

ELIMINATING SCRAMBLING FROM JAPANESE VIA NEO-DAVIDSONIAN EVENT SEMANTICS*

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1 Introduction

This paper will reconsider the free word order property of Japanese known as scrambling in the literature through the lens of neo-Davidsonian event semantics, contending that there is no need for postulating scrambling as an independent syntactic operation in this language. Recently, Lohndal (2014) proposes that the verbal structure is not only semantically but syntactically neo-Davidsonian, whereby both Agent and Theme arguments are severed from their verbs. Building on this idea, we will claim that verbs in Japanese do not introduce their arguments, either. However, departing from Lohndal's idea, we will propose with Nomura (2016) that case particles given as Ks below denote thematic functions from an individual (DP) to a set of events so that a KP is an event predicate, and that KPs will be semantically combined with the verbal spine via Predicate Conjunction in the sense of Pietroski (2005). With this new perspective toward to the verbal semantics in Japanese, we will propose that Clause-internal scrambling can be derived via base-generation or movement whereas Long-distance scrambling must involve movement. When base-generated, a given scrambled argument is semantically interpreted where it appears. For movement, we will maintain that it is a case of topicalization. Then, our proposal can dispense with the notion of scrambling being an independent movement operation. This will bring us a couple of empirical as well as theoretical consequences that we would not otherwise obtain.

This paper is organized as follows. In Section 2, we will go over the basic properties of Clause-internal and Long-distance scrambling regarding binding and scope. Section 3 will then provide our proposal regarding the verbal syntax and semantics in Japanese, showing how our analysis derives the two types of scrambling. In Section 4, we will see three consequences that come from our analysis: how the free word order affects or does not affect the information structure, how an apparent object extraction from the 'do so' anaphora in Japanese is derived, and how the so-called

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Free-rider Effect will become possible. Then, in Section 5, we will consider two potential issues concerning the case morphology and the (impossible) argument structure, which may challenge our analysis. Finally, Section 6 will conclude.

2 Two Types of Scrambling in Japanese

It has been widely pointed out in the literature that there are two types of scrambling in Japanese (Saito 1992 and his related works). One kind is Clause-internal (CI) scrambling given in (1), where (1a) is the base (SOV) order while (1b) illustrates the CI-scrambled (OSV) one.

- (1) a. Yamada-sensei-ga Taroo-o sikat-ta.
 Yamada-teacher-NOM Taro-ACC scold-PAST
 ‘Mr. Yamada scolded Taro.’
 b. Taroo-o₁ Yamada-sensei-ga t₁ sikat-ta.
 Taro-ACC Yamada-teacher-NOM scold-PAST
 Lit. ‘Taro Mr. Yamada scolded.’

An important property that characterizes CI-scrambling is that it can be semantically significant in that it can feed into a new binding relation and change quantifier scope:

- (2) a. *Otagai_i-no oya-ga [Taroo-to-Ziroo]_i-o sikat-ta.
 each.other-GEN parent-NOM Taro-and-Jiro-ACC scold-PAST
 Intended ‘Each other_i’s parents scolded [Taro and Jiro]_i.’
 b. [Taroo-to-Ziroo]_i-o₁ otagai_i-no oya-ga t₁ sikat-ta.
 Taro-and-Jiro-ACC each.other-GEN parent-NOM scold-PAST
 Lit. ‘[Taro and Jiro]_i each other_i’s parents scolded.’
 (3) a. Dareka-ga daremo-o aisi-tei-ru.
 someone-NOM everyone-ACC love-ASP-PRES
 ‘Someone loves everyone.’ ($\exists > \forall/*\forall > \exists$)
 b. Daremo-o₁ dareka-ga t₁ aisi-tei-ru.
 everyone-ACC someone-NOM love-ASP-PRES
 Lit. ‘Everyone someone loves.’ ($\exists > \forall/\forall > \exists$)

As (2b) shows, the CI-scrambled object licenses the reciprocal anaphor *otagai* ‘each other’ buried inside the subject. Likewise, the CI-scrambled universally quantified object scopes over the existentially quantified subject in (3b). These traits are argued to be those of A-movement in the literature, whence CI-scrambling can be a case of A-movement (Saito 1992).

In contrast, Long-distance (LD) scrambling, which passes a (finite) clausal boundary, differs from CI-scrambling. As (4) illustrates, the LD-scrambled embedded object does not license the reciprocal anaphor inside the matrix subject. This state of affairs has been understood in terms of LD-scrambling being an instance of \bar{A} -movement. That is, only A-movement renders a new binding relation. For the scope fact in (5), it has been argued that LD-scrambling cannot change quantifier scope.¹

¹However, see Miyagawa (2012) for a different perspective.

- (4) a. *Otagai_i-no oya-ga [boku-ga [Taroo-to-Ziroo]_i-o sikat-ta-to]
 each.other-GEN parent-NOM I-NOM Taro-and-Jiro-ACC scold-PAST-COMP
 it-ta.
 say-PAST
 Intended ‘Each other_i’s parents said that I scolded [Taro and Jiro]_i.’
- b. *[Taroo-to-Ziroo]_i-o₁ otagai_i-no oya-ga [boku-ga *t*₁ sikat-ta-to]
 Taro-and-Jiro-ACC each.other-GEN parent-NOM I-NOM scold-PAST-COMP
 it-ta.
 say-PAST
 Intended ‘[Taro and Jiro]_i each other_i’s parents said that I scolded.’
- (5) a. Dareka-ga [boku-ga daremo-o aisi-tei-ru-to] it-ta.
 someone-NOM I-NOM everyone-ACC love-ASP-PRES-COMP say-PAST
 ‘Someone said that I loved everyone.’ ($\exists > \forall/*\forall > \exists$)
- b. Daremo-o₁ dareka-ga [boku-ga *t*₁ aisi-tei-ru-to] it-ta.
 everyone-ACC someone-NOM I-NOM love-ASP-PRES-COMP say-PAST
 Lit. ‘Everyone someone said that I loved.’ ($\exists > \forall/*\forall > \exists$)

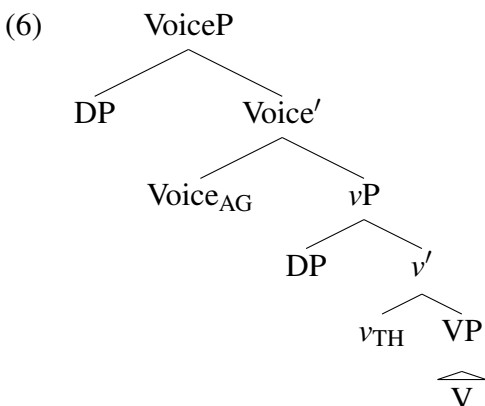
The above sort of semantic vacuity of LD-scrambling has sometimes been called the Radical Reconstruction Effect (RRE) (Saito 1992 and references therein). Under the RRE, the LD-scrambled DP behaves as if it had not undergone the pertinent movement, so that it must be interpreted where it originates from (cf. Bošković and Takahashi 1998).

In what follows, we will put forth a new idea that derives the differences between CI- and LD-scrambling without recourse to the notion of scrambling as an independent syntactic operation.

3 A New Way to Derive the Free Word Order in Japanese

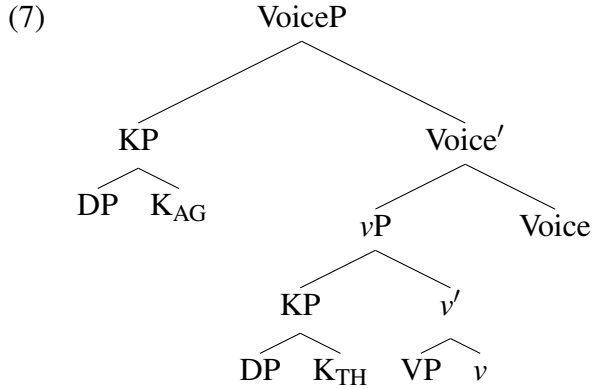
3.1 Proposal: Severing the Internal Argument from Its Verb in Japanese

To derive the contrast between CI- and LD-scrambling in Japanese, we assume with Alexiadou (2014), Basilico (2008), Borer (2005), and Lohndal (2014) that not only the semantics but the syntax of verbs is neo-Davidsonian. Then, the structure of transitive verbs in English can be considered to take the following form:



(6) fits examples like *John kick(ed) a ball*, where *John* is introduced by Voice_{AG} (cf. Kratzer 1996) and *a ball* by v_{TH} , respectively.² Thus, the meaning of the verb is just a set of events of *kicking*, so that the external and internal θ -assigners are both syntactically severed from the verb.

Following the above new view to the verbal syntax, we propose with Nomura (2016) that in Japanese case particles (K) denote a thematic relation of type $\langle e, \langle v, t \rangle \rangle$. We assume that K is divided into at least two sorts: K_{AG} and K_{TH} , which introduce an Agent and Theme, respectively. After K takes an argument DP of type e , the resulting KP denotes an event predicate of type $\langle v, t \rangle$. Then, under our proposal, the verbal structure in Japanese is organized as in (7), and the denotations of K_{AG} and K_{TH} are (8a) and (8b), respectively.



- (8) a. $\llbracket [\text{KP DP K}_{\text{AG}}] \rrbracket = \lambda e. [\text{AG}(e) = \llbracket \text{DP} \rrbracket]$
 b. $\llbracket [\text{KP DP K}_{\text{TH}}] \rrbracket = \lambda e. [\text{TH}(e) = \llbracket \text{DP} \rrbracket]$

Here, we assume that K constitutes a θ -functor (cf. Champollion 2015). The separation of the Agent and Theme arguments from Voice and v in Japanese entails that the intermediate Voice' and v' phrases are of type $\langle v, t \rangle$ in Japanese, while they are of type $\langle e, \langle v, t \rangle \rangle$ in English. Given that KPs and verbal phrases are both of type $\langle v, t \rangle$, we assume that they are semantically composed via Predicate Conjunction (PC) (Pietroski 2005).

- (9) a. $\llbracket [\text{K}_{\text{AG}}] \rrbracket \oplus_{\text{PC}} \llbracket [\text{Voice}'] \rrbracket = \lambda e. [\text{AG}(e) = \llbracket \text{DP} \rrbracket \wedge \llbracket [\text{Voice}'] \rrbracket(e)]$
 b. $\llbracket [\text{K}_{\text{TH}}] \rrbracket \oplus_{\text{PC}} \llbracket [v'] \rrbracket = \lambda e. [\text{TH}(e) = \llbracket \text{DP} \rrbracket \wedge \llbracket [v'] \rrbracket(e)]$

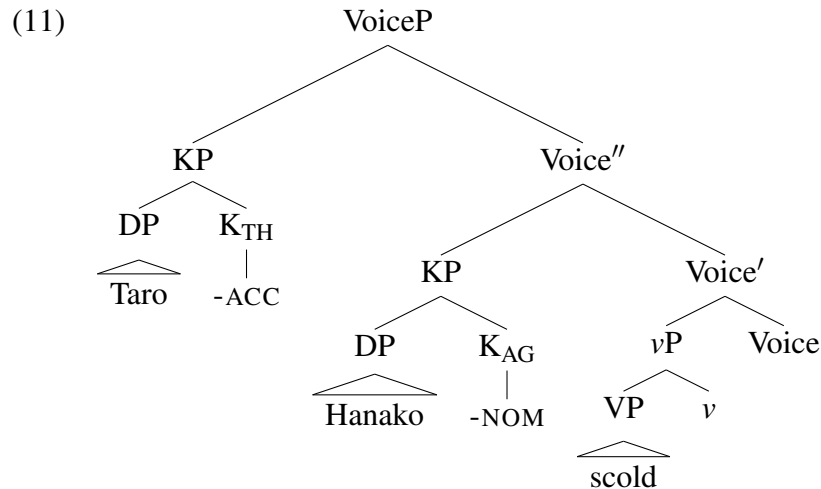
3.2 CI-scrambling as Base-generation or Movement and LD-scrambling as Movement

Given our proposal that KPs denote an event predicate, CI-scrambling can involve base-generation of a Theme KP. Suppose that we derive the word order in (10), where *Taroo-o* is placed in front of *Hanako-ga*.

- (10) Taroo-o Hanako-ga sikat-ta.
 Taro-ACC Hanako-NOM scold-PAST
 Lit. 'Taro Hanako scolded (Hanako scolded Taro).'

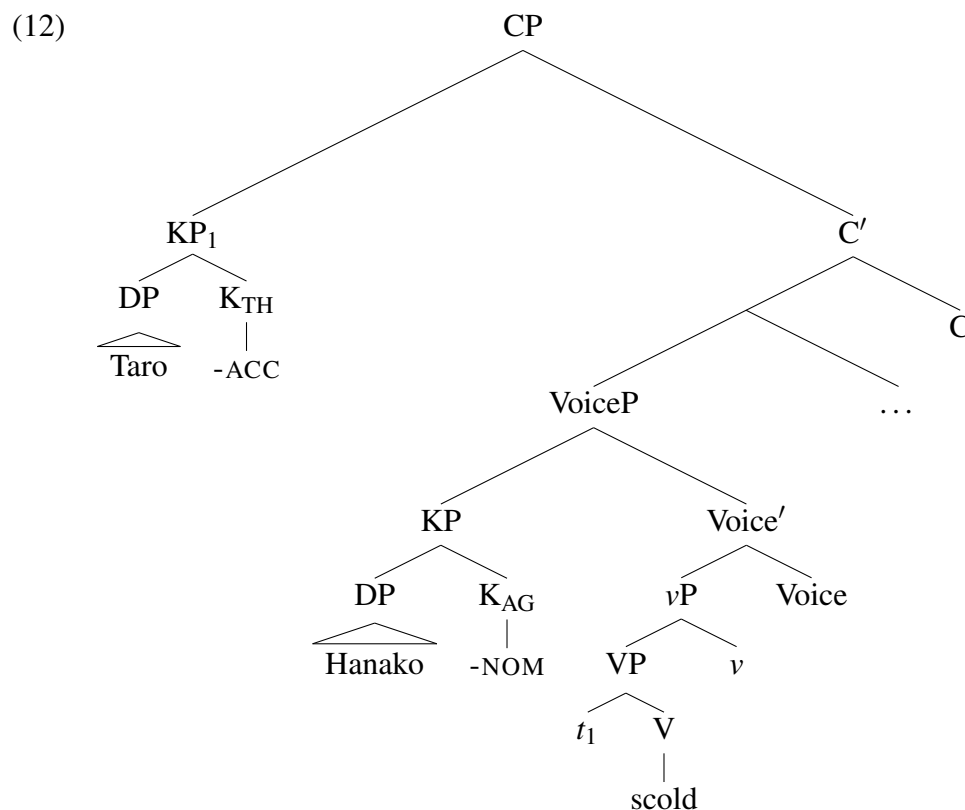
²Lohndal (2014) simply terms the functional head that introduces the internal argument "F". However, we assume with Basilico (2008) that it is v ; the choice of this does not affect the entire discussion of this paper.

Since both the subject and object KPs as well as the verb share the same event, PC can apply even with *Taroo-o* base-generated above *Hanako-ga* as in:



This derivation forces the object to be interpreted above the subject, so that the semantic significance of CI-scrambling observed in (2) and (3) can be captured. Namely, CI-scrambling can render a new binding relation and change quantifier scope, and these facts are, under our analysis, understood as the cases where the object/Theme KP is base-generated above the subject/Agent KP.

Note that CI-scrambling can also be semantically vacuous, since (3b) also allows a reconstructed interpretation. Regarding this, we argue that CI-scrambling can also involve movement to the CP layer as follows:



Then, the question is what kind of movement this is. We suggest that it is a crosslinguistically more common operation: topicalization. One piece of evidence for our claim comes from the contrast Heycock (1995) provides:

- (13) a. ?[Sally_i's worst enemy]_j, she_i would never betray *t_j*.
 b. *[Sally_i's own worst enemy]_j, I would never consider her_i *t_j*.
 (Heycock 1995: 553)

In (13a), an argument DP is topicalized, and this remedies the Condition C effect. In (13b), by contrast, a predicate DP is topicalized, which however does not fix the pertinent effect. Given that we analyze the Japanese KP as a predicate of type $\langle v, t \rangle$ and that it is close to a predicate DP, we can reduce the reconstruction property of the scrambled order to the predicative nature of KP.

Notice at this juncture that the availability of the relevant base-generation procedure is contingent on the event semantics, viz. whether the scrambled KP shares the same event variable with its associated verb. Then, it is obvious that LD-scrambling cannot be a case of base-generation, because the event that an LD-scrambled KP describes in the embedded clause cannot be the same with that of the matrix verb. In other words, if the LD-scrambled KP is base-generated as the sister of the matrix VoiceP and they combine via PC, they must share the same event and cannot describe different ones. This means that LD-scrambling must be a case of movement (i.e. topicalization), which in turn entails that an LD-scrambled KP must undergo reconstruction due to the nature of topicalization, hence explaining the RRE.

Now that we have virtually removed scrambling as an independent syntactic operation from the Japanese grammar, let us next see what kind of empirical as well as theoretical consequences we are to come by.

4 Consequences

4.1 Scrambling and Information Structure

As we have alluded to above, CI-scrambling may and LD-scrambling must be a case of topicalization. This implies that only CI-scrambling can be informationally vacuous. That is, since base-generation renders both SOV and OSV orders, it is predicted that they are not only propositionally but informationally equivalent. This prediction is borne out: both (14a) and (14b) can be an answer to questions like *What happened at the boarding meeting yesterday?*, so that both sentences can be all informationally focused.³

- (14) a. Syatyoo-ga atarasii kaden syoohin-o hapyoosi-ta.
 president-NOM new home.electrical.appliance product-ACC announce-PAST
 'The president announced the release of a home electrical appliance.'
 b. Atarasii kaden syoohin-o₁ syatyoo-ga *t₁* hapyoosi-ta.
 new home.electrical.appliance product-ACC president-NOM announce-PAST
 Lit. 'The release of a home electrical appliance the president announced.'

Indeed, CI-scrambling can also be informationally significant when it is derived via movement/topicalization. Kuno (1978) for example discusses the relevance of givenness in the

³See Abe (2022) for similar observations.

OSV order. Furthermore, if we put some stress on *Atarasii kaden syoohin-o* in (14b) and a pause before *syatyoo-ga*, the most natural interpretation will be the one of contrastive topic (emphatic focus for Abe 2022), so that ‘The release of a home electrical appliance (not other types of products), the president announced’.

Turning to LD-scrambling, it exhibits a different quality regarding the information structure (cf. Abe 2022). Observe:

- (15) a. Syatyoo-ga [kaisya-ga [atarasii kaden syoohin]-o
 president-NOM compary-NOM new home.electrical.appliance product-ACC
 kaihatu-su-ru-to] it-ta.
 development-do-PRES-COMP say-PAST
 ‘The president said that our company would produce a new home electrical appliance.’
- b. Syatyoo-ga [[atarasii kaden syoohin-o]₁ kaisya-ga *t*₁
 president-NOM new home.electrical.appliance product-ACC compary-NOM
 kaihatu-su-ru-to] it-ta.
 development-do-PRES-COMP say-PAST
 Lit. ‘The president said that a new home electrical appliance our company would produce.’
- c. [Atarasii kaden syoohin-o]₁ syatyoo-ga [kaisya-ga *t*₁
 new home.electrical.appliance product-ACC president-NOM compary-NOM
 kaihatu-su-ru-to] it-ta.
 development-do-PRES-COMP say-PAST
 Lit. ‘A new home electrical appliance the president said that our company would produce.’

Suppose that all the examples in (15) are a reply to the question of *What happened in the boarding meeting yesterday?*; in this context, (15a) and (15b) are not only propositionally but informationally equivalent. This is a matter of course since (15b) can involve CI-scrambling as base-generation inside the embedded clause. However, (15c) has a different flavor: namely, the referent of the LD-scrambled object is most naturally construed in contrast to other types of products or with the (contrastive) topic interpretation of ‘as for the home electrical appliance’. Therefore, the RRE is only for the propositional aspects of the meaning such as scope and binding. This state of affairs can be understood if we assume that LD-scrambling is derived through topicalization.

4.2 The *Do So* Anaphora in Japanese

Here, we are concerned with one specific case of the *do so* anaphora in Japanese, which is the following:

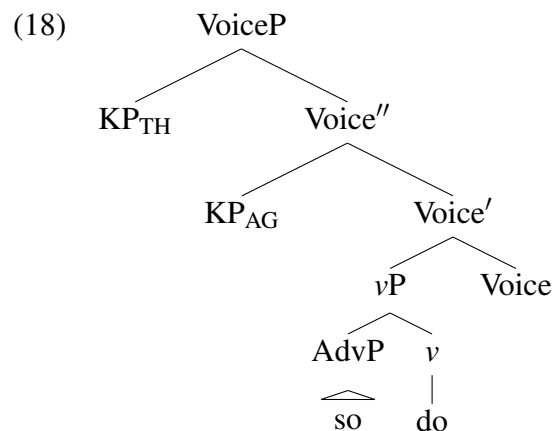
- (16) a. [Taroo-ga kimitu deeta_i-o kanzen’ni kesi-ta-no]-wa sittei-ta-ga,
 Taroo-NOM confidential data-ACC completely delete-PAST-NMLZ-TOP know-PAST-but
 ‘I knew that Taro deleted the confidential data completely, but ...’
- b. [sono-deeta_i-o Ziroo-ga **soo-si**-nakat-ta-no]-wa igai-da.
 that-data-ACC Jiro-NOM so-do-NEG-PAST-NMLZ-TOP surprising.COP-PRES
 Lit. ‘... it’s surprising that Jiro didn’t do so that data.’

(16b) has *soo su* ‘do so’, and what is of interest concerning it is that the object KP survives the relevant anaphoric replacement, which is impossible in English, and only the verbal part ‘delete completely’ is replaced. Sakamoto (2019) contends that the Japanese *do so* anaphora may involve VP ellipsis, and analyzes an example similar to (16b) as a case of pseudogapping (PG), assuming that the object KP moves out of VP ellipsis. However, since PG requires the moved XP and its correlate in the antecedent clause not to refer to the same entity as in (17), the PG analysis is impossible for (16), where the first and second objects refer to the same entity.

- (17) a. Is she suing the hospital?
 b. *Yes, she is ~~suing~~ the hospital.

(Lasnik 1995: 145)

The present analysis can derive (16b) without PG. That is, only the VP part is anaphoric, and the “escaped” object KP is just base-generated where it is as shown in (18), for which we assume with Tanaka (2016) that the expression *soo* is deep anaphora and behaves as an adverb (Adv).



Then, the present analysis predicts that LD-scrambling does not allow *soo su* to replace the matrix verb with an LD-scrambled KP stranded.

- (19) a. Taroo-wa [Hanako-ga kimitu deeta_i-o mot-tei-ru-to] min'na-ni
 Taro-TOP Hanako-NOM confidential data-ACC have-ASP-PRES-COMP everyone-DAT
 tutae-ta-ga,
 tell-PAST-but
 Lit. ‘Taro told everyone that Hanako had the confidential data, but ...’
 b. *sono deeta_i-o Ziroo-wa **soo si**-nakat-ta.
 that data-ACC Jiro-TOP so do-NEG-PAST
 Intended ‘... that data₁ Jiro didn’t do so (= tell everyone that Hanako had *t*₁).’

The continuation from (19a) to (19b) with the intended interpretation is impossible. That is, *sono deeta-o* ‘that data’ in (19b) cannot originate from the structure that *soo* ‘so’ semantically refers to. If we assume that *soo* has no internal structure just like *so* in English (Hallman 2004), no movement will be allowed from it, explaining the ungrammaticality of (19b), which then reinforces the validity of our analysis of (18) for (16b).

4.3 Deriving the Free-rider Effect

It is well known that LD-scrambling cannot target adverbs (Saito 1985).

- (20) *Umaku₁ Taroo-ga Ziroo-kara [Hanako-ga t_1 piano-o hik-u-to] kii-ta.
 skillfully Taro-NOM Jiro-from Hanako-NOM piano-ACC play-PRES-COMP hear-PAST
 Lit. ‘Skillfully, Taro heard from Jiro that Hanako plays the piano.’

This shows that scrambling is like topicalization, whose LD-counterpart cannot apply to adverbs in English, either (Ernst 2002).

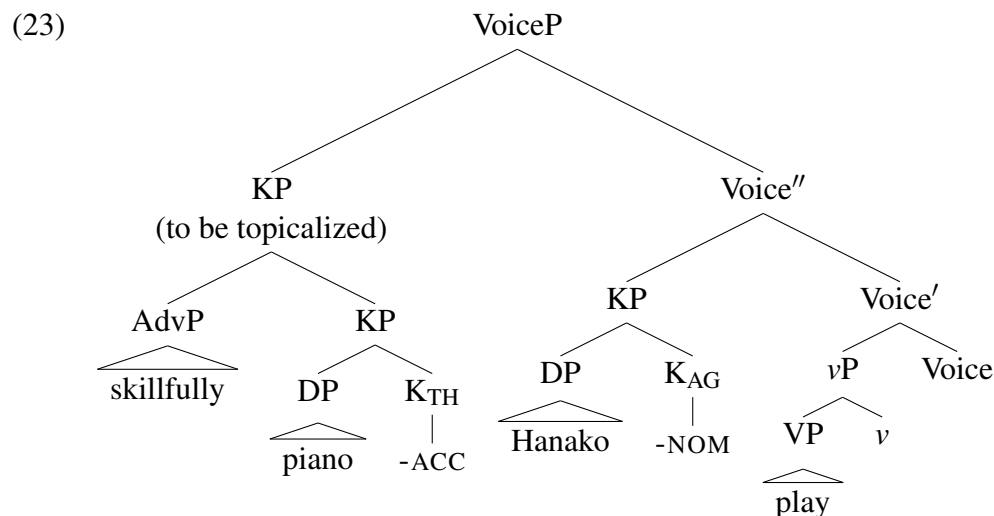
- (21) a. [The violin]₁, they said [that he eased t_1 out of its case].
 b. *Carefully₁, they said [that he eased the violin out of its case t_1].

(Ernst 2002: 411)

However, there are cases where LD-scrambling of an adverb becomes possible as (22) shows. This is called the Free-rider Effect (FE), which is the generalization that an adverb can be LD-scrambled if it comes with a clausemate (argument) XP, and this has been puzzling for syntactic approaches; see Takano (2002) for some problems with the remnant VP analysis by Koizumi (2000).

- (22) Umaku₁ piano-o₂ Taroo-ga Ziroo-kara [Hanako-ga $t_1 t_2$ hik-u-to] kii-ta.
 skillfully piano-ACC Taro-NOM Jiro-from Hanako-NOM play-PRES-COMP hear-PAST
 Lit. ‘Skillfully, the piano, Taro heard from Jiro that Hanako plays.’

The FE effect follows from our semantic analysis of CI-scrambling, given that adverbs are event predicates (Parsons 1990). Specifically, if the adverb *skillfully* is of type $\langle v, t \rangle$, then it can be adjoined to the KP via PC, like [KP AdvP KP]. Since the relevant extended KP is also of type $\langle v, t \rangle$, it may be combined with VoiceP (or vP) via PC and then undergo topicalization. This much said, the embedded VoiceP before topicalization is structured as follows:



In (23), the adverb (AdvP) is to be moved piggyback on the object KP via topicalization, explaining the FE. Notice at this point that our analysis can also derive a clausemate condition on the FE,

which says that an adverb in the embedded clause cannot be LD-scrambled with a matrix XP. Given this condition, (24) is ungrammatical with the intended interpretation that *umaku* ‘skillfully’ modifies the embedded verb while *Ziroo-kara* ‘from Jiro’ is the matrix source PP.

- (24) *Umaku₁ Ziroo-kara₂ Taroo-ga *t*₂ [Hanako-ga *t*₁ piano-o hik-u-to]
 skillfully Jiro-from Taro-NOM Hanako-NOM piano-ACC play-do-PRES-COMP
 kii-ta.
 hear-PAST
 Intended ‘Skillfully, from Ziro, Taro heard that Hanako plays the piano.’

(24) is excluded because the embedded adverb does not share the same event with the matrix PP, so that even if both of them are of type $\langle v, t \rangle$, they cannot be semantically composed via PC, which provides a principled explanation to the clausemate condition on the FE.

5 Fine-tuning the Analysis

5.1 Determining the Case Morphology

So far, we have treated the θ -roles of Ks and their morphological realization as if they were of one-to-one mapping. However, this is totally wrong, since if K_{TH} were always embodied with accusative morphology we would incorrectly predict that a Theme KP in the unaccusative frame should appear with an accusative case. As (25b) shows, this is not the case.

- (25) a. Transitive ‘open’
 Taroo-ga mado-o ake-ta.
 Taro-NOM window-ACC open-PAST
 ‘Taro opened the window.’
 b. Unaccusative ‘open’
 Mado- $\{ga/*o\}$ ai-ta.
 window-NOM/ACC open-PAST
 ‘The window opened.’

Given the impossibility of an accusative case in (25b), we need some way to determine the case morphology of KPs in accordance with the morphosyntactic context where they show up. Then, we propose the following:⁴

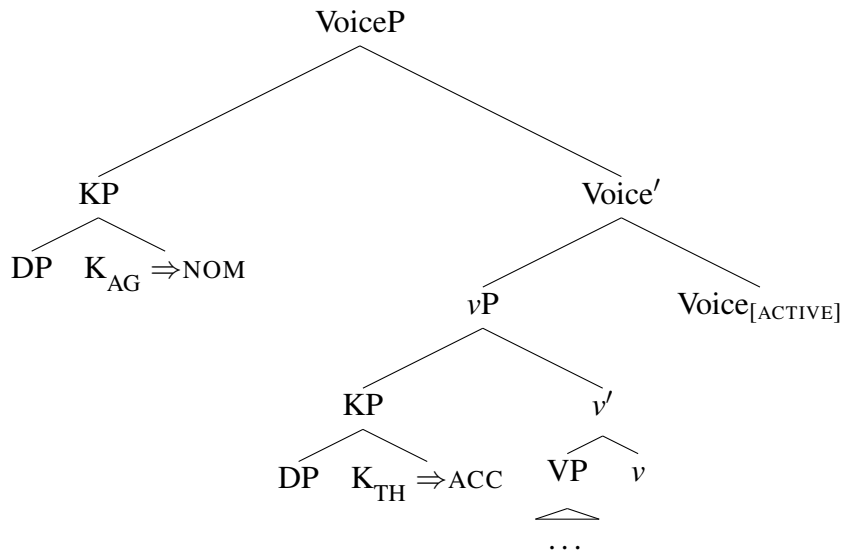
- (26) a. K is realized as ACC if it is K_{TH} and occurs with a transitive Voice_[ACTIVE] morpheme.
 b. Otherwise, it is realized as the default case NOM.

This algorithm essentially follows the dependent case theory of accusative, defended by Baker (2015), Bobaljik (2008) and Marantz (1992) among others. That is, a given syntactic environment governs the assignment of case morphemes. In this process, however, we assume that the c-commanding relations of DPs (for us KPs) are irrelevant. Rather, the cases of multiple KPs are determined by consulting the morphosyntactic information of Voice. We assume that Voice encodes an active/passive distinction and has a syntactic feature [ACTIVE] in the active sentence

⁴Here, we ignore inherent/lexical cases.

(cf. Wurmbrand and Shimamura 2017). Now, let us see how (26) derives a simple transitive pattern of case array.

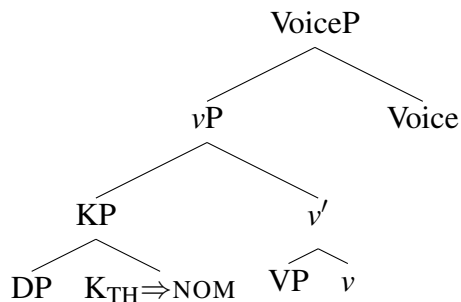
(27) Transitive Structure



In (27), there are two Ks, one of which bears TH, and Voice has [ACTIVE], so that it will be realized as an accusative case. The other K, namely K_{AG} , will get a nominative case under (26b). This strategy does not change even when the Theme KP is base-generated above the Agent KP.

Turning to the unaccusative verb, Voice does not have [ACTIVE], so the Theme KP gets a nominative case due to (26b).

(28) Unaccusative Structure



Then, the nominative option must be selected for the Theme KP in (25b), and the same reasoning applies to the passive construction, since Voice should have [PASSIVE] in lieu of [ACTIVE], so that the Theme KP will obtain a nominative case.⁵

5.2 Controlling the Argument Realization

We have argued that in Japanese Ks introduce argument DPs, and that the occurrence of KPs is not required by the semantics of the verb itself. However, this may lead us to another issue, namely

⁵We are aware that the present discussion still have a number of questions unanswered, e.g. how to license a nominative object in the potential construction (cf. Hiraiwa 2005, Takahashi 2011, Ura 2000), but we refrain from delving into them due to space, leaving them for our future research.

how to preclude “impossible intransitivization”. For example, the transitive verb ‘kick’ under our proposal need not introduce its Theme, because we have posited no condition that forces ‘kick’ to get merged with KP_{TH} . However, ‘kick’ entails the existence of a Theme, as confirmed by the fact that it cannot appear without a Theme in the out-of-blue context.

- (29) #Taroo-ga ket-ta.
 Taro-NOM kick-PAST
 Intended ‘Taro kicked (something).’

To explain (29), we adumbrate a way to regulate which verb can appear in which argument valency. First, we argue that there are two types of Voice and v , given in (30) and (31), respectively.⁶

- (30) a. $\llbracket \text{Voice}^* \rrbracket = \lambda P. \lambda e. [AG(e) = \llbracket pro_1 \rrbracket^{g(1)} \wedge P(e)]$
 b. $\llbracket \text{Voice} \rrbracket = \lambda P. \lambda e. [P(e)]$
- (31) a. $\llbracket v^* \rrbracket = \lambda P. \lambda e. [TH(e) = \llbracket pro_2 \rrbracket^{g(2)} \wedge P(e)]$
 b. $\llbracket v \rrbracket = \lambda P. \lambda e. [P(e)]$

Both Voice^* and Voice denote a function of type $\langle vt, vt \rangle$, but the former has a little more complex semantics: it also has a thematic (AG) function from an event to an individual, which is however equated to pro in this case. This pro will be interpreted relative to the assignment function g , and it may be a contextually provided individual or the same individual as the one the thematic function of K_{AG} returns. In the latter case, the Voice^* and K_{AG} both have the thematic (Agent) function whose output is the same individual, so that the result is mathematically appropriate. In contrast, Voice is just an identity function, used in the unaccusative construction such as (28) (cf. Schäfer 2008). The same consideration can be carried over to the disparity between v^* and v , but the thematic function involved here is TH .

Then, adopting the Distributed Morphology framework, we assume with Bobaljik (2017) that a verbal root can only be morphologically realized under the right combination of functional morphemes such as in (30) and (31). For example, suppose that the morphological form of the transitive ‘open’ may surface only if it combines with v^* and Voice^* , while the unaccusative ‘open’ must combine with v^* and Voice . Then, the transitive ‘kick’ in (29) should also combine with v^* and Voice^* , and the two instances of $AG(e)$ in this example yield the same output ‘Taro’, but since there is no context, the referent of pro in v^* is not determined (the output of $g(2)$ is undefined), so the acceptability of (29) is #, not *.

Now, let us consider how to block “impossible transitivization”:

- (32) *Taroo-ga ie-o ne-ta.
 Taro-NOM house-ACC sleep-PAST
 Lit. ‘Taro slept the house.’

Here, ‘sleep’ can be considered unergative, and such being the case, (30a) and (31b) should be chosen. Of course, there is no syntactic reason to prevent $ne-$ ‘sleep’ from merging with (31a) or KP_{TH} . Regarding this potential problem, we assume with Lohndal (2014) that the Conceptual-Intentional interface, by consulting language users’ encyclopedic knowledge of the world, dictates

⁶Note that Voice^* does not always have to be $\text{Voice}_{[ACTIVE]}$, since the former can also be used in passive.

that verbs like ‘sleep’ are interpretationally illicit with v^* or KP_{TH} since the event of sleeping does not semantically match up with a Theme argument. Therefore, it is possible to merge *ne-* with v^* or KP_{TH} , but it will crash at the Conceptual-Intentional interface, so that not all syntactically possible structures can be meaningfully interpreted.⁷

Therefore, Voice and v still play an important role to license arguments in Japanese just like English. However, the difference between Japanese and English lies in whether Voice and v directly introduce arguments. In Japanese, Ks take arguments while Voice* and v^* only semantically signify the presence of them, whereas in English Voice* and v^* directly introduce arguments. Thus, if a given context allows, overt arguments (KPs) in Japanese can be dropped, hence the availability of *pro* in this language.⁸ English will never allow such dropping, so that it is not a *pro*-drop language, as widely assumed.

6 Conclusion

In this paper, we have presented a new analysis of what has been treated as scrambling in the Japanese syntactic literature. By assuming that the verbal syntax is neo-Davidsonian, we can dispense with the traditional argument structure, which in turn enables us to move to a new perspective regarding how arguments are introduced. In English, Voice and v play an important role, and they directly introduce arguments. Under our analysis, Japanese has a different mode of introducing arguments: namely, case particles (Ks) do the job. The function of them is to take an individual and return a set of events, an event predicate. Therefore, insofar as KPs and the associated verb (as well as an adverb) share the same event, they can be combined in any order, which we have argued results in a case of CI-scrambling.

Unlike CI-scrambling, LD-scrambling cannot be derived via base-generation since the LD-scrambled KP cannot share the same event with the matrix verbal domain, so that it must be a case of movement, viz. topicalization. As we have seen, LD-scrambling exhibits a couple of similarities to topicalization in English, and it is informationally significant (cf. Abe 2022). Topicalization can also derive a case of CI-scrambling. Then, the emerging picture is that CI-scrambling cases are derived by base-generation or topicalization whereas LD-scrambling is always topicalization, eliminating scrambling from the Japanese grammar.⁹

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⁷See Bobaljik (2017) for the relevant discussion under the Distributed Morphology framework. Probably, there is also no word to realize *ne-v** in Japanese.

⁸The present analysis then virtually eliminates the syntactic presence of *pro* in Japanese.

⁹Although the present analysis has brought us interesting consequences, we admit that there is more to work out. For instance, one may well ask how the proposed semantic mechanism deals with complex events where a given verb takes another as its complement. One such case is restructuring (Wurmbrand 2001), and in many respects including scope and case morphology, the restructured complement behaves as integrated into the matrix verb. We leave these concerns for our future research.

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