

"Raising to Object" and the Successive Cyclicity of Long Scrambling in Japanese

Japanese has the "Raising-to-Object" (RTO) construction, in which the subject of the complement clause of an epistemic verb is accusative-marked (1), and allows long-scrambling (i.e. scrambling out of an embedded clause). However, long-scrambling out of an RTO-complement is degraded. (3), in which the PP-complement of the embedded adjective in an RTO complement undergoes long-scrambling, is less acceptable than (1) and (2). The acceptability of (3) can be improved if the accusative subject is shifted into the matrix domain. (4), in which the accusative subject follows the matrix adverbial, is as degraded as (3). In contrast, in (5), the accusative subject is shifted across the matrix adverbial and this shifting results in improvement of the acceptability. I consulted four informants (Speakers A-D) about the acceptability of (2)-(5). Their judgments are shown after each example (4: Perfectly acceptable; 3: Not perfect, but acceptable; 2: Bad, but not completely unacceptable; 1: Completely unacceptable). I offer a principled explanation for the contrast between (3) and (5) and show its implications.

- (1) John-wa David-*{ga/o}* [nihon-no rekishi]-ni kuwashi-i-to omot-ta
John-TOP David-NOM/ACC Japan-GEN history-DAT familiar-PRES-COMP think-PAST
'John thought that David was familiar with the history of Japan.'
- (2) [Nihon-no rekishi]-ni, John-wa [David-ga_{NOM} kuwashi-i]-to omot-ta (A: 3; B: 2; C: 2; D: 4)
- (3) */?*[Nihon-no rekishi]-ni, John-wa David-o_{ACC} kuwashi-i-to omot-ta (A: 2; B: 1; C: 1; D: 1)
- (4) */?*[Nihon-no rekishi]-ni, John-wa [kokoro-no soko]-kara David-o_{ACC} kuwashi-i-to omot-ta
heart-GEN bottom-from (A: 2; B: 1; C: 1; D: 2)
- 'The history of Japan, John thought David to be familiar with, from the bottom of his heart.'
- (5) ???[Nihon-no rekishi]-ni, John-wa David-o_{ACC} [kokoro-no soko]-kara kuwashi-i-to omot-ta
(A: 3; B: 2; C: 3; D: 3)

The Two Theoretical Assumptions: First, I adopt the condition (6) on extraction from phases. HP in (7) is intended to be a phase, and X and Y are the outer and the inner specifiers of H. (6) allows extraction of X, the outermost specifier of H (7b), but it prohibits extraction of Y, the inner specifier, over X (7c). I assume that a trace does not count as an edge (Bošković 2016: 19): if the element at the highest edge is extracted (8a), the element in the second highest edge counts as the edge and can be extracted (8b).

- (6) When more than one element is located at a phasal edge, only the highest/outermost edge is the edge for the purpose of the Phase-Impenetrability Condition (PIC). (Bošković 2016: 9).
- (7) a. $[\text{HP}(\text{phase}) \boxed{X} [\text{H} \text{Y} [\text{H} \dots \text{H} \dots]]]$
b. $X \dots [\text{HP}(\text{phase}) \text{t}_X [\text{H} \text{Y} [\text{H} \dots \text{H} \dots]]]$ c. $*\text{Y} \dots [\text{HP}(\text{phase}) \boxed{X} [\text{H} \text{t}_Y [\text{H} \dots \text{H} \dots]]]$
- (8) a. $X \dots [\text{HP}(\text{phase}) \text{t}_X [\text{H} \boxed{Y} [\text{H} \dots \text{H} \dots]]]$ b. $(\text{Y}) \dots X \dots (\text{Y}) \dots [\text{HP}(\text{phase}) \text{t}_X [\text{H} \text{t}_Y [\text{H} \dots \text{H} \dots]]]$

Second, I assume that multiple specifiers of a single head X are formed by movement as in (9) (Richards 1998). In (9a), where both YP and ZP can be attracted by X and YP is closer to X than ZP, YP is moved first due to Attract Closest (9b). When ZP is moved, it is moved to the inner [Spec, X] (9c), because the inner [Spec, X] is closer to the original position of ZP than the outer [Spec, X].

- (9) a. $[\text{XP} X [\dots \text{YP} \dots \text{ZP} \dots]]$
b. $[\text{XP} \text{YP} [\text{X} X [\dots \text{t}_{\text{YP}} \dots \text{ZP} \dots]]]$ c. $[[* \text{ZP}] [\text{XP} \text{YP} [(\text{ZP}) [\text{X} X [\dots \text{t}_{\text{YP}} \dots \text{t}_{\text{ZP}} \dots]]]]]$

The Positions of the Accusative Subject: I assume that the 'raised' accusative subject is moved to the embedded [Spec, C] ((10), Hiraiwa 2005; Kaneko 1988; Kishimoto 2019). Accusative case on the embedded subject is assigned by the matrix v (if case is assigned by a functional category) or through the interaction with the matrix subject (if the Dependent Case theory is adopted). Whichever theory of case is adopted, the accusative subject must be located in a position that is accessible from the matrix v or the matrix subject. On the assumption that CP is a phase, this point can be captured, if the embedded subject is moved to the embedded [Spec, C], where it is accessible from the upper clause. (11) offers a piece of evidence that the accusative subject can remain in the embedded CP. In (11), the accusative subject is fronted together with the embedded CP, which can be explained if it is contained in the CP. (12) offers the evidence that the accusative subject is in a higher position than the nominative subject (12). In (12), *amari ooku*, which is a negative polarity item to be licensed by the embedded negation (Kishimoto 2017), appears in the embedded subject. The acceptability of nominative case is explained by assuming that the scope of sentential negation is TP/FinP (Kishimoto 2017), which contains the surface position of the nominative subject ([Spec, T]/[Spec, Fin]). The unacceptability of accusative case shows that the accusative subject does not fall under the scope of negation: it is not contained in TP/FinP. The accusative subject can be contained in the embedded CP but is not contained in TP/FinP, which can be explained by structure (10).

- (10) $[\text{VP} [\text{v} [\text{VP} [\text{CP} \text{Subj-Acc} [\text{C} \dots [\text{TP/FinP} \dots \text{T/Fin} \text{C}]] \text{V}]] \text{v}]] \dots$
- (11) [Mary-o kirei-da]-to John-wa omot-ta
Mary-ACC beautiful-COPULA-COMP John-TOP think-PAST 'John thought that Mary was beautiful.'
- (12) Yamada-sensei-wa [amari ooku-no seito]-*{ga/*o}* daigaku-ni gookaku-deki-na-i-to
Yamada-teacher-TOP so many-GEN student-NOM/ACC university-DAT pass-can-NEG-PRES-COMP
omot-ta 'Mr. Yamada thought it was not the case that many students could
think-PAST pass the entrance examination of a university.'

The 'raised' subject can precede a matrix adverbial (13). I assume that the accusative subject in [Spec, C] is optionally moved into the matrix domain (Hiraiwa 2005). I assume that this is an instance of short-scrambling in the sense of Takano (1998) and its landing site is (or at least can be) [Spec, V] (14). I propose that this movement cannot be string-vacuous: it is applied only when it affects the linear order.

- (13) John-wa (Bill-o) [kokoro-no soko]-kara (Bill-o) kashiko-i-to omot-ta
John-TOP Bill-ACC heart-GEN bottom-from Bill-ACC clever-PRES-COMP think-PAST
'John thought Bill to be clever from the bottom of his heart.'

(14) ... [_{VP} [_v [_{VP} Subj-Acc [_v ... [_{CP} t_{Subj-Acc} [_C ... [_{TP/FinP} ... T/Fin] C]] V]] v]] ...

Derivations of (3) and (5):

Now let us explain the unacceptability of (3), taking its derivation into consideration (15). First, the embedded adjectival phrase is formed: A is merged with its PP-complement; AP is merged with the light adjective *a*, the adjectival counterpart of the light verb *v*; the embedded subject is merged as the specifier of *a*. I assume that *aP* is a phase category just like *vP* is, although nothing hinges on this assumption. In order to escape the domain of *a*, the PP-complement of A is moved to the inner [Spec, *a*] ((15a), see (9b, c)). The *aP* is merged with T and TP is merged with the embedded C. I assume that the embedded T in the RTO-construction does not have the EPP-feature, although nothing hinges on this assumption. The subject and the PP must move to edges of CP (the former for the case-reason; the latter for the PIC-based locality reason). Since the subject asymmetrically c-commands the PP, the former is closer to C(P) than the latter. The subject is moved first and the PP is moved to the inner specifier (15b). After the subject is extracted from the outer [Spec, *a*], the PP in the inner [Spec, *a*] can count as the edge of *aP* (see (8)). CP in (15b) is merged with the matrix V and VP is merged with *v*. The matrix subject is merged as the specifier of *v*. In order to later move to the initial position of the matrix clause, the PP in the inner [Spec, C] must move to (one of) the edge(s) of the matrix *vP* due to the PIC. Importantly, it cannot be, because it is not the outermost edge of the CP (15c) (see (6)). For this reason, the PP cannot move out of the embedded CP: it cannot be long-scrambled.

- (15) a. [_{aP} David_{SUBJ} [_a [_{PP} Nihon-no rekishi-ni] [_a [_{AP} tpp kuwashi] a]]]
 b. [_{CP} David_{SUBJ} [_C [_{PP} Nihon-no rekishi-ni] [_C [_{TP} [_{aP} t_{SUBJ} [_a tpp [_a [_{AP} tpp kuwashi] a]]] i] to]]]
 c. * [_{vP} John_{SUBJ} [_v [_{PP} Nihon-no rekishi-ni] [_v [_{VP} [_{CP} David_{SUBJ} [_C tpp [_C ... to]]] omow] v]]]

Because the unacceptability of (3) is attributed to the embedded subject occupying the outer [Spec, C], it is predicted that, if the embedded subject in (15c) is extracted, the PP in the inner [Spec, C] can be extracted (see (8)). This is what (5) shows. The derivation of (5) is shown in (16). Like in (15), the embedded subject is moved first and the PP is moved to the inner [Spec, C] (16a). After that, the embedded subject is moved to [Spec, V] (16b). Because the embedded subject has been extracted, the PP in the inner [Spec, C] can now count as the edge of the embedded CP (see (8)) and be moved to the inner [Spec, *v*] (16c). After T is merged with *vP*, the matrix subject in the outer [Spec, *v*] is raised to [Spec, T] due to the EPP. Because the matrix subject has been extracted, the PP in the inner [Spec, *v*] can be moved to [Spec, C] (see (8)), which I assume is the landing site of long-scrambling (16d). The adverbial is inserted by Late Merge as the adjunct of V'. Importantly, the movement of the embedded subject from the outer [Spec, C] enables the subsequent extraction of the PP in the inner [Spec, C] (16b, c).

- (16) a. [_{CP} David_{SUBJ} [_C [_{PP} Nihon-no rekishi-ni] [_C [_{TP} [_{aP} t_{SUBJ} [_a tpp [_a [_{AP} tpp kuwashi] a]]] i] to]]]
 b. [_{vP} John_{Matrix}_{SUBJ} [_v [_{VP} David_{SUBJ} [_v [_{CP} t_{SUBJ} [_C [_{PP} Nihon-no rekishi-ni] [_C [_{TP} [_{aP} t_{SUBJ} [_a tpp [_a [_{AP} tpp kuwashi] a]]] i] to]]] omow] v]]]
 c. [_{vP} John_{Matrix}_{SUBJ} [_v [_{PP} Nihon-no rekishi-ni] [_v [_{VP} David_{SUBJ} [_v [_{CP} t_{SUBJ} [_C tpp [_C [_{TP} [_{aP} t_{SUBJ} [_a tpp [_a [_{AP} tpp kuwashi] a]]] i] to]]] omow] v]]]
 d. [_{CP} [_{PP} Nihon-no rekishi-ni] [_C [_{TP} John_{Matrix}_{SUBJ} [_T [_{vP} t_{SUBJ} [_v tpp [_v [_{VP} David_{SUBJ} [_v Adv [_{CP} t_{SUBJ} [_C tpp [_C [_{TP} [_{aP} t_{SUBJ} [_a tpp [_a [_{AP} tpp kuwashi] a]]] i] to]]] omow]]] v]]] T]] C]]]

Let us reconsider (3). If the accusative subject in (3) were moved from the outer [Spec, C] in a string-vacuous fashion, (3) would be incorrectly predicted to be grammatical. This is the reason why I proposed above that the movement of the accusative subject to the matrix [Spec, V] cannot be string-vacuous.

The unacceptability of long-scrambling out of an RTO-complement was first noticed by Kaneko (1988). He attributed it to the "alleged" uniqueness of [Spec, C]: the embedded subject and long-scrambled element compete for the only [Spec, C]. The improved acceptability of (5) is problematic for this analysis. The accusative subject in (5) is moved into the matrix domain through the unique [Spec, C]. It is incorrectly predicted that long-scrambling cannot pass through the embedded [Spec, C] in (5) either.

The proposed analysis can be extended to (17), where the accusative subject is scrambled to the position before the matrix subject/topic, and to (18), where the embedded subject is promoted to the matrix subject by passivization. The embedded subject is moved from the outer [Spec, C] to the matrix domain in both (17) and (18), enabling the PP in the inner [Spec, C] to move out of the embedded CP (cf. (16b, c)).

(17) ? [Nihon-no rekishi]-ni, David-o_{ACC}, John-_{{ga_{NOM}/wa_{TOP}}} kuwashi-i-to omot-ta

(18) [Nihon-no rekishi]-ni, David-ga kuwashi-i-to omow-are-tei-tu
 Japan-GEN history-DAT David-NOM familiar-PRES-COMP think-PASS-ASPECT-PRES
 'The history of Japan, David is thought to be familiar with.'

The proposed analysis has the following implications. First, it offers an additional piece of evidence for (6). Second, it offers an additional piece of evidence that the 'raised' accusative subject is moved to [Spec, C]. If the accusative subject were not moved to [Spec, C], it would be a mystery why it interferes with long-scrambling. Third, it offers a piece of evidence for the successive-cyclicality of long-scrambling. The accusative subject in the RTO construction occupies the outermost [Spec, C] and interferes with long-scrambling across itself. This point shows that long-scrambling heads for the outermost edge of an intermediate phase and is thus successive-cyclic.

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