kori (1997, 2004) first assumes that the domain of the LH for Tokyo is the prosodic word, regarding the LH as "a part of lexical information" (Kori 2004: p. 20, l. 29). His view differs from the word property view discussed in 5.2 in that no deletion rule for the LH is postulated in the former. In Kori's explanation, therefore, every prosodic word in Tokyo always has the LH at its beginning regardless of the phrasing structure of the utterance.

His view is based on the results of his acoustic analysis of production data (Kori 2004). The results revealed that in a sequence of accented + unaccented prosodic word (like in the utterances shown in the third column of Fig. 4.7 (g, h, i)), the initial LH can often be observed at the beginning of the second prosodic word. He also found that the LH can be *reduced* when 1) the first word modifies the second word, 2) preceding words are focused and 3) a limited number of post-accented morae follow the accented mora. The same study found that the LH can be entirely *deleted* in the three conditions described above, but, according to Kori, the deletion is merely an extreme condition of reduction. On the basis of his "principle that rising effect is present even though the rise is not directly observed" (Kori 2004: p. 20, ll. 27-28), he argues that two or more words can never be tonally merged together "even when rising effect is not at all observed" (Kori 2004: p. 20, ll. 32-33.). Thus, even the second prosodic words shown in the first column of Fig. 4.5 (a, d, g, j) possess the LH, which is virtually undetectable on the F0 contours.

In short, in Kori's (2004) theory, a distinction between tonal reduction and tonal deletion is *continuous*. In the currently proposed framework, in contrast to the view of Kori, the distinction is categorical. As we have seen in 4.3, the reduction is interpreted as a grouping at the level of the intermediate phrase, while the deletion (or non-occurrence) of the LH is formulated as dephrasing, that is, a grouping at the level of accentual phrase.

It should be difficult for the reduction-only theory to account for the phrasing in so-called "accentless" dialects such as Kumamoto and Koriyama. However, Kori (2006) retains the theory for Kumamoto. He found for Kumamoto that a turning point in the F0 contour can often be observed at the boundary of adjacent prosodic words. The point can, as in Tokyo, disappear in some conditions. Considering it as a property of the word, Kori (2006) proposes that each

word in Kumamoto has "indefinite accent", a tonal property which has no fixed pattern.

It is important to note that the results of Kori's (2004, 2006) experiments *per se* are predicted by the currently proposed framework. They can not serve as evidence against dephrasing in Tokyo and "accentless" dialects.

5.5 *The dephrasing with deaccenting theory*

While the term *dephrasing* for Tokyo can sometimes be used as a synonym of *deaccenting*, i.e. deletion of lexical pitch accents, dephrasing defined in this work has nothing to do with deaccenting. In P&B's (1988) original model, as mentioned in (4.2), accentual phrase is defined to have "at most one pitch accent". This logically means that two lexically accented prosodic words can 1) be divided into two accentual phrases or 2) be dephrased into a single accentual phrase with at least one accent *deleted*. Thus dephrasing, which itself is one of the intonational processes, is closely linked to deletion of lexical pitch accent.

The accent deletion in intonational process, according to P&B's (1988) original analysis, can occur when some constituent in sentence is focused. They proposed that accented noun preceded by focused accented adjective (e.g. UMA'I mame' 'GOOD-TASTING beans') can be dephrased into an accentual phrase with the accent of the post-focal noun eliminated. This purported deaccenting is reminiscent of the *morphological* processes that determine accent distribution of compounding words (e.g. McCawley 1968; Poser 1984; Kubozono 1988), on the one hand, and of distribution of (intonational) nuclear pitch accent marking focal prominence in the languages such as English (e.g. Pierrehumbert 1980). Just as a single accent functions as culmination of the compounding *word*, it marks culminative prominence of the *intonational unit* (i.e. accentual phrase). Indeed, the similarities in their function between English nuclear pitch accent and Japanese lexical pitch accent are emphasized in their cross-linguistic study between English and Japanese (Beckman and Pierrehumbert 1986).

Intuitively, conception of the accent deletion brought about focus in Tokyo Japanese is unacceptable, however. Indeed, Maekawa's (1994) production and perception experiments, which statistically analyze the effect of focus on accents of the post-focal words, reveal that accents are not eliminated. It may not be coincidence that traditional studies on prosodic phrasing in Tokyo (e.g. Kawakami 1957 and Uwano 1989) reported no deletion of accents in intonational processes. In fact, the formulation that accentual phrase can contain more than two accents are being proposed in AM literature as well (Venditti et al. forthcoming). The dephrasing without deaccenting view should not be eccentric at all.

6. SUMMARY AND CONCLUSION

This paper investigated intonation of Japanese dialects, which has been sparsely described in Japanese linguistics. By recapitulating past works on word-level prosody and by analyzing data collected in my ongoing fieldwork research, a typology of prosodic phrasing in the dialects was proposed which make it possible to capture similarities and differences observed across the boundaries of past dialectal classifications that was based on word-level prosody.

We have seen that the dialects may or may not have lexically specified pitch ([±lexical tones]), and that the [+lexical tones] dialects may or may not have lexical specification for the locus of lexical tones [±accent]. The dialects which played an important role was in developing a typology of prosodic phrasing was the [-lexical tones] dialects, which had traditionally been further classified into two types. Considering that the difference between them lied in the presence or absence of accentual phrase, the feature [±dephrasing] was propounded. It was shown that this feature could be applied to the dialects with [+lexical tones] so that we could achieve an important cross-dialectal generalization. It is claimed that some dialects have prosodic grouping at the level of accentual phrase ([+dephrasing]) while other do not ([-dephrasing]).

Although further research is necessary, it was suggested that the prosodic phrasing dialects with the feature [-dephrasing] is less sensitive to syntactic branching than those with the feature [+dephrasing].

Based on the Autosegmental-Metrical model, the prosodic trees of the different types of dialects were also proposed. In order to describe the prosodic structure of previously proposed AM framework for Tokyo was revised to some extent. In the final part of the paper, other frameworks concerning prosodic phrasing ware briefly discussed to confirm that currently proposed revision was not arbitrary.

I hope the current work may stimulate research that deal with intonation of Japanese dialects, exhibiting a surprisingly rich variety of prosodic systems, which would benefit intonational research in general.

REFERENCE

ARISAKA, H. (1941) 'Akusentogata no honshitsu nit suite', *Gengokenkyu* 7-8, 83-92.

BECKMAN, M and PIERREHUMBERT J. (1986), Intonational structure in Japanese and English, *Phonology Yearbook* 3, 255-309.

BRUCE, G. (1977), *Swedish word accents in sentence perspective* (Lund, Sweden: Gleerup).

GUSSENHOVEN, C. (2004), *The Phonology of Tone and Intonation*, (Cambridge: Cambridge University Press).

HARAGUCHI, S. (1977), *The Tone Pattern of Japanese: An Autosegmental Theory of Tonology* (Tokyo, Japan: Kaitakusha).

HATTORI, S. (1929), Kinki akusento to toho akusento no kyokaisen. *Onsei no Kenkyu* 3, 131-144..

――― (1931), Kokugo shohogen no akusento gaikan. *Hogen* 1(3), 11-24.

――― (1933), Akusento to hogen. *Kokugo Kagaku Koza VII Kokugo Hogengaku* (Tokyo, Japan: Meiji Shoin).

―――. (1954), 'On'inron kara mi ta kokugo no akusento', *Kokugogaku Kenkyu*, 2.

HAYATA, T. (1985), *Hakata Hogen no Akusento Keitairon* (Fukuoka, Japan: Kyushu University Press).

――― (1999), *Oncho no Taiporojii* (Tokyo, Japan: Taishukan).

HIRAYAMA, T. (1951), *Kyushu Hogen Oncho no Kenkyu* (Tokyo, Japan: Gakkai no Shishinsha).

――― (1957), *Nihongo Oncho no Kenkyu* (Tokyo, Japan: Meiji Shoin).

――― (1960), *Zenkoku Akusento Jiten* (Tokyo, Japan: Tokyodo).

――― (1968), *Nihon no Hogen* (Tokyo, Japan: Kodansha).

HUALDE, J.I. (2003), 'Some ways in which Basque is and is not like Japanese and how it got to be that way', in KAJI S. (ed.) *Proceedings of the Symposium Cross-Linguistic Studies of Tonal Phenomena* (Tokyo, Japan: Research Institute for Languages and Cultures of Asia and Africa, Tokyo Univ. of Foreign Studies), 291-309.

IGARASHI, Y. (2006), 'Dephrasing in Kobayashi Japanese: Is it a reality?', *Proceedings of the 126th conference of the Linguistic Society of Japan* (Hokkaido, Japan), 53-58.

——— (2007a), 'Lexical pitch accent in Goshogawara Japanese: Rising or falling?', To appear in: Proceedings of 16th International Congress of Phonetic Science (Saarbrücken, Germany).

——— (2007b), 'Pitch pattern alternation in Goshogawara Japanese: Evidence for a prosodic phrase above the domain for downstep', to appear in *Proceedings of The Interspeech 2007-Eurospeech* (Antwerp, Belgium).

——— (forthcoming), 'Pitch range compression and pitch accent deletion in Fukuoka Japanese', *Proceedings of the 21st general meeting of the Phonetic Society of Japan* (Nagoya, Japan).

———, KIKUCHI, H and MAEKAWA, K. (2006), Inritsu Joho. *Nihongo Hanashikotoba Kopasuno Kochikuho* (Tokyo, Japan: National Institute for Japanese Language) 347-453.

IKEDA, K. (1942), 'Kinki akusento keishikikan no mondai', in Nihon Hogen Gakkai (ed.) *Nihongo no Akusento* (Tokyo, Japan: Chuokoronsha), 195-228.

ISHIHARA, SHUNICHI (2004), *An Acoustic-Phonetic Descriptive Analysis of Kagoshima Japanese Tonal Phenomena*, PhD. dissertation, Australian National University.

ISHIHARA, SHINICHIRO (2003), *Intonation and Interface Conditions*. Ph.D. dissertation, MIT.

ISHIHARA, SHINICHIRO (2007), 'Japanese downstep revisited', Poster presentation at Word Accents and Tones in Sentence Perspective (Lund University, Sweden).

——— (forthcoming), 'Major phrase, focus intonation, multiple spell-out (Map, FI, MSO)', Linguistic Review, specially issue on prosodic phrasing 24(2).

ITO, K. (2002a), *The interaction of focus and lexical pitch accent in speech production and dialogue comprehension: Evidence from Japanese and Basque*, Doctoral dissertation, University of Illinois at Urbana-Champaign.

JINBO, K. (1925), *Kokugo Onseigaku* (Tokyo, Japan: Meiji Tosho).

JUN, S.-A. (1998), 'The accentual phrase in the Korean prosodic hierarchy', *Phonology* 15, 189-226.

Jun, S.-A. (2005), Prosodic Typology: The Phonology of Intonation and Phrasing. (New York, Oxford Univ. Press)

KAWAKAMI, S. (1957), 'Tokyogo no takuritsu kyocho no oncho'. Reprinted in KAWAKAMI, S. (1995), 76-91.

——— (1957) 'Jun'akusento ni tsui te', *Kokugokenkyuu,* 7. Reprinted in KAWAKAMI, S. (1995), 92-113.

——— (1995), *Nihongo Akusento Ronshu*, (Tokyo, Japan: Kyuko Shoin).

——— (1997), 'Takasaakusento no kijutu –Dan, muki, keiki, kaku nado–', *Journal of the Phonetic Society of Japan* 1(2), 20-27.

KIBE, Y. (2000), *Seinanbu Kyushu Nikei Akusento no Kenkyu* (Tokyo, Japan: Bensei Shuppan).

——— (2002), 'Historical development of tone in Southwest Kyûshû dialects of Japanese', KAJI, S. (ed.) *Proceedings of the Symposium Cross-Linguistic Studies of Tonal Phenomena, Historical Development, Phonetics of Tone, and Descriptive Studies* (Tokyo, Japan: Research Institute for Languages and Cultures of Asia and Africa, Tokyo Univ. of Foreign Studies), 125-142.

KINDAICHI, H. (1937), 'Gendai shohogen kara mi ta heiancho akusento –Toku ni 2-onsetsu meishi ni tui te–', *Hogen* 7(6).

——— (1943) Kokugo akusento no shiteki kenkyu, Nihon Hogen Gakkai (ed.) *Kokugo Akusento no Hanashi* (Tokyo, Japan: Shun'yodo), 104-209.

——— (1951), 'Kotoba no senritsu'. *Kokugogaku* 5(2), 37-59.

——— (1965), 'Takasa no akusento wa akusento ni arazu', *Gengo Kenkyu* 48, 1-12.

——— (1974), *Kokugo Akusento no Shiteki Kenkyu –Genri to Hoho–* (Tokyo, Japan: Shima Shobo).

KITAGAWA, Y. (2005), 'Prosody, Syntax and Pragmatics of Wh-questions in Japanese', *English Linguistics*, 22(2), 302-346.

KORI, S. (1987), 'The tonal behavior of Osaka Japanese: An interim report', *OSU Working Paper in Linguistics,* 36 (Columbus: Ohio State University), 31-61.

———(1989a), 'Fokasu jitsugen ni okeru onsei no tsuyosa, jizokujikan', F0 no eikyo. *Onsei Gengo* 3: 29-38.

——— (1989b), 'Hatsuwa no oncho o kitei suru yoin: nihongo intoneeshonron'. *Yoshizawa Norio Kyoju Tsuito Ronbunshu* (Tokyo, Japan: Tokyo University of Foreign Studies), 116-127.

——— (1997), 'Nihongo no intoneeshon –kata to kino–. In: *Nihongo onsei 1: Akusento intoneeshon rizumu to poozu* (Tokyo, Japan: Sanseido), 169-202.

——— (2006), 'Kumamotoshi oyobi shuhen no hiteikei akusento hogen ni okeru gooncho to onchoku no keisei'. *Journal of the Phonetic Society of Japan* 10(2), 43-60.

KUBO, T. (1989), 'Fukuoka hogen no, dare, nani to no gumonshi o fukumu bun no pitchi pataan'. *Kokugogaku* 156, 51-70.

——— (forthcoming), 'Phonology-syntax interfaces in Busan Korean and Fukuoka Japanese', to appear in: S. KAJI (ed.), *Proceedings of Symposium Cross-Linguistic Studies of Tonal Phenomena* (Tokyo, Japan: Research Institute for Languages and Cultures of Asia and Africa, Tokyo Univ. of Foreign Studies).

KUBOZONO, H. (1988), *The Organization of Japanese Prosody*, Ph.D. dissertation, Edinburgh University.

——— (2007), 'Focus and intonation in Japanese: Does focus trigger pitch reset?', to appear in: ISHIHARA, S. (ed.) *Interdisciplinary Studies on Information Structure* (Potsdam, Germany: Universitätsverlag Potsdam).

——— (forthcoming), 'Tonal change in Language contact: Evidence from Kagoshima Japanese', to appear in: GUSSENHOVEN, C. and RIAD T. (eds.) *Tone and Tunes: Studies in word and sentence prosody*.

LADD, D. R. (1996), *Intonational Phonology* (Cambridge: Cambridge University Press).

MCCAWLEY, J.D. (1968) *The phonological component of a grammar of Japanese* (The Hague: Mouton).

MAEKAWA, K. (1990), 'Muakusento hogen no intoneeshon (shiron)', Kinki Society for Phonetics (ed.) *Onsei Gengo* IV, 87-110.

——— (1991), 'Perception of intonational characteristics of WH and NON-WH questions in Tokyo Japanese', *Proceedings of the 12th international congress of phonetic sciences* (Aix-en-Provence, France), 4, 202-205.

——— (1994a), 'Is there "dephrasing" of the accentual phrase in Japanese?', *OSU Working Paper in Linguistics,* 44 (Columbus: Ohio State University), 146-165.

——— (1994b), 'Intonational structure of Kumamoto Japanese: A perceptual validation', *Proceedings of 1994 International Conference on Spoken Language Processing* (Yokohama, Japan), 119-122.

——— (1997a), 'Akusento to intoneeshon –akusento no nai chiiki'. *Nihongo Onsei 1: Shohogen no Akusento to Intoneeshon* (Tokyo, Japan: Sanseido), 97-122.

——— (1997b), 'Effects of focus on duration and vowel formant frequency in Japanese'. In *Proceedings of the International Conference on Spoken Language Processing* (Sidney, Australia), 635-638.

——— (1999), 'Contributions of lexical and prosodic factors to the perception of politeness', *Proceedings of the 14th International Congress of Phonetic Science* (San Francisco), 1573-1576.

———, (2003), KIKUCHI, H., IGARASHI, Y and VENDITTI, J. (2002) 'X-JToBI: An extended J_ToBI for spontaneous speech', *Proceedings of The 7th International Conference on Spoken Language Processing* (Denver, Colorado), 1545-1548.

MIYATA, K. (1928), 'Nihongo no akusento ni kan suru watashi no kenkai' *Onsei no Kenkyu* 2.

NITTA, T. (1985) Ishikawaken Shiramine hogen no akusento taikei. *Kanazawa Daigaku Bungakubu Ronshu*, 5, 97-115.

NAKAI, Y. (1987) Gendai Kyoto hogen no akusento shiryo (1), *Asian and African Languages and Linguistics*, 15, 53-159.

PIERREHUMBERT, J. (1980), *The Phonology and Phonetics of English Intonation*, PhD. dissertation, MIT.

———, and BECKMAN, M. (1988), *Japanese tone structure* (Cambridge: MIT Press).

POSER, W. (1984), *The phonetics and phonology of tone and intonation in Japanese*. PhD. dissertation, MIT.

RAMSEY, S.R. (1998), 'Comments on Professor Uwano Zendo's "Classification of Japanese accent systems", *Proceedings of Symposium Cross-Linguistic Studies of Tonal Phenomena* (Tokyo, Japan: Research Institute for Languages and Cultures of Asia and Africa, Tokyo Univ. of Foreign Studies), 179- 182.

SAKUMA, K. (1919) *Kokugo no Hatsuon to Akusento* (Tokyo, Japan: Dobunkan).

SATO, K. (2005), 'Kobayashi hogen no "ikkei akusento" wa do no yo ni jitsugen suru ka', *Kyushu University Papers in Linguistics*, vol. 25-26 (combined number), 163-187.

SHIBATA, T. (1955) Nihongo no akusento taikei *Kokugogaku* 21, 44 - 70.

SHIBATANI, T. (1962), 'On'in', in TOJO, M. (ed.) *Hogengaku Gaisetsu* (Tokyo: Musashino Shoin), 137-161.

SHIBATANI, M. (1990), *The Languages of Japan* (Cambridge: Cambridge University Press).

SMITH、J.L. (2005), 'On the WH-question intonational domain in Fukuoka Japanese: Some implication for the syntax-prosody interface', KAWAHARA, S. (ed.) *Papers on Prosody*, *UMass Occasional Papers in Linguistics* 30, (Amherst: GLSA), 219-237.

SUGITO, M AND HIROSE, H. (1978), 'An electromyographic study of the Kinki accent', *Annual Bulletin* 12 (Tokyo, Japan: Research Institute of Logopedics and Phoniatrics, University of Tokyo), 35-51.

SUGITO, M. (2001) Bunpo to nihongo no akusento oyobi intoneeshon –tokyo to osaka no baai–. *Bunpo to onsei* (Tokyo, Japan: Kuroshio), 197-210.

TOKUGAWA, M. (1962), 'Nihon shohogen akusento no keifu shiron –"Kana no togo" to "chiriteki bunpu kara miru–'

Gakushuin Daigaku Kokugo Kokubungaku Kaishi 6, 1-19.

UWANO, Z. (1985), 'Kagawaken Ibukijima hogen no akusento', *Nihon Gakushiin Kiyo*, 40(2), 75-179.

———, (1977), 'Nihongo no akusento', SHIBATA, T. (ed.) *Iwanamikoza Nihongo* 5 (Tokyo, Japan: Iwanami), 281-321.

———, (1984), 'Niigataken Murakamishi hogen no akusento', Kindaichi Haruhiko Hakushi Koki Kinen Ronbunshu Henshu Iinkai (ed.) *Kindaichi Haruhiko Hakushi Koki Kinen Ronbunshu* 2 (Tokyo, Japan: Sanseido), 390-347.

———, (1989), Nihongo no akusento, SUGITO, M. (ed.) *Koza Nihongo to Nihongo Kyoiku 2: Nihongo no Onsei On'in*, vol. 1 (Tokyo, Japan: Meiji Shoin), 178-205.

———, (1998a), 'Classification of Japanese accent systems', S. KAJI (ed.), *Proceedings of Symposium Cross-Linguistic Studies of Tonal Phenomena* (Tokyo, Japan: Research Institute for Languages and Cultures of Asia and Africa, Tokyo Univ. of Foreign Studies), 151-178.

———, (1998b), 'A reply to Professor Ramsey's Comments', S. KAJI (ed.), *Proceedings of Symposium Cross-Linguistic Studies of Tonal Phenomena* (Tokyo, Japan: Research Institute for Languages and Cultures of Asia and Africa, Tokyo Univ. of Foreign Studies), 183-186.

———, (2003), 'Akusento no taikei to shikumi' In Uwano, Z. (ed.) *Asakura Nihongo Koza* 3 (Tokyo, Japan: Asakura Shoten), 61-84.

VENDITTI, J. (2005) , 'The J_ToBI model of Japanese intonation', JUN, S.-A. (ed.) *Prosodic typology*, (New York: Oxford University Press), 172-200.

———, MAEKAWA, K. and BECKMAN, M. (forthcoming), 'Prominence marking in the Japanese intonation system', To appear in: MIYAGAWA, S. and SAITO, M. (eds.) *Handbook of Japanese Linguistics* (New York: Oxford University Press).

WADA, M. (1957), 'Akusento no kaku to taki', *Kokugokenkyu* 6, 1-20.

YAMADA, B. (1892), 'Nihongo onchoron', *Nihongo Daijisho* (Tokyo, Japan: Meihodo), suppl., 43-57.

YAMAGUCHI, K. (1991), *Nihongo Hogen Ikkei Akusento no Kenkyu* (Tokyo, Japan: Hitsuji Shobo).

APPENDIX