

Verb movement in Japanese revisited*

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This paper argues for verb movement in Japanese. In *Taro-ga sushi-o mo tabe-ta* 'Taro also ate sushi,' for example, we claim that *tabe* 'eat' actually moves past *mo* 'also,' as in [Taro-ga sushi-o *t*_{tabe} mo tabe-ta]. This analysis is supported by the interpretation of the adjunct clitic *mo*. We further claim that the verb-movement operation, coupled with the so-called Morphological Merger, successfully accounts for various data involving *su*-support (analogous to *do*-support in English). As a consequence, the present analysis has an important implication for the language typology on verb movement.

Areas of interest: formal syntax, verb movement

1. Introduction

Languages can be classified depending on whether they involve V-to-I movement or simply verb movement. In French, for example, verb movement is obligatory (cf. Pollock 1989):

- (1)a. *Marie ne pas [_{VP} regardait ce film].
Marie not watched this film
'Marie did not watch this film'
b. Marie ne [_{V-I} regardait] pas [_{VP} *t*_V ce film].
Marie watched not this film

The absence of verb movement results in ungrammaticality, as shown in (1a). This means that verbs in French cannot stay within VP, but must move to the head I position of IP, as indicated in (1b). By contrast, verbs in English (except the light verbs *have* and *be*) must remain *in situ* in the head V position of VP. Observe the following contrast:

- (2)a. *Mary [_{V-I} watched] not [_{VP} *t*_V this film].
b. Mary [_I did] not [_{VP} watch this film].

As in (2a), the verb in English cannot move to I, which causes a tense-affix in I to be stranded. In general, the stranded affix is not allowed; in that case, a dummy verb *do* supports the otherwise stranded affix, as in (2b). This operation has been traditionally called *do*-support.

A general consensus has yet to be reached on the presence or absence of verb movement in Japanese, however. Let us observe (3).^{1, 2}

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¹ In what follows, abbreviations, brackets, and translations are our own.

² The following abbreviations are used in this paper: NOM (Nominative), ACC (Accusative), DAT (Dative), TOP (Topic), NL (Nominalizer), PAST (Past tense), ASP (Aspect), CL (Classifier).

- (3) Taro-ga susi-o tabe-ta.
 Taro-NOM sushi-ACC eat-PAST
 'Taro ate sushi'

In (3), it is not clear whether or not the verb *tabe* 'eat' undergoes verb movement, because Japanese is a consistently head-final language with SOV word order, where head elements are always stuck together at the end of the sentence. This means that the structural positions of head elements are not directly detectable solely by linear order, even if V-to-I movement is actually operated.

Some researchers have argued for the presence of verb movement in Japanese. For example, Otani and Whitman (1991) take VP-ellipsis phenomena in Japanese as evidence. Let us briefly summarize their arguments below. Observe the following:

- (4)a. John-wa [zibun-no tegami-o] sute-ta.
 John-TOP self-of letter-ACC discard-PAST
 'John_i threw out self_i's letters'
 b. Mary-mo [*e*] sute-ta.
 Mary-also discard-PAST
 = 'Mary_j also threw out self_j's letters'
 = 'Mary also threw out John's letters' (Otani and Whitman 1991: 346-347)

The point here is that (4b) allows a "sloppy" reading interpretation: Mary also threw out Mary's letter, not John's. This situation in (4b) and VP-deletion in English seem to be very much alike because VP-deletion is generally assumed to allow a sloppy reading interpretation. This leads Otani and Whitman to claim that what is deleted in (4b) is not an object alone but the whole VP except the verb. Otani and Whitman thus propose that (4a) and (4b) have the following structure, where the verb *sute* 'discard' undergoes verb movement.³

- (5) Mary-mo [_{VP} [_{NP} zibun-no tegami-o] *t_V*] [_V sute]-ta.

³ Otani and Whitman assume that the sloppy reading in (4) is licensed under such a configuration as (i) below:

- (i)a. John wa [_{VP} λx [x [_{NP} x-no tegami-o] *t_V*]] sute-ta
 b. Mary mo [_{VP} λx [x [_{NP} x-no tegami-o] *t_V*]] sute-ta
 (i) is the resultant representation after application of Williams' (1977) *VP Rule*, which accounts for the sloppy reading in VP-ellipsis contexts in English. A crucial point here is that the verb in (i) must raise out of the VP; otherwise different representations are obtained, as in (ii):
 (ii)a. John wa [_{VP} λx [x [_{NP} x-no tegami-o] sute]] -ta
 b. Mary mo [_{VP} λx [x [_{NP} x-no tegami-o] sute]] -ta
 (ii), however, is not an appropriate representation for the sloppy reading. This is because (ii) predicts that the verbs in (ii-a) and (ii-b) must be identical. But this is not the case, as shown in (iii).
 (iii)a. John-wa zibun-no roba-o tataki-ta
 John-TOP self-GEN donkey-ACC beat-PAST
 b. Bill-mo ker-ta
 Bill-also kick-PAST
 = 'Bill_j also kicked self_j's donkey'
 = 'Bill_j also kicked John_i's donkey'

Though the verbs in (iii-a) and (iii-b) are different from each other, (iii-b) has the sloppy reading. This cannot be explained by the representation in (ii). Otani and Whitman, therefore, conclude that the verb must raise out of VP as the representations in (i) show.

After VP-deletion is undergone in (5), sentence (4b) is produced. In sum, verb movement is assumed in Otani and Whitman (1991) on the basis of the sloppy reading in (4b).

Hoji (1998), however, argues against Otani and Whitman's proposal. Hoji claims that the sloppy reading in (4b) is not a real one, but rather a "sloppy-like reading" in his terminology. According to Hoji, the "genuine" sloppy-identity reading is based on bound variable anaphora, while the sloppy-like reading is capable when the content of the null argument is recovered. This means that the sloppy reading in (4b) does not have recourse to VP-deletion, since assuming *pro* in the object position by itself can perform a similar role. Hoji then concludes that the sloppy-reading in (4b) cannot be the decisive evidence for verb movement in Japanese.⁴

Koizumi (1995, 2000) argues for the existence of verb movement in Japanese based on the different foundation built by Otani and Whitman. Koizumi uses the coordinate structure and the cleft sentence as the evidence for verb movement in Japanese.

First, let us show below how verb movement is involved in the coordinate structure. Observe the following:

- (6) [_{VP} Tom-ga Mary-ni ringo-o 2tu *t_V*] to [_{VP} Bob-ga
Tom-NOM Mary-DAT apple-ACC 2-CL and Bob-NOM
Mary-ni banana-o 3-bon *t_V*] [_I [_V age]-ta] (koto)
Mary-DAT banana-ACC 3-CL give-PAST fact
'Tom gave two apples to Mary and Bob gave three bananas to Mary'

Koizumi claims that (6) involves the across-the-board application of verb movement. This means that the verb *age* 'give' moves simultaneously from within both VPs to the head I position of IP.

Second, Koizumi shows how verb movement is involved in the cleft sentence. Observe the following:

- (7)a. Mary-ga John-ni ringo-o 3tu ageta (koto).
Mary-NOM John-DAT apple-ACC 3-CL gave (fact)
'Mary gave three apples to John'
b. Mary-ga age-ta no-wa [John-ni ringo-o 3tu] da.
Mary-NOM gave NL-TOP John-DAT apple-ACC 3-CL be
Lit. 'It is [three apples to John] that Mary gave' (Koizumi 2000: 234)

It is generally acknowledged that the focus position of the cleft construction must be occupied by a single constituent. In Japanese, the focus position in the cleft construction has been considered to be between *-no wa* (nominalizer + topic marker) and *da* (copula). As shown in the bracketed parts in (7b), however, apparently two (or three) constituents occupy the focus position at the same time. To accommodate (7b) to the general restriction on the cleft construction mentioned above, Koizumi claims that (7b) has the following structure:

- (8) [*Op_i* [Subject *t_i* V-v -I]] no-wa [_{VP} IO DO [_V *e*]]_i da
(Op: operator, IO: indirect Object, DO: direct object) (Koizumi 2000: 235)

⁴ We will reconsider Otani and Whitman (1991) and Hoji (1998) in section 4.

In (8) the verb moves (to *v* and) to I, and then the remnant VP without the verb moves to the focus position. As a result, the focus position in (8) is occupied by a single constituent, a (remnant) VP, which observes the general restriction on the cleft construction.

Takano (2002), however, argues against Koizumi's claim, proposing an alternative analysis which can also explain both examples in (6) and (7b). Takano also regards both *Tom-ga Mary-ni ringo-o 2tu* and *Bob-ga Mary-ni banana-o 3-bon* in (6), on the one hand, and *John-ni ringo-o 3tu* in (7b), on the other, as a single constituent. They are, however, not "normal" constituents, but what Takano calls "surprising" constituents. Let us illustrate here how the surprising constituents are generated under Takano's analysis. Take (7b) for example, which is repeated below and whose derivation is shown in (9):

- (7)b. Mary-ga age-ta no-wa [John-ni ringo-o 3tu] da.
 Mary-NOM gave NL-TOP John-DAT apple-ACC 3-CL be
 Lit. 'It is [three apples to John] that Mary gave'
- (9)a. [VP [NP1 John-ni] [V' [NP2 ringo-o 3tu] [V ageta]]]
 b. [VP [NP2 Ringo-o 3tu]_i [VP [NP1 John-ni] [V' *t_i* [V ageta]]]]
 c. [VP [NP2 [NP1 John-ni]_j [NP2 ringo-o 3tu]_i] [VP *t_j* [V' *t_i* [V ageta]]]]]

Takano assumes that the indirect object *John-ni* is higher than the direct object *ringo-o* in the underlying structure. In (9a), *John-ni* occupies the Spec of VP and *ringo-o* the sister of V. In this structure, *John-ni* asymmetrically c-commands *ringo-o*. Then *ringo-o* undergoes scrambling and adjoins to VP, as shown in (9b); subsequently *John-ni* undergoes "oblique movement" and adjoins to NP2, as shown in (9c). The sequence *John-ni ringo-o 3tu* results in a single constituent, namely NP2, which can occupy the focus position.⁵

In sum, Takano claims that his analysis is superior to Koizumi's analysis which assumes verb movement. He then concludes that examples provided by Koizumi do not constitute any strong evidence for the existence of verb movement in Japanese.

Note that neither Hoji nor Takano, though arguing against verb movement in Japanese, proves that verb movement in Japanese is impossible in principle. Furthermore, their alternative analyses are both ad hoc in nature. In the case of Hoji's analysis, the term "sloppy-like" is introduced only to cast doubt upon the use of "genuine" sloppy-identity data for the purpose of assessing the structure of VP ellipsis. In the case of Takano's analysis, the prognosis is worse. In order to doubt the validity of the evidence for using the coordinate structure and the cleft sentence, Takano proposes the leftward adjunction of Argument 1 to Argument 2, which he calls *the surprising constituent*: [Arg1 [Arg2]]. Surprising constituents, however, have not been attested in other languages. Furthermore, the occurrence of them would be fairly restricted even in Japanese. This leads us to conclude that the adjunction of Arg1 to Arg2 is not a generalized movement operation available in UG. Therefore, it makes no sense to propose surprising constituents as an alternative to the wholly regular and universally widespread head-to-head movement.⁶

The organization of this paper is as follows: section 2 provides new evidence for the existence of verb movement in Japanese on the basis of the scope of the adjunct clitic *mo* 'also'. Section 3 shows that the verb-movement operation coupled with the so-called Morphological Merger accounts successfully for

⁵ Takano claims that oblique movement is also involved in the example of the coordinate structure in (6). See Takano (2002: 271-284) for details.

⁶ We thank a *JLL* anonymous reviewer for calling our attention to this argument.

various data involving *su*-support (analogous to *do*-support in English).⁷ Section 4 concludes the paper and shows a further implication.

2. Evidence for verb movement in Japanese

2.1. The status of *mo*

As mentioned above, Japanese is a strictly head final language. This means that V and I are stuck together at the end of the sentence. Some particles can, however, intervene between V and I. Let us consider the following:

- (10)a. Taro-ga susi-o tabe-ta.
Taro-NOM sushi-ACC eat-PAST
'Tom ate sushi'
b. Taro-ga susi-o tabe-mo/sae/dake si-ta.
Taro-NOM sushi -ACC eat -also/even/only do-PAST

As for the status of these particles, Aoyagi (1998, 2006), following Sells (1995), convincingly argues that the particle *mo* 'also' is not a head but an adjunct clitic, based on the following paradigm:

- (11)a. John-wa [susi-o tabe]-te mita
John-TOP sushi-ACC eat-ASP see-PAST
b. John-wa [susi-o tabe]-te-mo mita
John-TOP sushi-ACC eat-ASP-also see-PAST
c. *John-wa [susi-o tabe]-ni-mo mita
John-TOP sushi-ACC eat-ASP-also see-PAST (Aoyagi 1998: 20)

It is generally agreed that a selectional relation holds under the head-head relation.⁸ For example, the head V *wonder* selects [+wh] C-head but not [-wh] C-head as shown in (12):

- (12)a. I wonder what [_C [+wh]] you ate.
b. *I wonder [_C [-wh] that] you ate something.

Now consider (11b) and (11c). The head V *mita* 'saw' selects the head of AspP *te* but not *ni*. If *mo* were also a head, the selectional relation between *te/ni* and *mita* could not be maintained because of the intervention of another head *mo*. This leads Aoyagi to claim that *mo* is not a head but an adjunct clitic, which cannot interfere with the selectional relation between *te/ni* and *mita*. We also assume that *mo* is not a head but an adjunct clitic.

Now let us observe the following example:

- (13) Taro-ga susi-o-mo tabe-ta.
Taro-NOM sushi-ACC-also eat-PAST

⁷ For the ease of exposition, we will use the cover term *su*-support, even when *si*, an inflected form of *su* 'do', supports a past-tense morpheme (e.g., *si-ta* 'do-PAST').

⁸ Strictly speaking, Aoyagi (1998) assumes that a selectional relation holds under sisterhood: a head and its complement. However, it is a head that specifies the properties of its maximal projection. So we consider the head-head relation to be relevant to a selectional relation rather than the sisterhood one. This matter, however, in no way affects the discussion in the present paper.

Given that *mo* is not a head, then the verb *tabe* ‘eat’ in (13) can theoretically move past *mo* to I. Accordingly, the structure of (13) can be represented as follows:

(14) Taro-ga [_{VP} [_{VP} susi-o *t_V*] *mo*] [_{V-I} *tabe-ta*].

As shown in (14), the verb *tabe* ‘eat,’ which is originally in VP, can move across the particle *mo* into the head I position in IP. This verb movement does not violate the head movement constraint in the sense explained by Bakar (1988).⁹ This is because, as stated above, the particle *mo* is not a head but an adjunct: a head can move across an intervening non-head.¹⁰

From the argument given above, we can say that the possibility of verb movement in Japanese cannot be excluded by any theoretical reasons as long as we assume functional categories. In the next section, we will strongly argue for the existence of verb movement in Japanese.

2.2. The scope of *mo*

Kuroda (1965, 1992) points out that the sentence in (15) allows multiple interpretations, as shown in (16):

- (15) Taro-ga susi-o tabe-mo si-ta.
Taro-NOM sushi-ACC eat -also do-PAST
- (16)a. Taro (not only [drank beer] but) also [_{VP} ate sushi].
b. Taro ate (not only [grilled meat] but) also [_{NP} sushi].
c. Taro (not only [served] but) also [_V ate] sushi.

In (16a), the whole VP falls under the scope of *mo* ‘also.’ In (16b), only the object *susi* falls under the scope of *mo*. In (16c), only the verb *tabe* ‘eat’ falls under the scope of *mo*. It is noted, however, that the sentence (15) does not allow the following interpretation:

(17) (Not only [Jiro] but) also [_{NP} Taro] ate sushi.

This means that the subject position lies outside the scope of *mo*.

Many approaches to argument structure, however, have proposed that subjects are inserted into the Spec of VP (or the Spec of *v*P) position under the VP-internal subject hypothesis, as in (18) below:¹¹

(18) [_{VP} [_{VP} Taro-ga susi-o tabe]-*mo*]
Taro-NOM sushi-ACC eat -also

The scope is generally defined in terms of the c-command relation. If *mo* is adjoined to VP and if the subject is generated within VP, then *mo* must be adjoined to a place lower than VP; otherwise, *mo* would c-command the subject, which means that the subject position could lie in the scope of *mo*. We, however,

⁹ The Head Movement Constraint is roughly defined as follows (cf. Baker (1988)):

(i) A head α cannot skip over another head β to move to the other head γ .

$$\begin{array}{ccccc} \alpha & & \beta & & \gamma \\ | & & & & | \\ \text{-----}^* \text{-----} \end{array}$$

¹⁰ As an anonymous reviewer points out to us, (i) as well as (14) is a possible analysis for (13).

(i) Taro-ga [_{VP} [_{NP} [_{NP} susi-o] *mo*] *tabe*] -ta
However, we will show in Section 2.2 that (13) has the specific interpretation which can be accounted for by (14) but not by (i). This will lead us to conclude that *mo* in (13) is an adjunct clitic that adjoins to VP but not to NP.

¹¹ We thank an anonymous reviewer for calling our attention to this argument.

assume that the subject, originated in the Spec of VP, moves out of VP to the Spec of IP to fulfill the EPP requirement on I (cf. Kishimoto 2001). Thus the structure of (18) can be represented as follows:

- (19) [IP Taro-ga_i [VP [VP t_i susi-o tabe]-mo]]
 Taro-NOM sushi-ACC eat -also

In the above structure, *mo* does not c-command the subject. We also assume that scope is not interpreted until at LF - the stage where all the overt movement operations have been executed. In (19), the subject *Taro-ga*, originally within the VP, has moved higher than *mo*. That is, *Taro-ga* is not under the scope of *mo*, which is a welcome result. See (15) and (16).

Based on the above observation and assumptions, we propose the following in the line of Kishimoto (2005):

- (20) The particle *mo* can take scope over an element A, iff it c-commands A at LF.

In (15), both the whole VP and the elements inside VP meet the c-command requirement (20): as in (19), *mo* in the VP-adjoined position c-commands the whole VP, which makes it possible for (15) to have all the interpretations in (16).

Now let us reconsider (13) repeated below, where verb movement occurs instead of *su*-support (cf. (15)):

- (13) Taro-ga susi-o-mo tabe-ta.
 Taro-NOM sushi-ACC-also eat-PAST

Interestingly enough in (13), it is possible to get the interpretation in (16a), that is, an interpretation in which *mo* scopes over the entire VP. If *mo* in (13) is directly adjoined to the object NP, (13) could not have the interpretation in (16a) since the *mo* does not c-command the VP. This is a piece of evidence that *mo* in (13) is not adjoined to the object NP but to the VP. This in turn suggests that the verb in (13) has moved from within the VP to I, as shown in (21):¹²

- (21)
- ```

 IP
 / \
 Taro-ga I'
 / \
 VP I
 / \ / \
 VP mo V I
 / \ | |
 susi-o t_V ---> tabe ta

```

<sup>12</sup> As pointed out by an anonymous reviewer, our proposal is an alternative to the analysis of (15) in Miyagawa (2001). In Miyagawa's work, *mo* blocks the raising of the verb, so that *su* 'do' must be inserted to I like *do*-support in English. In our analysis, on the other hand, *mo* does not block verb movement. Besides, as we will later argue, verb movement is optional in Japanese.

Again, the point here is that, in (21), *mo* is adjoined to the VP but not to the NP *susi-o*. Only in this structure can both the whole VP and the elements inside VP meet the c-command requirement (20), which in turn causes (13) to have the interpretation in (16a) and (16b), but not in (16c).

We do not claim that *mo* cannot be adjoined directly to an NP on any occasions, however. There are cases where the only option is for *mo* to attach directly to an NP. In this case, our analysis is supported by the data showing that, when *mo* is limited to attaching to NP, it cannot scope over the VP. Observe the following examples where the NP *susi* appears with the numeral quantifier *2-kan*:

- (22)a. Taro-ga [susi-o 2-kan] tabe-ta  
 Taro-NOM sushi-ACC 2-CL eat-PAST  
 ‘Taro ate 2 pieces of sushi’  
 b. [Susi-o 2-kan], Taro-wa tabeta.  
 sushi-ACC 2-CL Taro-TOP eat-PAST  
 ‘2 pieces of sushi, Taro are’  
 c. Taro-ga tabeta-no-wa [susi-o 2-kan] da.  
 Taro-NOM ate-NL-TOP sushi-ACC 2-CL Copula  
 ‘What Taro ate is 2 pieces of sushi’  
 d. Taro-wa [susi-o 2-kan] to biiru-o 3-bai tanonda.  
 Taro-TOP sushi-ACC 2-CL and beer-ACC 3-CL order-PAST  
 ‘Taro ordered 2 pieces of sushi and 3 glasses of beer’

*Susi-o* and *2-kan* in (22a) can be scrambled together (see (22b)), clefted (see (22c)), and coordinated (see (22d)), all of which provide strong pieces of evidence that they form single constituent. Following Kawashima (1998), we provide *susi-o 2-kan* with the following structure:

- (23)
- ```

  NumP
  /  \
 NP   Num
 |    |
susi-o 2-kan

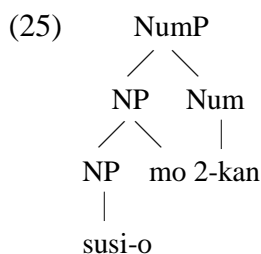
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Now we are ready to show the case where *mo* is directly adjoined to an NP. Let us consider the following examples:

- (24)a. Taro-ga sushi-o 2-kan tabe-ta (=22a)
 Taro-NOM sushi-ACC 2-CL eat-PAST
 b. Taro-ga [susi-*mo* 2-kan] tabe-ta
 Taro-NOM sushi-also 2-CL eat-PAST

It is in (24b) that *mo* is directly adjoined to the NP.¹³ (24b) has the structure in (25):

¹³ In (24b) the particle *o* before *mo* is deleted.



As shown in (25), *mo* does not c-command any elements outside of the NP; accordingly, it does not c-command the VP in (24b). So we predict that (24b) cannot have the following interpretation, where *mo* scopes over the entire VP:

(26) Taro (not only [drank 3 glasses of beer] but) also [_{VP} ate 2 pieces of sushi].

This prediction is borne out. In fact, (24b) does not have the interpretation in (26). Therefore, it is clear that, when *mo* is limited to attaching to NP, it cannot scope over the VP. Bearing this in mind, recall here that (13) has the interpretation where *mo* scopes over the entire VP. This means that *mo* in (13) is adjoined to the VP, but not to the NP (see (14)).

Furthermore, there is another case which supports our analysis. Observe the following examples, where *mo* should be adjoined to a VP not to an NP:

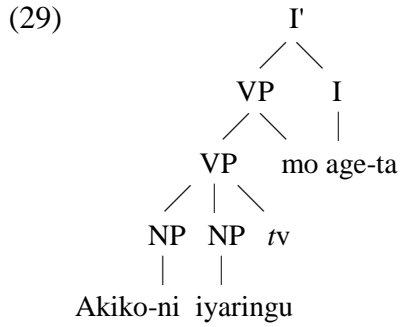
- (27) Ki-ga ooi Taro-wa,
 playboy Taro-TOP
- a. Haruko-ni yubiwa-o age-ta bakari-de naku,
 Haruko-DAT ring-ACC give-PAST only not
- b. Natuko-ni nekkuresu-mo age,
 Natuko-DAT necklace-also give
- c. sarani Akiko-ni iyaringu-mo age-ta.
 furthermore Akiko-DAT earrings-also give-PAST
 ‘A playboy Taro gave Haruko a ring, Natuko a necklace, and furthermore Akiko earrings’

The verb *age* ‘give’ requires two arguments: a given object and its receiver. The important point to note here is that both (27b) and (27c) do allow a “set” reading: *mo* can scope over both NPs as a set. The sentence (27c), for example, has the following interpretation:

(28) Taro gave (not only [Haruko a ring] but) also [[_{NP} Akiko] [_{NP} earrings]].

This fact makes it clear that *mo* in (27c) is adjoined not to the NP *earrings* but to the whole VP including two NPs, as shown in (29):¹⁴

¹⁴ Takano might take (28) as evidence for the object adjoining to the indirect object to form a surprising constituent. As shown in section 1, however, forming surprising constituents is not considered to be a generalized movement operation available in UG. Accordingly, the analysis assuming something like a surprising constituent is ad hoc and unsupportable.



Mo in (29) c-commands the entire VP, and so, (27c) has the interpretation in (28). Thus, this is another piece of evidence that supports our verb movement analysis: the verb in (27c) has moved from within the VP to I with *mo* adjoined not to the object NP but to the VP, as shown in (29).

In sum, we have shown that the possibility of verb movement in Japanese cannot be excluded by any theoretical reasons as long as we assume functional categories. Since separate sets of facts discussed above can be explained solely by the assumption of verb movement, it is reasonable to conclude that verb movement actually occurs in Japanese. In the next section we consider how our verb movement analysis deals with various data involving the dummy verb *su*-support.

3. On the nature of verb movement in Japanese

The previous section concludes that Japanese has verb movement. This, however, does not necessarily mean that the operation in question is obligatory. Let us consider the following examples:

- (30)a. Taro-ga [_{VP} [_{VP} susi-o *t_V*] *mo*] [_{V-I} *tabe-ta*]. (=14))
 Taro-NOM sushi-ACC- also eat-PAST
- b. Taro-ga [_{VP} [_{VP} susi-o [_V *tabe*]]-*mo*] [_I *si-ta*]. (=10b))
 Taro-NOM sushi-ACC eat-also do-PAST

We assume that the verb *tabe* ‘eat’ moves to I in (30a) whereas it stays *in situ* in (30b); both sentences in (30) are grammatical. This suggests that verb movement in Japanese is not obligatory but optional. The rest of this section shows that the optional nature of verb movement coupled with the operation Morphological Merger can nicely account for various data involving the dummy verb *su*-support.

First of all, we have to introduce the operation of Morphological Merger (henceforth MM). The definition of MM can be expressed in (31):¹⁵

- (31) Affixal Infl must agree with a V, (a PF process distinct from head movement) demanding adjacency. (Lasnik 1995: 259)

Let us illustrate how (31) works. Consider the following:

- (32)a. Mary [_I] [_V *watch*] this film. --> Mary watched this film.
 b. Mary [_I] not [_V *watch*] this film.
 → *Mary not watched this film.
 → *Mary watched not this film.

¹⁵ MM stands as an equivalent of "affix-hopping" (cf. Chomsky 1957) or Rule-R (cf. Chomsky 1981), whereby affixes descend to their verb hosts.

In (32a), I and V are adjacent to each other; in this situation, MM enables I to merge with V, which results in the inflected form *watched* as desired. In (32b), on the other hand, the intervention of *not* between I and V prevents MM from being applied, resulting in the failure to have the inflected form *watched*. Likewise, we assume here that MM does apply in Japanese as well as in English.¹⁶

Keeping this in mind, let us consider the following set of data:

- (33)a. Susi-o tabe-ta.
sushi-ACC eat-PAST
b. *Susi-o tabe-si-ta.
sushi-ACC eat-do-PAST
c. Susi-o-mo tabe-ta.
sushi-Acc-also eat-Past
d. *Susi-o-mo tabe-si-ta.
sushi-Acc-also eat-do-Past
e. Susi-o tabe-mo si-ta.
sushi-Acc eat-also do-Past

In our approach, (33a) has two different derivations in syntax:

- (34)a. $[_{VP} \text{ susi-o } t_V] [_{V-I} \text{ tabe-ta}] \succ [_{VP} \text{ susi-o } [_V \text{ tabe}]] [_I \text{ ta}]$
 b. $[_{VP} \text{ susi-o } [_V \text{ tabe}]] [_I \text{ ta}]$ (Underlying Structure)

As argued above, verb movement in Japanese is not obligatory but optional. Given this, it follows that we can give (33a) two different derivations: (34a) and (34b). In (34a) the verb *tabe* moves to I, while in (34b) it stays *in situ*. MM then applies to both (34a) and (34b) at PF, producing the same sentence (33a) from the different derivations. Note specifically that, though the verb *tabe* and the tense affix *ta* ‘Past’ in (34b) are "syntactically" separated, the two are adjacent to each other in the linear order. Therefore, the verb *tabe* merges with *ta* ‘Past’ successfully at PF in (34b).

Now let us consider (33b), which is repeated below:

- (33b) *Susi-o tabe-si-ta.
sushi-ACC eat-do-PAST

The important point is that *su*-support is not available in (33b). Let us propose the following constraint concerning *su*-support in Japanese:

- (35) Insert *su* ‘do’, iff Morphological Merger does not apply.

Given (35), the ungrammaticality of (33b) can be accounted for as follows: (33b) has the same two-way ambiguous derivations as in (34). Observe the following:

¹⁶ Lasnik (1995) proposes to have both MM and verb movement coexist, as we assume. Note, however, that Lasnik's analysis is different from ours in a crucial way. In Lasnik's system, only auxiliary verbs *have* and *be* must undergo verb movement, while main verbs must undergo MM. Thus, in his system, whether a verb undergoes movement or MM with Infl depends solely on the verb's lexical property. In our system, on the other hand, every verb can move to Infl and, as far as the adjacency requirement is satisfied, MM must be applied. There being no convincing evidence so far, we further assume that no covert verb-movement or LF verb-movement exists in Japanese.

- (36)a. $[_{VP} \text{ susi-o } t_V] [_{V-I} \text{ tabe - ta}] : (\text{verb movement})$
 \uparrow
 $*si (su)\text{-support}$
- b. $[_{VP} \text{ susi-o } [_V \text{ tabe}]] [_I \text{ ta}] : (\text{the verb } \textit{tabe} \text{ in situ})$
 \uparrow
 $*si (su)\text{-support}$

In (33b), *su*-support is further operated at PF. However, neither (36a) nor (36b) allows *si* or *su* ‘do’ to be inserted between the verb *tabe* ‘eat’ and *ta* ‘Past’ at PF because MM applies in both cases: the verb *tabe* and *ta* ‘Past’ are adjacent in the linear order and thus can merge with each other by MM. This leads to the ungrammaticality of (33b) due to the violation of (35).

Now let us consider (33c) repeated here:

- (33c) Susi-o-mo tabe-ta.
 sushi-ACC-also eat-PAST

(33c) has the following derivation:

- (37) $[_{VP} [_{VP} \text{ susi-o } [_V \text{ tabe}]]\text{-mo}] [_I \text{ ta}] : (\text{Underlying Structure})$
 \Downarrow
 $[_{VP} [_{VP} \text{ susi-o } t_V] \text{mo}] [_{V-I} \text{ tabe-ta}] : (\text{verb movement})$

As shown above, the verb *tabe* moves out of VP to I. In this case, the verb *tabe* and *ta* ‘Past’ are adjacent in the linear order and thus can merge with each other through MM.

Let us then compare (33c) with (33d), which is repeated below:

- (33d) *Susi-o-mo tabe-si-ta.
 sushi-ACC-also eat-do-PAST

The derivation of (33d) can be represented as in (38):

- (38) $[_{VP} [_{VP} \text{ susi-o } [_V \text{ tabe}]]\text{-mo}] [_I \text{ ta}] : (\text{Underlying Structure})$
 \Downarrow
 $[_{VP} [_{VP} \text{ susi-o } t_V] \text{mo}] [_{V-I} \text{ tabe-ta}] : (\text{verb movement})$
 \uparrow
 $*si (su)\text{-support}$

As in (38), *su*-support is not available due to (35): after verb movement, the verb *tabe* ‘eat’ and *ta* ‘Past’ in (38) are adjacent in the linear order and thus can merge with each other through MM. In other words, given the constraint in (35), MM obviates the application of *su*-support, which leads to the ungrammaticality of (33d).

Finally let us consider (33e) repeated here:

- (33e) Susi-o tabe-mo si-ta.
 sushi-ACC eat-also do-PAST

(33e) has the following derivation:

- (39) $[_{VP} [_{VP} \text{ susi-o } \text{tabe}] \text{ mo}] [_I \text{ ta}]$
 \uparrow
si (su)-support

As in (39), verb movement does not occur in (33e) and *mo* ‘also’ intervenes between the verb *tabe* and *ta* ‘Past’ in the linear order. Given (31), the verb *tabe* cannot merge with *ta* at PF in this situation. Instead, *su* ‘do’ must be inserted to merge with the otherwise stranded affix *ta*, which results in the grammaticality of (33e).

In sum, given both the optional verb-movement operation in Japanese and the operation of MM, we can account for all the data in (33) successfully.

4. Concluding remarks

To summarize, we have offered new evidence for the existence of verb movement in Japanese on the basis of the scope of the adjunct clitic *mo* ‘also’. We have further shown that, given both the optional verb-movement operation in Japanese and the operation of MM, various data involving *su*-support can be accounted for successfully.

This conclusion urges us to reconsider some pieces of “defeated” evidence which Otani and Whitman (1991) and Koizumi (1995, 2000) propose (see section 1). Take (4) again for example, which is repeated below:

- (4)a. John-wa [zibun-no tegami-o] sute-ta.
 John-TOP self-of letter-ACC discard-PAST
 ‘John_i threw out self_i’s letters’
 b. Mary-mo [*e*] sute-ta.
 Mary-also discard-PAST
 = ‘Mary_j also threw out self_j’s letters’
 = ‘Mary also threw out John’s letters’

In order to account for the sloppy reading interpretation in (4b), Otani and Whitman assume that (4b) as well as (4a) involves verb movement, as in (5) repeated below:

- (5) Mary-mo $[_{VP} [_{NP} \text{ zibun-no tegami-o}] t_V] [_V \text{ sute}]\text{-ta.}$

Hoji (1998), however, argues against Otani and Whitman’s (1991) evidence for the existence of verb movement, claiming that what he calls the “sloppy-like” reading in (4b) comes not from the result of VP-deletion but from the existence of *pro*. If both Hoji’s alternative analysis and our verb movement analysis are both valid, then we could provide a two-way ambiguous structure to (4b), as shown in (40) and (41):

- (40)a. Mary-mo $[_{VP} [_{NP} \text{ zibun-no tegami-o}] t_V] [_{V-I} \text{ sute-ta}]$
 \Downarrow
 b. Mary-mo $[_{VP} \quad \varphi \quad] [_{V-I} \text{ sute-ta}]$
 (41) Mary-mo $[_{VP} [_{NP} \text{ pro}] [_V \text{ sute}]] [_I \text{ ta}]$

Since verb movement in Japanese is optional in our analysis, our approach allows the verb *sute* ‘discard’ not only to move to I as in (40a) but also to stay *in situ* as in (41). Though (40b) and (41) share the resultant sentence *John-wa suteta* ‘John discarded’, their syntactic structure is different from each other. One interesting question is whether there are substantial differences in interpretation between them. If we actually have different interpretations, then this can serve as another piece of evidence for the verb movement approach proposed in this paper. Unfortunately, however, we have not found any contexts where such interpretational differences clearly emerge.

Last but not least, our analysis has an important implication for the language typology on verb movement. As mentioned in section 1, we have undoubtedly assumed that languages can be classified in terms of whether or not they involve verb movement. For example, verb movement is obligatory in French, whereas it is impossible in English (except the light verbs *have* and *be*). Our analysis, however, has proposed the third option: optional verb movement in Japanese. Now we get the following typological paradigm:

(42)

Languages	Verb Movement
French	obligatory
English	impossible
Japanese	optional

Another intriguing topic related to (42) is where the optional value in Japanese comes from. We would like to suggest that it has some relation with scrambling, which has been considered optional as well (cf. Saito 1985).¹⁷ It might be possible to consider that optional scrambling and optional verb movement in Japanese are both reduced to a single parameter setting. We will, however, leave this topic to future research.

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¹⁷ Miyagawa (1997) argues against the optional scrambling approach. See Miyagawa (1997) for more details.

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