

The Prosody of Scrambling

Takahito Shinya
UMass Amherst
Intonation Matters, May 18, 2004

1

Goal

To propose a production experiment to examine the prosody of two different types of short-distance scrambling (= *referential scrambling* and *FOCUS scrambling*), which are identical with respect to surface word order.

2

Scrambling in Japanese

- **Canonical word order**

Taro-ga Hanako-o oshita.
T.-nom H.-acc pushed

- **Short-distance scrambling**

Hanako-o Taro-ga oshita.

➡ Referential and FOCUS scramblings

3

Referential scrambling

Yamashita (2002)

- A corpus analysis of scrambled sentences using natural texts ranging from conversational to formal scripts (2635 sentences).
- Only 19 scrambled sentences were found.
- Found two functions of scrambled sentences: (1) heaviness and (2) referentiality.

4

Referential scrambling

Yamashita (2002)

- 26 % (= 5 out of 19) scrambled sentences contained a determiner or an anaphor referring to something directly mentioned in the preceding context or inferable from it.
- A scrambled phrase with a referential phrase is highly available in the speaker's mind because of its salience in the discourse.

5

Referential scrambling

- Though the evidence for the existence of referential scrambling is quite solid, no formal syntactic analysis has been done. (Please tell me if you know any.)

6

FOCUS scrambling

- Kitagawa (1990)

FOCUS interpretation

Two types of scrambling:

(1) $[_{IP} S O V] \longrightarrow [_{IP} O_i [_{IP} S t_i V]]$
scrambling (overt)

(2) $[_{IP} O S V] \longrightarrow [_{IP} S [_{IP} O V]]$
anti-scrambling (covert)

- Driven by Case (avoiding Case conflict between nominative *-ga* and accusative *-o* assigned by V.)
- No trace left

7

FOCUS scrambling

- Evidence from crossover effect: Kitagawa (1990)

a. $?*[John_1\text{-no hahaoya}]_2\text{-o kare}_1\text{-ga aishiteiru.}$
gen mother-acc he-nom love
He loves John's mother.

b. $[JOHN_1\text{-NO HAHAOYA}]\text{-o kare}_1\text{-ga } t_2 \text{ aishiteiru.}$

8

FOCUS scrambling

- Miyagawa (1997)

A'-movement scrambling is driven by FOCUS.

FOCUS particle *-wa*.

a. $?[John\text{-ga isoide hon-wa katta.}]$
nom quickly book-FOC bought

b. $[_{IP} Hon\text{-wa } [_{IP} John\text{-ga isoide katta}]]$

→ Spec-IP is a FOCUS position

9

Prosody of scrambled sentences

- Referential scrambling

We know nothing.

- FOCUS scrambling

Scrambled phrase is given emphatic stress, naturally followed by a brief pause but not required (Haig 1976, Kitagawa 1990).

10

Prosody of scrambled sentences

Hirotsu (2000)

- Intonational Phrase (IP) boundary is required after a scrambled phrase.
- Align-R (FOC, IP): the right edge of a contrastively focused elements (FOC) is aligned with the right edge of an Intonational Phrase.
- Supported by auditory experiments (naturalness rating)

11

Question 1

- Hirotsu's (2000) claim that an IP boundary is present after a scrambled phrase in FOCUS scrambling is based on the presence or absence of a pause.
- How about pitch contour? Does FOCUS scrambling have its characteristic pitch contour properties?
- Although pause is correlated with prosodic phrasing boundary, it does not tell us about the pitch contours.

12

Question 2

- Is Align-R (FOC, IP) empirically valid?
- IP is considered to be the prosodic phrasing level above Major Phrase (MaP), which is claimed not to exist or not to play any role in Japanese intonation (Pierrehumbert & Beckman 1988).
- It is necessary to compare pitch contours at IP boundary with those at MaP boundary.

13

Question 3

- We do not know anything about the prosody of referential scrambling. Does it show any intonational pattern that is different from FOCUS scrambling and from the sentences with canonical order?

14

Production experiment

The experimental sentences will be read in narratives in which the informational status of the first noun is naturally produced. All other elements are new.

- Referential scrambling
[N]_{Given}-acc N-nom V
- FOCUS scrambling
[N]_{FOC}-acc N-nom V
- Control (no scrambling)
[N]_{focus}-nom N-acc V

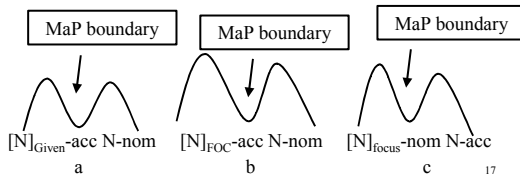
15

Predictions

16

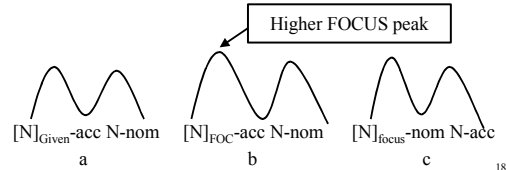
Prediction 1

- MaP boundary at the left edge of the second noun in all conditions, due to the presence of the left edge of syntactic XP (Selkirk & Tateishi 1991).
- This is expected even for (b) because the post-FOCUS noun is new (Sugahara 2003).



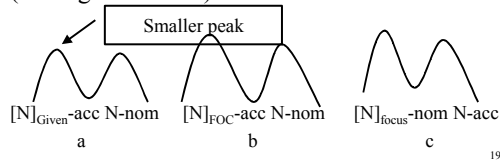
Prediction 2

Higher peak value is expected on the scrambled phrase in (b) than (a) or (c) because of the FOCUS effect (Poser 1984, Pierrehumbert & Beckman 1988, Sugahara 2003).



Prediction 3

The peak of the first noun might be a bit lower for (a) than for (c) because of the given-new distinction. However, the difference is not expected as large as (a)-(b) or (b)-(c) difference (cf. Sugahara 2003).



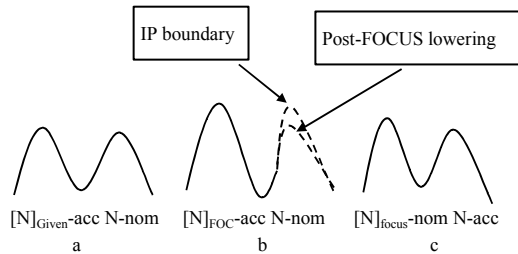
Prediction 4

Conflicting predictions on the post-FOCUS pattern in (b).

- (1) If IP boundary appears at the right edge of the scrambled phrase in (b), then it should be different from (c). One possibility: pitch valley between the first and second nouns is lower and the pitch peak on the second noun is higher for (b) than for (a) and (c).
- (2) The pitch peaks of the elements following the first noun will be lowered for (b) because of the post-FOCUS effect, and the peaks may be as high as or even smaller than those in (a) and (c) (Nagahara 1994, Sugahara 2003).

20

Prediction 4: Illustration



Summary of predictions

