

'Rising' pitch accent of Goshogawara Japanese?

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1. Introduction

• Aims

- This study investigates the prosodic* structure of Goshogawara Japanese spoken in Aomori Prefecture.
- In particular, it highlights the behaviors of '**rising pitch accent**' in this dialect

* 'Prosody' here indicates lexical pitch accents and intonation in a general sense.



1. Introduction

• Goshogawara Japanese

- It has **lexically contrastive** pitch accent
 - ame-kara 'from rain' vs. ame-kara 'from candy'
- Words can be either accented or unaccented
 - The **accented words** (유핵어) have a syllable that is lexically specified as accented
 - The **unaccented words** (무핵어) has no syllable that is lexically specified as accented
- The accent system is similar to Hirosaki Japanese (described in Uwano 1977)
 - **Rising pitch accent** (or 'ascending kernel')
 - **Pitch pattern alternation**

1.1 Rising pitch accent & pitch pattern alternation

• Rising pitch accent

- Falling pitch accent (下げ核)
 - The accented syllable or mora exhibits *pitch fall*
 - The type of pitch accent observed in majorities of Japanese dialects including Tokyo and Osaka
- **Rising pitch accent** (昇り核)
 - The accented syllable or mora exhibits *pitch rise*
 - The type of pitch accent with limited distribution
 - Hirosaki, spoken in Aomori Pref. (Uwano 1977)
 - Shizukuishi, spoken in Iwate Pref. (Uwano 1977, 1992)

1.1 Rising pitch accent & pitch pattern alternation

• Pitch pattern alternation

- Accented words show two types of pitch patterns (Uwano 1977)
 - **Non-connective form** (言い切り形)
 - The form which occurs when the word is pronounced *with* juncture
 - The pitch pattern *with* the final fall
 - **Connective form** (接続形)
 - The form which occurs when the word is pronounced *without* juncture
 - The pitch pattern *without* the final fall
- Unaccented words do not exhibit the alternation
- Pitch pattern alternation is observed in a limited number of dialects
 - Hirosaki, spoken in Aomori Pref. (Uwano 1977)
 - Shizukuishi, spoken in Iwate Pref. (Uwano 1989, 1992)

1.2 Research question

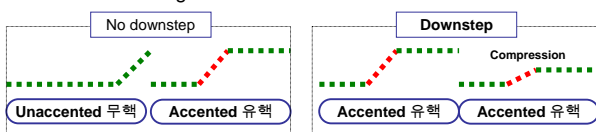
- Where does the final fall of the non-connective form come from?
 - **Phrasal Fall Hypothesis**
 - The final fall is a property of the **phrase**
 - Claimed by Uwano (1998) for Shizukuishi [...] a fall in this dialect is not a property of the word but of phrase-final position. (pp. 157)
 - **Accentual Fall Hypothesis**
 - The final fall is a property of the **accented word** (i.e. a part of lexical pitch accent)
 - Suggested by Hattori (1979) for Hiroasaki

1.2 Research question

- The two hypotheses make different predictions regarding the **pitch of the words following an accented word** in the non-final position of a phrase (i.e. connective form)
 - The predictions of the Phrasal Fall Hypothesis
 - There should be **no pitch difference** regardless of whether the preceding word is accented or unaccented
 - The predictions of the Accentual Fall Hypothesis
 - There should be a **certain pitch difference** depending on whether the preceding word is accented or unaccented
 - The accented words should exhibit a 'falling' property even if there is no actual fall in the word-final syllable (connective form)
 - The 'falling' property of an accented word (which is not manifested as the final fall) should lend certain effects on the following words

1.2 Research question

- Possible pitch differences of the following word
 - (1) **Downstep**
 - The 'falling' property of the accented words is expected to be realized as **pitch range compression effects** on the following words



- Descriptions that speak of downstep in Hiroasaki can be found in Uwano (1977)
- The existence of downstep is considered by Hattori (1979) to be support for the Accentual Fall Hypothesis

1.2 Research question

- Possible pitch differences of the following word
 - (2) **Initial lowering**
 - The 'falling' property of the accented words is expected to be realized as **the low pitch** at the beginning the following words



- No studies have reported difference in the pitch of the beginning of the following word
- According to Uwano (1977, 1980, 1992), words (both accented and unaccented) *always* exhibit the initial lowering in Hiroasaki and Shizukuishi

1. Introduction

➔ 2. Experiment

3. Conclusion

2. Experiment

- **Aim**
 - To investigate whether the final fall of the accented words in non-connective form is a property of the *phrase* or a property of the *word*
- **Hypothesis**
 - Phrasal Fall hypothesis
 - The final fall is a property of the *phrase*
 - **Prediction:** there should be **no pitch difference** regardless of whether the preceding word is accented or unaccented
 - Accentual Fall Hypothesis
 - The final fall is a property of the *word*
 - **Prediction:** there should be a **certain pitch difference** depending on whether the preceding word is accented or unaccented
 - **Possible difference:** presence or absence of downstep and initial lowering

2.1 Methods

- **Subjects**
 - Two 21-year old female native speakers of Goshogawara, K and M
- **Recordings**
 - Marantz PMD660, 48kHz, 16bit
- **Analysis procedures**
 - Subjects are asked to translate test sentence written in standard Japanese into Goshogawara
 - Subjects are asked to read aloud the translated sentences five times
 - The acoustic analysis is based on the measurement of the extracted fundamental frequency (F0), using Praat software (Boersma & Weenik 2005)

2.2.1 Downstep

• DATASET I

	U (무핵)	A (유핵)
U (무핵)	onago-ga odot-ta. The girl danced.	onago-ga o'yoI-da. The girl swam.
A (유핵)	'naoya-ga odot-ta. Naoya danced.	'naoya-ga o'yoI-da. Naoya swam.

	U (무핵)	A (유핵)
U (무핵)	onago-ga odot-te omo'sye-kat-ta. It was fun that the girl danced.	onago-ga o'yoI-de omo'sye-kat-ta. It was fun that the girl swam.
A (유핵)	'naoya-ga odot-te omo'sye-kat-ta. It was fun that Naoya danced.	'naoya-ga o'yoI-de omo'sye-kat-ta. It was fun that Naoya swam.

2.2.1 Downstep

• DATASET II

	U (무핵)	A (유핵)
U (무핵)	Kore oknawa-no omyage-da. This is a souvenir from Okinawa.	Kore oknawa-no o'nigiri-da. This is a rice ball from Okinawa.
A (유핵)	Kore a'omori-no omyage-da. This is a souvenir from Aomori.	Kore a'omori-no o'nigiri-da. This is a rice ball from Aomori.

	U (무핵)	A (유핵)
U (무핵)	oknawa-no omyage morat-ta. I was given a souvenir from Okinawa.	oknawa-no o'nigiri morat-ta. I was given a rice ball from Okinawa.
A (유핵)	a'omori-no omyage morat-ta. I was given a souvenir from Aomori.	a'omori-no o'nigiri morat-ta. I was given a rice ball from Aomori.

2.2.1 Downstep

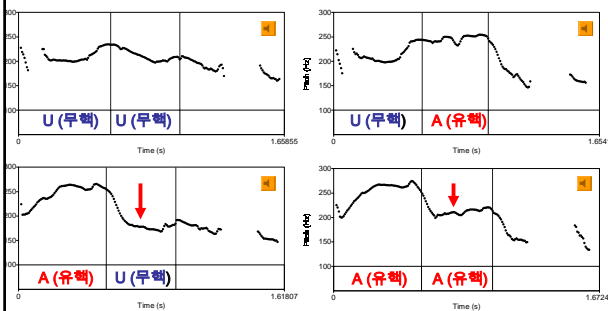
• DATASET III

	U (무핵)	A (유핵)
U (무핵)	Are ame: ame-da. Those are sweet candies.	Are ame: ma'me-da. Those are sweet beans.
A (유핵)	Are u'me: ame-da. Those are good-tasting candies.	Are u'me: ma'me-da. Those are good-tasting beans.

	U (무핵)	A (유핵)
U (무핵)	ame: ame ta'be-ta. I ate sweet candies.	ame: ma'me ta'be-ta. I ate sweet beans.
A (유핵)	u'me: ame ta'be-ta. I ate good-tasting candies.	u'me: ma'me ta'be-ta. I ate good-tasting beans.

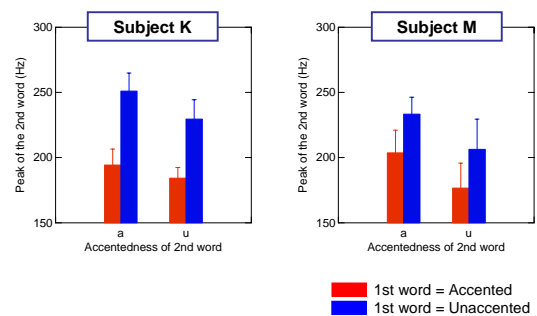
2.2.1 Downstep

• DATASET II-b



2.2.1 Downstep

• Peak of the 2nd word (Hz) (all data included)



2.2.1 Downstep

• Summary of 2.1.1 (Downstep)

- Clear downstep effect of the accented words was found
 - The pitch range of the following word was significantly smaller for A+A (유핵+유핵) and A+U (유핵+무핵) than for U+A (무핵+유핵) and U+U (무핵+무핵)
- The results agree with Accentual Fall Hypothesis

2.2.2 Initial lowering

• Dataset IV (Focus on the second word)

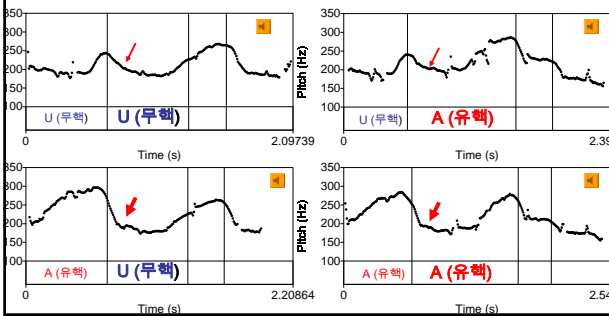
	U (무핵)	A (유핵)
U (무핵)	yanagida-wa unaglya-no urani iiru-n-da-yo Yanagida is behind an EEL SHOP.	yanagida-wa omiyageruriba-no urani iiru-n-da-yo Yanagida is behind a SOUVENIR SHOP.
A (유핵)	Imamori-wa unaglya-no urani iiru-n-da-yo Imamori is behind an EEL SHOP.	Imamori-wa omiyageruriba-no urani iiru-n-da-yo Imamori is behind a SOUVENIR SHOP.

• Dataset V (Focus on the first word)

	U (무핵)	A (유핵)
U (무핵)	yanagida-ga unaglya-no urani iiru-n-da-yo YANAGIDA is behind an eel shop.	yanagida-ga omiyageruriba-no urani iiru-n-da-yo YANAGIDA is behind a souvenir shop.
A (유핵)	Imamori-ga unaglya-no urani iiru-n-da-yo INAMORI is behind an eel shop.	Imamori-ga omiyageruriba-no urani iiru-n-da-yo INAMORI is behind a souvenir shop.

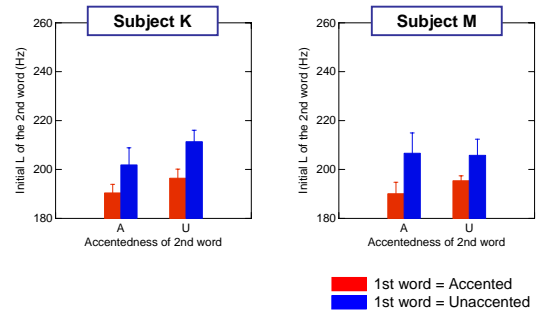
2.2.2 Initial lowering

• Dataset IV (Focus on the second word)



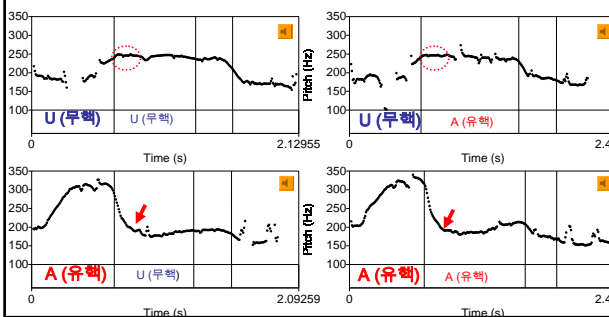
2.2.2 Initial lowering

Focus on the 2nd word



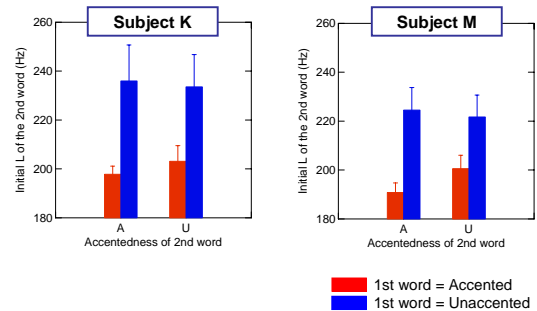
2.2.2 Initial lowering

• Dataset V (Focus on the first word)



2.2.2 Initial lowering

Focus on the 1st word



2.2.2 Initial lowering

• Summary of 2.1.2 (Initial lowering)

- Accentedness (무핵 or 유핵) of the preceding word affected the initial lowering
 - When preceding word was unaccented (무핵), the initial lowering disappeared
 - Even when the word was focused, degree of the initial lowering was smaller when the preceding word was unaccented (무핵) than when the preceding word was accented (유핵)
- The results favors Accentual Fall Hypothesis

1. Introduction

2. Experiment

➔ 3. Conclusion

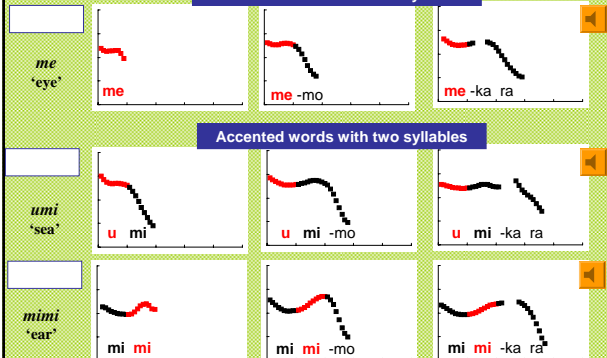
3. Conclusion

- The present study investigated the prosodic structure of Goshogawara Japanese, highlighting the behaviors of its 'rising pitch accent'
- The results of the experiment revealed that the 'rising' pitch accent had a 'falling' property regardless of whether the accented word was in connective form or non-connective form
- The rising pitch accent of Goshogawara should have not only a 'rising' property in the accented syllable, but also a 'falling' property
- The 'falling' property should be realized as the word-final fall in the phrase-final position, while in the non-final position it should be manifested both as a pitch range compression (downstep) and as the initial lowering of the following word

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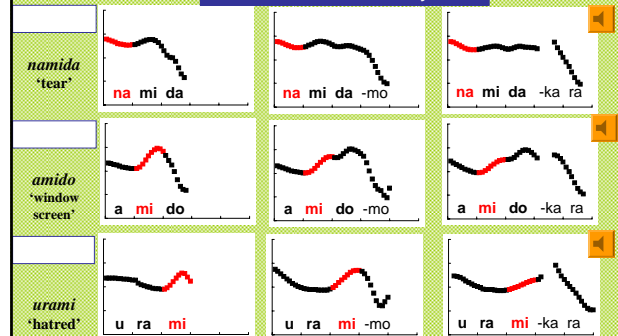
Accentual system of Goshogawara (유핵)

Accented words with one syllable



Accentual system of Goshogawara (유핵)

Accented words with three syllables



Accentual system of Goshogawara (무핵)

Unaccented words with one syllable

mi 'body'
mi mi -mo mi -ka ra

Unaccented words with two syllables

ume 'apricot'
u me u me -mo u me -ka ra

Unaccented words with three syllables

kimono 'kimono'
ki mo no ki mo no -mo ki mo no -ka ra

Pitch pattern alternation

Accented words: Alternation of low and high

With juncture: Non-connective form

amido 'window screen'
a mi do a mi do -mo a mi do -ka ra

Without juncture: Connective form

amido 'window screen'
a mi do a mi do -mo a mi do -ka ra

Amido katta. 'He bought a window screen'
Amido-mo katta. 'He bought a window screen, too.'
Amido-kara simiyu:sha. 'He broke (into the house) by a window screen.'

Pitch pattern alternation

Unaccented words: No alternation

With juncture

kimono 'kimono'
ki mo no ki mo no -mo ki mo no -ka ra

Without juncture

Kimono nuida. 'He took off kimono.'
Kimono-mo nuida. 'He took off kimono, too.'
Kimono-kara nuida. 'He took off from the kimono.'