

**"On the Interaction of Prosody, Syntax and Pragmatics"**

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## "On the Interaction of Prosody, Syntax and Pragmatics"

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(1) Recent rediscovery of the "neglected common sense":

Grammaticality judgments necessarily involve processing of sentences via listening or reading and hence cannot escape the influences of various extra-syntactic/extra-grammatical factors such as prosody, processing and pragmatics. (Deguchi and Kitagawa (2001), Ishihara (2002), Kitagawa and Fodor (2003), Tomioka (2004), Kitagawa and Fodor (To appear), etc.)

**1. Prosody-scope correlation in Japanese Wh-questions:**

(2) **Prosody-Scope Correlation** in Wh-questions: (Deguchi and Kitagawa (2001), Ishihara (2002) > Tomioka (1997) cf. Lee (1982), Choe (1985), Kubo (2001))

a. Wh-questions in Japanese are accompanied by Emphatic Prosody as in (3).

— Emphatic Prosody (**EPD**) consists of:

- (i) Emphatic accent (= sharp rise and fall of  $F_0$ ) on the Wh-focus, and
- (ii) **Post-focal 'reduction'** = compression of pitch and amplitude range, virtually (though not entirely) suppressing all lexical and phrasal H tones up to end of some clause. (Ishihara (2000), D&K (2002))

b. The domain of Emphatic Prosody coincides with the scope domain of Wh, as in (4)-(5).

— The ([+WH]) **CP** at which **EPD ends = Scope domain** of a Wh-phrase

- a) **Short EPD** → **Subordinate** Wh-scope (= Indirect question)
- b) **Long EPD** → **Matrix** Wh-scope (= Direct question)

(**BOLD CAPITALS** = emphatic accent,   = post-focal reduction, ↑ = final interrogative rise)

(3) **D**Are-ga gohan-o tabeteita-no↑ 'Who was having a meal?'  
 who-NOM meal-ACC was.eating-COMP<sub>WH</sub>

(4) **Short-EPD** → **Subordinate Scope**: (*CAPITAL ITALICS* = the retained H tones in the matrix)

[ John-wa [ Mary-ga **D**Are-to atteitta-ka ] soNNANI KINISITEIRU-no↑ ]  
 -TOP -NOM who-WITH seeing-COMP<sub>WH</sub> that.much be.curious-COMP<sub>Y-N</sub>  
 'Is John that much curious about [ **who**<sub>1</sub> Mary was meeting with **t**<sub>1</sub> ]?'

(5) **Long-EPD** → **Matrix Scope**:

[ John-wa [ Mary-ga **D**Are-to atteita-ka ] sonnani kinisiteiru-no↑ ]  
 who-WITH -COMP<sub>WHETHER</sub> -COMP<sub>WH</sub>  
 'With respect to **who**<sub>1</sub> is John so curious about [ **whether** Mary was meeting with **him**<sub>1</sub> ]?'

cf. Hirotani (2003) for some contradictory psycholinguistic data on the perception of Long-EPD utterances.

N.B.<sub>1</sub> Interrogative rise intonation wins over post-focal reduction at the end of an utterance.

N.B.<sub>2</sub> EPD may involve phrasal accents, which we will not discuss in this work.

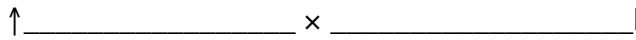
Q: How can grammar yield such prosody-scope correlation? ⇒ Ishihara's presentation.

2. Subjacency revisited:

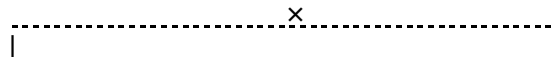
(6) Subjacency violation (Wh-island):

a. Overt Wh-movement (English):

??~\***What**<sub>1</sub> does John want to know [ *whether* Mary ate **t**<sub>1</sub> ]?



b. Wh-in-situ (Japanese): (Nishigauchi (1990: 31), Watanabe (1992: 257, 263))



(?)~??John-wa [ Mary-ga **nani-o** tabeta *kadooka* ] siritagatte-iru-**no**?  
 -TOP -NOM **what-ACC** ate -COMP<sub>WHETHER</sub> want.to.know-COMP<sub>WH</sub>

Disclaimers (Watanabe (1992: 257, 262)): "a subtlety in the judgment," "degree of unacceptability varies among different speakers," "the judgment of the relevant speakers" ⇒ Overt movement of an empty operator in Wh-questions violates Subjacency in Japanese.

(7) Subjacency reexamined with prosody: (# = Unacceptable with the indicated prosody)

a. Short EPD:

# [ John-wa [ Mary-ga **NAni-o** tabeta-**kadooka** ] Imademo siritagatteiru-no↑ ]  
 -TOP -NOM what-ACC ate-COMP<sub>WHETHER</sub> even.now want.to.know-COMP<sub>Y-N</sub>  
 'Does John still want to know [ **whether** Mary ate **what** ]?'

⇒ Subordinate Scope incompatible with - *kadooka* (COMP<sub>WHETHER</sub>) ⇒ **Unacceptable**  
 ⇒ **Misinterpreted as Subjacency Effect.**

N.B. For those who can interpret -*kadooka* as COMP<sub>WH</sub>, (7a) is ok.

b. Long EPD:

[ John-wa [ Mary-ga **NAni-o** tabeta-*kadooka* ] imademo siritagatteiru-**no**↑ ]  
 what-ACC -COMP<sub>WHETHER</sub> -COMP<sub>WH</sub>  
 'With respect to **what**<sub>1</sub> does John still want to know [ **whether** Mary ate **it**<sub>1</sub> ]?'

⇒ **Acceptable** with matrix scope ⇒ **No Subjacency Effect!** (See also <sup>ok</sup>(5).)

(8) "Isn't EPD, especially Long EPD, an exceptional prosodic pattern for Wh-questions?"  
 (Nishigauchi (1990) > H. S. Lee (1982))

(9) a. EPD: **DA**re-ga gohan-o tabeteita-no↑ 'Who was having a meal?'  
 who-NOM meal-ACC was.eating-COMP<sub>WH</sub> (= (3))

b. Non-EPD: #dare-ga <sup>↑</sup>**GO**han-o tabeteita-no↑ (↑<sub>—</sub>↑ = Nuclear accent)

c. Non-EPD: #**DA**re-ga **GO**han-o **TA**beteita-no↑ (CAPITALS = retained lexical accents)

— Wh-phrases are generally interpreted as focus (= emphasized new information), and EPD is a normal prosodic contour even in simplex Wh-questions.

(10) a. **Declarative** complement with **Short EPD**:

#John-wa [Mary-ga **N Ani-o eranda-to**] Imademo omotteiru-no↑?  
 what-ACC selected-COMP<sub>THAT</sub> think-COMP<sub>Y/N</sub>  
 'Does John still think [ *that* Mary selected **what** ]?'

b. **Declarative** complement with **Long EPD**:

[John-wa [ Mary-ga **N Ani-o eranda-to**] imademo omotteiru-**no**↑]  
 what-ACC -COMP<sub>THAT</sub> -COMP<sub>WH</sub>  
 '**What**<sub>i</sub> does John still think [ *that* Mary selected **t<sub>i</sub>** ]?'

— Long EPD is required for **all** scope-extraction, **even out of a non-island**. It is not an exotic prosody whose only function is to permit or mark exceptional overriding of the Subjacency Condition.

(11) Conclusion 1: Subjacency effects in Japanese often reported in the literature seem to arise from the misinterpretation of scope-prosody relations.

### 3. Subordinate scope preference for subordinate Wh-in-situ:

(12) The **explanatory issue** that remains to be addressed:

Why do speakers often overlook the matrix scope interpretations associated with Long EPD?  
 ≈ **Subordinate scope preference** for subordinate Wh-in-situ.

(13) Several likely causes of subordinate scope preference:  
 a. Minimal dependency requirement in processing  
 b. Processing bias due to prosodic influences  
 c. Semantic / pragmatic complexity

#### 3.1 Influence of processing:

(14) Typing Mismatch Effect (TME): (Miyamoto and Takahashi (2002))

In Japanese: Wh-in-situ requires a **question particle** as early as possible.  
 — A slowdown in reading if the first complementizer is not COMP<sub>WH</sub>.

cf. Active Filler Strategy by Frazier and Clifton (1989)

(15) a. Anata-wa [<sub>CP</sub> **dare-ga** kuru-**ka**] sitteimasu-ka?  
 you-TOP who-NOM come-COMP<sub>WH</sub> know-COMP<sub>Y/N</sub>  
 b. Anata-wa [<sub>CP</sub> **dare-ga** kuru-**to**] omoimasu-**ka**?  
 you-TOP who-NOM come-COMP<sub>THAT</sub> think-COMP<sub>WH</sub>

↑  
 Slower reading (= TME)

(16) **Minimize Dependencies** in processing:  
 Resolve all dependencies as soon as possible (perhaps to reduce strain on working memory).  
 = Approximate restatement of Miyamoto and Takahashi (2002)'s proposal

(17) Conclusion 2: "Minimize Dependencies" is one factor that would favor subordinate scope for subordinate Wh-in-situ when the Wh-phrase is in a *-kadooka* (COMP<sub>WHETHER</sub>) clause.

### 3.2 Influence of prosody and processing:

Observations so far:

- Grammaticality judgment of Subjacency construction with **written** examples:
  - **Tendency to dislike** matrix Wh-scope interpretation
- Grammaticality judgment with **spoken** examples:
  - Subjacency effect can be **forced** with Short EPD but **eliminated** with Long EPD.

(18) Prosody may also cause the subordinate scope preference in the Subjacency construction, if:

- there is prosody even in silent reading (when grammaticality judgments are made on **written** sentences);
- Short EPD is preferred** over Long EPD, whether the prosody is overt or covert.

There is evidence in support of both (18a) and (18b).

(19) The Implicit Prosody Hypothesis (IPH): (Bader (1998), Fodor (1998), Fodor (2002: 1))

In silent reading, a default prosodic contour is projected onto the stimulus, and it may influence syntactic ambiguity resolution. Other things being equal, the **parser favors the syntactic analysis associated with the most natural (default) prosodic contour** for the construction. (The IPH is based on parsing preferences in English, German, French, Croatian, etc.)

What counts as the most natural (default) prosody in Wh-in-situ questions in Japanese?

- (20) Long EPD is less natural than Short EPD — Because of global post-focal reduction, Long EPD creates a long string of unaccented items, which offends a **universal tendency toward rhythmic alternation**.  
 ⇒ The shorter the post-focal reduction, the better.

Even a "Short EPD" construction becomes increasingly unacceptable when the post-focal reduction gets longer.

(21) Gradual Lengthening of Short EPD: (= free from TME)

- [<sub>CP1</sub>John-wa [<sub>CP2</sub> Mary-ga N Ani-o tabeta-ka ] Imademo siritagatteiru]  
 -TOP -NOM what-ACC ate-COMP<sub>WH</sub> even.now want.to.know  
 'John still wants to know [ **what**<sub>1</sub> Mary ate **t**<sub>1</sub> ].'
- [<sub>CP1</sub>John-wa [<sub>CP2</sub> Mary-ga N Ani-o shikago-no furenti-resutoran-de tabeta-ka ]  
 French-restaurant-at  
 Imademo siritagatteiru]  
 'John still wants to know [ **what**<sub>1</sub> Mary ate **t**<sub>1</sub> at a French restaurant in Chicago ].'
- <sup>?~#</sup>[<sub>CP1</sub>John-wa [<sub>CP2</sub> Mary-ga N Ani-o shikago-no furenti-resutoran-de tomerareru-made  
 stopped-until  
 tabeta-ka ] Imademo siritagatteiru]  
 'John still wants to know [ **what**<sub>1</sub> Mary ate **t**<sub>1</sub> at the French restaurant in Chicago until she was stopped ].'
- <sup>#</sup>[<sub>CP1</sub>John-wa [<sub>CP2</sub> Mary-ga N Ani-o shikago-no furenti-resutoran-de mawari-no hito-ni  
 surrounding people-by  
 tomerareru-made tabeta-ka ] Imademo siritagatteiru]  
 'John still wants to know [ **what**<sub>1</sub> Mary ate **t**<sub>1</sub> at the French restaurant in Chicago until she was stopped by the people on the scene ].'

(22) [<sub>CP1</sub> John-wa [<sub>CP2</sub> Mary-ga foagura-o shikago-no furenti-resutoran-de mawari-no hito-ni  
foie.gras-ACC  
tomerareru-made onaka-ippai tabeta-koto ]-o imademo siranai ]  
her.fill eat-fact-ACC do.not.know  
'John is yet to know the fact that Mary ate foie gras at the French restaurant in Chicago  
until she became full and was stopped by the people on the scene.'

— Long, but no great difficulty ⇒ Problem in (21c-d) are purely prosodic in nature.

(23) **Avoid Monotony:** (See Selkirk (1984: 248-249), Kubozono (1993: 51, 59).)

There is a universal tendency to avoid monotonous prosody.

⇒ Stress-split in English compounds, accent-split in Japanese compounds,  
Extra F<sub>0</sub> Boost in Japanese, etc.

⇒ In Wh-questions in Japanese, **Short EPD** is the **default** prosody.

(24) Conclusion 3:

a. **Listening** ⇒ The syntactic analysis suggested by the **overt** prosody imposed.

b. **Reading** ⇒ The syntactic analysis suggested by a **default** prosodic contour preferred.

⇒ **Short EPD** as default prosody creates a **bias** toward **subordinate** scope in  
grammaticality judgment through **reading**, whether **silent or pronounced**.

### 3.3 Influence of pragmatics:

(25) Typical alleged Subjacency contrast: cf. Nishigauchi (1990: 31)

a. \*Sato-kun-wa [<sub>CP2</sub> Suzuki-kun-ga N Ani-o tabeta *kadooka*] oboete-imasu-ka↑?  
Mr. Sato-TOP Mr. Suzuki-NOM what-ACC ate whether.or.not remember-COMP<sub>WH</sub>  
'With respect to **what**<sub>1</sub> does Mr. Sato remember [ *whether or not* Mr. Suzuki ate **it**<sub>1</sub> ]?'

b. Sato-kun-wa [<sub>CP2</sub> Suzuki-kun-ga N Ani-o tabeta *to*] omotteimasu-ka↑?  
that think-COMP<sub>WH</sub>  
'**What**<sub>1</sub> does Mr. Sato think [ *that* Mr. Suzuki ate **t**<sub>1</sub> ]?'

⇒ Scope extraction in (25a) in fact is somewhat difficult (though not impossible) even with Long EPD.

(26) Partial semantics of (25a-b) as a matrix Wh-question:

a. The speaker presupposes *the existence of some food such that there is a question of whether or not Mr. Suzuki ate that food*.

b. The speaker presupposes *the existence of some food such that (there is a presupposition that) Mr. Suzuki ate that food*. (≈ ... *some food that Mr. Suzuki ate*)

⇒ Satisfaction of the presupposition in (26a) requires somewhat unusual elaborate pragmatic contexts, which are typically not provided in a null discourse context.  
On the contrary, satisfaction of the presupposition in (26b) is easier.

N.B. Scope extraction in (25a) would be easier with *-ka* than *-kadooka* as the subordinate COMP.

⇒ Possibly because *-kadooka* 'whether **or not**' forces an alternative question, while *-ka* does not.  
With the more positive disposition of *-ka*, the presupposition in (25a) would become almost like (26b).

(27) a. **General fact:** cf. Kitagawa and Ueyama (2004)

Even a grammatical sentences is difficult to interpret, and hence is low in acceptability, when a language user fails to imagine a pragmatic context in which it makes sense.

b. **Reasoning:** cf. *The Principle of Parsimony* in processing, Crain and Steedman (1985: 333)

On the assumption that perceivers are not prepared to put any more effort than necessary into creating a discourse context to make sense of a sentence, it follows that they will **prefer an interpretation with as few presuppositions as possible that are not already implicitly satisfied.**

Properly controlled pragmatics (and prosody) → No Subjacency effect in (28)-(29):

(28) Hokenzyo-wa [ syokutyuudoku-kanzya-zenin-ga **NA**ni-o tabeta-**kadooka** ]  
 health.department-TOP food.poisoning-victim-all-NOM what-ACC ate-COMP<sub>WHETHER</sub>  
 hissi-de sirabe-teiru-**no**↑?  
 desperately investigating-COMP<sub>WH</sub>

'With respect to **what** is the Department of Health desperately investigating [ *whether or not* all of those who suffered from food poisoning ate **it** ]?'

— Implicitly satisfied presupposition = Existence of a specific food item under suspicion and its possible consumption

(29) Tom-wa [ Jane-ga **DO**no otokonoko-to hanasiteita-**kadooka** ] yatara kinisiteiru-**no**↑?  
 -TOP -NOM **which** boy-WITH talking-COMP<sub>WHETHER</sub> badly worrying-COMP<sub>WH</sub>

'With respect to **which** boy is Tom so anxious about [ *whether or not* Jane was talking to **him** ]?'

— Implicitly satisfied presupposition = Existence of a rival boy & Jane's possible conversing with him

Appropriately controlled pragmatics (and prosody) → No Subjacency with other types of islands

(30) pro<sub>1</sub> [<sub>CP</sub> [<sub>IP</sub> pro<sub>1</sub> ohirugohan-ni [ ittai **NA**ni-o ] tabeta ]-**kara** ]  
 lunch.at on.earth what-ACC ate-**because**

guai-ga-waruku-natta-ndaroo-**ka**? < **Adjunct Island** >

got.sick-COMP<sub>WH</sub>

'I wonder **what food** was such that I became sick [ *because* I ate **it** at lunch ].'

(31) kono-urekko-sakka<sub>1</sub>-ga tugi-wa [<sub>NP</sub> [<sub>IP</sub> pro<sub>1</sub> [ ittai **NA**ni-o ] daizai-ni-sita ] **sakuhin** ]-o  
 this-popular-writer-NOM next on.earth what-ACC wrote.about **work**-ACC  
 happyoo-suru-**ka** tanosimi-desune.

make.public-COMP<sub>WH</sub> look.forward.to < **Complex NP Island** >

'It is a big thrill to wonder **what material** is such that this popular writer will publish [ a **work** in which s/he deals with **it** ] next.'

N.B. The presuppositions involved here are independent of Pesetsky (1987)'s **D-linking**.

— No need to imagine a list of candidate answers for the Wh-questions as in (28), (30)-(31).

— The Wh-phrases within islands can be accompanied by *ittai* 'on earth' as in (30)-(31) (though *ittai* probably is not a strict anti-D-link marker to begin with — cf. *ittai dotira* 'which of the two on earth').

(32) **Grand conclusion:** In the pursuit of autonomy of syntax, grammaticality judgments must be explored with much more careful distilling of the data than usually exercised, with attention paid to such factors as prosodic variability, processing difficulty and contextual information.

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