## How to license scrambled elements in Korean and Japanese

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This paper argues that undoing property of scrambling in Korean and Japanese (KR) (Saito 1985, Abe 1993, Saito and Fukui 1998, Bošković and Takahashi 1998). Ban on adjunct scrambling (Miyara 1982, Saito 1985, Bošković and Takahashi 1998) and its exceptions (Boecks and Sugisaki 1999, Yoo 2019), Case requirement of scrambled elements (Saito 1985, Lamontagne and Travis 1987, Bittner and Hale 1996, Fujii and Ono 2000) can be unified and deduced from the Labeling Algorithm (LA) (Chomsky 2013, 2015, Saito 2016, Miyagawa, Wu and Koizumi, *to appear*).

Korean and Japanese scrambling have been treated as cost-free optional movement in syntax, given that they are not motivated by any sort of feature-checking; scrambling, as opposed to English wh-movement and topicalization, is subject to "radical reconstruction" (Saito 1985).

(1) Nani-oi	John-ga	Mary-ga	ti	katta	ka]	sitteiru
what-ACC	John-NOM	Mary-NOM	- -	bought	Q	knows
'John know	s what Mary	bought.'				

The embedded object *wh*-phrase in (1) is scrambled to the matrix clause. Given that only the embedded clause is specified as interrogative, the scrambled object must take the embedded scope. Bošković and Takahashi 1998 (BT) argue that the scrambled elements in (1) is **base-generated** in its surface position, and it must lower in LF to a position where it can receive a  $\Theta$  role. BT's system deduces Ban on adjunct scrambling in this respect; (2) illustrates the ban.

(2) a. Mary-ga [John-ga **riyuu-mo** naku sono setu-o sinziteiru to] omotteiru. Mary-NOM John-NOM reason-even without that theory-ACC believes that thinks 'Mary thinks that John believes in that theory without any reason.'

b.\*Riyuu-mo naku1 Mary-ga [John-ga t1 sono setu-o sinziteiru to] omotteiru.

Assuming that scrambling is optional movement without any driving force, this is rather puzzling that the adjunct in question cannot scramble. BT contrast (2) with (1) in that the required lowering of adjunct in (2b) is violating Last Resort since there is no reason for the adjunct to lower into the embedded clause. The exceptional case of Ban on adjunct scrambling is also discussed in BT;

(3) Kyuuni*(-sik	<b>a</b> i) Mary-ga [c	P John-ga t	i nakidasa-i	nak-atta	to] itta.	
Suddenly-NPI	Mary-NOM	John-NOM	start-tocry	-neg-past	that said.	
'Mary said that	John only sudd	enly started c	rving.'	(Boeck)	x and Sugisaki 1999)	

BT argue that argue that the adjunct in (3) is a negative polarity item whose licensing negation is located in the embedded clause, and thus it can undergo scrambling since the formal requirement can be satisfied in the embedded clause in LF. Note here that there is element that is attached to adjunct; *-sika*. Without the particle, the sentence gets ungrammatical.

This paper unifies the patterns in (3) with respect to the obligatory presence of particle in scrambling. It has been observed extensively that arguments without Case particle cannot undergo scrambling (Saito 1985, Fujii and Ono 2000);

(4) a. Mariko-ga nani(-o)	katta	no?	b. Nani*(-o) Mariko-ga katta no?	
Mariko-NOM what-ACC	bought	Q	what-ACC Mariko-NOM bought Q	
'What did Mariko buy?'			'What did Mariko buy?	

While it is possible to drop the Case particle when the argument is adjacent to the verb (4a), the scrambled arguments must be marked with Case particle (4b). This is similar to the exceptional cases of adjuncts in (3), where the scrambled adjuncts must be marked with a particle when is not adjacent to the licensor.

Assuming BT's approach to scrambling where the elements in question are base-generated at their surface position, the scrambled NP/AdvP then merge with TP as illustrated below.

(5) { $\alpha$  scrambled elements, TP}

This paper argues that licensing the label  $\alpha$  can account for (1)-(4).

the syntactic context where the relevant elements are located. Chomsky proposes that in the case where a head and a phrase merge, the head provides the label for the resulting object. When two maximal projections merge, there are two ways of determining labeling: *i*: One of them moves away (LA *i*) or *ii*: The phrases in question undergo feature sharing, i.e. agreement (LA *ii*). Now, Hornstein and Nunes (2008), Hunter (2010) and Bošković (2018) among others, argue that the adjunct configuration does not need labeling for interpretation, as in (6). <u>I make a somewhat similar but stronger proposal: For adjunct configuration, it is not possible for one element to project (see Yoo 2019 for the relevant discussion) (8). Given that Korean and Japanese do not have feature-sharing option between NP and TP (see Saito 2016), the optionally base-generated elements in (1)-(4) are in the adjunct configuration like (6), as shown in (8).</u>

(6) {? XP, YP} (7)For adjunct configuration, it is not possible for one element to project (8) {? Scrambled elements, TP}

The current approach slightly modifies the timing of labeling from Chomsky 2013. For Chomsky (2013) labeling applies at the point of spell-out. Since spell-out is determined by phases, labeling takes place at the phasal level. However, Bošković (2015) points out a serious chicken-or-the-egg style question for the timing of labeling in Chomsky (2013): Bošković argues that phasehood determination requires labeling, i.e., phases do not exist prior to labeling. Without any labeling, we cannot determine phasal levels which means that it is also impossible to determine points of spell-out, hence structures cannot be sent to spell-out. But spell-out is necessary for labeling. Bošković (2015) resolves this issue by arguing that the Labeling Algorithm can apply when it can.

(9) Label when you can

Now, (8) and (9) deduce the ban on adjunct scrambling in (2). When the adjunct in (2) lowers to the embedded clause, the movement labels the merger as TP, which violates (7) (i.e.TP projects). In the same manner with (10), the Caseless element in (4) cannot undergo scrambling:

(10) \*{<sub>TP</sub> *riyuumo naku* TP}

(11) \*{<sub>TP</sub> *Nani* TP}

What enables scrambling in Korean and Japanese is then the presence of particles with the scrambled elements. I argue that the particles functions as a place-holder for the adjunct configuration. In the spirit of Stepanov 2001, Hagstrom 1998 and Bošković 2018 where Q-morpheme merges with *wh*-elements first, such particles first merges with the scrambled elements. When the particle merges with NP/AdvP in question, forming {particle,NP/AdvP} particle immediately labels it as particleP given LA and (9). The head of particle then head-moves to NP/advP for cliticization. Here I adopt Chomsky (2013)'s system here in that once the projection is labeled the head movement does not de-label it. Thus the movement of NP/AdvP thus does not violate (7) since the ParticleP functions as a place-holder for (7).

(11) {? { $ParticleP}$  Particle NP/AdvP} TP}

(11) accounts for the possibility of scrambling in (1) and (3) as illustrated below.

(12) {? { $ParticleP \ tParticle \ NP/AdvP}$  TP}

The pattern in (4b) (i.e. ban on scrambling of Case-less elements) that is captured by (12) is recently dicussed in Saito (2016) and Miyagawa, Wu and Koizumi (*to appear*). In their system, Case particles functions as an anti-labeling device, which makes a constituent invisible for LA.

 $(13) \{ TP DP-Case TP \}$ 

By assuming that all syntactic objects must be labeled for interpretation, Saito (2016) argues that Casemarking is required for scrambling in Japanese otherwise it will result to unlabeled projection. He correlates this with the lack of  $\phi$ -agreeement between Subject and TP in Japanese, which accounts for Case-marking in subjects. However, when real adjunct configuration like (3) are taken into consideration, this faces problem. In (14), the adverb *ecey* is adjoined to TP, and it must be Casemarked in Saito (2016)'s system for interpretation. However, it is optional.

(14) ecey(-nun) ku-ka ttwietta. yesterday(-TOP) he-NOM ran. 'Vostorday he ran'

'Yesterday, he ran'