Scrambling and control in Japanese: A neo-Davidsonian perspective

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Abstract This paper aims to extend the scope of our recent work on why Japanese, but not English, has scrambling in its grammar (Shimamura & Tanaka to appear). Under its proposal, the asymmetry between the two languages was reduced to how their functional morphemes such as Voice and v introduce arguments. The analysis was shown to capture, not only the availability of scrambling to Japanese, but also the fact that clause-internal scrambling can be A-scrambling to the effect that it yields a new binding/scope relation, but long-distance scrambling cannot. Still, we also left some issues open, one of which is why control clauses are transparent to A-scrambling (e.g., Nemoto 1993). In this paper, we sketch a possible solution to that issue, suggesting that the dative controller can also be base-generated in control clauses and keep staying in situ (cf. Takano 2010).

Keywords scrambling, control, neo-Davidsonian event semantics, predicate conjunction, base-generation, movement

1. Introduction: A Neo-Davidsonian Approach to Scrambling

A remarkable difference between English and Japanese is that the latter, but not the former, allows a relatively free word order among arguments, namely scrambling. To illustrate, (1) shows that Japanese enables the object to precede the subject even in out-of-the-blue contexts, and it is a well-known fact that such permutation is not possible for English.

(1) a. Ken-ga Jun-o sikat-ta.
Ken-NOM Jun-ACC scold-PAST
'Ken scolded Jun.'
b. Jun-o Ken-ga sikat-ta.
Jun-ACC Ken-NOM scold-PAST
Lit. 'Jun Ken scolded.'

Also, due to the richness of the literature on scrambling in Japanese, it is known to have a number of synatctically and semantically intriguing properties (e.g., Saito 1992, among many others). Thus, any satisfactory apporach to scrambling must address at least two questions: (i) why languages differ in its availability, and (ii) why its characteristic properties hold.

Our recent study, Shimamura & Tanaka (to appear), attempted to answer both questions. In the study, we reconsidered the nature of scrambling in the light of neo-Davidsonian event semantics (e.g., Parsons 1990), and adopted its recent view on the syntax of verbs, which we call neo-Davidsonian verbal syntax (e.g., Alexiadou 2014; Basilico 2008; Borer 2005;

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Kratzer 1996; Lohndal 2014; Pylkkänen 2002). This neo-Davidsonian theory allowed us to make a proposal that explains why Japanese, but not English, has scrambling in its grammar. In addition, we demonstrated that the proposal also derives the interpretive disparity between clause-internal and long-distance scrambling, explaining why only the former can be A-scrambling to the effect that it yields a new binding/scope relation (e.g., Saito 1992). Insofar as these results are empirically supported, our approach to scrambling successfully addresses at least some key aspects of the above questions (i) and (ii).

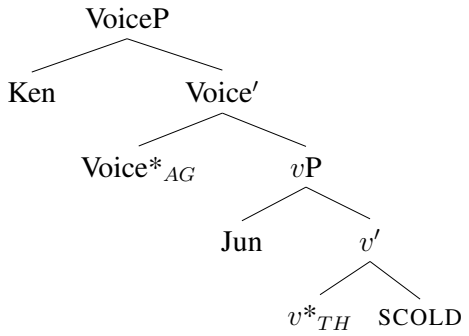
Still, it is also the case that Shimamura & Tanaka (to appear) left some issues open. One of them is why scrambling out of control clauses can be A-scrambling; that is, it behaves more like clause-internal scrambing (e.g., Nemoto 1993). This issue is particularly puzzling, because such an observation poses a serious challenge to our rationale of the dichotomy of clause-internal and long-distance scrambing. In the following, therefore, we aim to sketch a possible solution to the issue, proposing that the dative controller can also be base-generated in control clauses and stay in situ (cf. Takano 2010). Although we cannot fully develop the idea in this paper, we will argue that it is empirically on the right track.

This paper is organized as follows. In Section 2, we review the key idea of Shimamura & Tanaka (to appear), foucsing on how it derives the availablity of scrambling to Japanese and the disperity between the two types of scrambling. Section 3 then clarifies how the nature of scrambling out of control clauses is problematic for our proposal. In Section 4, we give a solution to the problem, arguing that the distirbution of the dative controller is freer than assumed in the literature. Section 5 concludes with a summary of the entire discussion.

2. Review: Shimamura & Tanaka (to appear)

Let us begin by sharing the main proposal of Shimamura & Tanaka (to appear). As noted above, our proposal is based on the recent idea that the structure of verbs is not only semantically but also syntactically neo-Davidsonian; that is, the external and internal arguments are associated with the verb through some functional morphemes such as Voice (Kratzer 1996) and a verbalizer v (Basilico 2008) (cf. Alexiadou 2014; Borer 2005; Lohndal 2014; Pylkkänen 2002). For example, we assume that the verbal domain of the English transitive sentence $Ken\ scolded\ Jun$ is structured as in (2).

(2)



In (2), the Agent DP (Ken) and Theme DP (Jun) are introduced by Voice* and v* (= Voice and v with arguments), so the verbal root SCOLD does not introduce any arguments on its own, only denoting an event predicate (e.g., $[\![\text{SCOLD}]\!] = \lambda e.[scold(e)]$). In short, we assume

that while verbal roots like SCOLD are predicates of type $\langle v, t\rangle$, the English v* and Voice* are functions of type $\langle\langle v, t\rangle, \langle e, \langle v, t\rangle\rangle\rangle$ and have the following denotations.

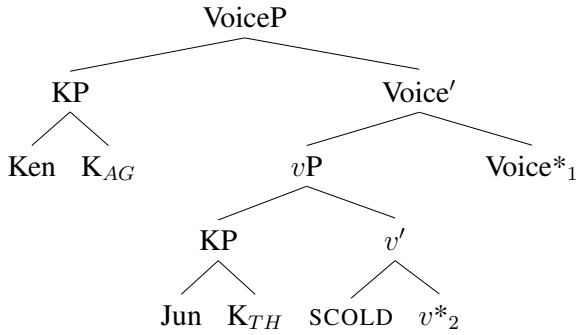
(3) a. $[\![v^*]\!]^g = \lambda P.\lambda x.\lambda e.[TH(e) = x \wedge P(e)]$
b. $[\![\text{Voice}^*]\!]^g = \lambda P.\lambda x.\lambda e.[AG(e) = x \wedge P(e)]$

What (3a) and (3b) mean is that both heads are semantically required to merge with predicates (P) of type $\langle v, t\rangle$ first, and then with individuals (x) of type e. Thus, the English v* and Voice* must merge argument DPs at their edge positions, and this amounts to saying that their intermediate projections Voice′ and v' are of type $\langle e, \langle v, t\rangle\rangle$, as shown in (4).

(4) a. $[\![v']\!]^g = \lambda x.\lambda e.[TH(e) = x \wedge scold(e)]$
b. $[\![\text{Voice}']\!]^g = \lambda x.\lambda e.[AG(e) = x \wedge [\![v\text{P}]\!]^g(e)]$

In Japanese, on the other hand, we proposed that Voice* and v* do not serve as argument introducers, but case particles K do, as the following structrue indicates.

(5)



This will be a totally plausible analysis once we make two assumptions. First, suppose that the Japanese v* and Voice* only signify the presence of their arguments at the level of semantics, and express them as free variables whose values are determined by an assignment function g in the utterance context, as shown in (6) (cf. Tanaka & Shimamura to appear).[1]

(6) a. $[\![v^*_2]\!]^g = \lambda P.\lambda e.[TH(e) = g(2) \wedge P(e)]$
b. $[\![\text{Voice}^*_1]\!]^g = \lambda P.\lambda e.[AG(e) = g(1) \wedge P(e)]$

In other words, these heads have denotations of type $\langle\langle v, t\rangle, \langle v, t\rangle\rangle$ and lexically saturate their argument slots with free variables, represented here as g(1) and g(2), so they lack the ability to introduce arguments on their own. It therefore follows that, while the intermediate projections Voice′ and v' in English are of type $\langle e, \langle v, t\rangle\rangle$, those in Japanese are of type $\langle v, t\rangle$ and just denote an event predicate, as we can see from (7).

[1] This free-variable semantics for verbs allows us to dispense with the use of the phonologically null pronoun *pro*. In fact, Tanaka & Shimamura (to appear) make several empirical arguments for eliminating *pro* from Japanese and develop a *pro*-free syntax with a slightly different semantics. Note also that the idea of encoding free variables on verbal morphemes is nothing new and it is also exploited by Tomioka & Kim (2017), who examine the syntax and semantics of benefactive constructions in Japanese and Korean.

(7) a. $[\![v']\!]^g = \lambda e.[TH(e) = g(2) \wedge scold(e)]$
b. $[\![\text{Voice}']\!]^g = \lambda e.[AG(e) = g(1) \wedge [\![v\text{P}]\!]^g(e)]$

Given this, we then assume with Nomura (2016) that the Japanese case particle K is divided into several sorts, such as K_{AG} and K_{TH}. Each of them denotes a thematic relation of type $\langle e, \langle v, t\rangle\rangle$, so once K merges with an overt DP of type e, they constitute KP of type $\langle v, t\rangle$ and denote an event predicate, as shown in (8).

(8) a. $[\![[_{KP}\ \text{Jun}\ \text{K}_{TH}]]\!]^g = \lambda e.[TH(e) = jun]$
b. $[\![[_{KP}\ \text{Ken}\ \text{K}_{AG}]]\!]^g = \lambda e.[AG(e) = ken]$

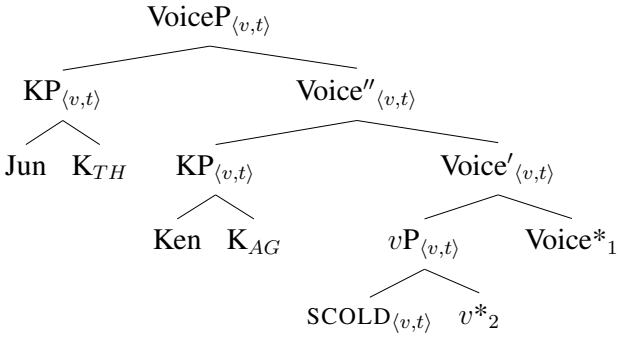
Importantly, this semantic type of KPs is the same as that of Japanese verbal phrases, including Voice′ and v'; they are all of type $\langle v, t\rangle$. Accordingly, as we suggest in (9), KPs and verbal phrases can be semantically conjoined via Predicate Conjunction (PC) (Pietroski 2005), and once they undergo PC, their event variables e are identified as one and the same e.

(9) a. $[\![\text{KP}_{TH}]\!]^g \oplus_{PC} [\![v']\!]^g = \lambda e.[TH(e) = jun \wedge [TH(e) = g(2) \wedge scold(e)]]$
b. $[\![\text{KP}_{AG}]\!]^g \oplus_{PC} [\![\text{Voice}']\!]^g = \lambda e.[AG(e) = ken \wedge [AG(e) = g(1) \wedge [\![v\text{P}]\!]^g(e)]]$

Note that these formulas clarify that KPs act as strong restricters on possible values for the variables $g(1)$ and $g(2)$. In (9a), for instance, the first conjunct, denoted by KP_{TH}, identifies the Theme with jun, while the second conjunct identifies it with the value of $g(2)$. Thus, by transitivity (i.e., $TH(e) = jun = g(2)$), the value of $g(2)$ must be jun. This semantic system therefore can also capture the basic fact that the referents of overt DPs become θ-bearers.

That is all for the key idea of Shimamura & Tanaka (to appear). Let us now share its most crucial censequence; that is, it offers a principled account for why Japanese allows scrambling, but not English. Recall that the verbal system in Japanese uses KPs to introduce argument DPs and allows KPs to merge with any verbal phrases of type $\langle v, t\rangle$ via PC. Therefore, given that all projections of Voice* and v* are of type $\langle v, t\rangle$, it is possible to base-generate KP_{TH} above KP_{AG} as in (10), thereby deriving the scrambled OSV order.

(10)



In contrast, this mode of free base-generation is not available to English. That is because its Voice* and v* semantically need to merge DPs at their edge, and the fixed hierarchy among the verbal heads also fixes the ordering among their DPs. In this way, it naturally follows from our proposal that Japanese and English differ in the availability of scrambling.

Furthermore, our proposal derives some characteristic properties of scrambling, too. One of them is the interpretive disparity between clause-internal (CI) and long-distance (LD) scrambling, and as Saito (1992) and others observe, CI-scrambling can be A-scrambling to the effect that it yields a new binding/scope relation, whereas LD-scrambling cannot be so. For example, the CI-scrambled object in (11b) can bind the reciprocal anaphor $otagai$ within the following subject, but it is not the case with the LD-scrambled object in (12b).

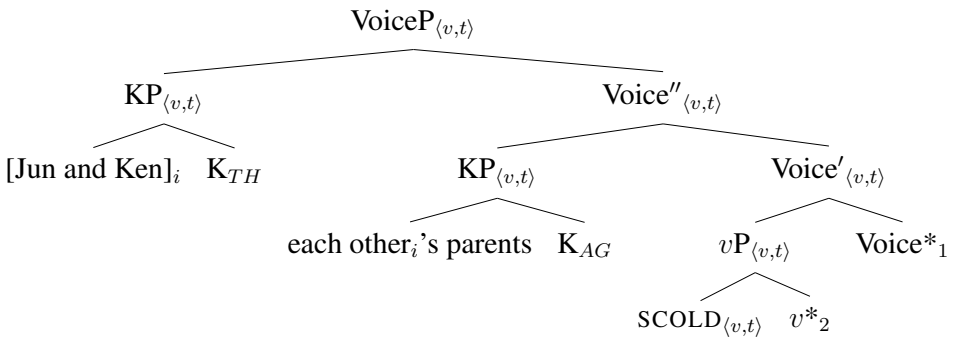
(11) a. *Otagai$_i$-no-oya-ga [Ken-to-Jun]$_i$-o sikatta.
each.other-'s-parent-NOM Ken-and-Jun-ACC scolded
'Each other$_i$'s parents scolded [Ken and Jun]$_i$.'
b. [Ken-to-Jun]$_i$-o otagai$_i$-no-oya-ga sikatta.
Ken-and-Jun-ACC each.other-'s-parent-NOM scolded
Lit. '[Ken and Jun]$_i$ each other$_i$'s parents scolded.'

(12) a. *Otagai$_i$-no-oya-ga [boku-ga [Ken-to-Jun]$_i$-o sikatta-to] itta.
each.other-'s-parent-NOM I-NOM Ken-and-Jun-ACC scolded-that said
'Each other$_i$'s parents said that I scolded [Ken and Jun]$_i$.'
b. *[Ken-to-Jun]$_i$-o otagai$_i$-no-oya-ga [boku-ga sikatta-to] itta.
Ken-and-Jun-ACC each.other-'s-parent-NOM I-NOM scolded-that said
Lit. '[Ken and Jun]$_i$ each other$_i$'s parents said that I scolded.'

Then, the question is how to derive this disparity beween CI- and LD-scrambling. The key assumption is that reciprocal binding requires the antecedent to c-command the anaphor. On this premise, the contrast between (11b) and (12b) shows that the LD-scrambled object fails to c-command the anaphor, thus suggeting that it cannot be interpreted in its overt position; this effect is called reconstruction (e.g., Saito 1992). Importantly, it is now well-established that reconstruction may only apply to those elements which undergo movement (e.g., Heycock 1995). Accordingly, since the LD-scrambed object needs to be reconstructed, LD-scrambling must be a case of movement, but we may assume that CI-scrambling need not be so.

With this in mind, Shimamura & Tanaka (to appear) claimed that CI-scrambling can be a case of base-generation. Recall that our KPs can merge with any verbal phrases via PC. Thus, in (11b), nothing blocks base-generating the antecedent KP$_{TH}$ above the KP$_{AG}$ that embeds the anaphor. Besides, this derivation involves no movement, so it makes the KP$_{TH}$ intepreted in its overt position, allowing it to keep c-commanding the anaphor, as in (13).

(13)



In contrast, LD-scrambling via base-generation is correctly blocked by the nature of PC. This is because different verbs describe different events, and if PC conjoins the matrix verb and a given KP, it identifies their event variables e as the same e, and interprets the θ-bearer DP in the KP as that of the matrix verb's event. For instance, suppose that the scrambled KP_{TH} in (12b), which is intended to offer the Theme DP of the embedded verb 'scold', is merged in the matrix verbal domain via PC. Then, the event variable of the KP_{TH} is identified with that of the matrix verb 'say', so the Theme DP in the KP_{TH} must be interpreted as that of the matrix verb's event. However, this is not the intended reading and also violates the matrix verb's demand that its Theme be the embedded clause itself. Therefore, PC's event-identification process makes it impossible to base-generate any KP of the embedded verb in the matrix clause, naturally ensuring that LD-scrambling is a case of movement.

Then, what movement is LD-scrambling? Shimamura & Tanaka (to appear) argued that it is a cross-linguistically common operation that targets the CP layer, namely topicalization (cf. Abe 2022). This means that LD-scrambling is the same as topicalization in other languages, and if we assume so, we can derive its reconstruction nature from its identity as topicalization. An argument for this claim is based on English topicalization, and Heycock (1995) observes the following contrasts between topicalized argument DPs and predicate DPs.

(14) a. *She$_i$ would never betray [Sally$_i$'s worst enemy].
b. ?[Sally$_i$'s worst enemy]$_j$, she$_i$ would never betray t_j. (Heycock 1995: 553)

(15) a. *I would never consider her$_i$ [Sally$_i$'s own worst enemy].
b. *[Sally$_i$'s own worst enemy]$_j$, I would never consider her$_i$ t_j. (*ibid.*)

In (14b), the object DP is topicalized, and this fixes the violation of the Condition C in (14a), but in (15b), fronting the predicate DP does not obtain the same effect, and the coreference of *her* and *Sally* is still impossible the same way as in (15a); that is, topicalized predicate DPs must be reconstructed, getting interpreted in their base positions. Accordingly, since we analyze Japanese KPs as event predicates of type $\langle v, t\rangle$ and they are close to predicate DPs (e.g., individual predicates of of type $\langle e, t\rangle$), it is possible to reduce the reconstruction nature of LD-scrambling to its identity as topicalization and the semantic type of KPs.

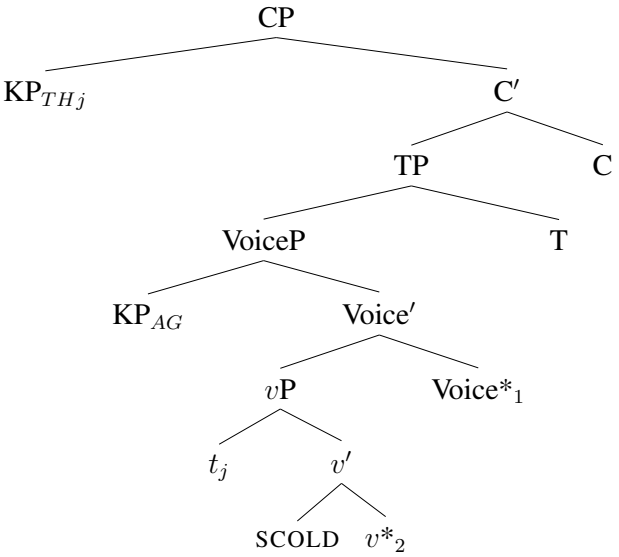
Finally, we noted that CI-scrambling can also be a case of topicalization, since the latter operation may take place clause-internally. Thus, it is predicted that CI-scrambled elements can also be reconstructed, and this is of course correct, as has been long noticed in the literature (e.g., Saito 1992). For instance, consider the following data.

(16) a. [Ken-to-Jun]$_i$-ga otagai$_i$-no-kodomo-o sikatta.
Ken-and-Jun-NOM each.other-'s-child-ACC scolded
'[Ken and Jun]$_i$ scolded each other$_i$'s children.'
b. Otagai$_i$-no-kodomo-o [Ken-to-Jun]$_i$-ga sikatta.
each.other-'s-child-ACC Ken-and-Jun-NOM scolded
'Each other$_i$'s children, [Ken and Jun]$_i$ scolded.'

In short, the *otagai* anaphor within the fronted KP_{TH} in (16b) can be bound by the KP_{AG} in the same way as in (16a), which shows that the KP_{TH} is reconstructed and intepreted in its

base position lower than that of the KP_{AG}. This fact follows immideately if we assume that the structure of (16b) is derived as in (17), for example, where the KP_{TH} is base-generated at the edge of vP and then undergoes topicalization into the CP layer.

(17)



Wrapping up so far, we have shared the neo-Davidsonian syntax and semantics of Japanese and English proposed by Shimamura & Tanaka (to appear).[2] Our proposal is successful to the exent that it explains two long-discussed facts in principled fashions. First, it reduces the asymmetric availability of scrambling between the two langauges to whether the argument introducers are verbal morphemes or case particles. Second, it reduces the interpretive disparity between CI- and LD-scrambling to whether the two configurations are derived by base-generation or toplicalization. Of particular relevance here is the latter attempt, which eliminates the notion of scrambling as an independent movement operation from the Japanese grammar; under our proposal, CI-scrambling is base-generation or topicalization while LD-scrambling is topicalization. This new explanatory picture is what we aim to defend in this paper, so we now turn to the construction potentially probelmatic for us, namely control.

3. The Issue: Scrambling and Control in Japanese

As we have seen, Shimamura & Tanaka (to appear) claimed that scrambling of the object KP over the suject KP results in A-scrambling, yielding a new binding/scope relation, only if the two KPs and their host verb share the same event variable. However, there is one problematic case for this claim, which is concerned with Obligatory Control (OC) (e.g., Nemoto 1993; Takano 2010; Uchibori 2000, among others). OC is classified into at least two cases, subject OC and object OC, but here we focus on the latter case such as follows.

[2] Of course, the review here is limited to the key ideas of Shimamura & Tanaka (to appear), so see the original paper for further supporting arguments. We also refer the reader to Tanaka & Shimamura (to appear), since this paper discusses our *pro*-free syntax and free-variable semantics for Japanese verbs in more detail.

(18) Ken-ga Yui-ni [Jun-o sikar-u-yoo(ni)] tanon-da.
Ken-NOM Yui-DAT Jun-ACC scold-PRES-COMP ask-PAST
'Ken asked Yui to scold Jun.'

As in (18), the object OC construction in Japanese introduces its embedded or control clause by *-yoo(ni)*, which is claimed to be a complex object OC complementizer, according to Uchibori (2000). We are agnostic about this claim, but we assume so for the brevity's sake. In any case, the referent of the subject in the control clause is interpreted as the same as that of the dative KP (e.g., Yui-ni), and there is a general consensus that the dative controller overtly appears in the matrix clause, as schematized below.

(19) $[_{MAT}$ NOM DAT$_i$ $[_{EMB}$ e_i **ACC** **V-*yooni*]** V-T]

With this premise, it has been ponited out that scrambling out of the control clause can be A-scrambling for the dative controller KP (e.g., Nemoto 1993; Takano 2010; Uchibori 2000). While Takano (2010) makes such ovservations based on variable binding by qunatifiers, we reproduce the same point by using reciprocal binding, as the following examples show.

(20) a. *Boku-wa otagai$_i$-no-oya-ni [[Ken-to-Jun]$_i$-o sikaru-yooni] tanonda.
I-TOP e.o-'s-parent-DAT Ken-and-Jun-ACC scold-COMP asked
'I asked Each other$_i$'s parents to scold [Ken and Jun]$_i$.'
b. Boku-wa [Ken-to-Jun]$_i$-o otagai$_i$-no-oya-ni [sikaru-yooni] tanonda.
I-TOP Ken-and-Jun-ACC e.o-'s-parent-DAT scold-COMP asked
Lit. 'I asked [Ken and Jun]$_i$ each other$_i$'s parents to scold.'

In (20b), the embedded KP is scrambed over the dative KP and can bind its internal anaphor. Thus, scrambling of the embedded KP over the dative KP is apparently a case of LD-scrambling in that it crosses a clause boundary as in (21), but it behaves more like CI-scrambling, since it can yield a new binding/scope relation.

(21) $[_{MAT}$ NOM **ACC** DAT$_i$ $[_{EMB}$ e_i **V-*yooni*]** V-T]

Scrambling of this "hybrid" sort is puzzling in some way or another. Previously, it has posed a puzzle for the movement view of A-scrambling, in the sense that it raises the question of why the control clause is transparent to A-movement (e.g., Nemoto 1993; Uchibori 2000). Likewise, it also divulges a puzzle for us, although it is of perfectly different nature. That is, under our proposal, A-scrambling of a given KP must involve base-generation of the KP via PC. In (20), however, the event that the matrix verb 'ask' describes cannot be the same as that of the embedded verb 'scold', which thus blocks base-generating the embedded KP above the dative KP in the matrix verbal domain. It is therefore clear that, for our anlysis of A-scrambling to be sucessful, it must address why the KP scrambled out of the control clause can yield a new binding/scope relation for the dative controller KP.

Still, it is important to note at this point that scrambling out of the control clause does not behave as A-scrambling for every matrix element. For instance, Takano (2010) observes that the KP scrambled out of the control clause does not make variable binding possible for

a pronoun embedded within the matirx subject KP (cf. Nemoto 1993; Uchibori 2000). The same posint is illsutrated below by using reciprocal binding.

(22) a. *Otagai$_i$-no-oya-ga boku-ni [[Ken-to-Jun]$_i$-o sikaru-yooni] tanonda.
e.o-'s-parent-NOM I-DAT Ken-and-Jun-ACC scold-COMP asked
'Each other$_i$'s parents asked me to scold [Ken and Jun]$_i$.'
b. ?*[Ken-to-Jun]$_i$-o otagai$_i$-no-oya-ga boku-ni [sikaru-yooni] tanonda.
Ken-and-Jun-ACC e.o-'s-parent-NOM I-DAT scold-COMP asked
Lit. '[Ken and Jun]$_i$ each other$_i$'s parents asked me to scold.'

As shown in (22b), it is quite difficult to obtain the reading that the embedded KP binds the anaphor within the mextrix subject KP. Although some researchers accept such a reading marginally (e.g., Nemoto 1993; Uchibori 2000), we agree with Takano (2010) that there is a sharp contasrt between examples like (20b) and (22b). Given this, scrambling of the embedded KP over the matrix subject KP can be charactrized as a case of LD-scrambling, which crosses a clause boundary as in (23) and cannot yield a new binding/scope relation.

(23) [$_{MAT}$ **ACC** NOM DAT$_i$ **[**$_{EMB}$ e_i **V-*yooni*]** V-T]

To summarize, scrambling out of the control clause is sometimes A-scrambling, and sometimes not. Specifically, scrambling of the embedded KP leads to a new interpretation for the dative controller KP, but not for the matrix subject KP. Thus, the question for us is how to capture this difference under the proposal of Shimamura & Tanaka (to appear). While scrambling overt the subject KP can be simply analyzed as a case of topicalization, scrambling over the dative KP is still not easy to derive by base-generation, if we keep to the widely accepted assumption that the controller is base-generated in the matrix clause. In the next section, we adumbrate one possible solution to the issue by abandoning that premise.

4. A Solution: Two Options to Base-generate the Dative Controller

Our solution is based on a novel proposal by Takano (2010). Adopting a movement theory of control (e.g., Fujii 2006; Hornstein 1999), he makes the radical suggestion that the dative controller KP starts out as the extenal argument of the embedded verb, then moving to the goal argument position in the matrix clause. Imporatntly, this derivation allows him to claim that the relevant binding relation is established in the embedded clause. For example, scrambling of the embedded KP over the dative KP is derived as shown in (24).

(24) a. [$_{MAT}$ NOM [$_{EMB}$ DAT$_i$ **ACC**$_j$ V-*yooni*] V-T] (base structure)
b. [$_{MAT}$ NOM [$_{EMB}$ **ACC**$_j$ DAT$_i$ $\boldsymbol{t}_j$ V-*yooni*] V-T] (CI-scrambling)
c. [$_{MAT}$ NOM DAT$_i$ [$_{EMB}$ **ACC**$_j$ t_i $\boldsymbol{t}_j$ V-*yooni*] V-T] (cotroller raising)
d. [$_{MAT}$ NOM **ACC**$_j$ DAT$_i$ [$_{EMB}$ $\boldsymbol{t}_j$ t_i $\boldsymbol{t}_j$ V-*yooni*] V-T] (LD-scrambling)

The crucial step to bind the anaphor in the dative KP is (24b), where the antecdent object KP undergoes CI-scrambling movement to the front of the dative KP within the embedded clause; that is, in this configuration, the object KP c-commands the dative KP and thus can bind its internal anophor. Note that Takano (p.95) hypothesizes that scrambling out of any

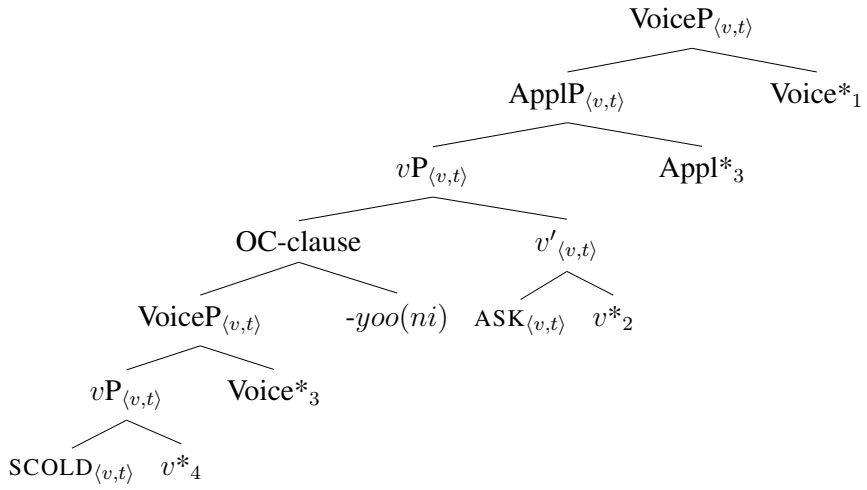
types of clauses is necessarily A′-movement and cannot create a new intepretation, so he analyzes scrambling out of the control clause in (24d) as A′-movement. It therefore follows that scrambling of the embedded KP over the matrix subject KP does not license the latter's internal anaphor, since it is A′-movement, and the matrix subject KP itself never originates in the control clause. In this way, base-generating the controller in the control clause makes it possible to capture the interpretive contrast between the two cases of scrambling.

However, while we agree that such a base-generation analysis is theoretically sound, we depart from Takano (2010) and assume that there is no such operation as controller raising in (24c). The reason is simple; its nature is unclear and contradictory to his general hypotehsis that scrambling out of any types of clauses is A′-movement. First of all, as Takano (p.95) implies, controller raising out of the control clause should be A-movement, because it is an instance of movement from one argument position to another. On the other hand, he also suggests that, although scrambling can be A-movement in principle, scrambling out of the control clause cannot be so. Thus, the question is why the boundary of the control clause only stands as a barrier to A-scrambling movement, and not to controller A-movement. Of course, it is possible to treat scrambling and controller raising as operations of different nature, but if so, it must be clarified what factors make the A-nature of one durabler than that of the other, and this question remains to be addressed for Takano's proposal.

Given this, we now sketch our own proposal for the syntax of object OC from the neo-Davidsonian perspective (Shimamura & Tanaka to appear). Our key idea is that the dative controller KP can get base-generated not only in the embedded clause, but also in the matrix one, and can stay overtly in its base position. To illustrate the point, let us begin by assuming that the verbal spine of the object OC construction such as (25) has the structure given in (26), which is somewhat simplified, but suffices for our purposes.

(25) Ken-ga Yui-ni [Jun-o sikar-u-yoo(ni)] tanon-da.
Ken-NOM Yui-DAT Jun-ACC scold-PRES-COMP ask-PAST
'Ken asked Yui to scold Jun.'

(26)



To this structure, we add two related assumptions to capture the nature of object OC.

First, we assume that the matrix control verb (e.g., 'ask') consists of four morphemes; not only its root, v*, and Voice*, but also an applicative head Appl* (e.g., Pylkkänen 2002; cf. Tomioka & Kim 2017). This head semantically signifies the presence of the Goal argument for the matrix controlling event, but like the other heads v* and Voice*, interprets it as a free variable whose value is specified by an assignment function g, as represented below.

(27) $[\![\text{Appl*}_3]\!]^g = \lambda P.\lambda e.[GL(e) = g(3) \wedge P(e)]$

In other words, the meaning of Appl* is also of type $\langle\langle v,t\rangle,\langle v,t\rangle\rangle$ and lacks the ability to introduce the Goal DP on it own. Thus, the addition of Appl* to the Japanese verbal system does not affect our basic hypotheiss that all projections of the verbal heads are of type $\langle v,t\rangle$, as we can see from the structure in (26).

The second assumption is also related to the semantics of Appl*, especially its controling role in the OC intepretation. That is, we assume that the controlled argument in the OC-clause must have its referent identified with that of the Goal argument on Appl*. Under our proposal, this referent identification is done by identifying the numerical indices of Appl* and the head that encodes the controlled argument. In sentences like (25), for example, the controlee is the Agent argument on the embedded Voice*, so the indices of the Voice* and Appl* need to be specified as the same, here 3. Then, once the two heads get the same index 3, their assignment function g gives the same referent for the matrix Goal and the embedded Agent. The result of this index identification is given in (28) below, where we represent the denotations of the matrix VoiceP^{mat} and embedded VoiceP^{emb}.

(28) a. $[\![\text{VoiceP}^{mat}]\!]^g = \lambda e.[AG(e) = g(1) \wedge GL(e) = g(3) \wedge ask(e) \wedge \ldots]$
b. $[\![\text{VoiceP}^{emb}]\!]^g = \lambda e'.[AG(e') = g(3) \wedge TH(e') = g(4) \wedge scold(e')]$

To get right to the point, (28a) equates the Goal of the matrix event e to the value of g(3), while (28a) equates the Agent of the embedded event e' to the value of g(3), so by transitivity (i.e., $GL(e)$ = $g(3)$ = $AG(e')$), the Goal of e and the Agent of e' refer to the same individual. In this way, the process of index identification can ensure the OC intepretation. Of course, the question remains of how the process is compositinally calculated at the level of semantics. Unfortunately, we do not have a clear answer now, but as a reasonable generalization, we assume that the following convention holds.

(29) **Structural Locality of Index Identification**
The highest head H^1 that has an index within the OC-clause must have its index identified with that of the lowest head H^2 that c-commands H^1.

Under the structure in (26), H^1 and H^2 are Voice*$_3$ and Appl*$_3$, respectively, so (29) ensures that their indices cannot be distinct.

Given these two assumptions, let us finally consider the nature of the dative controller KP. Our focus here is on the dative suffix -ni, and we assume that it can serve as a phonological realization of the third sort of case particle K, namely K$_{GL}$. This K$_{GL}$ itself is like the other sorts K$_{AG}$ and K$_{TH}$ in denoting a thematic relation of type $\langle e,\langle v,t\rangle\rangle$, and we take it to encode the θ-role Goal. Thus, by taking an overt DP of type e, K$_{GL}$ also projects KP of type $\langle v,t\rangle$

that denotes an event predicate, as shown below.

(30) $[\![[_{KP}$ Yui $K_{GL}]]\!]^g = \lambda e.[GL(e) = yui]$

Still, it should be emphasized that the phonological form -ni is not always inserted into K_{GL}. In particular, we suggest that -ni can also be a realization of K_{AG}, depending on the syntactic environment where K_{AG} occurs. This charactirzation of -ni is not $ad\ hoc$, but motivated independently. For instance, K_{AG} is realized as the nominative suffix -ga in active voice sentences such as (31a), but once it appears in the domain of the passive morpheme -$(r)are$, its sound turns into the dative suffix -ni as in (31b).

(31) a. Ken-ga Jun-o sikat-ta.
Ken-NOM Jun-ACC scold-PAST
'Ken scolded Jun.'
b. Jun-ga Ken-ni sika-rare-ta.
Jun-NOM Ken-DAT scold-PASS-PAST
'Jun was scolded by Ken.'

Then, the point we are now making is that K_{AG} is realized as -ni, not only when embedded in the passive environment, but also when embedded in the object OC environment. Specifically, adopting the theory of Distributed Morphology (see Bobaljik 2017 for an overview), we assume that K_{GL} is realized as -ni if dominated by projections of Appl*, but phonological insertion into K_{AG} is conditioned in several ways, as shown below.

(32) K_{GL} is realized as -ni if dominated by projections of Appl*.

(33) a. K_{AG} is realized as -ni if dominated by projections of -$yoo(ni)$ and Appl*.
b. K_{AG} is realized as -ni if dominated by projections of Voice* and -$(r)are$.
c. K_{AG} is realized as -ga (otherwise).

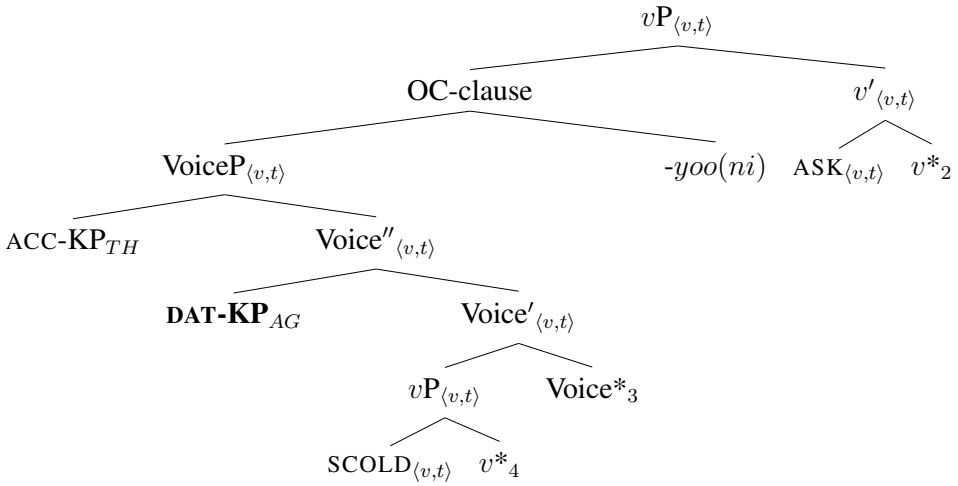
Of particular relevance for object OC are (32) and (33a). In a nutshell, (32) realizes K_{GL} as -ni when K_{GL} is embedded in the matrix ApplP, while (33a) realizes K_{AG} as -ni when K_{AG} is embedded in the control clause introduced by -$yoo(ni)$. Therefore, given that KP_{GL} and KP_{AG} are both of type $\langle v, t\rangle$ and can rely on PC to merge with any verbal pharse in the the matrix and control clauses, the two phonological insertion rules complete our proposal that there are two options to base-generate the dative controller KP; that is, the dative KP_{GL} can be merged in the matrix clause, and if it is, it introduces the matrix Goal agument, whereas the dative KP_{AG} can be merged in the control clause, and if it is, it introduces the embedded Agent argument.

Now, we are ready to explain why scrambling of the embedded KP allows it to bind into the dative controller KP. As noted above, our proposal provides two modes of base-generating the dative KP. One way is to merge KP_{GL} in the matrix clause via PC, and once we do it, the head K_{GL} is realized as -ni and introduces the Goal of the matrix event. The other way is to merge KP_{AG} in the control clause via PC, and once we do it, the head K_{AG} is realized as -ni and introduces the Agent of the embedded event. These two modes are schimatized in (34).

(34) a. [$_{MAT}$ NOM-KP$_{AG}$ **DAT-KP**$_{GL}$ [$_{EMB}$ ACC-KP$_{TH}$ V-*yooni*] V-T]
b. [$_{MAT}$ NOM-KP$_{AG}$ [$_{EMB}$ **DAT-KP**$_{AG}$ ACC-KP$_{TH}$ V-*yooni*] V-T]

It is then claer that the second option in (34b) enables CI-scrambling of the embedded KP$_{TH}$ via base-generaion. For instance, after merging the dative KP$_{AG}$ into the embedded VoiceP, it is possible to base-generate the embedded KP$_{TH}$ above it via PC, as shown below.

(35)



Importantly, there is no movement or reconstruction involved here, so the KP$_{TH}$ keeps c-commanding the KP$_{AG}$ and can bind its internal anaphor. This is how our proposal derives the A-nature of scrambling over the dative controller KP.

Finally, our syntax of object OC makes some correct predictions. In particular, we predict that the dative KP can stay overtly in the OC-clause as well as in the matrix clause, since we have discarded controller raising to the meatrix clause (cf. Takano 2010). Indeed, this is the case, and a piece of evidence comes from the placement of adverbs like $asita$ 'tomorrow'. First, $asita$ is future-oriented and incompatible with the past tense, as in (36b).

(36) a. **Asita** Jun-ga sono-hon-o ka-u-**daroo**.
tomorrow Jun-NOM that-book-ACC buy-PRES-will
'Jun will buy the book tomorrow.'
b. *__Asita__ Jun-ga sono-hon-o kat-**ta**.
tomorrow Jun-NOM that-book-ACC buy-PAST
'Jun bought the book tomorrow.'

Then, the contrast in (37) shows that $asita$ in (37a) is in the OC-clause, because it is excluded in a matrix position, as in (37b). This means that $asita$ marks the left boundary of the OC-clause, so everything beween $asita$ and -$yooni$ comprises the OC-clause.

(37) a. Ken-ga [**asita** Jun-ni **sono-hon-o** kau-yooni] tanonda.
Ken-NOM tomorrow Jun-DAT that-book-ACC buy-COMP asked
'Ken asked Jun to buy the book tomorrow.'

b. *Ken-ga [Jun-ni **sono-hon-o** kau-yooni] **asita** tanonda.
Ken-NOM Jun-DAT that-book-ACC buy-COMP tomorrow asked
Intended 'Ken asked Jun to buy the book tomorrow.'

Hence, the part in brackets in (37a) should form a constituent. This is right, since it can be scrambled as in (38a), and scrambling may taregt only constituents. Note that $asita$ in (38a) still marks the left edge of the OC-clause, as it cannot be in a matrix position, as in (38b).

(38) a. [**Asita** Jun-ni **sono-hon-o** kau-yooni] Ken-ga tanonda.
tomorrow Jun-DAT that-book-ACC buy-COMP Ken-NOM asked
Intended 'Ken asked Jun to buy the book tomorrow.'
b. *[Jun-ni **sono-hon-o** kau-yooni] **asita** Ken-ga tanonda.
Jun-DAT that-book-ACC buy-COMP tomorrow Ken-NOM asked
Intended 'Ken asked Jun to buy the book tomorrow.'

Now, given that everything beween $asita$ and -$yooni$ is contained in the OC-clause, it holds that the dative KP Jun-ni can occur in the OC-clause and stay overtly there, since Jun-ni can apper beween $asita$ and -$yooni$, as shown above. Thus, the dative KP need not move into the matrix clause, and this fact makes an argument against Takano (2010).

The second prediction is that scrambling over the dative KP can apply within the OC-clause, too, as suggested in (26). This is also right. As (39a) and (39b) show, the scrambled embedded KP can occur between $asita$ and the dative KP, so given that $asita$ markes the left edge of the OC-clause, the scrambling in question need not get into the matrix clause.

(39) a. Ken-ga [**asita** **sono-hon-o** Jun-ni kau-yooni] tanonda.
Ken-NOM tomorrow that-book-ACC Jun-DAT buy-COMP asked
Intended 'Ken asked Jun to buy the book tomorrow.'
b. [**Asita** **sono-hon-o** Jun-ni kau-yooni] Ken-ga tanonda.
tomorrow that-book-ACC Jun-DAT buy-COMP Ken-NOM asked
Intended 'Ken asked Jun to buy the book tomorrow.'

The third and last prediction is that the dative KP can also be base-generated in the matrix clause and stay overtly there. Of course, this is correct, too, and (40a) and (40b) show that it can appear in matrix positions.

(40) a. Ken-ga [**asita** **sono-hon-o** kau-yooni] Jun-ni tanonda.
Ken-NOM tomorrow that-book-ACC buy-COMP Jun-DAT asked
Intended 'Ken asked Jun to buy the book tomorrow.'
b. [**Asita** **sono-hon-o** kau-yooni] Jun-ni Ken-ga tanonda.
tomorrow that-book-ACC buy-COMP Jun-DAT Ken-NOM asked
Intended 'Ken asked Jun to buy the book tomorrow.'

Note that it is not reasonable to analyze these positions of the dative KP as derived by movement. This is because if it occured in the OC-clause and then moved to the matrix positions, other embedded KPs could also do it via LD-scrambling. However, (41a) and (41b) illustrate that it is impossible, so (40a) and (40b) should be taken to suggest that the dative KP may

freely choose its base position betwenn the OC-clause and matrix clause.

(41) a. *Ken-ga [**asita** Jun-ni kau-yooni] **sono-hon-o** tanonda.
Ken-NOM tomorrow Jun-DAT buy-COMP that-book-ACC asked
Intended 'Ken asked Jun to buy the book tomorrow.'

b. *[**Asita** Jun-ni kau-yooni] **sono-hon-o** Ken-ga tanonda.
tomorrow buy-COMP Jun-DAT that-book-ACC Ken-NOM asked
Intended 'Ken asked Jun to buy the book tomorrow.'

In this way, our syntax of object OC is supported by several independent facts.

5. Conclusion: Summary and Outlook

In this paper, we have attempted to broaden the empirical scope of the neo-Davidsonian verbal syntax and semantics of Japanese that we proposed in Shimamura & Tanaka (to appear). The case study undertaken here is on what has been widely analyzed as scrambling out of object-control clauses. We have focused on it, becuase scrambling of an embedded argument over the dative controller can behave as A-scrambling and this property posed a serious challenge to one of the key claims that our previous work made; that is, scrambling of an argument over another results in A-scrambling only if the scrambled argument and its host verb can get invloved in the same event via the semantic composition of Predicate Conjunction. Although this claim led to our new analysis of scrambling, under which CI-scrambling can be derived via base-generation or topicalization whereas LD-scrambling must be a case of topicalization, yet it also made the prediction that scrambling of an embedded argument over the "matrix" controller never behaves as A-scrambling. To overcome this problem, we have proposed that the dative controller can be base-generated in the embedded clause as well as in the matrix clause and can stay overtly in its base position. This proposal has been shown, not only to solve the above problem, but also to gain independent support from the districbution of future-oriented adverbs.

Of course, there are many remaining issues for our proposal. For example, we have not clarified how to derive object-control interpretations compositionally, and we have not discussed either whether our proposal can be extended to other cases of control such as subject control. Since these are important issues in developing our syntax and semantics of scrambling and control, we will address them step by step in our future research.

References

Abe, Jun. 2022. *Wh-in situ licensing in questions and sluicing*. Amsterdam/Philadelphia: John Benjamins.

Alexiadou, Artemis. 2014. Roots don't take complements. *Theoretical Linguistics* 40(3). 287–297.

Basilico, David. 2008. Particle verbs and benefactive double objects in English: high and low attachments. *Natural Language and Linguistic Theory* 26. 731–773.

Bobaljik, Jonathan David. 2017. Distributed morphology. In *Oxford research encyclopedia of linguistics*, Oxford University Press.

Borer, Hagit. 2005. *The normal course of events*. Oxford: Oxford University Press.

Fujii, Tomohiro. 2006. *Some theoretical issues in Japanese control*. College Park, MD: University of Maryland dissertation.
Heycock, Caroline. 1995. Asymmetries in reconstruction. *Linguistic Inquiry* 26(4). 547–570.
Hornstein, Norbert. 1999. Movement and control. *Linguistic Inquiry* 30(1). 69–96.
Kratzer, Angelika. 1996. Severing the external argument from its verb. In Johan Rooryck & Laurie Zaring (eds.), *Phrase structure and the lexicon*, 109–137. Dordrecht: Kluwer Academic Publishers.
Lohndal, Terje. 2014. *Phrase structure and argument structure: A case study of the syntax-semantics interface*. Oxford: Oxford University Press.
Nemoto, Naoko. 1993. *Chains and case positions: A study from scrambling in Japanese*. Storrs, CT: University of Connecticut dissertation.
Nomura, Jun'ya. 2016. Surprising constituents, clefts and event semantics. Talk at Ling Supper Meeting, Mie University.
Parsons, Terence. 1990. *Events in the semantics of English: A study of subatomic semantics*. Cambridge, MA: MIT Press.
Pietroski, Paul. 2005. *Events and Semantic Architecture*. Oxford: Oxford University Press.
Pylkkänen, Liina. 2002. *Introducing arguments*. Cambridge, MA: Massachusetts Institute of Technology dissertation.
Saito, Mamoru. 1992. Long distance scrambling in Japanese. *Journal of East Asian Linguistics* 3. 195–240.
Shimamura, Koji & Hideharu Tanaka. to appear. Eliminating scrambling from Japanese via neo-Davidsonian event semantics. In *Proceedings of the 16th Workshop on Altaic Formal Linguistics (WAFL16)*, Cambridge, MA: MIT Working Papers in Linguistics.
Takano, Yuji. 2010. Scrambling and control. *Linguistic Inquiry* 41. 83–110.
Tanaka, Hideharu & Koji Shimamura. to appear. Eliminating *pro* from Japanese via neo-Davidsonian event semantics. In *Proceedings of the 18th Workshop on Altaic Formal Linguistics (WAFL18)*, Cambridge, MA: MIT Working Papers in Linguistics.
Tomioka, Satoshi & Lan Kim. 2017. The *give*-type benefactive constructions in Korean and Japanese. *Journal of East Asian Linguistics* 26. 233–257.
Uchibori, Asako. 2000. *The syntax of subjunctive complements: Evidence from Japanese*. Storrs, CT: University of Connecticut dissertation.