Intonational variations at the end of interrogative sentences in Japanese dialects : From the "Corpus of Japanese Dialects"

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Intonational Variations at the End of Interrogative Sentences in Japanese Dialects: From the "Corpus of Japanese Dialects"

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Abstract

In general, it is said that interrogative sentences have a final rising intonation (Kori 2003). However, this rule is not true of some Japanese dialects. Kibe (2010, 2011,2013) classify sentence-final tones of interrogatives in Japanese dialects into four types: Type A as a rising tone (Tōkyō dialect), Type B as a falling tone (Hirosaki dialect, Kagoshima dialect), Type C as a rising/falling tone (Hiroshima dialect), and Type D as a gradual rising tone (Fukuoka dialect). Since the data in Kibe (2010, 2011 and 3013) were extracted from an existing nation-wide dialect survey where an elicitation task was employed, it is not clear whether how much such intonation patterns appear in a spontaneous speech in each region. This article examines sentence-final tones of interrogatives extracted from a natural discourse stored in the "Corpus of Japanese Dialects" (COJADS), which is currently in preparation for release by the National Institute for Japanese Language and Linguistics (NINJAL). The results revealed that the four types are attestable even in a natural discourse, and furthermore, we identified a dialect such as Hirosaki dialect which distinguishes interrogatives from declaratives by the pitch range in the final falling tone.

Keywords: rising tone, falling tone, wh-question, yes/no question, Mito dialect, Hirosaki dialect, Kagoshima dialect

1. Introduction

In general, it is said that interrogative sentences have a final rising intonation. Modern standard Japanese also uses a rising tone at the end of wh-questions and yes/no questions. However, this rule is not true of some Japanese dialects. For instance, in the Hirosaki dialect, spoken in Aomori Prefecture in the northwestern part of Japan, and the Kagoshima dialect, spoken in Kagoshima Prefecture in the southern part of Japan, a falling tone appears both in wh-questions and yes/no questions. In some dialects, like Matsumoto dialect, spoken in the Chūbu area, and the Hiroshima dialect, spoken in the Chūgoku area, a final rising tone is used for wh-questions but a falling tone is used for yes/no questions.

In the previous studies, the following four patterns were identified as sentence-final tones of interrogatives in Japanese dialects (Kibe 2010, 2011,2013).

Type A: Rising tone <Tōkyō dialect>

Interrogative sentences are pronounced with a final rising tone, regardless of whether any interrogative word or interrogative final particle is used or not.

Type B1: Falling tone <Hirosaki dialect>

Interrogative sentences are pronounced with a falling tone, regardless of whether any interrogative word or interrogative final particle is used or not.

Type B2: Falling tone – final particle <Kagoshima dialect>

Interrogative sentences always contain an interrogative word form or interrogative final particle, and such sentences are pronounced with a final falling pitch.

Type C: Rising tone / falling tone < Hiroshima dialect>

Interrogative sentences with an interrogative word form are pronounced with a final falling pitch, and

sentences without an interrogative word form are pronounced with a final rising tone.

Type D: Gradual rising tone <Fukuoka dialect>

Interrogative sentences are pronounced with a gradual rise starting from an interrogative word at the beginning to the end of the sentence.

This report provides an overview of rising and falling tones at the end of interrogatives in Japanese dialects. We do not discuss Ryukyuan languages since further research is needed.
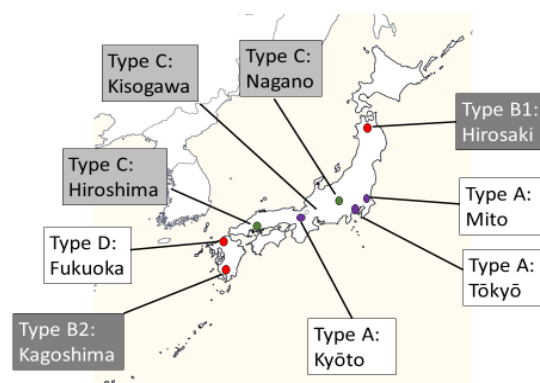

Figure 1: Sites where the data used in this report were collected

2. Data

The data of this article was obtained from recorded conversations in "*Kakuchi Hōgen Shūshū Kinkyū Chōsa*" (Urgent surveys to collect data of dialects throughout the nation), which was led by the Agency for Cultural Affairs, Governments of Japan, and "*Nihongo Onsei*" (Japanese Prosody, JP), which stores recordings of Japanese dialects as audio DVDs (Grant-in-Aid for Scientific Research from 1989 to 1992). The recording of "*Kakuchi Hōgen Shūshū Kinkyū Chōsa*" was conducted from 1977 to 1985 at 224 sites throughout the nation (A part of the data is published

by *Zenkoku Hōgen Danwa Dētabēsu: Nihonno Furusato Kotoba Shūsei vol.1 ~ vol.20* (Speech Database of Japanese Dialects: Collection of Japanese Dialects)). The data is currently stored at NINJAL and became searchable using the corpus COJADS (Corpus of Japanese Dialects), which we used for data extraction.

3. Analysis on final tones in Japanese dialects

3.1 Tōkyō and Mito Dialect (Type A)

Tōkyō and Mito dialects have a final rising tone both in wh-questions and yes/no questions. Examples in the following sections are such interrogative sentences. (The shaded part is an interrogative word form or an interrogative final particle. ↑ represents a rising tone, ↓ represents a fallig tone.)

3.1.1 Tōkyō dialect

The following are examples of the pitch patterns in interrogatives in the Tōkyō dialect. The sentence in (1a) is a wh-question, and the sentence in (1b) is a yes/no question, both of which are usually pronounced with a rising tone.

> (1a) *nani=ŋa   hosii* ↑
>   what= ACC   want
>   "What do you want?"

> (1b) *nanika   hosii* ↑
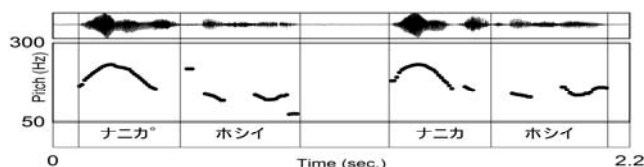>   anything want
>   "Do you want anything?"

Figure2:

"What do you want?"   "Do you want anything?"
(from JP)

If the former sentence is pronounced with a falling pitch, as in (2a), it can be interpreted as a question with a modal meaning such as reproach or antipathy (Moriyama 1989). For example, (2a) can convey impatience, implying "I bought this and that for you. What more do you want?" If the sentence in (1b) is pronounced with a falling pitch, as in (2b), it simply means "I (the speaker) want something."

> (2a) *nani=ŋa   hosii* ↓
>   what= ACC   want
>   "What do you want?"(with reproach or antipathy)

> (2b) *nanika   hosii* ↓
>   anything want
>   "I want something."

It is often said that the final particle *=ka* used in the Tōkyō dialect conveys an interrogative meaning. In reality, however, the final particle *=ka* can have an interrogative meaning only when it appears with a rising tone at the end of a sentence. If a sentence with the final particle *=ka* is pronounced with a final falling pitch, the sentence conveys the speaker's acceptance of the fact stated in the sentence, as exemplified below:

> (3a) *hanako=to   kjo:to=e   it-ta=ka*↑
>   Hanako=COMIT   Kyōto=ALL   go-PST=SFT.Q
>   "Did you go to Kyōto with Hanako? "

> (3b) *hanako=to   kjo:to=e   it-ta=ka*↓
>   Hanako=COMIT   Kyōto=ALL   go-PST=SFP
>   "You did go to Kyōto with Hanako."

The sentence with a rising tone in (3a) is an interrogative sentence asking whether the addressee went to Kyōto with Hanako. Contrastively, the sentence with a final falling pitch in (3b) can be used in a case where the speaker mutters to himself/herself and reluctantly accepts the fact that the addressee went to Kyōto with Hanako. In the Tōkyō dialect, therefore, *=ka* is not necessarily used to convey an interrogative meaning. An interrogative sentence is made by adding a final rising intonation to *=ka*, rather than just by adding *=ka* at the end. Thus, in yes/no questions in the Tōkyō dialect, including sentences ending with *=ka*, an interrogative meaning can be conveyed only by a sentence-final rising tone.

The same applies to wh-questions. Having an interrogative word form in a wh-question clearly marks the sentence as interrogative. Therefore, such a sentence should not need to be pronounced with a final rising tone. (In English, a final falling pitch is used in wh-questions, like "What is this?") In the Tōkyō dialect, however, a final rising tone is generally used in wh-questions. Thus, in this dialect, a final rising tone serves as an interrogative marker. Conversely, a sentence that is not pronounced with a final rising pitch is regard as a non-interrogative sentence or an interrogative with a special meaning as seen in (2a).

3.1.2 Mito dialect

Interrogatives in Mito dialect are pronounced with a rising tone in the same way as the Tōkyō dialect. The following examples show the pitch patterns in Mito dialect. The sentence in (4a) is a wh-question, and (4b) is a yes/no question, both of which are usually pronounced with a rising tone.

> (4a) *maa are nani=sa   it-ta=N=dak=ke* ↑
>   FILL that what=ACC   good-PST=NMLZ=COP=SFP.Q
>   "Well, what is that good for?"

> (4b) *are siɴkeetuu=ke*↑
>   that neuralgia=SFP.Q
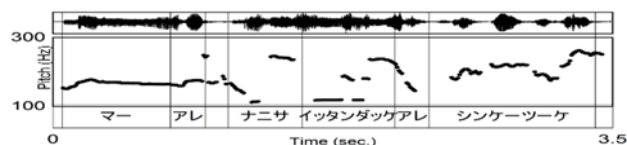>   "Is that neuralgia?"

Figure 3:
"Well, what is that good for?" "Is that neuralgia?"
(from COJADS)

Tables 1 and 2 below show sentence-final pitch patterns of wh-questions and yes/no questions in Mito dialect in COJADS. "A" and "B" in the column "ID" represent individual speakers (A is male and B is female in this example. recording time: 38'50 ").

	final tone			total
	rising	falling	rising faling	
WH	3	0	1	4
Y/N	4	0	0	4

Table 1: Number of pitch patterns (Mito dialect)

ID Utterance	Question Type	Sentence-final tone
(1.1) 17A *naɴ=tyuu=ke* what=QUOT=SFP.Q "What do we call that?"	WH	↑
(1.2) 142A *naɴ=tuu=ke* what=QUOT=SFP.Q "What do we call that?"	WH	↑
(1.3) 244B *doɴna kusa=desu=ka* what grass=COP.HON=SFP.Q "What kind of grass is it? "	WH	↑
(1.4) 488B *naɴ=tuu=ke=ne* what=QUOT=SFP.Q=SFP "What do we call that?"	WH	↑↓
(1.5) 203A *siɴkeetuu=ke* neuralgia= SFP.Q "Is that neuralgia? "	Y/N	↑
(1.6) 263B *sore=wa tiɲai=masu=ka* that=TOP different=HON=SFP.Q "Is it wrong? "	Y/N	↑
(1.7) 414A *kikime=ŋa haee=ɴ=da nee= ge* effect=NOM fast=NMLZ=COPNEG=SFP.Q "Doesn't it work fast? "	Y/N	↑
(1.8) 1097A *siti+hati+neɴ=ni nak=ka=na* 7+8+years=DAT become=SFP.Q=SFP "Has it been 7 or 8 years? "	Y/N	↑↓

Table 2: Examples of interrogative sentences (Mito dialect)

Table 2 shows that interrogatives in Mito dialect always has the sentence-final particle *=ke* and the *=ke* is always pronounced with a rising pitch. In addition, other particles can follow *=ke* , such as *=ne* (1.4) and *=na* (1.8) which are used to address listeners. In this case, *=ne* or *=na* is accompanied with a falling tone.

3.2 Hirosaki Dialect (Type B1)

The Hirosaki dialect has a final falling tone both in wh-questions and yes/no questions. The following are examples of such interrogative sentences.

(5a) *doosute sono mada rosuya+zuɴ*
    why   FILL   FILL   Russian[NOM]

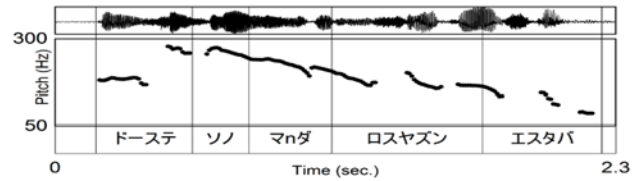   *e-su-ta=ba* ↓
    be-HON-PST=SFP
    "Why was there a Russian?"

Figure 4: "Why was there a Russian?" (from COJADS)

(5b) *beɴzya=sa tumakawa*
    clogs =ALL   top.cover[NOM]

    tude   ae-su-ta=gaa ↓
    attach.SEQ   be-HON-PST=SFP.Q

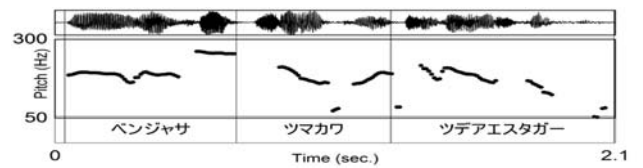"Does the beɴzya (a kind of Japanese clogs with iron blades) have a top cover?"

Figure 5: "Does the beɴzya have a top cover?" (from COJADS)

The sentence in (5a) is a wh-question, and (5b) is a yes/no question, both of which are usually pronounced with a falling tone. As discussed in Section 3.1, Tōkyō and Mito dialects always have a sentence-final rising tone in interrogatives; conversely, The Hirosaki dialect usually has a falling tone in interrogatives. Tables 3 and 4 show sentence-final pitch patterns of wh-questions and yes/no questions in the Hirosaki dialect in COJADS (A and B are male, and C is female. recording time: 36'26 ").

	final tone		total
	rising	falling	
WH	1	3	4
Y/N	1	5	6

Table 3: Number of pitch patterns (Hirosaki dialect)

ID Utterance	Question Type	Sentence-final tone
(2.1) 011C *doosute sono mada rosuya+zuɴ* why FILL FILL Russian[NOM] *e-su-ta=ba* be-HON-PST=SFP "Why was there a Russian?"	WH	↓
(2.2) 051B *doyate nomu=ɴ=zu* how drink=NMLZ=SFP "How do you drink it?"	WH	↓
(2.3) 036B *naɴ=te su-ta=moɴ=da=be* what=QUOT say-PST=NMLZ=COP=INFR "How would we say that?"	WH	↓

(2.4) 108C *nani kimono ki-tera* what clothes[ACC]wear-PROG "What kind of kimono do you wear?"		WH	↑
(2.5) 063C *neɴde ae-su-ta=ga* exist.NEG.SEQ be-HON-PST=SFP.Q "Isn't it there? "		Y/N	↓
(2.6) 076C *saɴbu=desu=ga* 3/8.intches=COP.HON=SFP.Q "Is it saɴbu (3/8 inches)?"		Y/N	↓
(2.7) 098C *beɴzya=sa tumakawa* clogs=ALL top.cover[NOM] *tude ae-su-ta=gaa* attach.SEQ be-HON-PST=SFP.Q "Does the beɴzya have the top cover?"		Y/N	↓
(2.8) 024A *aɴta-dazu waga-ne=ga* 2-PL[NOM]know-NEG=SFP.Q "Don't you understand it?"		Y/N	↓
(2.9) 055C *tama-ko tusegu naru=* ball-DIM[NOM] small become= *ɴ=de heɴ=be* NMLZ=COP.SEQ NEG.HON=INFR "Is the ball not getting smaller?"		Y/N	↓
(2.10) 114C *paɴtu hai-deraa* underpants[ACC] wear-PROG "Are you wearing underpants?"		Y/N	↑

Table 4: Examples of interrogative sentences
(Hirosaki dialect)

The sentence-final particle *=ga* (*gaa*) in examples (2.5) - (2.8) in Table 4 marks the sentences as interrogative. Table 4 indicates that, in the Hirosaki dialect, a wh-question contains a wh-phrase in a sentence, and a yes/no question is marked by the particle *=ga* (*gaa*), both of which are generally accompanied with a falling tone.

However, the examples (2.9) and (2.10) in Table 4 are interrogative without containing a wh-phrase or the particle *=ga* (*gaa*) (The sentence-final particle *=be* in the example (2.9) indicates an assumption, and *-deraa* in the example (2.10) is a morpheme to express an aspect (progressive), and thus, neither of them does not mark a sentence as interrogative.) It suggests that these sentences are marked as interrogative by the final falling tone. (The example (2.10) is pronounced with a final rising tone. This sentence can be interpreted as a question with a modal meaning.)

In the Hirosaki dialect, a declarative sentence is pronounced with falling tone too. How is a yes/no question distinguished from a declarative sentence in the Hirosaki dialect where both are pronounced with a falling pitch? The following sentence-final pitch patterns are identified from examining examples in COJADS:

(6) There is a difference in the pitch range of falling between wh-questions, yes/no questions, and declarative sentences, whereby yes/no questions have the largest falling and declaratives have the smallest (Figure 6, 7, and 8).

Figure 6:   Figure 7:   Figure 8:
wh-question   yes/no question   declarative

Table 5 shows the average pitch ranges as falling for each sentence type.

Sentence Type	Average pitch range as falling (Hz/s)
wh-question	152.696
yes/no question	170.098
declarative	**129.41**

Table 5: Difference in the degree of falling between sentence types (Hirosaki dialect)

As Table 5 shows, yes/no questions have a large pitch fall in comparison to declarative sentences. We conducted a t-test in order to verify whether the difference is statistically significant. For the purpose of normalizing the difference between f0 values of the sentence types across speakers, we calculated z-scores of f0 values for each speaker, and then calculated the difference between the highest and lowest (z-scored) f0 values. The result of the t-test confirmed that there is a statistical significant difference in the z-scored pitch range between yes/no questions and declaratives with a significance level of 5% ($p = 0.019$). This result indicates that the Hirosaki dialect distinguishes interrogatives from declaratives by the pitch range.

Although the data is not abundant and conditions of examples found in a natural discourse are difficult to control, the current data from the COJADS indicates that the Hirosaki dialect distinguishes interrogatives and declaratives by the pitch range. Previous studies have reported that dialects in the Tohoku region use a final falling pitch for interrogatives (Yamaura 2000, Kibe 2010), but this is the first study that reveals the pitch range of falling in the Hirosaki dialect has a distinctive feature. Further research is needed to identify where the falling pitch starts in interrogatives and conduct a quantitative analysis.

3.3   Kagoshima Dialect (Type B2)

In the Kagoshima dialect, both wh-questions and yes/no questions are pronounced with a falling pitch as shown in the following (Kibe 1997):

(7a) *nai=ga   hoɕika=ka↓*
    what= ACC   want=SFP.Q
    "What do you want? "

(7b) *naika   hoɕi=ka↓*
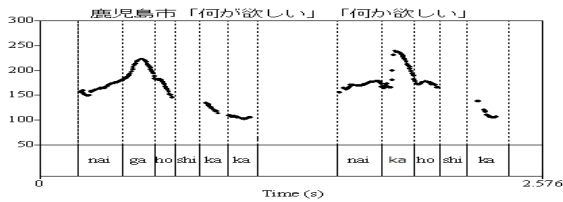   anything   want=SFP.Q
    "Do you want anything? "

Figure 9:
"What do you want?"   "Do you want anything?"
(from JP)

(8a) *dai=to*   *kjo:to =i*   *it-ta=ka:↓*
     who=COMIT   Kyōto=ALL   go-PST=SFP.Q
     "Who did you go to Kyōto with?"

(8b) *hanako=to*   *kjo:to=i*   *it-ta=to=ja↓*
     Hanako=COMIT Kyōto=ALL go-PST=NMLZ=SFP.Q
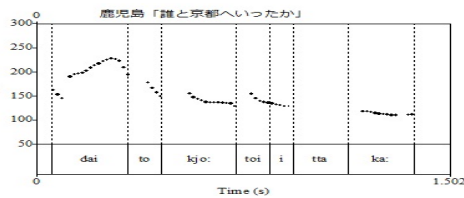   "Did you go to Kyōto with Hanako?"

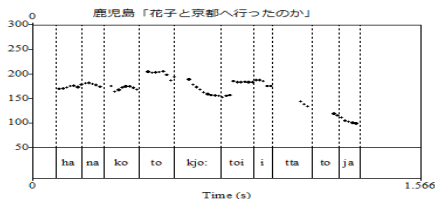Figure 10: "Who did you go to Kyōto with?"
(from JP)

Figure 11: "Did you go to Kyōto with Hanako?"
(from JP)

The sentences in (7a) and (8a) are wh-questions, and (7b) and (8b) are yes/no questions. The sentence-final particle *=ka* in (7a), (7b), and (8a) and the particle *=ja* in (8b) mark the sentences as interrogative. These sentences are all pronounced with a final falling pitch.

Tables 6 and 7 are lists of all wh-questions and yes/no questions in the Kagoshima dialect in COJADS (A and B are male, and C is female. recording time: 34'29 "), which show that the dialect always has an interrogative sentence-final particle (i.e. *=ka* (*ga*), *=ke* (*ge*), *=na*). A sentence without a sentence-final particle in interrogatives (e.g. *kjo:to↑* "Kyōto? ", *i ku↑* "You go") is unnatural in this dialect. The different particles reflect a type of relationship between a speaker and a listener; *=na* is used when a listener is older than a speaker, *=ke* (*ge*) is used when a listener is younger than a speaker, and *=ka* (*ga*) can be used for any relationship.

Tables 6 and 7 shows that most of the sentences are pronounced with a final falling pitch.

	final tone		total
	rising	falling	
WH	2	6	8
Y/N	0	7	7

Table 6: Number of pitch patterns (Kagoshima dialect)

ID Utterance	Question Type	Sentence-final tone
(3.1) 098A *naɴ+gak=ka* what+month=SFP.Q "What month?"	WH	↓
(3.2) 038A *taisyoo* Taisho(the era name) *naɴ+neɴ=dzyat-ta=ga* what+year=COP-PST=SFP.Q "What year was it in Taisho era?"	WH	↓
(3.3) 020A *naɴ+neɴ=no* what+year=GEN *koro=yat-ta=ga=nii* time=COP-PST=SFP.Q= SFP "Around which year was it?"	WH	↓
(3.4) 358B *naɴ=tyu=ga* what=QUOT=SFP.Q "What do we say?"	WH	↓
(3.5) 367A *dai=dzyat-ta=ga* who=COP-PST= SFP.Q "Who was it?"	WH	↓
(3.6) 013B *gena huu=dzyat-ta=ga* how appearance=COP-PST=SFP.Q "How was it?"	WH	↓
(3.7) 073C *naɴ+kwai=yay-taro=ga* what+frequency=COP-PST= SFP.Q "How many times is it?"	WH	↑
(3.8) 037B *do=yat-taro=ga* how=COP-PST. INFR=SFP.Q "How was it?"	WH	↑
(3.9) 52A *odzi=ŋa mugeme* uncle=NOM meeting *idat togoi=dzya nagat-ta=ga* go time= COP NEG-PST=SFP.Q "Has the uncle just left to pick up (someone)?"	Y/N	↓
(3.10) 58A *zuutto=zyar=a* always=COP.SEQ=TOP *se-ɴ= zyat-ta=ga* do-NEG=COP-PST=SFP.Q "Hasn't it been all the time?"	Y/N	↓
(3.11) 60C *geɴek=kara zuutto* active=ABL always *hito+tyure= zyar=a* one+chain=COP.SEQ=TOP	Y/N	↓

se-N=dzyat-ta=ga do-NEG=COP-PST=SFP.Q "Has it been like this before retirir		
(3.12) 13B *X2=ŋa* X2 (person's name) =GEN *odot=wa* brother=TOP *X4=dzyat-ta=ke* X4 (person's name)=COP-PST=SFP.Q "Was the brother of X2 X4?"	Y/N	↓
(3.13) 25A *seNsisya=wa hutai* war.deaths=TOP two.people *ot=to=na* be=NMLZ=SFP.Q "Were there two died in the war?"	Y/N	↓
(3.14) 54A *modot ki-ta=ge* return.SEQ come-PST=SFP.Q "Has (someone) come back? "	Y/N	↓
(3.15) 87C *modot-te* return-SEQ *ki-ta=moN=dzya* come-PST=NMLZ=COP *naga-do=na* NEG-INFR=SFP.Q "Is it not a case that the person came back?"	Y/N	↓

Table 7:Examples of interrogative sentences
(Kagoshima dialect)

3.4 Hiroshima Dialect (Type C)

Next, let's look at another type of Japanese dialect, which has a different intonation pattern from those of Tōkyō, Hirosaki and Kagoshima dialects.

In the Hiroshima dialect, interrogative sentences that contain any interrogative word forms are pronounced with a final falling pitch, and those without interrogative word forms are pronounced with a final rising tone. Some examples are as follows.

(9a) *dare=to   kjo:to=e   it-ta=N↓*
  who=COMIT Kyōto=ALL go-PST=SFP
  "Who did you got to Kyoko with? "

(9b) *hanako=to   kjo:to=e   it-ta=N↑*
  Hanako=COMIT Kyōto=ALL go-PST=SFP
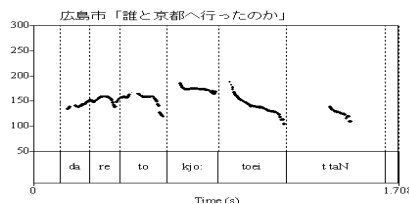 "Did you go to Kyōto with Hanako? "

Figure 12: "Who did you got to Kyoko with? "
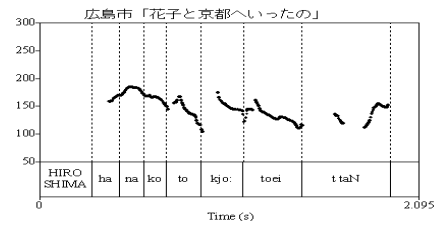(from JV)

Figure 13: "Did you go to Kyōto with Hanako? "
(from JP)

Please note that the final particle =N at the end of the sentences does not convey an interrogative meaning.

Tables 8 and 9 show sentence-final pitch patterns of wh-questions and yes/no questions in the Hiroshima dialect (A is male, B and C are female, recording time: 38'08 ").

	final tone			total
	rising	falling	rising falling	
WH	1	5	1	7
Y/N	2	6	0	8

Table 8: Number of pitch patterns(Hiroshima dialect)

ID Utterance	Question Type	Sentence-final tone
(4.1) 11A *naNbo naN=de nezir-yaa* how.many what=INST twist-COND *ee=N=zya* good=NMLZ=COP "How much should I twist it with what?"	WH	↓
(4.2) 2C *ar=yaa naN-gen* that=TOP how.many-CLF *aru=N=desu=ka* be=NMLZ=COP.HON= SFP.Q "How big is it?"	WH	↓
(4.3) 156C *otoosaN nani=i suru=N* father.VOC what=DAT do=NMLZ "What do you use it for, Dad?"	WH	↓
(4.4) 65C *hiti+hati yuu-tara* seven+eight say-COND *doNto=na=N=desu=ka* what=COP=NMLZ=COP.HON= SFP.Q "What is that *hiti-hati* like?"	WH	↓
(4.5) 109C *naNde ee=no ee=no* why good=SFP good=SFP *yuu-te tataki-yot-ta=N=* say-SEQ crap-PROG-PST=NMLZ= *desu=ka=no* COP.HON=SFP.Q=SFP "I wonder why people say 'good, good' when they crap their hands."	WH	↓
(4.6) 203C *ar=yaa dokoo=no* that=TOP where=GEN *miNgee=desu=ka* folk.craft=COP.HON= SFP.Q "Where do people make such folk crafts?"	WH	↑

(4.7) 16C *imaa nanyu=u yuu-te* now what=ACC say-SEQ *ee=desu=ka=ne* good=COP.HON=SFP.Q=SFP "What do we call it now? "	WH	↓↑
(4.8) 53C *tama=a aru=ka* ball=TOP be=SFP.Q "Is there a ball?"	Y/N	↓
(4.9) 60A *ano-gurai=zya nai=ka* that-approximately=COP NEG=SFP.Q "Isn't that about it?"	Y/N	↓
(4.10) 126B *moo nat-ta=N=* already become-PST=NMLZ= *desu=ka* COP.HON=SFP.Q "Is it registered as a cultural heritage yet?"	Y/N	↓
(4.11) 163B *mai+baN mai+baN* evry+night every+night *aa yat-te tak-areru=* that.way do-SEQ boil-HON= *N=desu=ka* NMLZ=COP.HON=SFP.Q "Does he boil the bamboos every night?"	Y/N	↓
(4.12) 222B *hurawaa=desu=ka* flower=COP.HON=SFP.Q "Is it Flower Festival? "	Y/N	↓
(4.13) 240C *son-kurai=gurai=de* that-approximately=approximately=INST *deki=mahyoo=ka* make=HON.INFR=SFP.Q "Can we make it at the cost of approximately that much?"	Y/N	↓
(4.14) 59C *naNka aru=kai=na* something be=SFP.Q=SFP "Is there anything else?"	Y/N	↑
(4.15) 72A iiya sore=zya=a nai-zya-ro no that=COP.SEQ=TOP NEG-COP-INFR "No, that's not him, right?"	Y/N	↑

Table 9: Examples of interrogative sentences
(Hiroshima dialect)

The sentence-final particle =*ka* marks the sentences as interrogative. Table 9 indicates that, in the Hiroshima dialect, interrogative sentences that contain any interrogative word forms are pronounced with a final falling pitch, and those without interrogative word forms are pronounced with a final rising tone.

3.5 Fukuoka Dialect (Type D)

Interrogative sentences in the Fukuoka dialect are quite different in intonation patterns from those in the other Japanese dialects mentioned earlier. In the Fukuoka dialect, wh-questions have a gradual rising intonation, with an interrogative word placed at the beginning of a sentence

pronounced on a low tone and the tone gradually rising toward the end of the sentence. The accents of all the words contained in the sentence are canceled by this gradual rising intonation (Hayata1985, Kubo1990). The sentence in (10a) is a wh-question, and the sentence in (10b) is a yes/no question. Note that the final particle =*na* at the end of these sentences conveys an interrogative meaning.

(10a) ↗ *nani=ga hoshi-ka=na* ↗
    what= ACC want-NPST=SFP.Q
    "What do you want?"

(10b) *naNka hosi-ka=na*↓
    anything want-NPST=SFP.Q
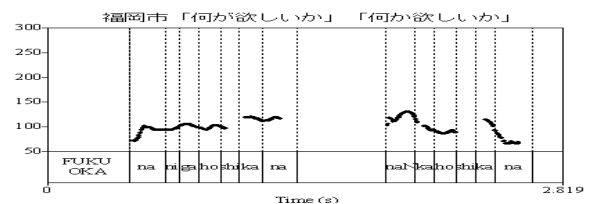   "Do you want anything?"

Figure 14:
"What do you want?" "Do you want anything?"
(from JP)

In the Fukuoka dialect, however, when a sentence without an interrogative final particle is pronounced with a final rising tone, the sentence conveys an interrogative meaning. Take a look at the following examples. (Note that the final particle =*to* at the end of the sentence (11b) does not mark the sentence as interrogative.)

(11a) mizu=ba nomu=na↓
    Water= ACC drink=SFP.Q
    "Do you drink water? "

(11b) mizu=ba nomu=to↑
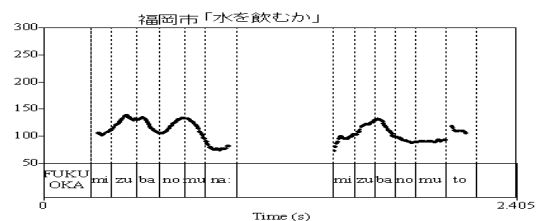   Water= ACC drink=SFP
    "Do you drink water? "

Figure 15: "Do you drink water? "
(from JP)

The Fukuoka dialect has the following feature as well as the above-mentioned feature; interrogative sentences that contain interrogative sentence-final particles are pronounced with a falling tone, and those with no interrogative sentence-final particles are pronounced with a rising tone.

4. List of Glosses

ACC: accusative	HON: honorific
ADD: additive	INFR: inferential
ADN: adnominal	INST: instrumental
ADV: adverbial	LOC: locative
ABL: ablative	INST: instrumental
ALL: allative	NEG: negative
CAUS: causative	NMLZ: nominalizer
CAUSL: causal	NOM: nominative
CLF : classifier	OBLG: obligative
COND: conditional	PROH: prohibitive
COMIT: comitative	PROG: progressive
COP: copula	PST: past
DAT: dative	PURP: purposive
DIM: diminutive	Q: question/ interrogative
EVID: evidential	QUOT: quotative
FILL: filler	SEQ: sequential
FOC: focus	SFP: sentence final particle
GEN: genitive	VOC : vocative

5. Acknowledgment

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