

***Wh*-intonation and Information Structure in South Kyeongsang Korean, Fukuoka Japanese and Tokyo Japanese**

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Puzzle

- Debate regarding the *wh*-intonation domain of indirect *wh*-Qs with *wh*-scrambling in TJ

Wh_i [... [... t_i V-Comp_[+WH] ... V-Q_[-WH]]

a. Ishihara (2002), Kitagawa and Fodor (2003)

nani-o Naoya-wa [Mari-ga nonda-**ka**] imademo oboeteru-ø?
what-Acc Naoya-Top Mari-Nom drank-Comp_[+WH] even.now remember-Q_[-WH]

b. Ishihara (2004, 2005)

nani-o Naoya-wa [Mari-ga nonda-**ka**] imademo oboeteru-ø?
'Does Naoya still remember what Mari drank?'

- Ishihara (2004:113, footnote 27): *A question remains as to why both Kitagawa and Fodor (2003) and I (Ishihara, 2002) acknowledged that (a) is the correct pitch contour. In fact, I still feel that (a) is not entirely impossible...there must be some additional mechanism that allows a contour like (a), because the Multiple Spell-Out model would never allow such a contour.*

Outline

- ◆ **Introduction:** Scope-Prosody correlation in TJ, FOCUS intonation?
- ◆ **Wh-intonation :** Scope-Prosody correlation in SKK and FJ
- ◆ **Experiment**
with Taking Information Structure into Account
- ◆ **Conclusions**

↓ ↓
Wh_i [...] [...] *t_i* V-Comp_[+WH] V-Q_[-WH]]

Introduction

Scope-Prosody Correspondence in TJ

- ◆ Correlation between intonation and semantic scope of a *wh*-phrase in TJ: Focus Intonation (FI) in Ishihara 2002, Emphatic Prosody (EPD) in Kitagawa and Deguchi 2002
- ◆ f0 peak of a *wh*-phrase → **boosted**
f0 of the materials between the *wh*-phrase and the question particle that binds the *wh*-phrase
→ **reduced**
- ◆ Similar to FOCUS and post-FOCUS reduction
→ FOCUS Intonation?

Introduction

Scope-Prosody Correspondence in TJ

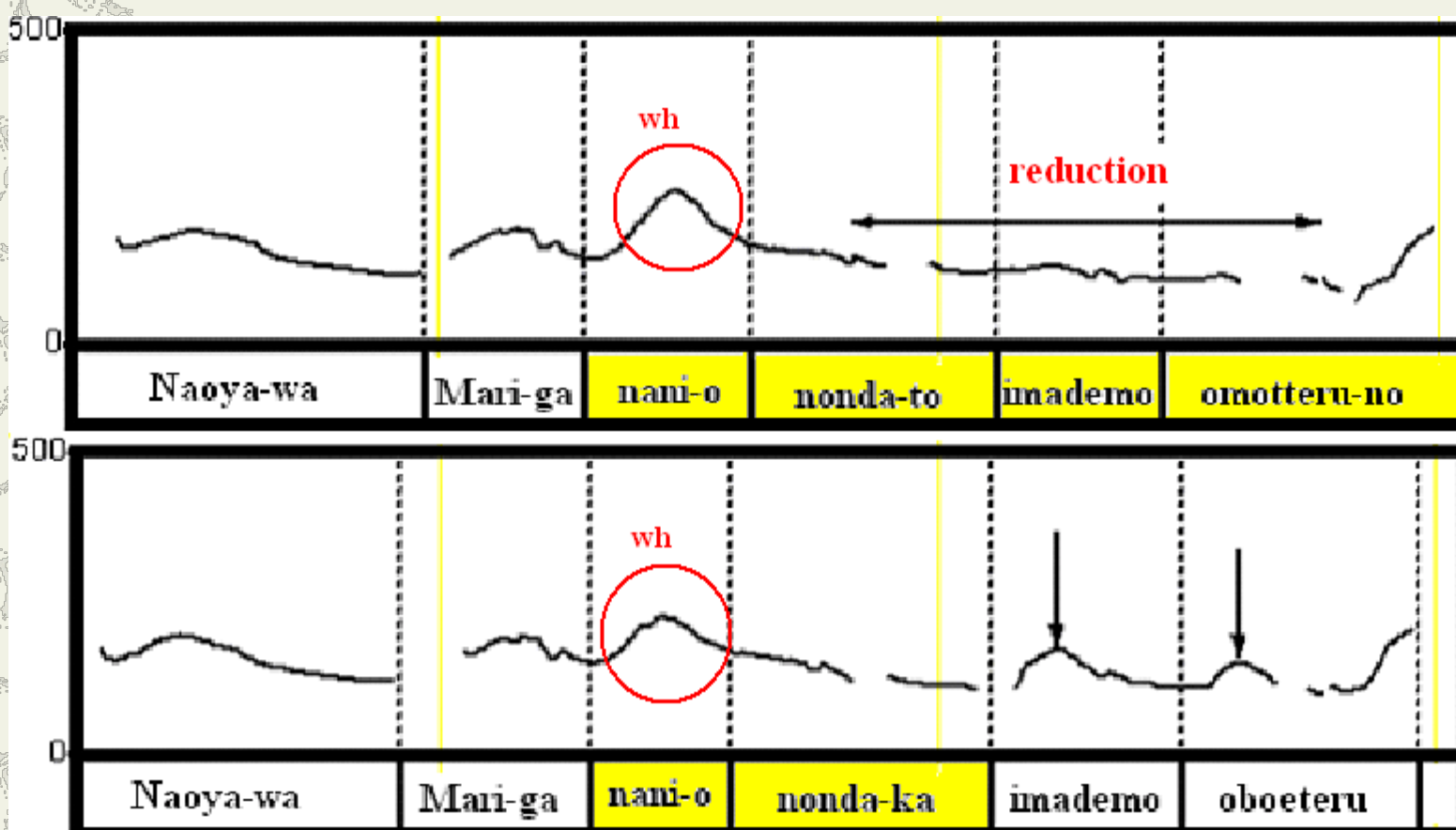
▶ **Direct wh-Q:** [[...**wh** V_e -Comp_[-WH]] ... V_m -Q_[+WH]]
 Naoya-wa [Mari-ga **nani-o** nonda-*to*] imademo omotteru-**no**?
 Naoya-Top Mari-Nom what-Acc drank-Comp_[-WH] even.now think-Q_[+WH]
 ‘What does Naoya still think that Mari drank?’

▶ **Indirect wh-Q:** [[...**wh** V_e -Comp_[+WH]] ... V_m -Q_[-WH]]
 Naoya-wa [Mari-ga **nani-o** nonda-*ka*] imademo oboeteru- \emptyset ?
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Introduction

Scope-Prosody Correspondence in TJ

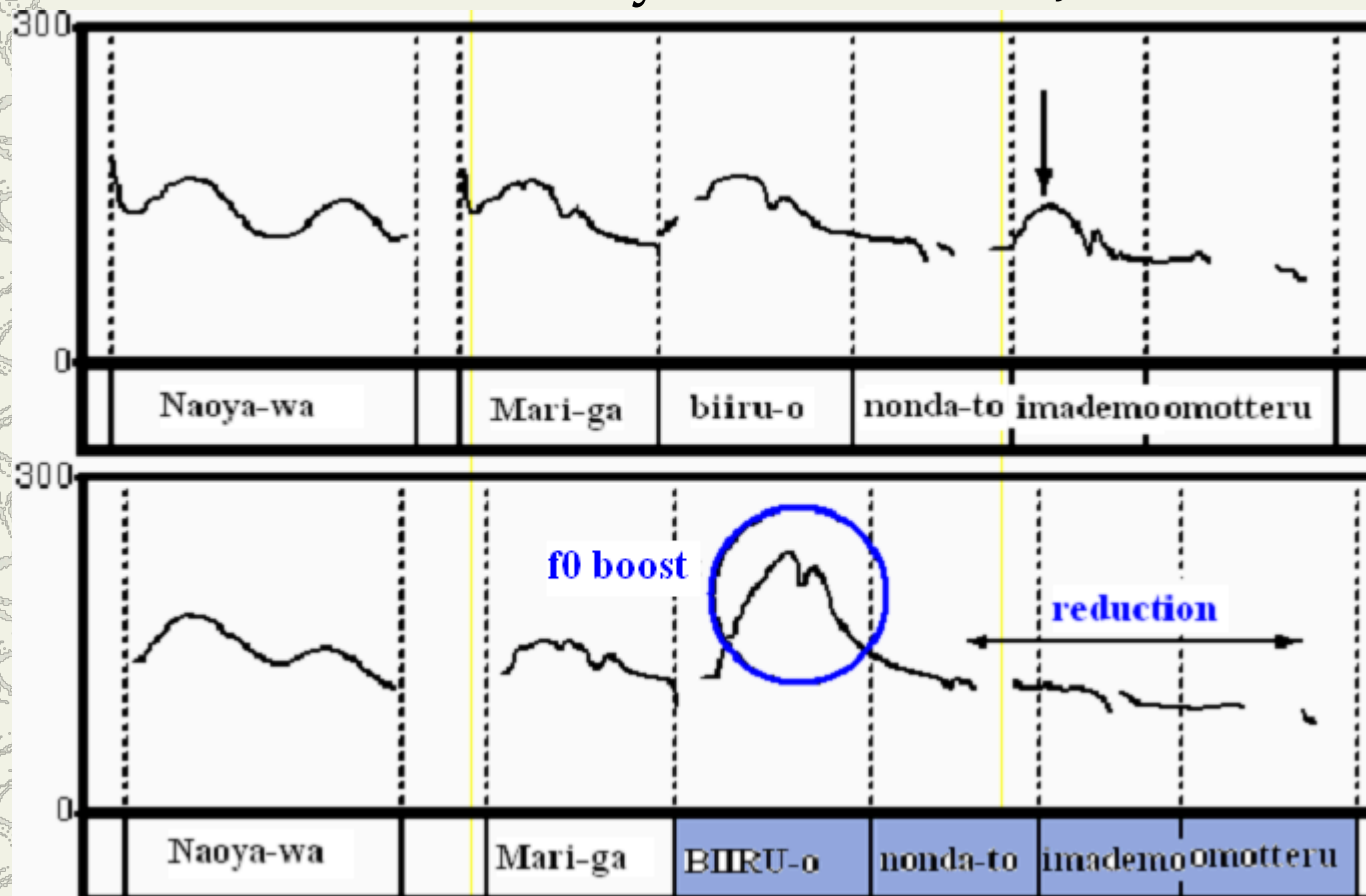
► f0 tracks of direct and indirect *wh*-Qs



Introduction

Scope-Prosody Correspondence in TJ

► Intonation induced by FOCUS in TJ



Introduction

Scope-Prosody Correspondence in TJ

◆ Issues

- 1) *Wh*-intonation = FOCUS Intonation?
→ NOT in SKK and FJ
- 2) *Wh*-intonation domain of indirect *wh*-Qs
with *wh*-long distance scrambling?
→ Stops with embedded Comp or matrix Q ending?
- 3) How to model the phenomenon?

Wh-intonation in SKK and FJ

- ◆ The same correlation with different phonetic realization in SKK and FJ → **High Plateau**
- ◆ SKK: Tones of post-*wh*-materials change to Hs (Gim 1978)
- ◆ FJ:
 - 1) prosodic scope marking (Hayata 1985)
 - 2) all elements inside the 'high plateau'
→ lexical pitch accent loss
 - 3) parallelism between SKK and FJ (Kubo 1989, 1993)

Wh-intonation in SKK and FJ

Direct wh-Q: [[...**wh** V_e -Comp_[-WH]] ... V_m -Q_[+WH]]

Minho-nun [Ywumi-ka **me**-lul mekessnun-*ci*] yocumeyto mwut-**no**?

Minho-Top Yumi-Nom what-Acc ate-Comp_[-WH] even.now ask-Q_[+WH]

‘With respect to what does Minho still ask [if Yumi ate it]?’

Indirect wh-Q: [[...**wh** V_e -Comp_[+WH]] ... V_m -Q_[-WH]]

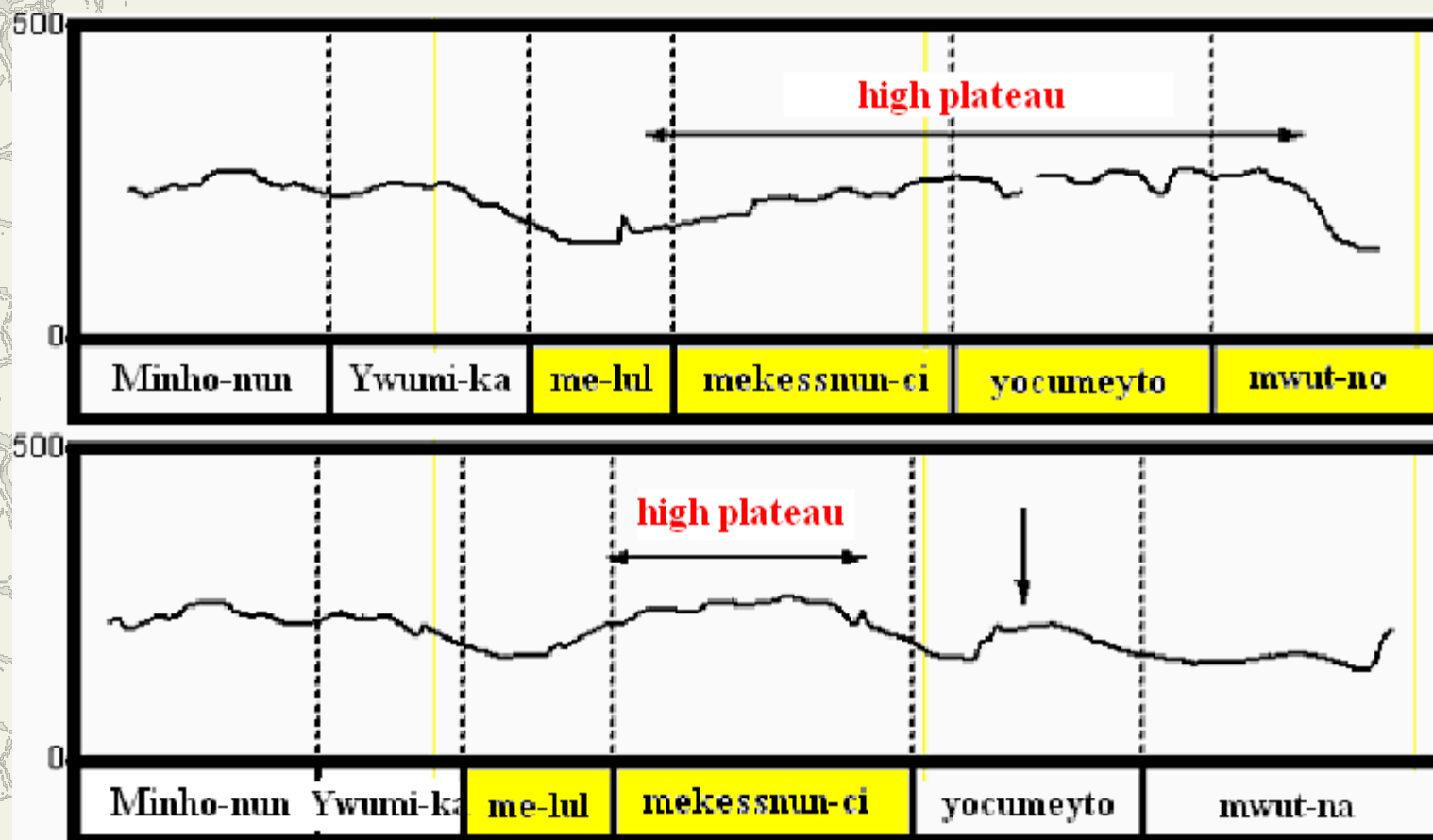
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‘Does Minho still ask what Yumi ate?’

Wh-intonation in SKK and FJ

► f0 tracks of direct and indirect *wh*-Qs



Wh-intonation in SKK and FJ

◆ Perception Test for Accent Loss in SKK

- A tonal minimal pair: *mal* (R) ‘speech’ and *mal* (H) ‘horse’.

(a) Ywumi-nun [Minho-ka *mal-i* manhun-*ci*] mwul-e pwat-na?
Yumi-Top Minho-Nom horse/speech-Nom plenty-*comp*_[-WH] ask-conj tried-*Q*_[-WH]
‘Did Yumi ask whether Minho is talkative/ has a lot of horses?’

(b) Ywumi-nun [**nwu-ka** *mal-i* manhun-*ci*] mwul-e pwat-na?
Yumi-Top who-Nom horse/speech-Nom plenty-*comp*_[+WH] ask-conj tried-*Q*_[-WH]
‘Did Yumi ask who is talkative/ has a lot of horses?’

(c) Manipulated stimuli: (a) with *mal-i* in (b)

- Task: to choose one of the meaning (talkative/many horses)

- Results

- 1) two meanings of (a) distinguished by different accents (100 %)
- 2) the intended meaning of ‘*mal*’ in (b) failed to be distinguished (‘talkative’ 75%)
- 3) (a) with ‘*mal-i*’ of (b), HH tone, was perceived as ‘many horses’ (100%).

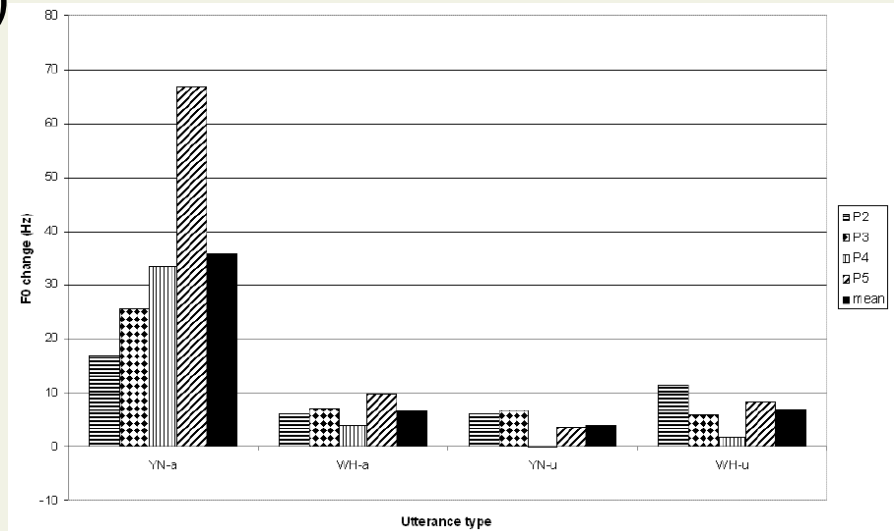
→ **pitch accent loss inside *wh*-intonation span!**

Wh-intonation in SKK and FJ

◆ Production Test for Accent Loss in FJ (Smith 2007)

- 1) Four conditions: wh/yn * accented/unaccented
- 2) Measurements: mean f0 of the target mora, f0 at 100ms & 200ms after the right edge of the target mora
- 3) Predictions: i. f0 change in YN-acc >> WH-acc
ii. f0 change in WH-acc \simeq WH-un \simeq YN-un
- 4) Results (size of f0 fall at 100 ms)

**YN-acc >> WH-acc
= YN-un
= WH-un**



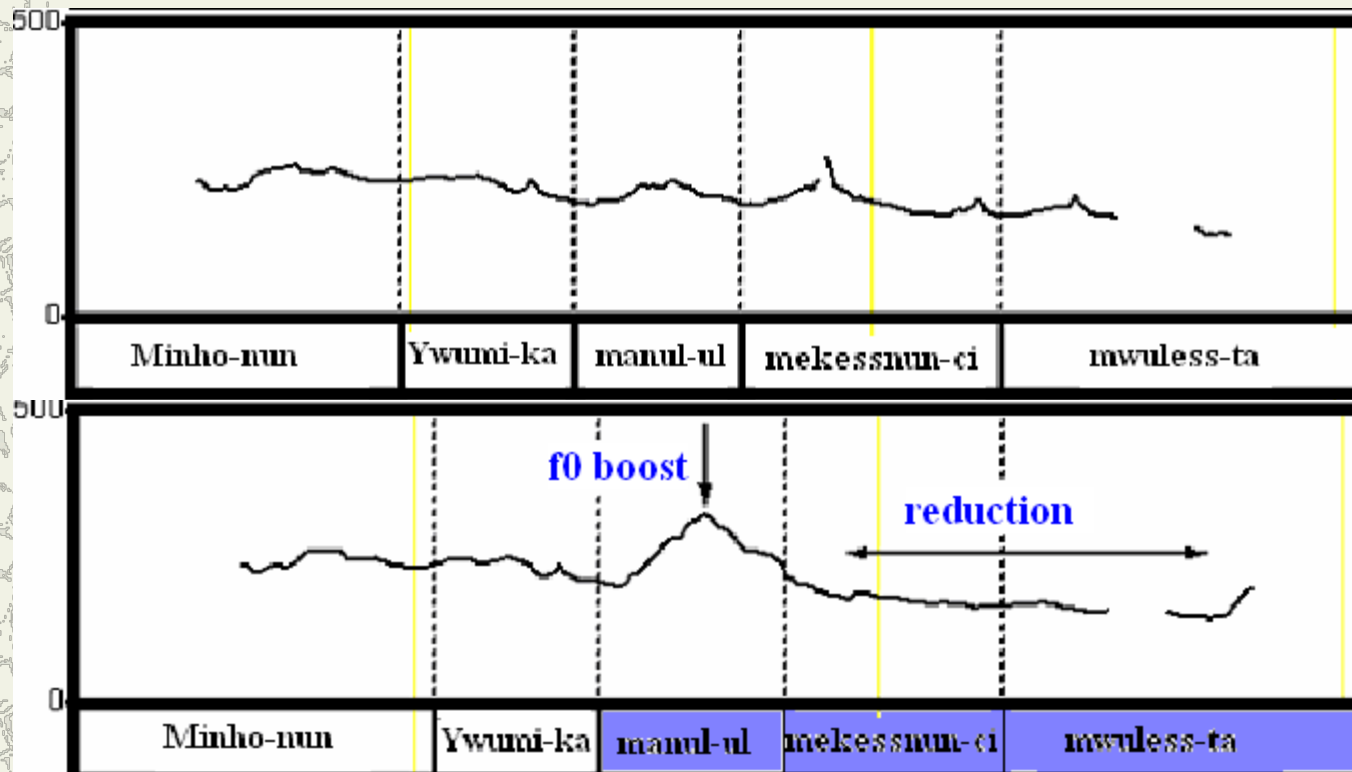
Wh-intonation in SKK and FJ

◆ Intonation pattern by FOCUS in SKK?

Minho-nun Ywumi-ka **MANUL-ul** mekessnun-ci mwul-ess-ta

Minho-Top Ywumi-Nom GARLIC-Acc ate-Com_[+WH] ask-Past-Dec

‘Minho asked whether Yumi ate **GARLIC.**’



Interim Conclusions

- ◆ Intonation pattern induced by FOCUS (FOCUS intonation)
f0 boost + post-FOCUS f0 reduction
for all three languages
- ◆ Intonation pattern induced by *wh*-
 - a. f0 boost + post-*wh* f0 reduction for TJ
 - b. high plateau for SKK and FJ
- ***wh*-intonation**: intonation pattern
which marks *wh*-scope
- ***wh*-intonation ≠ FOCUS intonation**

Puzzle with *wh*-long distance scrambling in TJ

- Debate regarding the *wh*-intonation domain of indirect *wh*-Qs with *wh*-scrambling in TJ

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‘Does Naoya still remember what Mari drank?’

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Puzzle with wh-long distance scrambling in TJ

Experiment in Ishihara (2004, 2005)

1. Materials: 4 sentence types (2 object types X 2 positions)
- | | |
|-----------------|-----------------|
| a. DP embedded | b. wh embedded |
| c. DP scrambled | d. wh scrambled |

2. Measurements and Results

- a. $[_{CP} \text{DP } [_{TP} \alpha [_{CP} [_{TP} \dots t_{DP} \dots] \text{Comp}] \beta \dots]$
 ↑
 f0 reset
- b. $[_{CP} wh [_{TP} \alpha [_{CP} [_{TP} \dots t_{wh} \dots] \text{Comp}] \beta \dots]$
 ↑
 f0 reduction

- ### 3. Conclusion: *wh*-intonation in (2b) continues to the **matrix material**!

- ## 4. Multiple Spell-Out model (MSO)

Puzzle with *wh*-long distance scrambling in TJ

◆ Limitations of Ishihara's model

- 1) Only normalized f_0 differences between β s
in DP- scrambled and *wh*-scrambled sentences♪
- 2) Context NOT provided
: Context is crucial since *wh*-intonation in TJ and other
information structural properties (FOCUS/New/Given)
exhibit extremely similar phonetic realization; f_0
boost/reduction
- 3) Cannot be extended to account for the cases in SKK

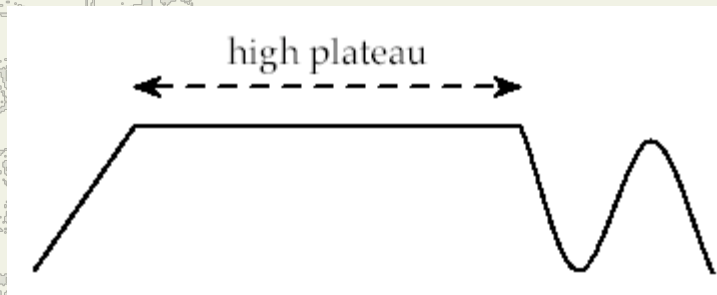
Info Str. Experiment

- 4 types of sentences (DP/wh * embedded/scrambled)
- **Including SKK and FJ:**
wh-intonation and other information structural properties exhibit distinct phonetic realizations
- Taking **Information Structure** into account
by providing context: FOCUS/New/Given

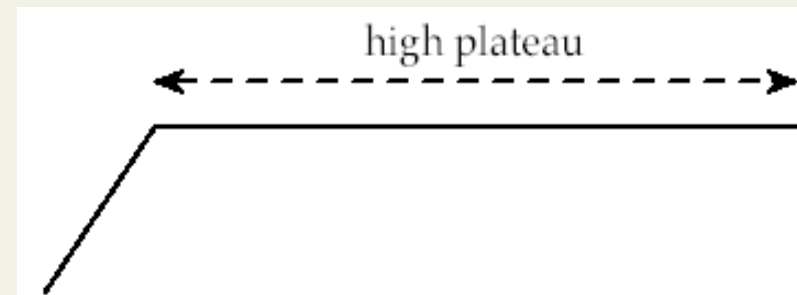
Info Str. Experiment (continued)

Hypotheses

- High plateau in SKK and FJ stops with the **embedded Comp**
my prediction



[**wh** [t_{wh} *Comp*_[+WH]] $Q_{[-WH]}$]



[**wh** [t_{wh} *Comp*_[+WH]] $Q_{[-WH]}$]

- f0 boost or reduction of the material following embedded comp is determined NOT by type of scrambled element (*wh*- or DP), but by its information structural status both in SKK and TJ

Info Str. Experiment (continued)

Methods_Materials

4 conditions

1) DP embedded

$[_{CP} \text{Sub}_m [_{CP} \text{Sub}_e \text{DP } V_e\text{-Comp}_{[+wh]}] \underline{\text{I.O}} V_m\text{-Q}_{[-wh]}]$

2) DP scrambled

$\text{DP } [_{CP} \text{Sub}_m [_{CP} \text{Sub}_e t_{DP} V_e\text{-Comp}_{[+wh]}] \underline{\text{I.O}} V_m\text{-Q}_{[-wh]}]$

3) wh embedded

$[_{CP} \text{Sub}_m [_{CP} \text{Sub}_e \text{wh } V_e\text{-Comp}_{[+wh]}] \underline{\text{I.O}} V_m\text{-Q}_{[-wh]}]$

4) wh scrambled

$\text{wh } [_{CP} \text{Sub}_m [_{CP} \text{Sub}_e t_{wh} V_e\text{-Comp}_{[+wh]}] \underline{\text{I.O}} V_m\text{-Q}_{[-wh]}]$

Info Str. Experiment (continued)

Methods_Controlling Context

➤ FOCUS

A: Why is Monho so interested in Yumi?

He asked Yumi's sister what Yumi read, right?

B: No, it's not Yumi's sister.

I heard that Minho asked YEONGWU what Yumi read.

➤ New

A: (you) said Minho did what?

B: I heard that Minho asked Yeongwu what Yumi read.

➤ Given

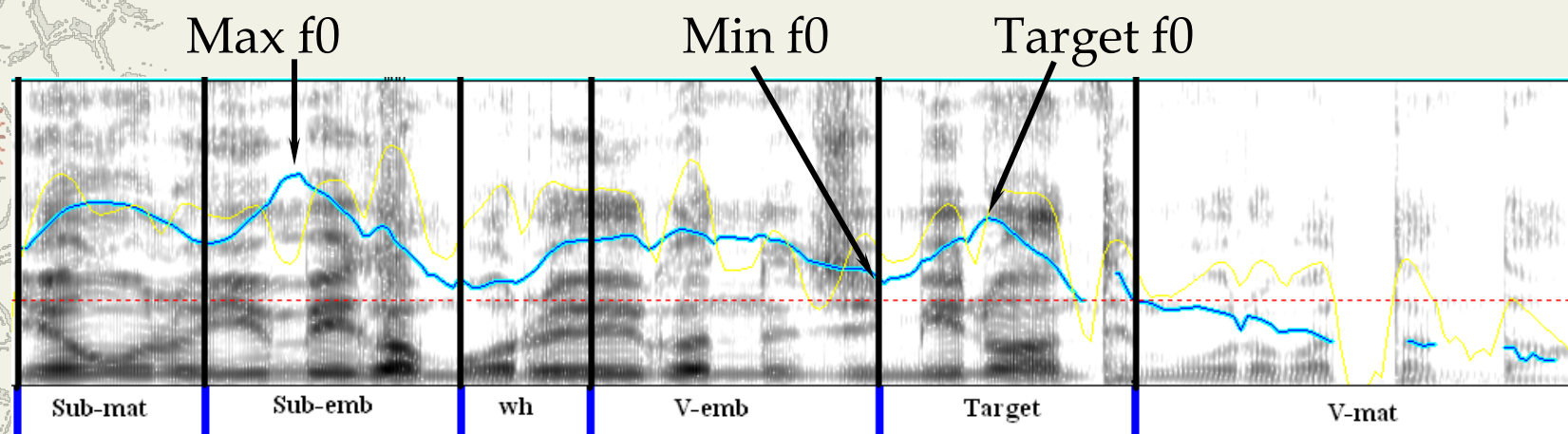
A: Do you know what Minho asked Yeongwu?

B: I heard that Minho asked Yeongwu what Yumi read.

Info Str. Experiment (continued)

Measurements

► **Ratio: Min f0 / Target f0**



► **Why reference point?**

Relative f0s, rather than the absolute f0 values of the target phrase, allow us to explore the role of information structure more thoroughly since the f0 range of a single speaker varies.

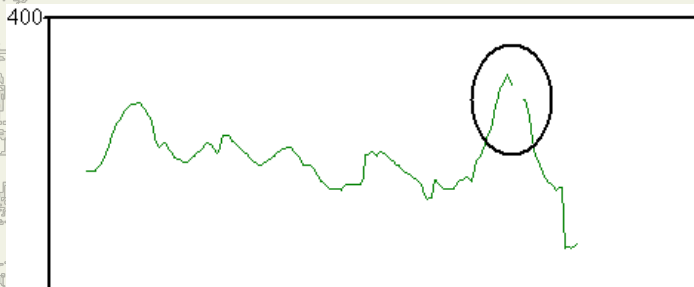
Info Str. Experiment (continued)

Results

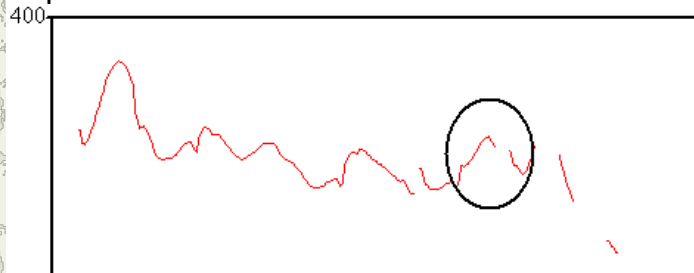
► Figures_SKK

DP scrambled

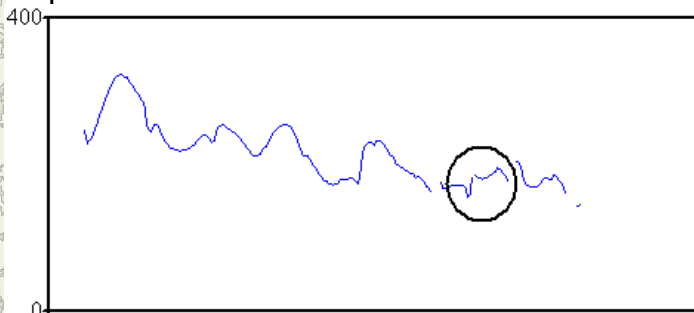
FOCUS



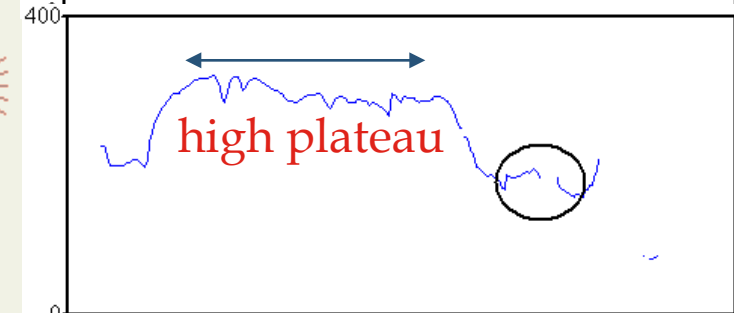
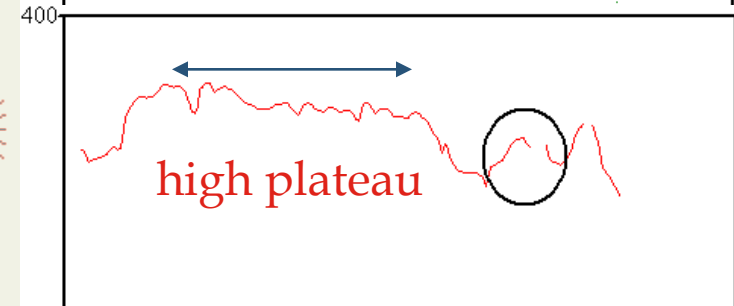
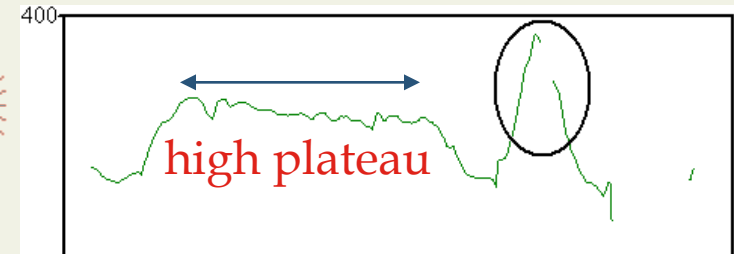
New



Given



wh scrambled



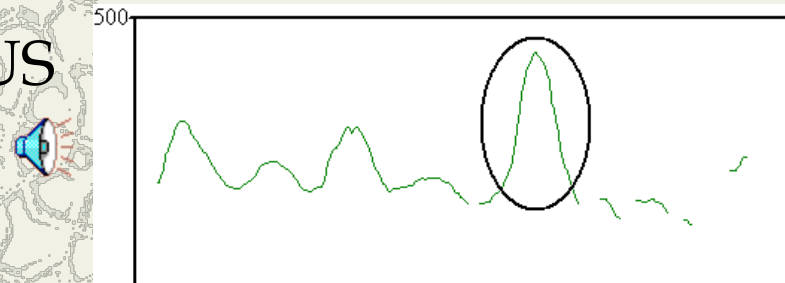
Info Str. Experiment (continued)

Results

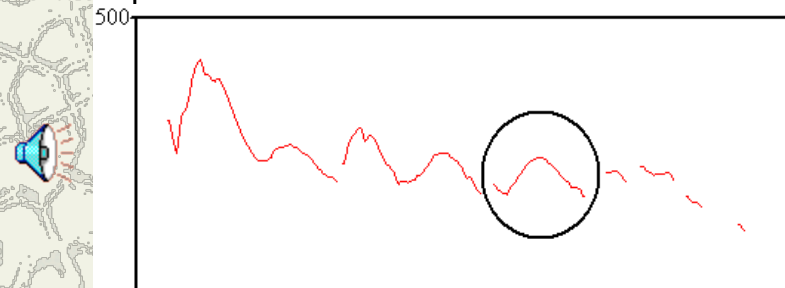
► Figures_TJ

DP scrambled

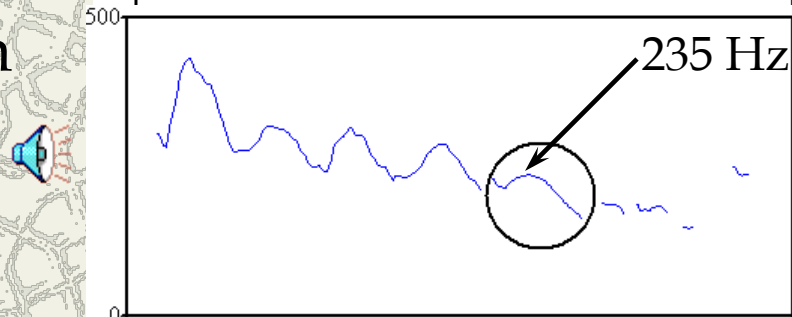
FOCUS



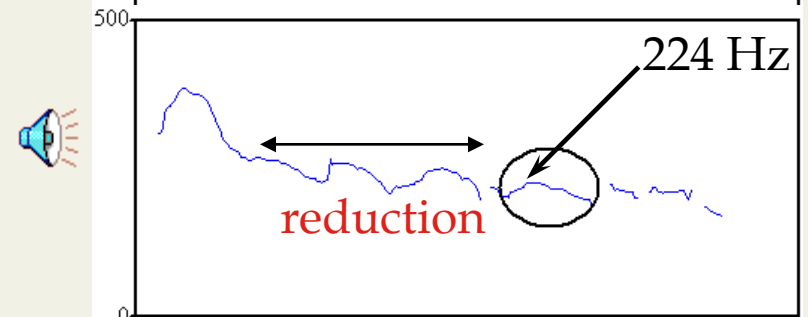
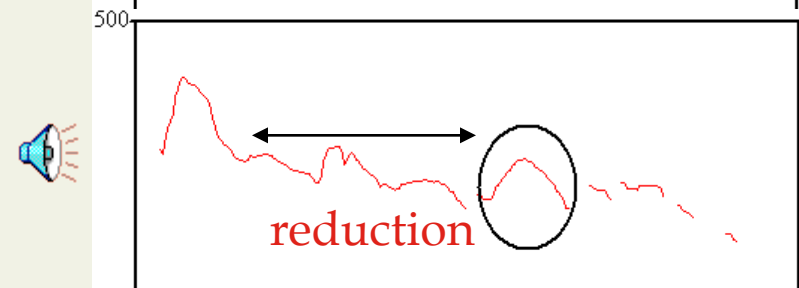
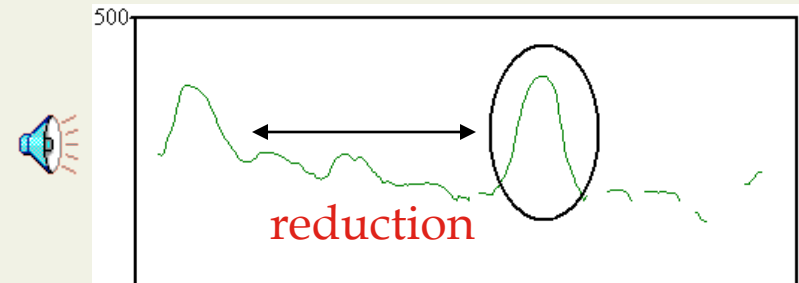
New



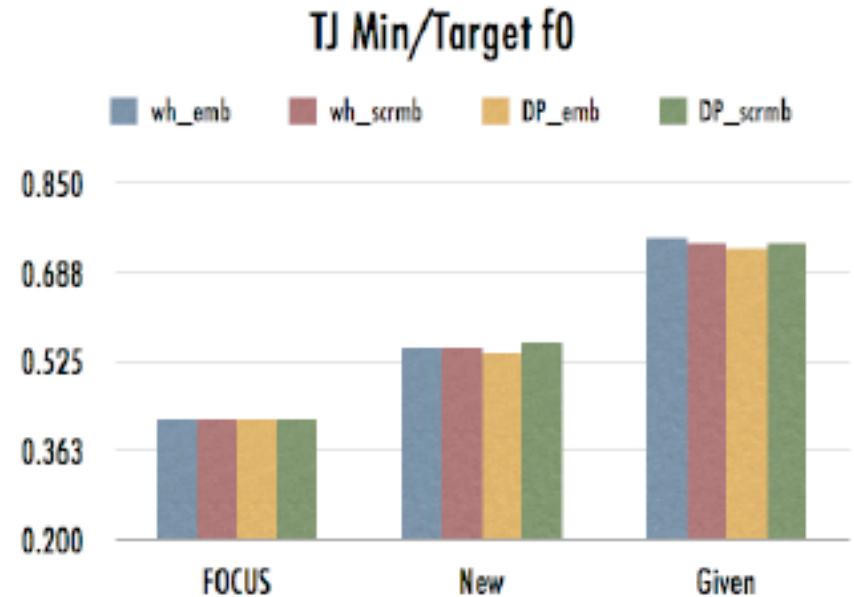
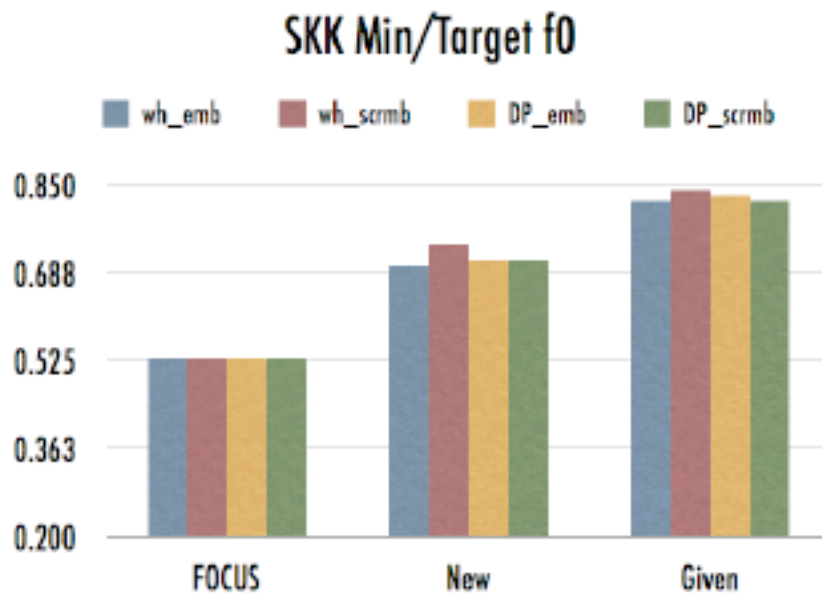
Given



wh scrambled



Info Str. Experiment (continued) Results



→ No significant differences between type/position

Info Str. Experiment (continued)

Implications

► Ishihara (2004, 2005)

nani-o Naoya-wa [Mari-ga nonda-**ka**] imademo oboeteru-ø?

- f0 reduction of the matrix material in Ishihara's experiment?
 - two independent phenomena

reduction by *wh*-

reduction by Givenness

↓ ↓ ↓ ↓
nani-o Naoya-wa [Mari-ga nonda-**ka**] imademo oboeteru-ø?

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 - Both are possible in different context

Models: MSO vs. Agreement

➤ Syntax only: MSO (Ishihara 2004, 2005)

a. embedded: $[\dots [\dots \underline{\text{wh}} \text{ V-Comp}_{[+WH]}] \dots \text{V-Q}_{[-WH]}]$

b. scrambled: $\underline{\text{wh}}_i [\dots [\dots \underline{t}_i \text{ V-Comp}_{[+WH]}] \dots \text{V-Q}_{[-WH]}]$

→ empirically: $\underline{\text{wh}}_i [\dots [\dots \underline{t}_i \text{ V-Comp}_{[+WH]}] \dots \text{V-Q}_{[-WH]}]$

➤ Syntax + Linear apparatus: Agreement (Kitagawa 2005)

a. Syntactic: Agreement between features on Comp & *wh*-phrase is interpreted as a semantic scope of a *wh*-element in LF, and *wh*-intonation is assigned in PF.

My Modification

WH-P: *Focus Wh*-phrase
wh-P: Non-focus *Wh*-phrase
 FP= Non-*wh* focus phrase
 Wh=Reference to Wh- in general



wh
 FOCUS

b. **Linear scanning:** apparatus to assign *wh*-intonation when a *wh*-phrase which takes embedded scope is scrambled out of the embedded clause

Conclusions

◆ Conclusions

- 1) *wh*-intonation \neq FOCUS intonation
- 2) *wh*-intonation domain of indirect *wh*-Qs
with *wh*-long distance scrambling?
→ Stops with embedded Comp
- 3) How to model the phenomenon?
→ Not purely syntactic

◆ Further work: Prosody can override *wh*-island constraint?

Minho-nun [Ywumi-ka **me-lul mekessnun-ci**] yocumeyto mwut-**no**?

Minho-Top Yumi-Nom what-Acc ate-Comp_[-WH] even.now ask-Q_[+-WH]

‘With respect to what does Minho still ask [if Yumi ate it]?’

References

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