elpublishing

Language Documentation and Description

ISSN 1740-6234

This article appears in: *Language Documentation and Description, vol 10: Special Issue on Humanities of the lesser-known: New directions in the description, documentation and typology of endangered languages and musics*. Editors: Niclas Burenhult, Arthur Holmer, Anastasia Karlsson, Håkan Lundström & Jan-Olof Svantesson

# Intonation in Ryukyuan: with reference to modality, syntax, and focus

YASUKO NAGANO-MADSEN

Cite this article: Yasuko Nagano-Madsen (2012). Intonation in Ryukyuan: with reference to modality, syntax, and focus. In Niclas Burenhult, Arthur Holmer, Anastasia Karlsson, Håkan Lundström & Jan-Olof Svantesson (eds) *Language Documentation and Description, vol 10: Special Issue on Humanities of the lesser-known: New directions in the description, documentation and typology of endangered languages and musics*. London: SOAS. pp. 177-207

Link to this article: http://www.elpublishing.org/PID/118

This electronic version first published: July 2014

# Intonation in Ryukyuan: with reference to modality, syntax, and focus

Yasuko Nagano-Madsen

## 1. Introduction[1]

Ryukyuan is a sister language to Japanese and is said to have branched from Proto-Japanese-Ryukuan. The Ryukyuan language is spoken on the Islands of Ryukyu and Amami by a total of 1.4 million people. According to UNESCO, all Ryukyuan dialects are either severely or definitely endangered. The Ryukyu Kingdom was an independent country before it was integrated into Japan in 1879. Due to the integration policy of the Japanese government, particularly after the Second World War, the Ryukyuan languages have been severely suppressed and the vast majority of the people on the Ryukyu Islands are monolingual in Japanese. There has been debate about whether Ryukyuan should be considered as an independent language with which Japanese constitutes a language family, or as a dialect of Japanese. In this paper, the term Ryukyuan will be used, since it is most widely established internationally. Regardless of whether Ryukyuan and Japanese should be treated as two separate languages or as dialects of the same language, it is widely agreed that they are related and that Ryukyuan resembles Old Japanese more than Modern Japanese. Due to differences between them in phonology, grammar, and lexicon, Japanese and Ryukyuan are not mutually intelligible.

The purpose of this paper is to explore, document, and describe the intonation of Shuri Ryukyuan. Shuri used to be the capital of the Ryukyu Kingdom and is the most influential of the Ryukyuan dialects. The subdivisions of Ryukyuan and its geographical distribution are shown in Figures 1 and 2. Ryukyuan is divided into Northern and Southern Ryukyuan, each of which is further divided into three subdivisions. In this paper, the intonation of the Shuri dialect, which belongs to Okinawa middle south (C), is presented.

[1] The research reported here has received financial support from the *Japan Foundation, Hakuho Foundation,* and the *Stiftelsen Torsten Petterssons Fond.*

Yasuko Nagano-Madsen 2011. Intonation in Ryukyuan: with reference to modality, syntax, and focus. In Jan-Olof Svantesson, Niclas Burenhult, Arthur Holmer, Anastasia Karlsson and Håkan Lundström (eds.) *Language Documentation and Description*, *Vol 10,* 177-207. London: SOAS.

*Figure 1: Subdivision of Ryukyuan*

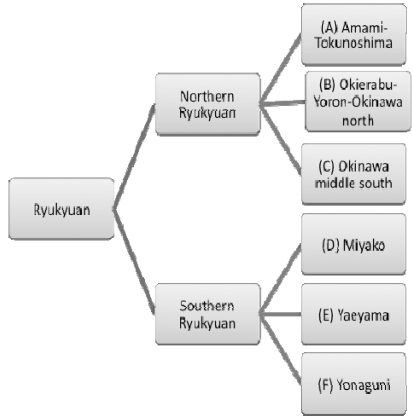
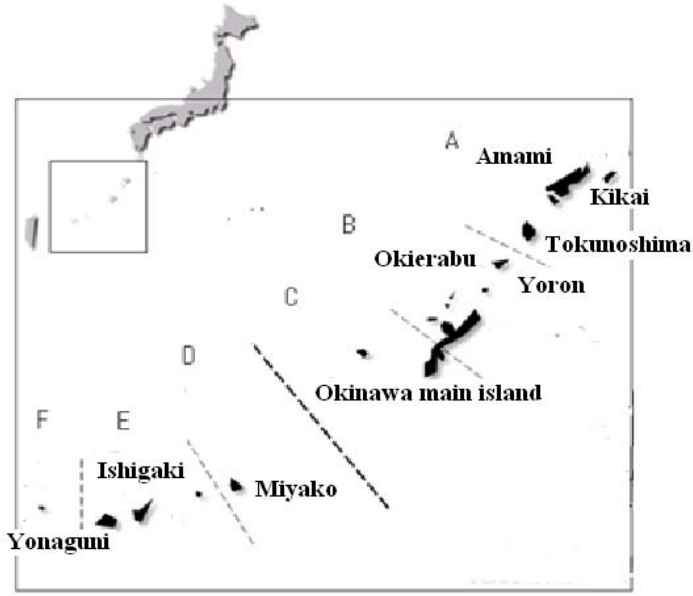



*Figure 2: Map of the Ryukyu Islands (adapted from the Japanese version of the map at http://ryukyu-lang.lib.u-ryukyu.ac.jp/intro/index.html)*



## 2. Recordings and acoustic analyses of Ryukyuan

Thus far, there have been two important achievements in documenting spoken Ryukyuan. The first is the Speech Corpus and Database of Japanese dialects available on CD and CD-ROM (Sugito (1994), see also Nagano-Madsen (1996) for a review of the corpus). The focus of that project was on accent, but it also contains recordings of the basic question intonation in Ryukyuan. Part of it is analyzed in this paper.

The second is the Ryukyuan Speech Database in which dictionary entry words are recorded in isolated forms[2]. This Speech Database is available for the following sub-dialects of Ryukyuan: Amami (A), Nakijin (B), Shuri/Naha (C), and Miyako (D).

Since there are increasingly fewer native speakers of Ryukyuan, these two sources of recordings are of utmost value. Some of the recordings from the Shuri Speech Database were analyzed in connection with the phonetic analysis of the Shuri accent (Nagano-Madsen & Karimata 2009). In the present paper, recordings of question intonation by a Shuri speaker were analyzed to complement the current investigation.

## 3. How to study intonation in Ryukyuan

The documentation and description of accent, in Japanese and also in Ryukyuan dialects, has been a great success in Japanese linguistics. This success is largely due to the existence of word and sentence lists, based on and developed from Kindaichi (1974), that are widely used in describing accent variations. The existence of such common lists enables virtually any fieldworker to make recordings. Furthermore most fieldworkers are capable of describing the data by using a high (H) and low (L) tone analysis of word accents. Thus, a vast amount of phonetic data on accentual variation has been described using the same framework for Japanese and Ryukyuan dialects.

The situation is exactly the opposite for intonation studies. Despite great success in the analysis of Tokyo Japanese intonation, it is only recently that a few attempts have been carried out to systematically study intonational variation among the Japanese dialects, such as Kibe (2008). In order to capture the characteristic intonation features in Ryukyuan, the present study has chosen four categories that are reported to be responsible for determining the intonation of Japanese. They are modality, syntax, focus, and emotion.

[2] It is freely available at http://ryukyu-lang.lib.u-ryukyu.ac.jp/index.html.

However, because the emotion intonation in Ryukyuan was found to be fairly complicated and needs further analysis, it is excluded from this paper.

Here, intonation is defined in terms of fundamental frequency (F0). In describing the intonation of Ryukyuan, I adopt the term 'accentual phrase', defined by Pierrehumbert & Beckman (1988), which corresponds roughly to Japanese *bunsetsu* as discussed by Hattori (1949). *Bunsetsu* is the unit of accentuation that contains a content word and any following particle(s), and in the figures below that contain intonation contours, *bunsetsu* divisions are marked by vertical lines. For each *bunsetsu* the underlying accent is indicated either as (1) for falling accent or (0) for flat accent. Since Pierrehumbert & Beckman's definition of accentual phrase is based on the initial F0 rise, at times there is a mismatch between the accentual phrase and *bunsetsu* when the accent is not manifested phonetically.

## 4. Data

The speaker for the current investigation was a male in his 60s, who was raised, and currently lives in the city of Shuri (Speaker A). He was recommended by a dialect expert and he showed good agreement in his accent pattern with the two speakers who are recorded in the Shuri Database Dictionary. The recordings were made at the home of the speaker during 2007–2008. In addition, recordings of a female Shuri speaker (Speaker B) and of a male Tokyo speaker contained in the Speech Corpus and Database of the Japanese dialects (Speaker C) are analyzed and presented here.

## 5. Accent in Shuri Ryukyuan

Before studying the intonation of Shuri Ryukyuan, it is necessary to understand the accent system of this language and how accent is manifested phonetically. This is because intonation is analyzed as a succession of units in which accent plays a central role. As for the accent system, basic descriptions are available for the major Ryukyuan dialects (Sakimura 2006) and a detailed phonetic analysis has been recently reported for the Shuri dialect (Nagano-Madsen & Karimata 2009).

Shuri Ryukyuan has two types of accents similar to Japanese. One is a falling accent and the other is a flat accent (alternatively the former can be referred to as *accented* while the latter is *unaccented*). In this paper, the falling accent is denoted as (1) and the flat accent as (0) in sample sentences and in figures. The position of the pitch drop for the falling accent is distinctive in Tokyo Japanese and for a *n*-mora word there will be *n*+1 accent types by adding the so-called unaccented or flat type. In contrast, in Shuri Ryukyuan the position of the pitch drop for the falling accent is fixed to the second mora

from the onset of the word. How these two accents behave phonetically has been reported in Nagano-Madsen & Karimata (2009).

Figure 3 (from Nagano-Madsen & Karimata 2009) shows the F0 contours of one word with falling accent, *maNguru* 'approximate time', and one with flat accent, *mamami* 'azuki beans'. It has been reported for Tokyo Japanese that the pitch peak of a falling accent is higher than that of a flat accent (Kubozono 1993), and the same observation can be made for Shuri Ryukyuan. The pitch peak of the falling accent was on average three semitones higher than that of the flat accent.

However, it should be noted that there are a number of significant differences in the manifestation of the accent between Shuri Ryukyuan and Tokyo Japanese. First, a declarative utterance with a flat accent in Shuri Ryukyuan shows less declination (Figure 3) than it does in Tokyo Japanese, and in some cases the word final mora is produced with a higher pitch giving an impression of sentence final rising intonation (see Figure 4; from Nagano-Madsen & Karimata 2009). Secondly, when a falling accent and a flat accent are combined in phrases, their manifestations differ from those of Tokyo Japanese. This point will be exemplified in detail in section 7.1.

*Figure 3: F0 contours for maNguru 'approximate time' and mamami 'azuki beans' (thick dots) in Shuri Ryukyuan*

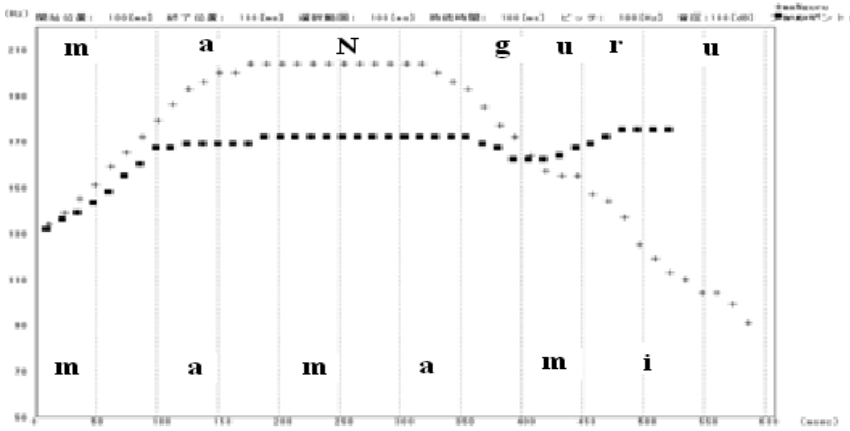
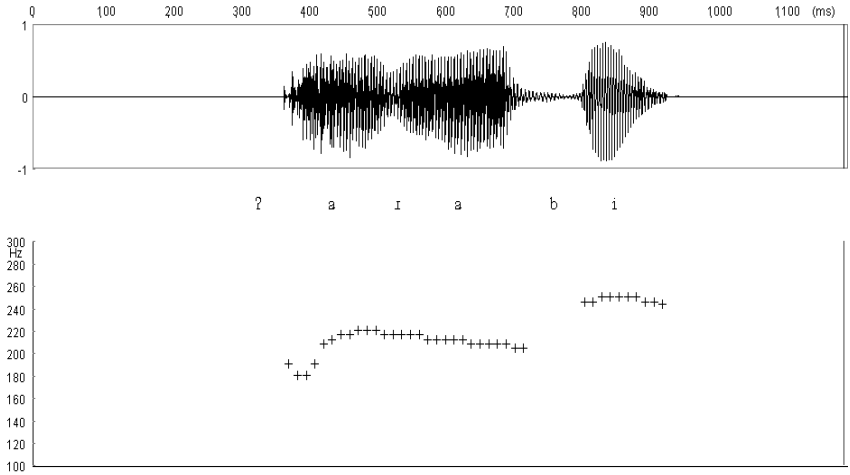


*Figure 4: F0 contour for a word with flat accent where the last mora is produced with higher pitch*




## 6. Mood suffixes in Shuri Ryukyuan

One of the characteristics of Ryukyuan is the existence of interrogative mood suffixes, a category that is rare in the world's languages. In Japanese, the sister language to Ryukyuan, a verb is composed of a root and a tense morpheme while in Ryukyuan this has to be completed by a mood suffix. In Shuri Ryukyuan, not only is the difference between declarative and interrogative moods differentiated by the mood suffix, but also yes-no questions, *wh*-questions, and focus questions, as shown in (1) and (2). I owe much of this summary of mood suffixes and the consequent examples to Miyara (2000: 91–169).

(1) *Declarative mood* (DEC)[3]

(a) *+n/(sa)* Indicative (I)

*chi-yu-N*
wear-PRES-I
'(I) wear it.'

(b) *+ru* Non-indicative (U) preceded by the focus particle *du*

*taru-ga-du* *chi-yu-ru*
HUM-NOM-FOC wear-PRES-U
'**Taro** wears it.'

(2) *Interrogative mood* (Q)

(a) *+mi* Yes-no question (YNQ)

*chi-yu-mi*
wear-PRES-Q
'Do you wear it?'

(b) *+ga* *Wh*-question (WHQ), preceded by a *wh*-word

*nuu* *chi-yu-ga*?
what wear-PRES-Q
'What do you wear?'

(c) *+ra* Focus question (FOCQ), preceded by the focus particle *ga*

*nuu-ga* *chi-yu-**ra***?
what-FOC wear-PRES-Q
'**What** do you wear?'

[3] Abbreviations not explained here are: C = complementizer, CNJ = conjunction, FOC = focus, GEN = genitive, HUM = name of a person, LOC = locative, NEG = negation, NOM = nominative case, PRES = present tense, STAT = stative aspect, TOP = topic.

## 7. Modality and intonation: declarative vs. interrogative

One of the most classic inquiries in the study of intonation is how an interrogative sentence is differentiated from a declarative one in speech in a given language. In many languages, declarative and interrogative sentences are differentiated by sentence final falling vs. rising intonation. Cruttenden (1994: 198) considers the sentence final rising intonation for questions to be a near universal feature. In her study comparing Japanese and Russian intonation, Makarova (2001) reports that in both languages, the sentence is perceived as interrogative when the sentence final intonation rises more than 5.2 semitones. However, it has been known since Kawakami (1963) that not all interrogatives are produced with rising intonation in Japanese. In Takada & Ayusawa's study (2006) it is reported that when the utterance is accompanied by certain sentence final expressions, it may be produced without rising intonation. As for the Kagoshima dialect, Kibe (1997) reports that intonation is used mostly for emotion in this dialect; modality is not expressed by intonation. Kibe conjectures that this is due to the function of various sentence final particles in the Kagoshima dialect.

In the present investigation, three types of question sentences were examined: yes-no questions, *wh*-questions, and focus questions.

### 7.1. Yes-no questions

#### 7.1.1. Verbs in isolation forms

In this section, the intonation of a single verb sentence is examined and compared for Shuri Ryukyuan and Tokyo Japanese. Both languages have two accent types that are traditionally called falling and flat (they are also referred to as *accented* and *unaccented* respectively). Note that the accent types correspond reversely in the two languages, i.e. a word with a falling accent in Shuri Ryukyuan has a flat accent in Tokyo Japanese and vice versa. Note also that the declarative indicative mood suffix *+sa* is used instead of the more common *+N* since the example sentences are produced in the context 'Do you X (verb)?' '(Yes), I X (verb)'.

Declarative and yes-no questions for words with falling accent in the two languages are exemplified in (3) and (4), and Figures 5 and 6 show their F0 contours. In Shuri Ryukyuan (Figure 5), the declarative and interrogative utterances have basically the same intonation manifesting its falling accent and there is no additional terminal intonation. In contrast, the declarative and interrogative utterances in Tokyo Japanese differ in the utterance final intonation, rising for interrogative and falling for declarative (Figure 6). The example here is produced without the question particle *no* or *ka*, but a

previous study indicates that the same intonation is found even for an utterance with a question particle (Nagano-Madsen & Ayusawa 2011).

(3) *Shuri Ryukyuan* (sound file NM1.wav)

| | |
|---|---|
| *nu-yu-mi*? | *nu-yu-sa* |
| ride-PRES-Q | ride-PRES-I |
| 'Do you ride?' | '(Yes), I ride.' |

(4) *Tokyo Japanese*

| | |
|---|---|
| *nom-u*? | *nom-u.* |
| drink-PRES | drink-PRES |
| 'Do you drink?' | '(Yes) I drink' |

*Figure 5: F0 contours for the question (thick dots) and answer in (3); Speaker B*

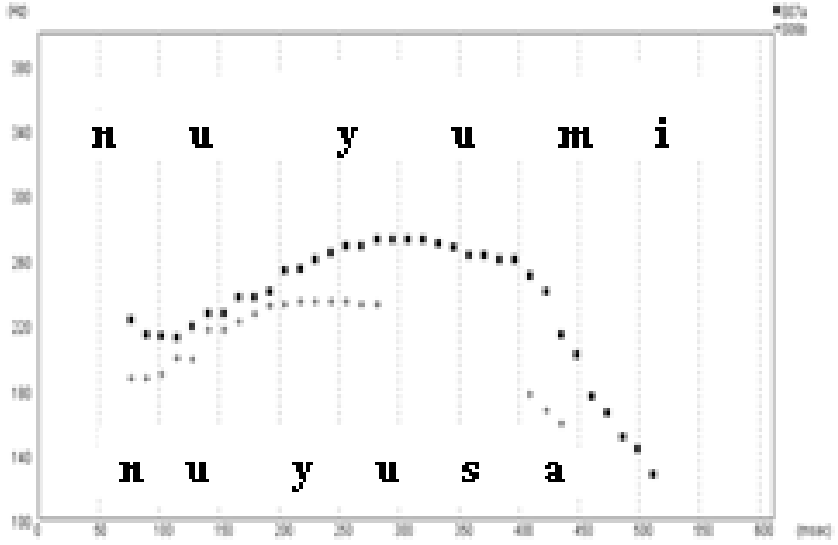
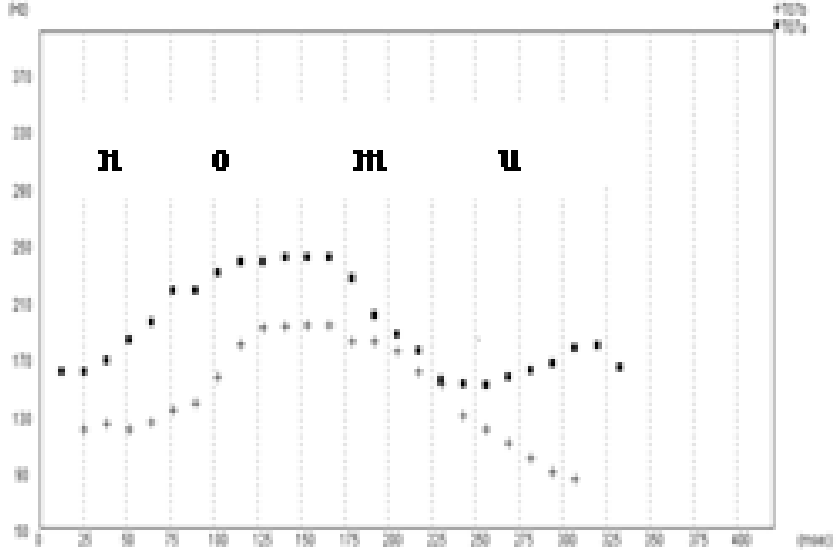


*Figure 6: F0 contours for the question (thick dots) and answer (+) in (4); Speaker C*




It should be noted that there is an additional F0 feature that is constantly manifested for interrogatives both in Shuri Ryukyuan and in Tokyo Japanese. As Figures 5 and 6 show, the interrogatives are produced at a higher pitch register than the corresponding declaratives. This difference in pitch register was found to be one of the significant differences between declaratives and interrogatives for Tokyo Japanese (Nagano-Madsen & Ayusawa 2011). Whether the higher pitch register is manifested only for the falling accent, or for the flat accent as well, appears to be speaker dependent.

Declaratives and yes-no questions for words with flat accent in the two languages are exemplified in (5) and (6), and Figures 7 and 8 show their F0 contours. In Shuri Ryukyuan (Figure 7), the two F0 contours are virtually the same. On the other hand, the two F0 contours are differentiated by the terminal F0 rise vs. fall in Tokyo Japanese (Figure 8), in the same manner as in Figure 6.

(5) *Shuri Ryukyuan* (sound file NM2.wav)

| | |
|---|---|
| *num-u-mi*? | *num-u-sa.* |
| drink-PRES-Q | drink-PRES-I |
| 'Do you drink?' | '(Yes) I drink.' |

(6) *Tokyo Japanese*

| | |
|---|---|
| *no-ru*? | *no-ru.* |
| ride-PRES | ride-PRES |
| 'Do you ride?' | (Yes), I ride.' |

*Figure 7: F0 contours for the question (thick dots) and answer (+) in (5); Speaker B.*

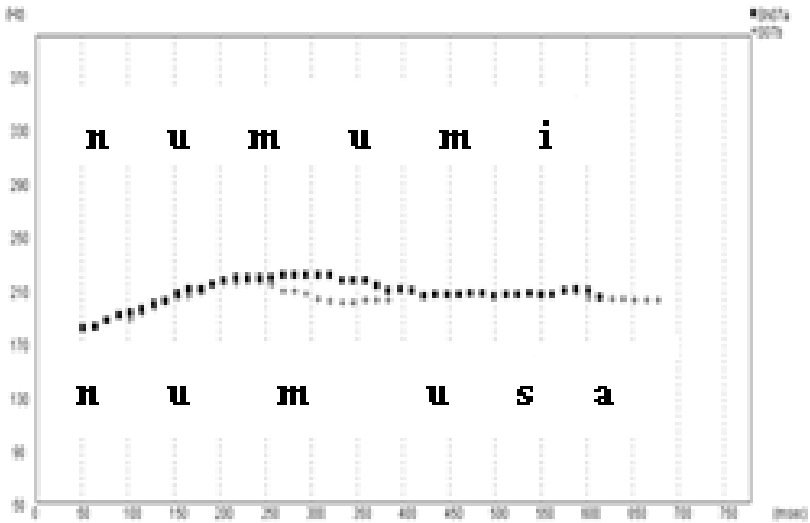
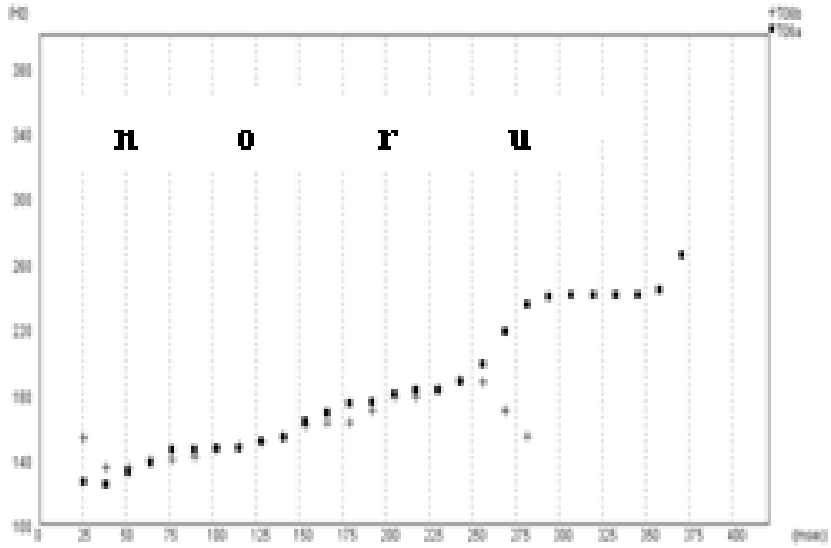


*Figure 8: F0 contour for the question (thick dots) and answer in (6); Speaker C.*




### 7.1.2. Verbs in a sentence context

Since both Ryukyuan and Japanese are SOV languages in which the predicate verb appears at the end of the sentence, the sentence final intonation observed in a verb isolation form reported in 7.1.1, appears at the end of the sentence for simple yes-no questions. In Figures 9 and 10, corresponding to (7a) and (7b), respectively, the F0 contours of the second panel have basically the same shape as those in Figure 5 (falling accent) and Figure 7 (flat accent), respectively.

(7) (a) *manami-ga*(0) *ich-u-mi*(1)?
Manami-NOM go-PRES-Q
'Is Manami going?'

(b) *nuugana*(1) *hus-a-mi*(0)?
anything want-exist-Q
'Do you want anything?'

*Figure 9: F0 contour for (7a); Speaker A*

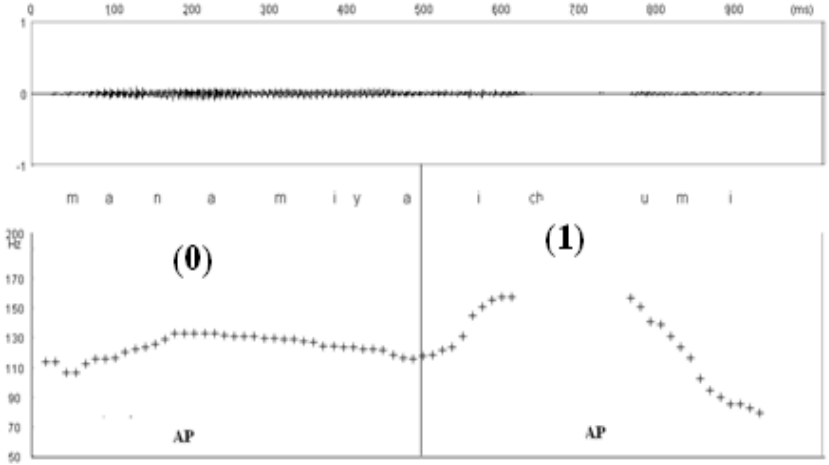
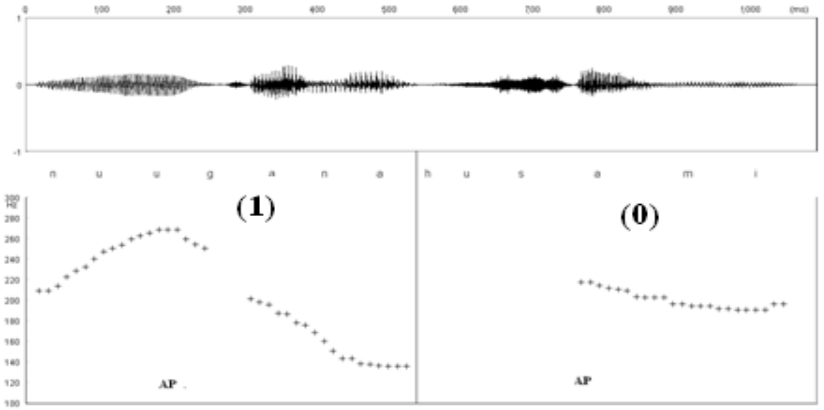



*Figure 10: F0 contour for (7b); Speaker A*




The exact F0 contour is, however, determined both by the prosodic word, defined as a word with or without the following particle(s), and the pragmatic focus. In (8a) and Figure 11, the falling accent of the predicate verb ‘go’ is preceded by a word with falling accent, ‘anywhere’. As can be seen in the

third panel, the accent of the verb is completely deleted, presumably because the speaker focused on the preceding word 'anywhere'. However, in the same sentence shown in (8b) and Figure 12, the falling accent of the same predicate verb does appear, presumably because of the semantic context of the word *ikani* 'not going'.

(8) (a) *ʔyaa-ya*(1) *maagana*(0) *Nkai*(1) *ich-u-mi*
you-TOP anywhere LOC go-PRES-Q
'Are you going anywhere?'

(b) *ʔyaa-ya*(1) *maagana*(0) *Nkai*(1) *ik-ani*?
you-TOP anywhere LOC go-NEG/Q
'Are you not going anywhere?

These examples demonstrate that the falling and flat accents do not always have the same manifestation for yes-no questions, but are affected by the accent of the preceding word (7a) as well as by the pragmatic focus (8a). The only consistent observation is that there is no sentence final rising F0 to indicate the yes-no question.

*Figure 11: F0 contour for (8a); Speaker A*

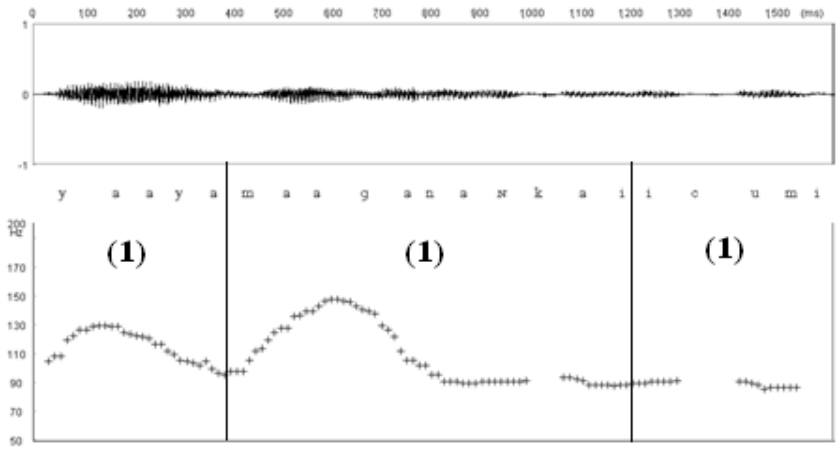
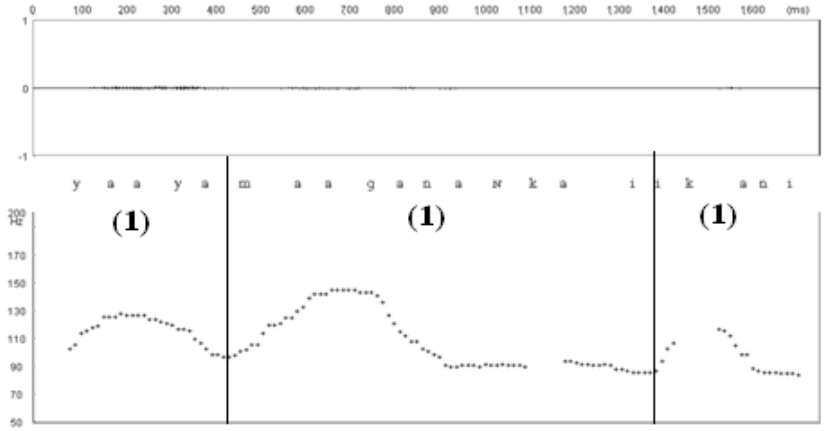


*Figure 12: F0 contour for (8b); Speaker A*




## 7.2. *Wh*-questions

*Wh*-words such as 'what', 'where', 'who' are known to have specific influence on intonation in Japanese (Igarashi, to appear). In Tokyo Japanese, both yes-no questions and *wh*-questions have sentence final rising intonation (H%) with or without the question particle *ka/no*. In Shuri Ryukyuan, yes-no questions and *wh*-questions are differentiated by the mood suffix *+mi* and *+ga,* respectively, as shown in section 6. In this section, both simple *wh*-sentences and complex *wh*-sentences are examined in relation to intonation.

### 7.2.1. Simple *wh*-sentences

Consider the *wh*-sentences in (9), with different accent combinations in Shuri Ryukyuan. Figures 13–16 show the F0 contours for these *wh*-sentences. Examples (9c) and (9d) differ only in the placement of focus (Figures 15 and 16).

(9) (a) *taa-ga*(1) *ich-u-ga*(1)?
who-NOM go-PRES-Q
'Who is going?'

(b) *nuu*(0) *husa-ga*(0)?
what want-Q
'What do you want?

(c) *nuu*(0) *s-oo-ga*(1)?
what do-STAT-Q
'What are you doing?'

(d) ***nuu***(0) *s-oo-ga*(1)?
what do-STAT-Q
'What are you doing' (with focus on *nuu*)

In all the Figures, it can be observed that *wh*-questions are not produced with a sentence final rising intonation. However, unlike yes-no question, the accent of the predicate verb is frequently deleted or strongly compressed. In Figures 13 and 14, the accent of the predicate verb is deleted, making the utterance a single accentual phrase. In Figure 15, however, where the flat accent is followed by a falling accent, the F0 fall of the falling accent is fully manifested. The difference between Figure 9 and 15 is the presence or absence of the initial F0 rise to make a new accentual phrase as defined by Pierrehumbert & Beckman (1988).

In a *wh*-sentence, the last accent can be deleted, as in Figure 13, or can be manifested as in Figure 15, but is never manifested as a separate accentual phrase with initial F0 rise, as in Figure 9 for yes-no questions. Figure 16 shows the same sentence as Figure 15 with focus on the *wh*-word. In this example, the falling accent is totally deleted. Note that in Figure 16, the magnitude of the initial F0 rise is considerably greater than in the other utterances, showing that the *wh*-word *nuu* received focus. From these examples, it can be concluded that the *wh*-word itself does not delete the accent of the post-*wh*-word in Shuri Ryukyuan and therefore it is important to differentiate *wh*-word and focus.

*Figure 13: F0 contour for (9a); Speaker A*

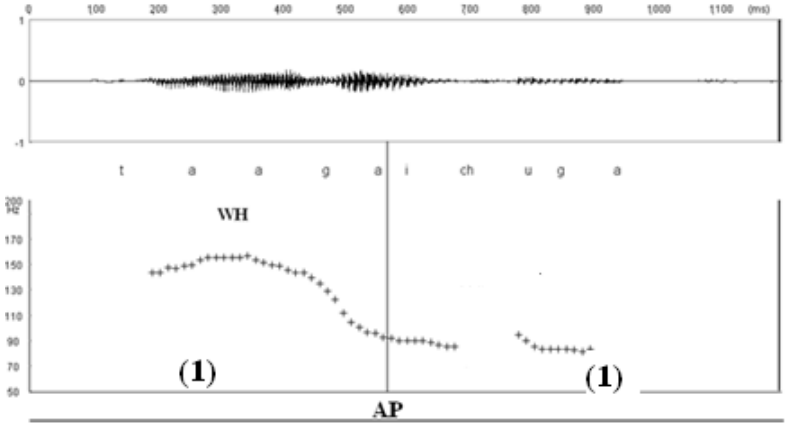



*Figure 14: F0 contour for (9b); Speaker A*

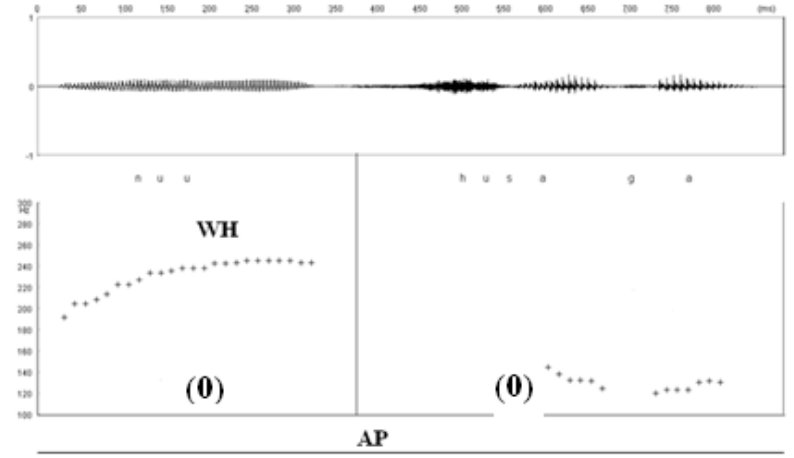


*Figure 15: F0 contour for (9c); Speaker A*

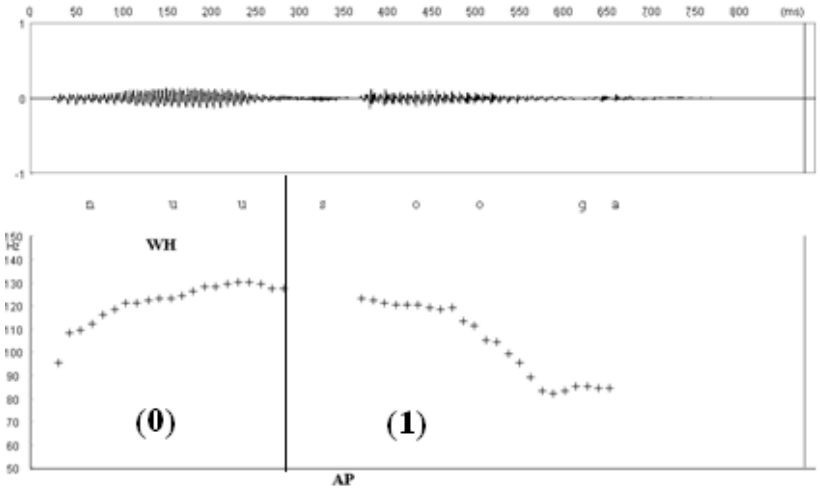
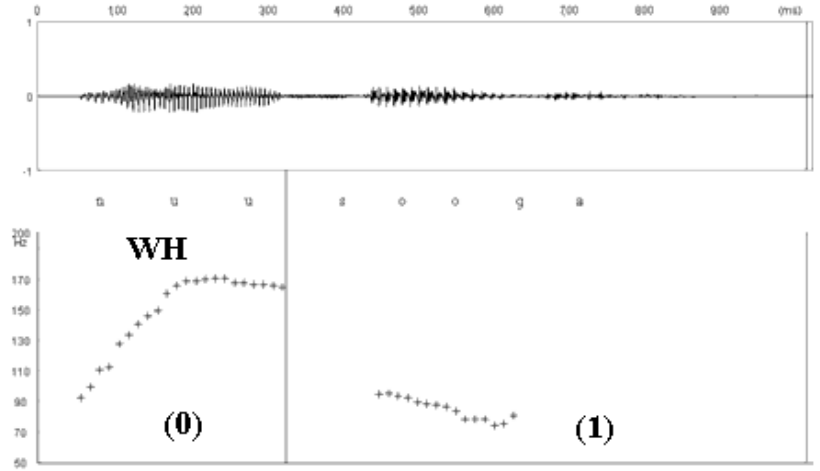



*Figure 16: F0 contour for (9d); Speaker A*



### 7.3. Complex *wh*-questions

In order to examine how the accent of the verb is manifested in more complex *wh*-sentences, consider the sentences in (10). Both sentences contain *wh*-words, and the sentence final main predicate verb *ichooga*(1) 'say' which contains the mood suffix *+ga*, indicating that it is a *wh*-sentence. In (10a), the post-*wh*-verb that appears in the complement has the declarative/indicative mood suffix *+N* as *ichun(di)* 'go'. The falling accent of the post-*wh*-word in (10a) is suppressed drastically while the falling accent of the final verb with *+ga* is manifested (Figure 17). On the other hand, the falling accent in (10b) that appears in the post-*wh*-word is deleted completely (Figure 18). These examples show that it is only the accent of the post-*wh*-word that can be deleted or suppressed drastically, regardless of the sentence structure and regardless of the mood suffix type.

(10) (a) *taa-ga*(1*)* *ich-u-n-di*(1) *manami-ya*(0) *i-choo-ga*(1)?
who-NOM go-PRES-I-C HUM-TOP say-STAT-Q
'Is Manami saying who is going?

(b) *manami-ga*(0) *ich-u-n-di*(1) *taa-ga(1)* *i-choo-ga*(1)?
HUM-NOM go-PRES-I-C who-NOM say-STAT-Q
'Who says Manami is going?

*Figure 17: F0 contour for (10a); Speaker A*

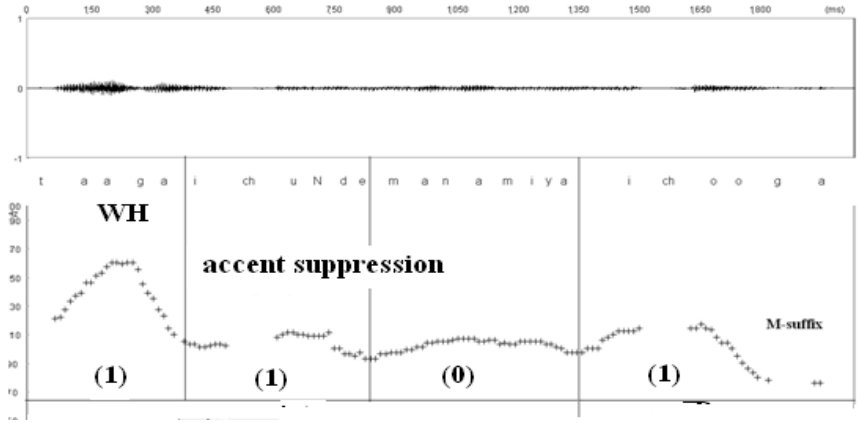
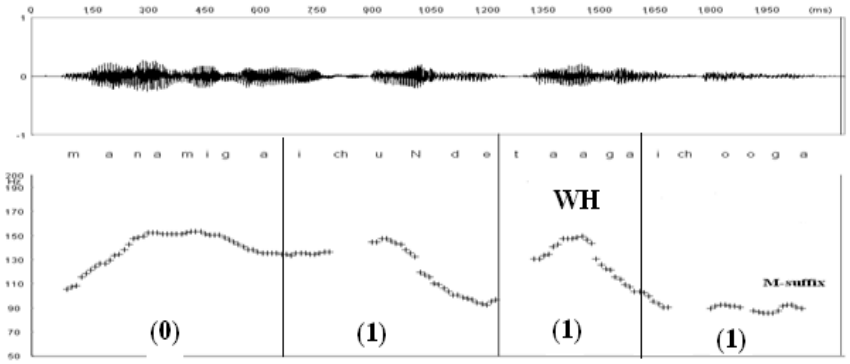


*Figure 18: F0 contour for (10b); Speaker A*




## 8. Syntax and intonation

The mapping between intonation and syntactic structure has been studied fairly well for Japanese. In this section, two types of syntactic influence on intonation in Shuri Ryukyuan are examined. The first is the formation of adjective phrases and the second is the difference between left- and right-branching.

### 8.1. Manifestation of adjective phrases

In Japanese, when more than two words with falling accent constitute a phrase or a clause, the accent of the following words is manifested at a lower pitch register than that of the first word. In some cases, the accents of the following words can be deleted completely. Several different terms have been proposed for this phenomenon, but the term 'downstep' is employed in this paper. Kori (1997) suggests the following three syntactic factors that induce downstep in Japanese:

(1) an adjective phrase where a noun is modified by a preceding adjective or by another noun with the genitive particle *no*
(2) a verb phrase where a verb is modified by a preceding adverb, and
(3) parallel expressions combined by 'and'.

In addition, he also lists 'focus' as a pragmatic factor that induces downstep.

Since even a flat accent is known to show downstep in Shuri Ryukyuan (*Dictionary of Okinawan* 1963, Nagano-Madsen & Karimata 2009), all accent combinations were examined in relation to the formation of adjective phrases. The adjective phrase is composed of either *magisaru*(0) 'big' or *marusaru*(1) 'round' as the adjective and *maami*(0)' beans' or *maai*(1) 'diameter' as the noun.

| | | | |
|---|---|---|---|
| (11) | (a) | *magisaru*(0) *maami*(0) | 'big beans' |
| | (b) | *magisaru*(0) *maai*(1) | 'big diameter' |
| | (c) | *marusaru*(1) *maami*(0) | 'round beans' |
| | (d) | *marusaru*(1) *maai*(1) | 'round diameter' |

The results are shown in Figures 19 to 22. It can be observed that in all cases, the adjective phrase forms a single accentual phrase with a single initial F0 rise as defined by Pierrehumbert & Beckman (1988). Particularly interesting cases are found for the combinations (0)+(0) and (1)+(1). In Tokyo Japanese, the combination (0)+(0) is manifested at a high level F0, while in Shuri Ryukyuan, the second flat accent is manifested at a lower level with or without initial F0 rise. In the example shown in Figure 19, there is no initial F0 rise for the second word but it is common to have the initial F0 rise at the lower pitch level so that it looks like a downstep. Figure 22 shows the combination (1)+(1) in which the second accent is completely deleted. There is a greater F0 rise at the onset of the utterance which is characteristic for focus manifestation. Comparison of all four figures indicates that only Figure 22 is produced with such a typical focus manifestation. Therefore, it is difficult to conclude whether all the adjective phrases with (1)+(1) combination show this pattern or not.

Previous studies report that the exact manifestation of downstep differs among the dialects of Japanese. Comparing Tokyo and Kochi Japanese, Nagano-Madsen (2008) reports that Tokyo Japanese has a tendency to delete the accent of the second word as a function of speaking rate, while Kochi Japanese does not. The magnitude of the downstep is also considerably smaller in Kochi Japanese than in Tokyo Japanese. Other data obtained from Shuri Ryukyuan suggests that this language may be yet another type in which the falling accent is more easily deleted than it is for Tokyo Japanese.

*Figure 19: F0 for (11a); Speaker A*

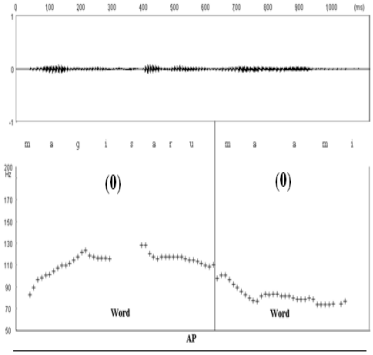



*Figure 20: F0 for (11b); Speaker A*

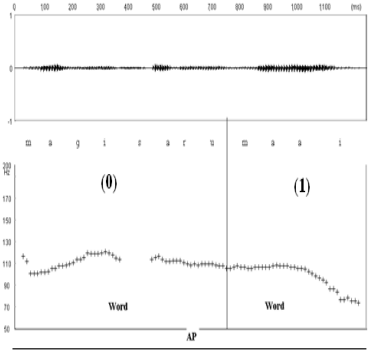



*Figure 21: F0 for (11c); Speaker A*

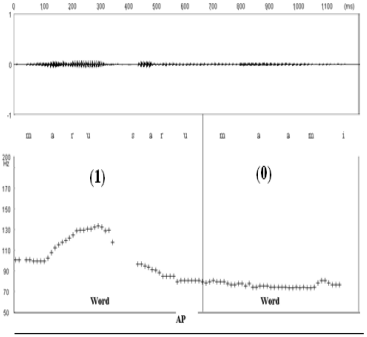
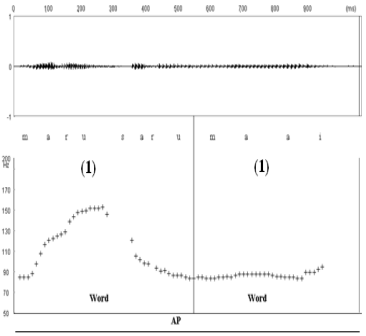



*Figure 22: F0 for (11d); Speaker A*



## 8.2. Left branching vs. right branching

Previous studies agree that the syntactic difference between left-branching and right-branching is well manifested in intonation, not only for Tokyo Japanese but also for other dialects of Japanese. According to Kubozono (1988), a right-branching syntactic boundary introduces F0 boosting while a left-branching boundary does not in Tokyo Japanese. A similar effect is found in other dialects of Japanese, see Igarashi (to appear) for a review. The effect of left-branching and right-branching was tested for the two sets in (12) and (13), adopted from Maekawa (1997) and adjusted for Ryukyuan.

Comparison of the F0 contours shows that the syntactic difference of left-branching vs. right-branching is manifested in intonation in Shuri Ryukyuan (Figures 23 and 24). The arrows 1 and 2 in the figures indicate the syntactic boundaries.

(12) (a) *left-branching*

| | | | |
|---|---|---|---|
| [[[*akasaru*(1) | *iibi-nu*(0)] | *uubi*(0)] | *a-N*(0)] |
| red | shrimp-GEN | obi | exist-I |

'There is a red shrimp (pattern) obi.'

(b) *right-branching*

| | | | |
|---|---|---|---|
| [[*akasaru*(1)] | [*miisaru*(1) | *uubi*(0)] | *a-N*(0)]] |
| red | new | obi | exist-I |

'There is a new red obi.'

(13) (a) *left-branching*

| | | |
|---|---|---|
| [[*jiroo-ga*(0) | *yum-i-nee*(0)] | [*niNzibusj-a-N*(1)]] |
| HUM-NOM | read-PRES-CNJ | sleepy-exist-I |

'When Jiroo reads, I become sleepy.'

(b) *right-branching*

| | | |
|---|---|---|
| [[*jirooya*(0) | [*num-i-nee*(0) | [*niNzibusj-a-N*(1)]]] |
| HUM-TOP | drink-PRES-CNJ | sleepy-exist-I |

'Jiroo becomes sleepy when he drinks.'

*Figure 23 : F0 contours for (12a) (dark) and (12b (light); Speaker A.*

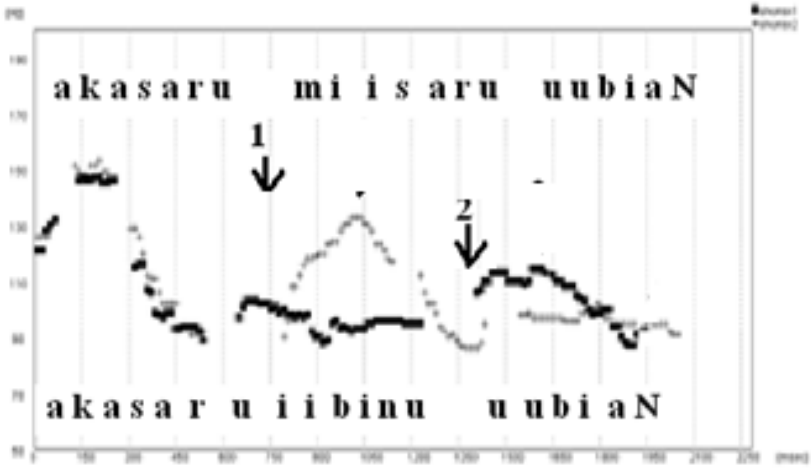
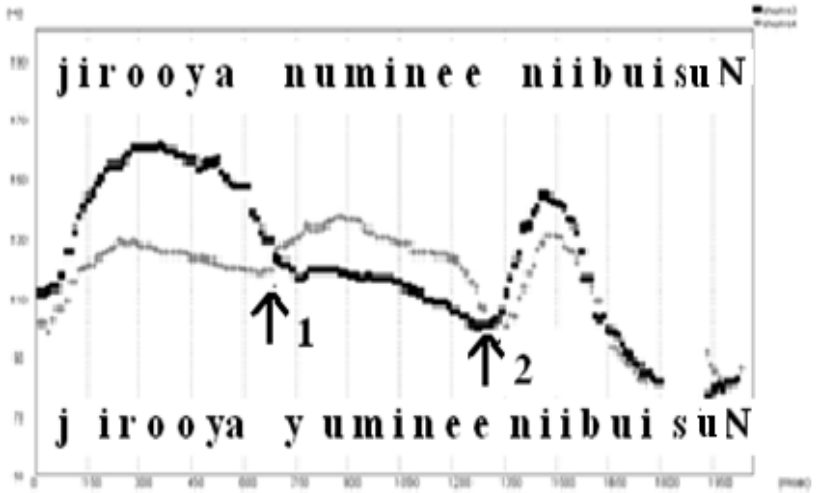



*Figure 24: F0 contours for (13a) (dark) and (13b) (light); Speaker A*



## 9. Focus and intonation

How focus is manifested in intonation has been studied widely for Tokyo Japanese, Osaka Japanese, and a few other dialects that are typologically interesting. For a compact summary, see Igarashi (to appear). A typical manifestation of focus in Japanese is an expanded F0 for the focused word and compressed F0 for post-focal words. We have already seen such a manifestation of focus in Figures 16 and 22.

In this section, the intonational manifestation of focus that is grammatically specified by the use of the *kakari-musubi* construction will be examined. *Kakari-musubi* is a particle-predicate concord construction that was common in Old Japanese but afterwards disappeared from Japanese. However, *kakari-musubi* is still widely observed among the Ryukyuan dialects. Whether *kakari-musubi* should be regarded as evidence that Old Japanese had overt *wh-* and focus movement, as Watanabe (2002) claims, is still an unsolved issue. As such, the present data on Ryukyuan intonation in *kakari-musubi* sentences can be considered a unique contribution.

### 9.1. Focus by *kakari-musubi*

In most Ryukyuan dialects, the rule of grammatical agreement called *kakari-musubi* exists. The *kakari* particle is the particle that is attached to the phrase to be focused and it requires the sentence final *musubi* morpheme as an obligatory construction. In other words, the focused word or phrase is grammatically marked by the *kakari* particle and the sentence final mood suffix indicates that the sentence has a focus element. In Shuri Ryukyuan, both the *kakari* particle and the corresponding mood suffix are divided into two sets depending on whether the sentence is declarative or interrogative. The *kakari* particle–*musubi* suffix combination is *du–ru* for declaratives while it is *ga–ra* for interrogatives. *Kakari-musubi* in Old Japanese and Ryukyuan has received considerable interest from grammarians, and Watanabe (2002) argues that Old Japanese had *wh-* and focus movements. Though I have no illusion that the present data from Ryukyuan should support this argument, it may be of interest how the *kakari-musubi* sentences in Ryukyuan are manifested in intonation.

#### 9.1.1. Declarative and interrogative sentences with *kakari-musubi*

This section analyzes focus declarative sentences with the *kakari-musubi du–ru* and yes-no questions with the *kakari-musubi ga–ra*. The *kakari* particles *ru* and *du* are used for declaratives while the *kakari* particle *ga* is used for interrogatives. In (14) and Figure 25, it is *manami* that receives focus while in (15) and Figure 26, it is *(naafa) Nkai* that receives focus. In these utterances, the phrases with the *kakari* particle are focused and after the *kakari* particle,

the accent of the verb is deleted or strongly compressed. This manifestation is similar for the cases found in *wh*-sentences and sentences produced with pragmatic focus.

(14) *manami*(0) *ga-**ru***(1) *wass-a-n-di*(0) *irat-too-**ru***(1)
HUM NOM-FOC bad-exist-I-C say-STAT-Q
**'Manami** is said to be wrong.'

(15) *manami-ya*(0) *naafa*(0) *Nkai-ga*(1) *ich-u-ra*(1)
HUM-TOP Naha LOC-FOC go-PRES-Q
'Is Manami going to **Naha**?'

*Figure 25: F0 contour for (14); Speaker A*

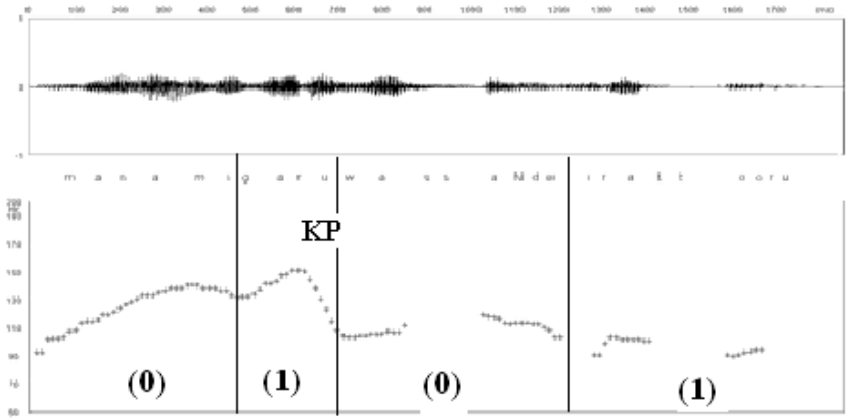
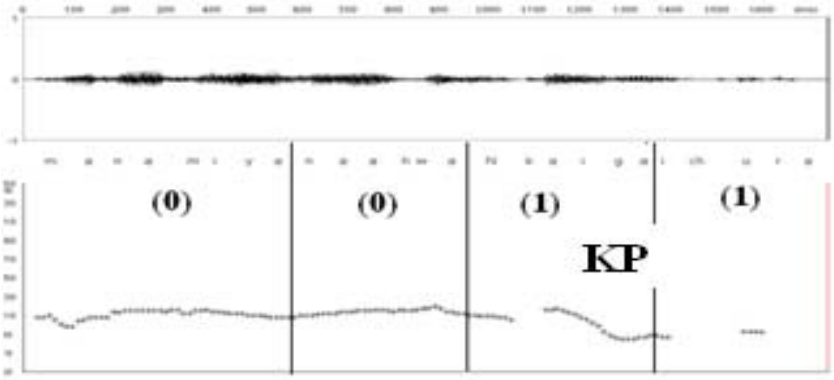


*Figure 26: F0 contour for (15); Speaker A*




### 9.1.2. *Wh*-question with *kakari-musubi* focus

In this section, *wh*-questions with and without focus in Shuri Ryukyuan are compared. In the former, the mood suffix *+ga* appears, while for the latter, it changes to *+ra.* The mood suffix *+ra* corresponds to the *kakari* particle *ga* that indicates the focus of the sentence.

Figures 27 and 28 show the intonation contours for sentences (16a) and (16b). When the *wh*-word is followed by a case particle and then by a *kakari*-particle as in (16b), Figure 28, it shows the intonation pattern in which only the *kakari*-particle is focused. The falling accent of the *wh*-word *taa* is deleted or strongly compressed here. In other words, both the preceding and the following accents are deleted or strongly compressed in this utterance to focus on the case particle. A similar effect is found for sentence (16d) as well, see Figure 29.

From these data, it can be summarized that the *kakari* particle has the strong focus effect of deleting both the preceding and the following accent only when it is attached to another particle but not to a content word.

In Figure 29, two types of *wh*-sentences, (16c) and (16d), are compared. In both sentences, the F0 corresponding to the *wh*-word is manifested at a higher pitch range while the falling accent of the sentence final predicate verb *ichu-* is deleted. It is the particle that precedes the *kakari* particle, i.e. *Nkai,* and not the entire phrase *maaNkai* that is focused.

(16) (a) *nuu-ga*(0) *s-oo-ra*(1)
what-NOM do-STAT-Q
'What the hell are you doing?'

(b) *taa-ga-ga*(1) *ich-u-ra*(1)
who-NOM-FOC go-PRES-Q
'Who the hell is going?'

(c) *maa*(0) *Nkai*(1) *ich-u-ga*?
where LOC go-PRES-Q
'Where are you going?'

(d) *maa* *Nkai-ga* *ich-u-ra*
where LOC-FOC go-PRES-Q
'Where the hell are you going?'

*Figure 27: F0 contour for (16a); Speaker A*

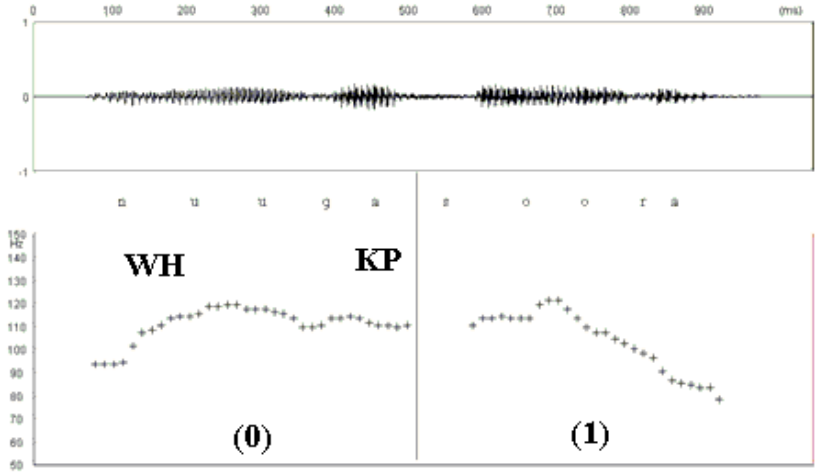


*Figure 28: F0 contour for (16b); Speaker A*

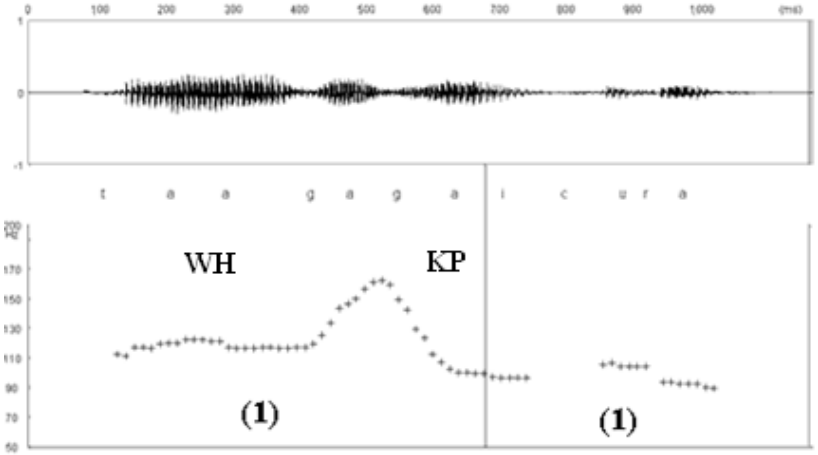
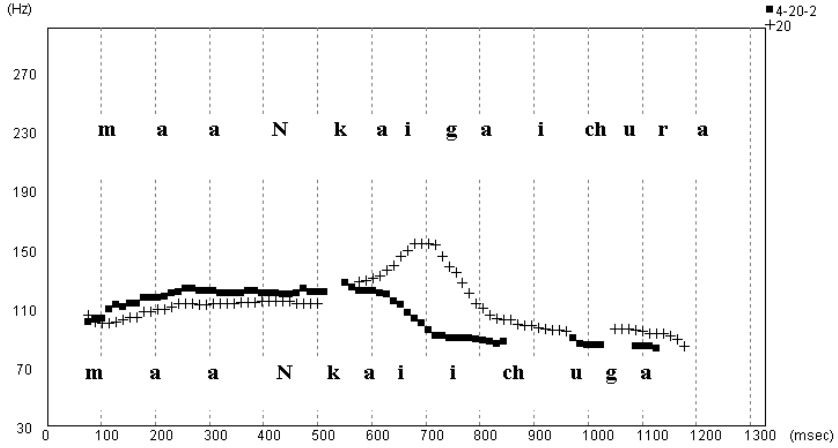



*Figure 29: F0 contours for (16c) (thick dots) and (16d); Speaker A*



## 10. Summary

This paper has documented and described intonation in Shuri Ryukyuan with reference to modality, syntax, and focus. A typologically interesting finding was obtained for the manifestation of the question intonation since Ryukyuan employs a set of interrogative suffixes that are rare among the world's languages. It was shown that interrogative and declarative sentences take basically the same sentence final F0 contour that is determined by the accent type of the verb. Thus, the dichotomy of rising vs. falling sentence final intonation, used for Tokyo Japanese, cannot be applied to Shuri Ryukyuan.

In *wh-* and focus sentences, complicated rules are found as to exactly how their intonation contours are determined. Since Shuri Ryukyuan has a grammatically specified focus construction known as *kakari-musubi*, this is yet another typologically interesting area in intonation studies.

### References

Cruttenden, Alan. 1994. Rises in English. In Jack Windsor Lewis (ed.), *Studies in general and English phonetics: essays in honour of Professor J.D. O'Connor,* 155–73. London: Routledge.

Hattori, Shiro. 1949 [1960]. Bunsetsuto akusento [Bunsetsu and accent]. *Gengogaku no hoohoo*. Tokyo: Iwanami Shoten.

Igarashi, Yosuke. To appear. Typology of intonational phrasing in Japanese dialects. To appear in Sun-Ah Jun (ed.), *Prosodic typology, the 2nd volume*. New York: Oxford University Press.

Kawakami, Shin. 1963. Bunmatsunadono jyooshoochooni tusite [On sentence final rising intonation]. *Kokugo Kenkyu* 16, 25–46.

Kibe, Yoko. 1997. Kagoshimashino intoneeshon [Intonation in Kagoshima city]. *Shohoogenno akusentoto intoneeshon,* 249–266. Tokyo: Sanseido Shoten.

Kibe, Yoko. 2008. The database construction of the intonation systems in Japanese dialects and the description of the prosodic structures [in Japanese]. Project report for National Science Foundation Subsidy Research.

Kindaichi, Haruhiko. 1974. *Historical study of Japanese accent: principles and methods*. Tokyo: Shima Shobo.

Kokuritsu Kokugo Kenkyujyo [National Institute for Japanese Language] (ed.). 1963. *Okinawago-Jiten* [Dictionary of Okinawan].

Kori, Shiro. 1997. Nihongono intoneeshon, katato kinoo [Intonation in Japanese: form and function]. *Akusento, intoneeshon, rizumu to poozu*, 169–202. Tokyo: Sanseido shoten.

Kubozono, Haruo. 1988. *The organization of Japanese prosody*. Ph.D. dissertation, Edinburgh University.

Kubozono, Haruo. 1993. *The organization of Japanese prosody* (*Studies in Japanese linguistics* 2). Tokyo: Kurosio Publisher.

Maekawa, Kikuo. 1997. Akusentoto intoneeshon, akusentono nai chiiki [Accent and intonation, accentless area]. *Shohoogenno akusentoto intoneeshon,* 97–122. Tokyo: Sanseido Shoten.

Makarova, Veronika. 2001. Perceptual correlates of sentence type intonation in Russian and Japanese. *Journal of Phonetics* 29, 137–154.

Miyara, Shinsho. 2000. *Uchinaaguchi kooze, Shuri kotobano shikumi* [Lectures on Ryukyuan]. Naha: Okinawa Times.

Nagano-Madsen, Yasuko. 1996. Review: the speech corpus and database of Japanese dialects. *Working Papers* 45, 151–156. Department of Linguistics and Phonetics, Lund University.

Nagano-Madsen, Yasuko. 2008. Daunsuteppunimiru Kochi hoogenno intoneeshonno tokuchoo [Characteristics of downstep and intonation in Kochi Japanese]. *Working Paper* 3, 83–91. Ryuugakusei Shien Bumon, Kochi University.

Nagano-Madsen, Yasuko & Takako Ayusawa. 2011. Nihongoni okeru kanjyoo hyoogento intoneeshon [Emotion and intonation in Japanese]. *Speech and Grammar* I, 61–83. Tokyo: Kuroshio Publication.

Nagano-Madsen, Yasuko & Shigehisa Karimata. 2009. Syuri hoogen akusentono onseiteki jittai [Phonetic realization of the accent in Shuri Ryukyuan]. *Ryukyu no Hogen* 33, 65–86.

Pierrehumbert, Janet & Mary E. Beckman. 1988. *Japanese tone structure.* Cambridge MA: MIT Press.

Sakimura, Hirofumi. 2006. *Kyuusyuu hougento ryuukyuu hougenno inritsuno kenkykuu* [Prosody of the Ryukyu dialect and Kyushu dialect]. Tokyo: Meiji Shoin.

Sugito, Miyoko. 1994. An overview of studies on Japanese prosody. *The Study of Sounds* 23, 227–271.

Takada, Mieko & Takako Ayusawa. 2006. The Intonation of interrogative utterance in the Japanese dialogs: analysis of 'TUFS Language Module'. In Yuji Kawaguchi, Ivan Fónagy & Tsunekazu Moriguchi (eds.), *Prosody and syntax,* 239–264. Amsterdam: John Benjamins.

Watanabe, Akira. 2002. The loss of overt *wh*-movement in Old Japanese. In David Lightfood (ed.), *Syntactic effects of morphological change,* 179–195. Oxford: Oxford University Press.