

## Generalized Additional Scrambling Effect and the Principle of Argument Structure Parsing

**Introduction:** Despite the long and rich history of research into long-distance scrambling (LDS) in Japanese, not much attention has been paid to its prosodic properties in relation to its syntax (but see Haig 1976, Hirotsu 2000). Ishihara (2013) has recently developed the processing/prosodic account for various restrictions on LDS — (i) the (obviation of) CMC on multiple LDS (Hiraiwa and Ishihara 2002), (ii) the additional scrambling (aka “free ride”) effect (Sohn 1994, Boeckx and Sugisaki 1999), and (iii) the ban on LDS to the clause-medial position (Saito 1985) — proposing the Principle of Argument Structure Parsing (0) (couched under the Implicit Prosody Hypothesis (Fodor 1998)).

(0) **The Principle of Argument Structure Parsing (PASP):** (Ishihara 2013:63, (12))

XP<sub>s</sub> within a single intonational phrase (t) are preferably interpreted as clausemates.

Although Ishihara envisioned the PASP to provide a unified account for cases including (i)–(iii), a closer scrutiny reveals that PASP-based analysis faces a problem wrt (ii). The aim of this paper is to present argument for Agbayani et al’s (2009, 2011) prosodic movement analysis of multiple LDS in Japanese, which also accounts for a novel observation which I refer as the “generalized” additional scrambling effect.

**Issue:** It is usually assumed that LDS of adjuncts (1)a–b and subjects (1)c–d, respectively, are impossible in Japanese (Saito 1985), unlike LDS of objects (1)e.

- (1) a. \*naze<sub>i</sub> Ken-ga [t<sub>i</sub> Mari-ga yukkuri-to booru-o nageta-to] itta-no?  
why K.-NOM M.-NOM slowly ball-ACC threw-C said-Q  
‘Why<sub>i</sub> did Ken say [Mari threw the ball slowly t<sub>i</sub>].’  
b. \*yukkuri-to<sub>j</sub> Ken-ga [Mari-ga t<sub>j</sub> booru-o nageta-to] itta-yo.  
slowly K.-NOM M.-NOM ball-ACC threw-C said-SFP  
‘Ken said [Mari threw the ball slowly].’  
c. \*Mari-ga<sub>k</sub> Ken-ga [naze t<sub>k</sub> yukkuri-to booru-o nageta-to] itta-no? ‘(same as (1)a)’  
d. \*Mari-ga<sub>k</sub> Ken-ga [t<sub>k</sub> yukkuri-to booru-o nageta-to] itta-yo. ‘(same as (1)b)’  
e. booru-o<sub>l</sub> Ken-ga [Mari-ga yukkuri-to booru-o nageta-to] itta-yo. ‘(same as (1)b)’

Koizumi (2000:241–243) observes, however, the otherwise illicit LDS of adjuncts becomes possible if it is accompanied by another clausemate phrase which can undergo LDS on its own.

- (2) a. naze<sub>i</sub> booru-o<sub>l</sub> Ken-ga [t<sub>i</sub> Mari-ga yukkuri-to t<sub>l</sub> nageta-to] itta-no?  
b. yukkuri-to<sub>j</sub> booru-o<sub>l</sub> Ken-ga [Mari-ga t<sub>j</sub> t<sub>l</sub> nageta-to] itta-yo.  
(2)a/(2)b=‘(same as (1)a)’

Furthermore, as Fukui and Sakai (2003:335) and Agbayani et al (2009:4.1.2.) observe, the otherwise illicit LDS of subjects becomes possible under the same environment.

- (3) a. Mari-ga<sub>k</sub> booru-o<sub>l</sub> Ken-ga [naze t<sub>k</sub> yukkuri-to t<sub>l</sub> nageta-to] itta-no?  
b. Mari-ga<sub>k</sub> booru-o<sub>l</sub> Ken-ga [t<sub>k</sub> yukkuri-to t<sub>l</sub> nageta-to] itta-yo.  
(3)a/(3)b=‘(same as (1)a)’

I should hasten to note here that the upgrading effects in (2)–(3) can be subsumed under the so-called additional scrambling (aka free ride) effect, which Boeckx and Sugisaki (1999) argue to be an instance of Richards’ 1998 Principle of Minimal Compliance (PMC); there is *licit LDS of object* that “saves” the otherwise illicit LDS of adjuncts and subjects. But consider now the following examples, which involve the combination of LDS of multiple adjuncts (4)a and adjunct and subject (4)b and (5). Quite surprisingly, **these multiple LDS are significantly much better than the single LDS of adjuncts (1)a–b and subjects (1)c–d.**

- (4) a. naze<sub>i</sub> yukkuri-to<sub>j</sub> Ken-ga [<sub>t<sub>i</sub></sub> Mari-ga <sub>t<sub>j</sub></sub> booru-o nageta-to] itta-no?  
 b. naze<sub>i</sub> Mari-ga<sub>k</sub> Ken-ga [<sub>t<sub>i</sub></sub> <sub>t<sub>k</sub></sub> yukkuri-to booru-o nageta-to] itta-no?  
 (4)a='(same as (1)a)'; (4)b='(same as (1)a)'

(5) yukkuri-to<sub>j</sub> Mari-ga<sub>k</sub> Ken-ga [<sub>t<sub>k</sub></sub> <sub>t<sub>j</sub></sub> booru-o nageta-to] itta-yo. '(same as (1)b)'

The hitherto unnoticed upgrading effects in (4)–(5) do not fall under Boeckx and Sugisaki's PMC-based additional scrambling effect since the participants here cannot undergo LDS on its own. Yet, (4)–(5) tell us that, even if is composed of illicit LDS, in the case of multiple LDS, the upgrading effect emerges, meaning that some sort of a PMC-independent but **“generalized” additional scrambling (GAS) effect is at work.**

**PASP-based Analysis:** Ishihara (2013) argues that the typical instances of “additional scrambling” effect in (3)–(4) can be handled under the PASP. Suppose this is true. Even so, it remains to be seen how PASP deals with cases like (1). In fact, the most problematic aspect of PASP is that the cases of impossible single LDS in (1)a–d and the (generalized) additional scrambling effects in (2)–(5) are in fact indistinguishable in terms of its syntax-prosodic mapping. Likewise, PASP does not distinguish the legitimate cases of single/multiple LDS of arguments against the cases in (1)a–d and (2)–(5). Together with the conventional assumption that *i*-boundaries are created at the edge of CP, and given that LDSed phrase, whether it is single or multiple, forms its own *i*-phrase to begin with (Haig 1976, Hirotni 2000; for multiple scrambling, see Koizumi 2000, Fukui&Sakai 2003, Ishihara 2013), the result of syntax-prosody mapping of LDS is virtually the same, resulting in “{<sub>i</sub> LDSed phrase(s)} {<sub>i</sub>[CP mSUB {<sub>i</sub>[CP eSUB ...]”, as illustrated in (6)–(7).

- (6) a. single LDS of argument → grammatical (1)e  
       {<sub>i</sub> argument} {<sub>i</sub>[CP mSUB {<sub>i</sub>[CP eSUB ...]  
 b. single LDS of adjunct → ungrammatical (1)a–d  
       {<sub>i</sub> adjunct} {<sub>i</sub>[CP mSUB {<sub>i</sub>[CP eSUB ...  
 (7) a. multiple LDS of two arguments → grammatical  
       {<sub>i</sub> argument argument} {<sub>i</sub>[CP mSUB {<sub>i</sub>[CP eSUB ... (see Koizumi 2000)  
 b. multiple LDS of argument and adjunct (the add. scr. effect) → grammatical (2)–(3)  
       {<sub>i</sub> adjunct argument} {<sub>i</sub>[CP mSUB {<sub>i</sub>[CP eSUB ... b'. {<sub>i</sub> adjunct argument} {<sub>i</sub>[CP ...  
 c. multiple LDS of two adjuncts (the GAS effect) → grammatical (4)–(5)  
       {<sub>i</sub> adjunct adjunct} {<sub>i</sub>[CP mSUB {<sub>i</sub>[CP eSUB ...

**Prosodic Movement Analysis:** I argue that the solution to account for the paradigms discussed here is to make use of Agbayani et al's 2009, 2012 “prosodic movement” analysis of multiple scrambling in Japanese. Under their analysis, such prosodic movement is implemented only when the phrase is composed of a complex phonological( $\phi$ )-phrase with two or more  $\phi$ -phrase (which as a result forms its own *i*-phrase); “{<sub>i</sub> [<sub>i</sub> { $\phi$  XP} { $\phi$  XP}]} {<sub>i</sub>[CP mSUB {<sub>i</sub>[CP eSUB ...”. The immediate advantage of this “non-syntactic” movement analysis is that it is free from “syntactic” constraints (which is independently evidenced by the lack of island effect with multiple LDS; see Agbayani et al). What is crucial to the discussion here is that, given that multiple LDS (which inevitably involve a complex  $\phi$ -phrase) is “non-syntactic”/“prosodic”, whatever syntactic condition that rules out the single LDS of subjects and adjuncts are inapplicable; thus both the additional scrambling effects (2)–(3) and the GAS effects (4)–(5) are accounted for in a uniform way. On the other hand, since a single instance of LDS in (1)a–d cannot be a prosodic movement (owing to the fact that it is not a complex  $\phi$ -phrase), and it must be applied in syntax, and hence it is subject to the syntactic condition and they are ruled out.

**Ref.:** Agbayani & Golston. 2010. Agbayani, Golston, & Henderee. 2011. *WCCFL* 28. Agbayani, Golston, & Ishii. 2009. *ICEAL* 2. Agbayani, Golston, & Ishii. 2012. *FAJL* 5. *Language* 86. Hirotni. 2000. Prosodic Constraints on Japanese Scrambling. *CUNY* 13. Ishihara. 2013. *FAJL* 6.