

# Locative alternation and verb compounding in Japanese<sup>1</sup>

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## 0. Abstract

*Locative alternation verbs can invoke an alternation in the morphological frames of arguments, expressing the meanings of motion and change of state. In this paper, on the basis of the alternation patterns of compound verbs in Japanese, it is shown that locative alternation verbs are divided into two classes. One class of verbs is formed by what Pinker defines as a ‘perspective shift’, involving a derivation from one variant to the other. Verbs in the other class are inherently ambiguous expressing the two senses of movement and change of location without invoking the perspective shift. Locative alternations verbs are argued to display different patterns of argument drop, depending on whether they have a lexical specification for the two morphological frames or come to possess one of the two morphological frames derivationally via the perspective shift.*

## 1. Introduction

A number of researchers (Levin and Rapoport 1982, Rappaport and Levin 1985, Pinker 1989 and others) claim that verbs participating in the locative alternation express both motion and change-of-state meanings. With regard to the question of why the locative alternation is invoked by a certain class of verbs, but not others, Pinker (1989) suggests that some verbs are allowed to have two different frames (i.e. motion and change-of-state frames) through the process of ‘gestalt shift’ (or ‘perspective shift’). According to Pinker, the perspective shift can be instantiated if a single event can be viewed in a different way under certain conditions, and this makes it possible for a verb to convey an extra meaning closely related to the one it originally carries.<sup>2</sup> Pinker’s main claim on the motivation for the locative alternation is that the shift of a perspective makes it possible for a verb to obtain a derivationally-created frame for arguments, which would not be available otherwise; for instance, if a given verb originally has a frame specifying a

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<sup>2</sup> Broadly speaking, if the location is conceived of as being ‘affected’, the locative alternation is made available (see Pinker 1989, Jackendoff 1990 and others). How this type of meaning can be conceived might be subject to language variation. As we will discuss below, in Japanese, this can be achieved, for example, by way of providing a certain meaning invoking ‘filling’ and ‘mountain-like’ configurations.

motion event, it can derivationally obtain an additional argument frame for a change-of-state event via the perspective shift.

In Japanese, like many other languages, a certain set of verbs may participate in the locative alternation. We will argue that the perspective shift which Pinker (1989) hypothesizes is empirically justified by looking at Japanese compound verbs. Japanese abounds with compound verbs, and as we will discuss at length below, the grammatical process of verb compounding sometimes induces a change in the possibility of the locative alternation. On the basis of the morphological patterns of arguments obtained by complex predicates, it is shown that in some cases, the locative alternation is indeed created by virtue of the perspective shift, as Pinker claims, but at the same time, it is suggested that in other cases, the locative alternation is not made available by the perspective shift, contrary to Pinker's assumption that one of the two frames of locative alternation verbs is always derived.

Specifically, this paper argues that locative alternation verbs should be divided into the following two classes: (1) the verbs which have both the change-of-state and motion meanings (as their basic meanings), and (2) the verbs which have one of the two meanings as basic, while the other meaning is derived by the perspective shift. The two classes of locative alternation verbs are shown to have distinct syntactic behavior. In Japanese, the arguments of intrinsically ambiguous verbs can be freely dropped in both motion and change-of-state variants as long as their references are inferable from context. In contrast, the omission of the oblique arguments appearing in the variant derived via the perspective shift results in unacceptability. Since accusative arguments are allowed to be dropped in both variants regardless of whether the locative alternation is derived via the perspective shift or not, the Japanese facts make it clear that what is taken to be a sole complement constraint by Pinker (1987) should, in fact, be viewed as a condition on the realization of an oblique argument, which regulates the identification of the morphological pattern of a derived variant.

## 2. V-V compounding and argument drop

In this section, V-V compounding in Japanese is shown to provide us with insight into the nature of the locative alternation. The data on Japanese compound verbs—formed by combining two verbs—provide one piece of empirical evidence for the claim that some locative alternation verbs acquire the ability to participate in the locative alternation via the perspective shift in the sense of Pinker (1989). In the following discussion, we will show that with the help of the second verb *tumeru* 'fill', the compound verb *siki-tumeru* 'set-fill' is endowed with the ability to participate in the locative alternation, which is not possible with the base verb *siku* 'set'. A close inspection of the Japanese data regarding the compound verb *siki-tumeru* illustrates that locative alternation verbs sometimes come to possess an extra morphological frame derivationally.

To begin, let us discuss how the arguments of locative alternation verbs in Japanese are marked morphologically. First, observe the alternation pattern obtained for a typical locative alternation verb like *nuru* ‘smear, paint’.

- (1) a. John-ga    penki-o    kabe-ni    nut-ta.  
       John-NOM paint-ACC wall-on paint-PAST  
       ‘John smeared paint on the wall.’            (Motion)
- b. John-ga    kabe-o    penki-de    nut-ta.  
       John-NOM wall-ACC tile-with paint-PAST  
       ‘John smeared the wall with paint.’            (Change of State)

Example (1a) shows the morphological pattern of arguments in the ‘motion’ frame: in (1a), the locative (goal) argument is marked with *ni* ‘on, to’, and the theme (material) argument—which refers to an entity that moves—is realized as a direct object, marked with accusative case. On the other hand, (1b) is a case involving the ‘change-of-state’ frame, where the theme argument receives the oblique marking *de* ‘with’, and the locative argument—which undergoes a change of state—is marked with accusative case. In both variants, the argument referring to an entity that is taken to move or undergo a change is realized as an accusative argument (see Tenny 1994). We assume here, as often claimed (Levin and Rapoport 1982, Rappaport and Levin 1985, Pinker 1989, and others), that verbs participating in the locative alternation possess two different morphological frames, on the grounds that they express two distinct meanings—in this case, one which specifies the movement of some material (‘paint’) onto a location (‘wall’) and the other which specifies a change of state which takes place on the location.<sup>3</sup>

Now, for the purpose of confirming the existence of the mechanism of creating the locative alternation, let us discuss how the compound verb *siki-tumeru* ‘set-fill’—formed from the verb *siku* ‘set’ by way of compounding with the second verb *tumeru* ‘fill’—behave syntactically. The examples in (2) illustrate that *siki-tumeru* is allowed to participate in the locative alternation, and can take both motion and change-state-of state frames.

- (2) a. John-ga    tairu-o    yuka-ni    siki-tume-ta.  
       John-NOM tile-ACC floor-on set-fill-PAST  
       ‘John laid the tiles on the floor.’            (Motion)
- b. John-ga    yuka-o    tairu-de    siki-tume-ta.  
       John-NOM floor-ACC tile-with set-fill-PAST  
       ‘John laid the floor with tiles.’            (Change of State)

<sup>3</sup> It is important to keep in mind that a locative alternation verb encodes the meaning of change of state pertaining to a location, but not just any type of change. Accordingly, if a locative change is not conceived, no alternation is induced (see Fukui, Miyugawa & Tenny 1985).

The compound verb *siki-tumeru* includes the two verbs *siku* ‘set’ and *tumeru* ‘fill’ as its components, so it is necessary to first identify which verb is held responsible for argument realization (see Kageyama 1993). Here, we can state that the compound verb *siki-tumeru* has the first verb *siku* ‘set’ as its head—i.e. the base verb of the compound verb—because the selectional properties of the arguments of the whole compound verb are determined by the first verb, but not by the second, as can be seen in (3).

- (3) a. John-ga      tairu-o    yuka-ni    sii-ta.  
          John-NOM   tile-ACC   floor-on   set-PAST  
          ‘John set the tiles on the floor.’  
       b. #John-ga tairu-o      yuka-ni    tume-ta.  
          John-NOM   tile-ACC   floor-on   fill-PAST  
          ‘John filled the tiles on the floor.’

The verb *siku* expresses a two-dimensional event, and *tumeru* a three-dimensional one (when they are used as independent verbs). Note that what is described by the complex verb *siki-tumeru* in (2) is a sub-type of tile-setting event. Since the setting of tiles on the floor is a two-dimensional event, (3b) is anomalous, where the verb *tumeru* ‘fill’ is used. In light of this fact, it is reasonable to state that the head of the compound verb *siki-tumeru*, which serves to determine how arguments are realized, should be the first verb *siku*.

The compound verb *siki-tumeru* falls into the ‘complementation’ type of lexical compound in Kageyama’s (1993) analysis. According to Kageyama, lexical compound verbs are classified into the following three types: ‘coordinate’, ‘right-hand head’, and ‘complementation’ types.<sup>4</sup> In Japanese, a compound verb like *naki-sakebu* ‘cry-shout’ represents a coordinate compound, for the verbs carrying similar meanings are compounded. A compound verb like *hiki-ageru* ‘pull-raise’ is construed as a right-hand one, in the sense that the first verb acts like an auxiliary verb, specifying a manner of action described by the second verb, whereas its argument structure is determined by the second verb. A compound verb like *arai-ageru* (wash-raise) ‘wash up’ is classified as the complement type, since the left-hand verb determines the properties of arguments taken by the whole, and the right-hand verb specifies an aspectual meaning. In the case of *siki-tumeru*, the right-hand verb serves to add an aspectual meaning to the left-hand verb, and the left-hand verb determines the argument structure of the whole, hence the complex verb is classified into a ‘complementation’ type.

Importantly, the base verb *siku* ‘set’ can take only the theme (i.e. material) as its accusative argument, for the verb describes the movement of the material. Thus, (4a) is acceptable, but (4b) is not.

- (4) a. John-ga      tairu-o                    yuka-ni                    sii-ta.

<sup>4</sup> Japanese has syntactic compound verbs, which have analyzable syntactic structures (see Kageyama 1993). In this paper, we do not look at the syntactic compound verbs, since syntactic compounding does not change the morphological patterns of arguments.

John-NOM tile-ACC floor-on set-PAST

‘John set the tiles on the floor’ (Motion)

b. \*John-ga yuka-o tairu-de sii-ta.

John-NOM floor-ACC tile-with set-PAST

‘John set the floor with tiles.’ (\*Change of State)

The compound verb *siki-tumeru* can take the change-of-state frame, which is not available for the simple verb *siku*. A comparison of the data (2) and (4) shows then that when the verb *siku* ‘set’ is compounded with the verb *tumeru* ‘fill’, the change-of-state frame is made available, alongside the motion frame, and hence, the compound verb *siki-tumeru* is construed as a locative alternation verb.

Now, the question to be raised here is how the compound verb *siki-tumeru* is furnished with the change-of-state frame, for which the base verb does not have a lexical specification. In the following discussion, we argue that the change-of-state frame is provided derivationally via the perspective shift in the sense of Pinker (1989). The key to understanding this issue lies in a difference in meaning expressed by the base verb and the compound verb. As discussed by a number of researchers (see Rappaport and Levin 1985, Levin and Rappaport Hovav 1995, Pinker 1989, Jackendoff 1990, Kageyama 1980, Okutu 1981, Kishimoto 2001, among many others), verbs participating in the locative alternation (like *paint*) can be assumed to carry two distinct meanings, one which expresses the meaning of moving material onto a location and the other indicates a change of state (pertaining to the location) effected by the movement of the material.

Locative alternation verbs can take the change-of-state frame when the location is conceived of as being affected, most typically, by carrying the sense of ‘total’ affectedness (Jackendoff 1990, Tenny 1994, Levin and Rappaport 1995). But verbs do not have to carry this ‘affected location’ meaning when they take the motion frame. The base verb *siku* ‘set’ does not denote that the whole area of the floor is covered, lacking the ‘affected location’ sense, so that this verb can only take the motion frame. But once the verb is compounded with *tumeru* ‘fill’, the meaning that the whole area is covered with tiles is furnished. Thus, we can observe a difference in meaning between the base verb and the compound verb, as illustrated in Figure 1.



Figure 1: *siku* ‘set’ and *siki-tumeru* ‘set-fill’

The verb *siku* ‘set’ simply denotes the act of moving some material onto a location, but the compound verb *siki-tumeru*—which has the ability to invoke the locative alternation—additionally carries the ‘affected’ meaning that the whole area is covered. Since only the motion frame can be provided by the base verb *siku*, we can readily see

that the change-of-state frame (i.e. the *de*-accusative pattern) for *siki-tumeru* is made available via V-V compounding.<sup>5</sup>

Now, bearing the semantic facts of *siku* and *siki-tumeru* in mind, let us now proceed to consider the possibility of argument drop. The verb *siku* ‘set’ can appear only in the motion frame. As shown in (5), the oblique as well as the accusative argument of *siki-tumeru* can be dropped (provided their reference is recoverable from context).

- (5) a. Taro-ga    tairu-o    (yuka-ni)    sii-ta.  
       Taro-NOM tile-ACC    floor-on    set-PAST  
       ‘Taro set tiles on the floor.’  
   b. Taro-ga    (tairu-o)    yuka-ni    sii-ta.  
       Taro-NOM tile-ACC    floor-on    set-PAST  
       ‘Taro set tiles on the floor.’

By contrast, the compound verb *siki-tumeru* can appear in the change-of-state frame, alongside the motion frame. These two variants show a difference in the possibility of argument drop. In the motion variant, both oblique and accusative arguments can be dropped, as seen in (6).

- (6) a. John-ga    tairu-o                    (yuka-ni) siki-tume-ta.  
       John-NOM tile-ACC    floor-on    set-fill-PAST  
       ‘John laid the tiles on the floor.’                    (Motion)  
   b. John-ga    (tairu-o)    yuka-ni    siki-tume-ta.  
       John-NOM tile-ACC    floor-on    set-fill-PAST  
       ‘John laid the tiles on the floor.’                    (Motion)

On the other hand, in the change-of-state variant (which constitutes a derived morphological frame that is not available for the base verb), the accusative argument can be omitted, but the omission of the oblique argument results in unacceptability, as seen in (7).

- (7) a. Taro-ga    yuka-o    \*(tairu-de)    siki-tume-ta.  
       Taro-NOM floor-ACC    tile-with    set-fill-PAST  
       ‘Taro laid the floor with tiles.’                    (Change of State)

<sup>5</sup> (3a), which contains the verb *siku* ‘set’, comes to carry a meaning close to the one conveyed by (2a), which includes *siki-tumeru*, if the accusative argument *yuka* ‘floor’ is replaced with *yuka-itimen* ‘all over the floor’. Nevertheless, in this case, the perspective change is not instantiated, since the change of the argument does not affect the meaning of the verb, hence its argument structure. Accordingly, the morphological frame of the verb remains intact, as seen in (i).

- (i) a. John-ga    tairu-o                    yuka-itimen-ni    sii-ta.  
       John-NOM tile-ACC    floor-all.over-on    set-PAST  
       ‘John set the tiles on the floor.’                    (Motion)  
   b. \*John-ga    yuka-itimen-o                    tairu-de    sii-ta.  
       John-NOM floor-all.over-ACC    tile-with    set-PAST  
       ‘John set the floor with tiles.’                    (\*Change of State)

- b. John-ga (yuka-o) tairu-de siki-tume-ta.  
 John-NOM floor-ACC tile-with set-fill-PAST  
 ‘John laid the floor with tiles.’ (Change of State)

Here, an asymmetry emerges in the possibility of argument omission: in the motion variant, the two internal arguments can be dropped without any problem; in the change-of-state variant, the omission of the oblique argument results in unacceptability, but no problem arises when the accusative argument is dropped.

In discussing why certain arguments selected by locative alternation verbs are prevented from undergoing deletion, it is instrumental to refer to Pinker’s (1989) analysis on the locative alternation. According to Pinker (1989), locative alternation verbs invoke reference to two different semantic structures. The locative alternation emerges, for instance, when a verb can have the two semantic structures “x causes y to move to z” and “x causes z to change its state by means of moving y to z.” In Pinker’s theory, these meanings are related by a lexical rule, and this relation is established by what he calls ‘gestalt shift’ (i.e. the perspective shift). The perspective shift is a way of viewing the same event differently—a reinterpretation of an event from a different perspective, which can be instantiated in some context. Thank to this perspective shift, certain verbs are allowed to acquire related meanings derivationally, and hence additional argument frames, which would otherwise not be available for the verbs, become available.

Pinker claims that whether or not the perspective change is instantiated on locative alternation verbs can be determined by looking at what can stand as a sole complement, on the basis of examples like (8).

- (8) a. He piled the books (on the shelf).  
 b. He piled the shelf \*(with the books).

Pinker’s assumption is that the variant which supplies the obligatory argument of the verb as its object is basic. In the case of *pile*, the omission of the PP is not allowed in the change-of-state frame, so the verb should be lexically specified for the motion frame (8a), the change-of-state frame (8b) being derived via the perspective shift.<sup>6</sup>

Note, however, that by just looking at English examples, it is not so easy to ascertain whether or not Pinker’s directionality claim for the locative alternation is appropriate. This is precisely because, in English, arguments are often not omissible even if the perspective shift is not invoked. Even though the omission of internal arguments selected by three-place verbs is sometimes allowed (see Pesetsky 1995, Dowty 1979, and others), there are nevertheless cases in which their omission results in unacceptability, as (9) illustrates.

- (9) a. John put the book \*(on the table).  
 b. John put \*(the book) on the table.

<sup>6</sup> The facts of argument drop have often been reported in the literature (e.g. Fraser 1971, Rappaport and Levin 1985, Levin 1986), but Pinker (1989) is the first to advance a theoretical claim on the constraint of argument drop.

Needless to say, the verb *put* does not invoke any alternation, but still, the omission of the locative PP *on the table* results in unacceptability. Even though the PP must be expressed, the verb *put* does not have a variant where the locative argument appears as an object. This suggests that the presence of a selectional restriction imposed on English verbs often precludes us from testing for Pinker's hypothesis.<sup>7</sup> In Japanese, by contrast, any argument may, in principle, be missing insofar as its reference is recoverable from context, as exemplified in (10).

- (10) a. Taro-ga (yuka-ni) tairu-o oi-ta.  
           Taro-NOM floor-on tile-ACC put-PAST  
           'Taro put tiles on the floor.'
- b. Taro-ga yuka-ni (tairu-o) oi-ta.  
           Taro-NOM floor-on tile-ACC put-PAST  
           'Taro put tiles on the floor.'

The verb *oku* 'put' in (10), just like the English verb *put* in (9), takes an accusative, as well as an oblique argument, but unlike English, the two arguments selected by *oku* do not have to be overtly realized (on the condition that their reference may be fixed contextually). Since Japanese is free from the restriction concerning the overt realization of arguments that is often found in English, we can say that Japanese offers the setting suitable to check the nature of argument drop associated with the locative alternation.

To return, recall that the locative alternation verb *siki-tumeru* (set-fill) does not allow the omission of the oblique argument in the change-of-state frame variant, as in (7a). Moreover, its base verb can only take the motion frame, but the compound verb allows for the locative alternation, on the grounds that the compound verb comes to express the sense that the location is completely affected. The compound verb examples show that the derived frame, which the base verb does not possess, is provided when the predicate expresses the sense of 'total affectedness' pertaining to the location, as seen above. From these facts, we can confirm that Pinker's proposal on the correlation between the directionality of derivation and the possibility of argument omission is essentially on the right track.<sup>8</sup> Obviously, the directionality of a frame derivation for the compound verb *siki-tumeru* is from the motion variant to the change-of-state one.

The data regarding the omission of arguments with the Japanese compound *siki-tumeru* also show that while the oblique argument of a derived frame cannot be dropped, the acceptability of the derived frame is not affected by the omission of accusative

<sup>7</sup> Goldberg (1995: 177) points out some English examples where neither the theme nor the location stands as a sole complement.

- (i) a. Pat heaped mashed potatoes \* (onto her plate).  
       b. Pat heaped her plate \*(with mashed potatoes).

In this case, the strategy of argument drop does not provide a measure for the directionality of the derivation of morphological frames (see also Iwata 2008). We assume that this arises from a selectional restriction imposed on the verb, rather than a constraint on the perspective shift.

<sup>8</sup> In Japanese, the derivation of the locative alternation goes from 'motion' to 'change of state', and as far as I can see, there is no clear case displaying the opposite directionality of derivation.



arguments. The Japanese fact suggests then that the directionality of derivation is not measured by just checking what argument is obligatorily expressed, contrary to Pinker's hypothesis. This raises a question why the oblique argument (i.e. the theme) must be expressed in the derived change-of-state frame. The fact follows straightforwardly, given that only an oblique argument can be used as a syntactic clue to identify the morphological frame of the clause.<sup>9</sup>

To make matters concrete, consider the case in which the compound verb *siki-tumeru* appears in the derived change-of-state frame, as in (7a). In (7a), if the oblique argument (i.e. *tairu-de* ['tile-with']) is provided, we can visibly identify the argument alignment for the derived frame. However, if this oblique argument is not realized, it is not possible to identify the use of the derived frame uniquely in syntactic terms (i.e. we cannot tell whether or not the argument alignment is based on the derived frame). This suggests that in order for the verb to obtain a derived frame, a syntactic condition is imposed, such that the use of a derived frame is uniquely identified syntactically by overtly expressing the oblique argument. In the non-derived frame, on the other hand, no such peculiar restriction is imposed, for both oblique and accusative arguments of *siki-tumeru* appearing in the motion frame can be omitted without causing any problem, as seen in (6). If the frame for which the verb has an intrinsic lexical specification is used when an oblique argument is absent, it falls out that the omission of the oblique argument in the derived frame results in unacceptability.

The proposal advanced here amounts to saying that two conditions need to be satisfied in order for the perspective shift to be successful. One condition is semantic, requiring that the meaning of an affected location be supplied in some way; in the case of *siki-tumeru*, this semantic condition is fulfilled by virtue of compounding with predicate *tumeru*, since the second verb allows the compound verb to obtain the additional meaning that the entire area is covered. The other condition concerns the syntactic identification of the derived frame, which can be fulfilled by way of overtly expressing the oblique argument marked with *de* 'with'.

- (11) [ PP OBJ      V1-V2 ]
- 
- the meaning of 'affected location' supplied
- the identification of a syntactic frame

The data regarding the compound verb *siki-tumeru* illustrate that the semantics alone is not sufficient for a perspective change to take effect, but that the syntactic identification of the derived morphological frame is also necessary.

Incidentally, the second verb *tumeru* included in the compound verb allows for the locative alternation when used as an independent verb.

- (12) a. Taro-ga    hon-o      hondana-ni    tume-ta.

<sup>9</sup> Since English does not offer the data that lead to this generalization, it is not too surprising that Pinker does not provide any specific proposal on this phenomenon.

Taro-NOM book-ACC bookcase-on stuff-PAST  
 ‘Taro stuffed books into the bookcase.’ (Motion)

- b. Taro-ga hon-de hondana-o tume-ta.  
 Taro-NOM book-with bookcase-ACC stuff-PAST  
 ‘Taro stuffed the bookcase with books.’ (Change of State)

Given this fact, one might be tempted to say that the second verb supplies the compound verb *siki-tumeru* with the change-of-state frame. This is not the case, however, as can be ascertained if we look at the possibility of argument omission. The examples show that *siki-tumeru* allows the oblique argument to be omitted in both change-of-state and motion variants without affecting their acceptability.

- (13) a. Taro-ga hon-o (hondana-ni) tume-ta.  
 Taro-NOM book-ACC bookcase-on stuff-PAST  
 ‘Taro stuffed books into the bookcase.’ (Motion)  
 b. Taro-ga (hon-de) hondana-o tume-ta.  
 Taro-NOM book-with bookcase-ACC stuff-PAST  
 ‘Taro stuffed the bookcase with books.’ (Change of State)

Needless to say, for this predicate, the accusative argument as well can be dropped in both change-of-state and motion variants, as shown in (14).

- (14) a. Taro-ga (hon-o) hondana-ni tume-ta.  
 Taro-NOM book-ACC bookcase-on stuff-PAST  
 ‘Taro stuffed books into the bookcase.’ (Motion)  
 b. Taro-ga hon-de (hondana-o) tume-ta.  
 Taro-NOM book-with bookcase-ACC stuff-PAST  
 ‘Taro stuffed the bookcase with books.’ (Change of State)

This pattern of argument drop differs from what we observe for the compound verb *siki-tumeru*. The prohibition against dropping the oblique argument should be obtained when the morphological frame which the verb does not inherently possess is provided by the perspective shift. If so, it is reasonable to state that the second verb *tumeru* does *not* provide the change-of-state frame, which is available for *siki-tumeru* (see also section 3).

The peculiar alternation pattern of compound verbs invoking the locative alternation is observed not only in Japanese but also in Chinese. In Chinese, just like Japanese, V-V compounds are formed quite productively. Furthermore, Chinese patterns with Japanese, in that the language allows for the omission of arguments freely if their reference can be inferred from context (Huang and Li 1996). Owing to these properties, we can easily present another case from Chinese which illustrates the creation of the locative alternation via the perspective shift.

To be concrete, let us consider how the verb *sē* ‘stuff’ and the V-V compound verb *sē mǎn* ‘stuff-full’ behave syntactically. In the first place, the verb *sē* ‘stuff’ can take a motion frame, but not a change-of-state one when it is used in isolation, as seen in (15).

- (15) a. \*Zhāngsān yòng shū sē le bāo.  
           Zhangsan with book stuff ASP bag  
           ‘Zhangsan stuffed the bag with books.’ (Change of State)
- b. Zhāngsān zài bāo lǐ sē le shū.  
           Zhangsan at bag instuff ASP book  
           ‘Zhangsan stuffed books into the bag.’ (Motion)

The examples suggest that the Chinese verb *sē* ‘stuff’ can only be used as a motion verb. In the second, Chinese makes a change-of-state variant available if the verb *sē* ‘stuff’ is compounded with another verb *mǎn* ‘full’. The following examples illustrate that both the change-of-state and the motion frames are available with the complex verb *sē mǎn* ‘stuff-full’.

- (16) a. Zhāngsān yòng shū sē mǎn le bāo.  
           Zhangsan with book stuff full ASP bag  
           ‘Zhangsan stuffed the bag with books.’ (Change of State)
- b. Zhāngsān gěi bāo sē mǎn le shū.  
           Zhangsan to bag stuff full ASP book  
           ‘Zhangsan stuffed books into the bag.’ (Motion)

It goes without saying that there is a difference in meaning between the simple verb *sē* ‘stuff’ and the complex predicate *sē mǎn* ‘stuff-full’, since the latter, but not the former, indicates that the bag (i.e. location) is full. This suggests that the meaning of affectedness on the location to invoke the locative alternation is not obtained for the simple verb *sē*. If so, it is reasonable to state that in Chinese, the change-of-state variant for *sē mǎn* (16b) is made available via V-V compounding, which allows us to view the location as being totally affected.

The Chinese compound verb *sē mǎn* ‘stuff-full’ provides a clear case in support of the present view that an extra argument frame can be provided via the perspective shift, because neither of the component verbs has a lexical specification for the change-of-state variant.

- (17) a. Bāo/\*Shū mǎn le.  
           bag/book full ASP  
           ‘The bag is full/the books are full.’
- b. \*Bāo yòng shū mǎn le.  
           bag with book full ASP  
           ‘The bag is full with books.’

As shown in (17a), the predicate *mǎn* ‘full’ can take a location subject when it appears in isolation. Nevertheless, this predicate cannot appear in the change-of-state frame, as

seen in (17b). This shows that no change-of-state variant is available for any components of the complex predicate *sē mǎn* ‘stuff-full’.

If the locative alternation is created by way of the perspective shift, we would naturally expect that the change-of-state variant—which should count as a derived frame—does not allow the obliquely-marked argument to be omitted. This is in fact the case. The examples in (18) illustrate that in both motion and change-of-state variants formed from *sē mǎn*, the direct objects may be dropped without affecting their acceptability.

- (18) a. Zhāngsān yòng shū sē mǎn le (bāo).  
 Zhangsan with book stuff full ASP bag  
 ‘Zhangsan stuffed the bag with books.’ (Change of State)
- b. Zhāngsān gěi bāo sē mǎn le (shū).  
 Zhangsan to bag stuff full ASP book  
 ‘Zhangsan stuffed books into the bag.’ (Motion)

If we look at the omission of the oblique arguments, we find a contrast in acceptability between the two variants. As shown in (19), the change-of-state variant does not allow the oblique argument to be dropped, while the motion variant does.

- (19) a. Zhāngsān \*/??(yòng shū) sē mǎn le bāo.  
 Zhangsan with book stuff full ASP bag  
 ‘Zhangsan stuffed the bag with books.’ (Change of State)
- b. Zhāngsān (gěi bāo) sē mǎn le shū.  
 Zhangsan to bag stuff full ASP book  
 ‘Zhangsan stuffed books into the bag.’ (Motion)

The patterns observed above with regard to the omission of the oblique arguments are in conformity with the claim advanced about the perspective shift. In Chinese as well as in Japanese, certain compound verbs are endowed with the ability to induce the locative alternation via the perspective shift. If the locative alternation is created via the perspective shift, the obliquely-marked argument in the derived frame cannot be dropped.

In this section, by looking at some cases where the locative alternation is created by V-V compounding, we have suggested that the oblique argument appearing in the frame derived by the perspective shift cannot be dropped, owing to the condition on its syntactic identification. In the next section, we will turn to different types of complex predicates, and show that their data lend further empirical support to the proposed analysis taking some locative alternation verbs to be derived via the perspective shift.

### 3. Another type of complex predicate inducing locative alternation

With regard to the omission of arguments, the same pattern of distribution that we observe for the complex verb *siki-tumeru* is found in a complex verb like *yama-mori-ni suru* ‘make a mountain-like serving’. The complex predicate *yama-mori-ni suru* is

formed by adding *suru* ‘make’ to the complex nominal expression *yama-mori*, where a noun *yama* ‘mountain’ is compounded with the nominalized *mori* ‘serving’. As seen in (20), this complex predicate can invoke the locative alternation.

- (20) a. John-ga otyawan-ni gohan-o yama-mori-ni si-ta.  
 John-NOM bowl-on rice-ACC mountain-serve make-PAST  
 (Lit.) ‘John served rice on the bowl like a mountain.’ (Motion)
- b. John-ga otyawan-o gohan-de yama-mori-ni si-ta.  
 John-NOM bowl-ACC rice-with mountain-serve make-PAST  
 (Lit.) ‘John served the bowl with rice like a mountain.’ (Change of State)

Here, we observe the following pattern with regard to the omission of arguments.

- (21) a. John-ga (otyawani) gohan-o yama-mori-ni si-ta.  
 John-NOM bowl-on rice-ACC mountain-serve make-PAST  
 (Lit.) ‘John served rice on the bowl like a mountain.’ (Motion)
- b. John-ga otyawan-o \*(gohan-de) yama-mori-ni si-ta.  
 John-NOM bowl-ACC rice-with mountain-serve make-PAST  
 (Lit.) ‘John served the bowl with rice like a mountain.’ (Change of State)

Since the oblique argument cannot be elided in the change-of-state variant, we can assume that this variant is derived by the perspective shift. As we will discuss below, in (20), the presence of a noun like *yama* ‘mountain’ makes it possible for the complex predicate to invoke the locative alternation.

Note that the head of the complex predicate—which provides the motion frame of arguments—should be the deverbal noun *mori* ‘serving’. This state of affairs is naturally expected, since the event described by the predicate *yama-mori-ni suru* is regarded as one sort of ‘serving’ event, which the verb *moru* ‘serve’ should denote. (22) shows that the verb *moru* can take only the motion frame.

- (22) a. John-ga otyawan-ni gohan-o mot-ta.  
 John-NOM bowl-on rice-ACC serve-PAST  
 ‘John served rice on the bowl.’ (Motion)
- b. \*John-ga otyawan-o gohan-de mot-ta.  
 John-NOM bowl-ACC rice-with serve-PAST  
 ‘John served the bowl with rice.’ (\*Change of State)

The fact that the verb *moru* has a lexical specification only for the motion frame can further be confirmed by (23).

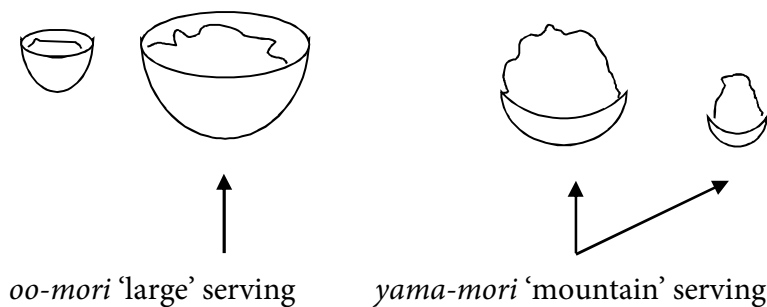
- (23) a. John-ga tyawan-ni gohan-o oo-mori-ni si-ta.  
 John-NOM bowl-on rice-ACC large-serve make-PAST  
 (Lit.) ‘John served rice on the bowl.’ (Motion)
- b. \*John-ga tyawan-o gohan-de oo-mori-ni si-ta.  
 John-NOM bowl-ACC rice-with large-serve make-PAST

(Lit.) ‘John served the bowl with rice.’

(\*Change of State)

As seen in (23), if the noun *yama*- ‘mountain’ is replaced with another noun *oo*- ‘large’, the locative alternation is no longer available. The complex predicate *oo-mori-ni suru* displays exactly the same morphological pattern as observed by the verb *moru* ‘serve’, suggesting that the base verb is lexically specified only for the motion frame.<sup>10</sup>

At first blush, the complex predicates *yama-mori-ni suru* and *oo-mori-ni suru* look like expressing similar meanings, but if we look at the difference in meaning between the two, we can ascertain that these verbs fall into distinct classes. As illustrated in Figure 2, *oo-mori* ‘large serving’ specifies just the quantity of served food, but *yama-mori* ‘mountain-like serving’ indicates the shape of the food (served on a bowl) regardless of its quantity.

Figure 2: *oo-mori* and *yama-mori*

In this particular case, the noun *yama*—which invokes a conceptualization of mountain-like shape—provides the meaning of totally affected location. The component of meaning indicating a mountain-like shape helps instantiate the perspective shift in the sense of Pinker. Consequently, only the verb *yama-mori-ni suru*, but not *oo-mori-ni suru*, participates in the locative alternation. Since the event described by the verb *moru* ‘serve’ represents a motional one, the change-of-state frame should be provided by way of the perspective shift. Accordingly, we can naturally anticipate that *yama-mori-ni suru* should not allow for the omission of the oblique argument appearing in the change-of-state frame.

We can readily confirm that the noun *yama* ‘mountain’ included in the complex predicate *yama-mori-ni suru* ‘make a mountain-like serving’ does not provide the

<sup>10</sup> Both arguments are omissible with the complex predicate *oo-mori-ni suru* ‘make a large serving’ as illustrated in (i).

- (i) a. John-ga otyawan-ni (gohan-o) oo-mori-ni si-ta.  
       John-NOM bowl-on rice-ACC large-serve make-PAST  
       (Lit.) ‘John served rice on the bowl.’  
       b. John-ga (otyawon-ni) gohan-o oo-mori-ni si-ta.  
       John-NOM bowl-on rice-ACC large-serve make-PAST  
       (Lit.) ‘John served rice on the bowl.’

The predicate *oo-mori-ni suru* does not involve locative alternation. Since the verb has a lexical specification for the frame in (i), the omission of the arguments is allowed without problem.

change-of-state frame, since *yama* cannot be used as a predicate describing a change of state pertaining to a location, as exemplified in (24).

- (24) \*John-ga otyawan-o gohan-de yama-ni si-ta.  
 John-NOM bowl-ACC rice-with mountain-DAT make-PAST  
 ‘John made the rice a mountain with a bowl.’ (\*Change of State)

Note also that the verb *suru* ‘make’ does not play a role for determining the two morphological frames. This can be seen by the fact that the intransitive versions of *yama-mori-ni suru* and *oo-mori-ni suru* contain the verb *naru* ‘become’ rather than *suru* ‘make’, as in *yama-mori-ni naru* and *oo-mori-ni naru*<sup>11</sup>. The fact indicates that no components of the complex predicate can provide the derivational change-of-state frame specifying an affected location. As we have seen above, since the deverbal noun *mori* (< *moru* ‘serve’) in the complex predicate specifies only the motion frame, the observed pattern of argument drop should be derived from the fact that the change-of-state frame is created by the perspective shift.<sup>12</sup>

It is also worth noting here that the perspective shift can be effected even for a verb without compounding in Japanese. This is illustrated in (25).

- (25) a. John-ga (ude-ni) hootai-o mai-ta.  
 John-NOM arm-on bandage-ACC roll-PAST  
 ‘John rolled a bandage around his arm.’ (Motion)  
 b. John-ga \*(hootai-de) ude-o mai-ta.  
 John-NOM bandage-with arm-ACC roll-PAST  
 ‘John rolled the arm with a bandage.’ (Change of State)

The data in (25) suggest that compounding is not necessarily required to instantiate the perspective shift, insofar as a single verb may satisfy a certain semantic restriction to effect this change. I will turn to the discussion of this point in the next section.

<sup>11</sup> The intransitive version of the complex predicate is created if the verb *naru* ‘become’ (or copula *da*) is added instead of the verb *suru* ‘make’.

- (i) a. Otyawan-ni gohan-ga yama-mori-ni nat-ta.  
 bowl-on rice-NOM mountain-serve become-PAST  
 ‘Rice was served on the bowl like a mountain.’ (Motion)  
 b. Otyawan-ga gohan-de yama-mori-ni nat-ta.  
 bowl-NOM rice-with mountain-serve become-PAST  
 ‘The bowl was served with rice like a mountain.’ (Change of State)

Needless to say, the intransitive complex predicate behaves in exactly the same way as its transitive counterpart with regard to the alternation of argument frames and argument drop.

<sup>12</sup> Other complex verbs which pattern with the alternating *yamamor-ni suru* versus the non-alternating *oo-mori-ni suru* include the pair of *yama-zumi-ni suru* (mountain-pile-DAT make) ‘pile up’ *hira-zumi-ni suru* (flat-pile-DAT make) ‘display’. The verb *yama-sumi-ni suru* can instantiate the locative alternation, but *hira-zumi-ni suru* does not. Here again, a mountain-like configuration is a crucial factor to determine the possibility of the locative alternation.

#### 4. Compounding with ambiguous verbs

The present analysis predicts that the locative alternation verbs which are inherently ambiguous should impose no restriction on the omission of arguments in both variants. In fact, in Japanese, many locative alternation verbs should be ambiguous according to this criterion; i.e. many locative alternation verbs allow their arguments to be dropped freely. For instance, as shown in (26), with the verb *nuru* ‘paint’, the oblique argument can be omitted in both change-of-state and motion variants, provided their reference is recoverable from the context.

- (26) a. Taro-ga (kabe-ni) akai penki-o nut-ta.  
           Taro-NOM wall-on red paint-ACC paint-PAST  
           ‘Taro painted red paint on the wall.’ (Motion)
- b. Taro-ga (akai penki-de) kabe-o nut-ta.  
           Taro-NOM red paint-with wall-ACC paint-PAST  
           ‘Taro painted the wall with red paint.’ (Change of State)

In a similar vein, the accusative-marked argument may be dropped in the two variants, as shown in (27).

- (27) a. Taro-ga kabe-ni (akai penki-o) nut-ta.  
           Taro-NOM wall-on red paint-ACC paint-PAST  
           ‘Taro painted red paint on the wall.’ (Motion)
- b. Taro-ga akai penki-de (kabe-o) nut-ta.  
           Taro-NOM red paint-with wall-ACC paint-PAST  
           ‘Taro painted the wall with red paint.’ (Change of State)

In both change-of-state and motion variants, acceptability is not affected even if the oblique argument is omitted. If the derivational direction invoked by the perspective shift can be measured with recourse to argument omission, it is reasonable to say that both motion and change-of-state frames for the verb *muru* ‘paint’ should not be provided derivationally.

Pinker is aware of the fact that in English some locative alternations allow their oblique arguments (i.e. PPs) to be omitted in both the variants.

- (28) a. He loaded the gun (with the bullets).  
        b. He loaded the bullets (onto the gun).

On the assumption that one of the two frames of the locative alternation verbs is always created by the perspective shift, Pinker argues that in a case like (28), the directionality of derivation can be determined by considering which variant expresses a complete thought if the PP is omitted. Pinker reports that *He loaded the gun* is felt to be a complete thought, whereas *He loaded the bullets* sounds like a truncated sentence. Thus, for Pinker, the motion frame for the verb *load* should be a derived one.

The Japanese fact suggests that Pinker’s analysis is not warranted, however. As we have discussed in section 2, the facts of the compound verb *siki-tumeru* show that for the



perspective shift to be successful, the presence of the derived frame is syntactically identified, and thus, the presence or absence of the perspective shift can be measured by looking at whether or not an oblique argument can be omitted. In Japanese, arguments can be dropped freely if the frame in which the verb appears is not created derivationally via the perspective shift. As a matter of fact, the possibility of argument omission does not change whether the sentence is felt to be complete or not. This suggests that there is a qualitative difference between the verbs which tolerate the omission of oblique arguments and the ones which do not.

In the light of this consideration, it is plausible enough to hypothesize that the verb should be inherently ambiguous when oblique arguments can be successfully omitted in both variants. In what follows, we will provide an argument in support of the claim that some locative alternation verbs should be inherently ambiguous—i.e. they are equipped with both motion and change-of-state meanings (as their basic meanings).

To make the point, let us first look at the behavior of compound verbs formed from the verb *nuru* ‘paint’ (as the base verb). The verb *nuru* can be compounded with a number of different verbs. What is notable about verb compounding with *nuru* is that either of the two variants is made unavailable with a certain choice of the second verb. For instance, the compound verb *nuri-tukeru* ‘paint-attach’ can only take the motion frame, as seen in (29).

- (29) a. Taro-ga (kabe-ni) akai penki-o nuri-tuke-ta.  
 Taro-NOM wall-on red paint-ACC paint-attach-PAST  
 ‘Taro painted red paint on the wall.’ (Motion)
- b. \*Taro-ga akai penki-de kabe-o nuri-tuke-ta.  
 Taro-NOM red paint-with wall-ACC paint-attach-PAST  
 ‘Taro painted the wall with red paint.’ (\*Change of State)

The change-of-state variant (29b) is not available for the compound verb *nuri-tukeru*, and as indicated in (29a), the oblique argument in the motion variant can be omitted. On the other hand, the compound verb *nuri-ageru* ‘paint-up’, where the second verb *ageru* ‘up’ conveys the meaning of ‘completeness’, can take only the change-of-state frame, as seen in (30).

- (30) a. \*Taro-ga kabe-ni akai penki-o nuri-age-ta.  
 Taro-NOM wall-on red paint-ACC paint-up-PAST  
 ‘Taro painted up red paint on the wall.’ (\*Motion)
- b. Taro-ga (akai penki-de) kabe-o nuri-age-ta.  
 Taro-NOM red paint-with wall-ACC paint-up-PAST  
 ‘Taro painted up the wall with red paint.’ (Change of State)

With the compound verb *nuri-ageru*, the motion variant is not available, as indicated in (30a), and (30b) shows that the oblique argument in the change-of-state variant can be omitted.

V-V compounding sometimes does not affect the possibility of the locative alternation. The compound verb *nuri-takuru* ‘daub’, just as in the simple verb *nuru* ‘paint’, allows for the locative alternation, as illustrated in (31).

- (31) a. Taro-ga (kabe-ni) akai penki-o nuri-takut-ta.  
 Taro-NOM wall-on red paint-ACC paint-daub-PAST  
 ‘Taro daubed red paint on the wall.’ (Motion)
- b. Taro-ga (akai penki-de) kabe-o nuri-takut-ta.  
 Taro-NOM red paint-with wall-ACC paint-daub-PAST  
 ‘Taro daubed the wall with red paint.’ (Change of State)

The second verb specifies a manner of ‘painting’, and the possibility of the locative alternation remains unaffected. The important point is that some variants of the locative alternation verbs are rendered unavailable via the process of V-V compounding.

In cases where compounding eliminates either of the two variants, we can postulate that the choice of the morphological frames possessed by the first base verb is restricted by virtue of its semantic incongruity with the second verb. The change-of-state variant indicates a change that takes place on a location, which arises from the transitory process of moving material onto the location. The part of the meaning of the motion variant indicating a transitory process is not compatible with the completive meaning expressed by *ageru*, hence the motion variant is not available for the compound verb *nuri-ageru* (see Kishimoto 2001). On the other hand, when *nuru* ‘paint’ is compounded with *tukeru*, the second verb adds to the base verb the meaning which indicates the movement of the material. This brings out the consequence of eliminating the change-of-state variant, because the component of meaning which expresses a change of state pertaining to the location becomes incompatible. Given that the compound verbs *nuri-tukeru* and *nuri-ageru* eliminate some of the frames available for the base verb, we can state that the verb *nuru* should have a lexical specification for both motion and change-of-state frames.

Now, for the purpose of providing further justification for our proposal that some locative alternation verbs should be inherently ambiguous, we will take a look at another class of alternation verbs, which include verbs expressing tying and sewing such as *musubu* ‘tie’ and *sibaru* ‘bind’<sup>13</sup>. These verbs can easily give rise to compound verbs, and participate in the locative alternation. Notably, the verbs are divided into two subclasses depending on whether or not they involve the perspective shift. One class includes verbs like *musubu* ‘tie’, *kukuru* ‘tie’, and the other *sibaru* ‘bind’ and *yuu* ‘tie’ (in addition, *nuu* ‘sew’, *amu* ‘knit’, and so forth).

<sup>13</sup> Apparently, this class of verbs does not show a partitive/holistic effect observed for other typical locative alternation verbs. Nevertheless, the verbs can be thought of as falling into a sub-class of locative alternation verbs, since they display the same morphological patterns as other locative alternation verbs.

First, the verb *musubu* ‘tie’ allows for an alternation between the change-of-state and the motion variants.<sup>14</sup>

- (32) a. John-ga hako-ni himo-o musun-da.  
 John-NOM box-on string-ACC tie-PAST  
 ‘John tied a string around the box.’ (Motion)
- b. John-ga himo-de hako-o musun-da.  
 John-NOM string-with box-ACC tie-PAST  
 ‘John tied the box with a string.’ (Change of State)

With this verb, the two variants display a difference with regard to the omission of the oblique arguments, as (33) illustrates.

- (33) a. John-ga (hako-ni) himo-o musun-da.  
 John-NOM box-on string-ACC tie-PAST  
 ‘John tied a string around the box.’ (Motion)
- b. John-ga \*(himo-de) hako-o musun-da.  
 John-NOM string-with box-ACC tie-PAST  
 ‘John tied the box with a string.’ (Change of State)

In the change-of-state variant, the oblique argument is not omissible, but in the motion variant, the oblique argument can be dropped.

The verb *sibaru* ‘bind’, just like *musubu* ‘tie’, can take both the motion and change-of-state frames, as in (34).

- (34) a. John-ga hako-ni himo-o sibat-ta.  
 John-NOM box-on string-ACC bind-PAST  
 ‘John bound a string around the box.’ (Motion)
- b. John-ga himo-de hako-o sibat-ta.  
 John-NOM string-with box-ACC bind-PAST  
 ‘John bound the box with a string.’ (Change of State)

Despite the fact that the verbs *sibaru* and *musubu* allow for the locative alternation, *sibaru* displays syntactic behavior that crucially differs from *musubu*. For this verb, the oblique argument can be omitted in both variants, as seen in (35).

- (35) a. John-ga (hako-ni) himo-o sibat-ta.  
 John-NOM box-on string-ACC bind-PAST  
 ‘John bound a string around the box.’ (Motion)
- b. John-ga (himo-de) hako-o sibat-ta.

<sup>14</sup> In the locative alternation examples involving *musubu* ‘tie’, *sibaru* ‘bind’ and the compound verbs formed from these verbs, the arguments *himo* ‘string’ and *hako* ‘the box’ should be understood to represent the theme and the location, respectively. Other interpretations might be possible in some cases, but they are not relevant for the present purposes.

John-NOM string-with box-ACC bind-PAST  
 ‘John bound the box with a string.’ (Change of State)

The fact suggests that the change-of-state frame for *musubu* ‘tie’, but not *sibaru* ‘bind’, is derived by the perspective shift: that is, in the case of the locative alternation involving *musubu*, the change-of-state variant has a derived frame.

We can postulate that the difference in the possibility of argument drop is derived from a difference in meaning expressed by the two verbs: the verb *musubu* describes a change that takes place on the material; that is, the event described by *musubu* indicates that the string is tightened up, but the verb does not specify whether or not the location is affected (i.e. the verb does not say anything about the tightness of the box). On the other hand, verb *sibaru* describes an event in which both the material and the location are affected (by tightening). For *sibaru*, then, both the material and the location are conceived of as undergoing a change, which suggests that the verb should have a lexical specification for the motion and the change-of-state frames. In the case of *musubu*, since the verb only means that the material is tightened, we can state that the motion frame, but not the change-of-state frame, is lexically specified for the verb, and that the change-of-state frame (32b) should be supplied via the perspective shift. Thus, as seen in (33), an asymmetry arises with regard to argument omission. Since the changes taking place on the material and the location should have a fairly close causal relation, we can assume that the perspective change can be invoked for the verb *musubu* even when it is used independently (without compounding).

Compound verbs can be easily formed in this class of verbs. Let us now look at what syntactic behavior the verbs *sibaru* and *musubu* show with regard to argument omission. First, the verb *sibaru* can be combined with *tukeru*, in which case only the motion variant is made available, as illustrated in (36).

- (36) a. John-ga himo-o (hako-ni) sibari-tuke-ta.  
       John-NOM string-ACC box-on bind-attach-PAST  
       ‘John bound a string around the box again.’ (Motion)  
       b. \*John-ga himo-de hako-o sibari-tuke-ta.  
       John-NOM string-with box-ACC bind-attach-PAST  
       ‘John bound the box with a string again.’ (\*Change of State)

The second verb *tukeru* ‘attach’ adds a motional meaning to the base verb *sibaru*, and this brings out the consequence that the change-of-state frame is eliminated from the compound verb, even though the base verb can take this frame. Accordingly, only the motion variant is available with the compound verb *sibari-tukeru*. In the motion variant, the oblique argument can be omitted without affecting its acceptability.

Second, by way of compounding *sibaru* with the verb *ageru*, which carries a ‘completive’ meaning, it is possible to form the change-of-state variant, but the other variant—the motion variant—is excluded, as shown in (37).

- (37) a. \*John-ga himo-o hako-ni sibari-age-ta.

John-NOM string-ACC box-on bind-up-PAST

‘John bound a string around the box.’ (\*Motion)

b. John-ga (himo-de) hako-o sibari-age-ta.

John-NOM string-with box-ACC bind-up-PAST

‘John bound the box with a string.’ (Change of State)

The addition of the verb *ageru* ‘up’ to the base verb via compounding brings out the consequence that the motional meaning is eliminated from the verb. In the change-of-state variant, the oblique argument can be omitted.

Turning now to the case of *musubu*, the change-of-state variant is eliminated when the verb *tukeru* is compounded with it, as in (38).

(38) a. John-ga (hako-ni) himo-o musubi-tuke-ta.

John-NOM box-on string-ACC tie-attach-PAST

‘John tied a string around the box.’ (Motion)

b. \*John-ga himo-de hako-o musubi-tuke-ta.

John-NOM string-with box-ACC tie-attach-PAST

‘John tied the box with a string again.’ (\*Change of State)

The observed pattern of argument realization in (38) is naturally expected, since the second verb *tukeru* compounded to the base verb *musubu* codes a motional meaning. Therefore, the compounding of *musubu* with *tukeru* should have the effect of picking out the motion variant. Interestingly, in the case of the compound verb *musubi-ageru*, where the second *ageru* should carry a ‘completive’ meaning, both the motion and the change-of-state variants are not acceptable, as seen in (39).

(39) a. \*John-ga hako-ni himo-o musubi-age-ta.

John-NOM box-on string-ACC tie-up-PAST

‘John tied a string around the box.’ (\*Motion)

b. \*John-ga hako-o himo-de musubi-age-ta.

John-NOM box-ACC string-with tie-up-PAST

‘John tied the box with a string.’ (\*Change of State)

The absence of the motion variant would be expected, since the addition of the second verb *ageru* ‘up’ brings out the consequence that the motion meaning is eliminated from the verb. In the case of the compound verb *musubi-ageru*, the change-of-state variant is absent as well, however, even though this variant should be semantically compatible with the completive *ageru*, as seen in the case of *sibari-ageru* in (37b).

The fact might look puzzling at first, but given that the base verb *musubu* is not lexically specified to take the change-of-state frame, it naturally follows that the variant is not available for *musubi-ageru*. Recall that the primary syntactic effect obtained by compounding with the completive *ageru* is to eliminate the change-of-state frame available for the base verb. Note that *musubu* does not allow the oblique argument in the change-of-state variant to be dropped, which suggests that the motion frame be

provided by invoking the perspective shift. If the base verb *musubu* inherently lacks a lexical specification for the change-of-state frame, there is a sense in which the compound verb *musubi-ageru* cannot appear in the change-of-state frame.

This does not mean that the compound verb *musubi-ageru* does not exist in the lexical entries of the language. In effect, the following example illustrates that this compound verb can be used as a non-locative alternation verb.

- (40) John-ga himo-o sikkari-to musubi-age-ta.  
 John-NOM string-ACC firmly tie-up-PAST  
 ‘John tied up a string firmly.’

In (40), the verb *musubi-ageru* describes a resultant state of the theme *himo* ‘string’ brought about by the act of tying. As seen in (39), however, this compound verb cannot describe an event of moving the material to the box, nor can it describe the resultant state of the affected location *hako* ‘box’, which arises as a consequence of the act of tying a string. This suggests that the motion variant (39a) is excluded not because the complex verb *musubi-ageru* does not exist, but because the verb does not have a lexical specification for the change-of-state frame.

Incidentally, if *ageru* does not express a completive meaning, no restriction is imposed on the selection of the variants. This is illustrated by (41), where the second verb *ageru* indicates an upward motion.

- (41) a. John-ga ude-ni hootai-o sita-kara maki-age-ta.  
 John-NOM arm-on bandage-ACC below-from roll-up-PAST  
 ‘John rolled up a bandage around his arm from below.’ (Motion)  
 b. John-ga hootai-de ude-o sita-kara maki-age-ta.  
 John-NOM bandage-with arm-ACC below-from roll-up-PAST  
 ‘John rolled up the arm with a bandage from below.’ (Change of State)

The data suggest that the verb *maki-ageru* ‘wind up’ can describe how the location (the arm) is affected by the act of rolling the bandage, as well as how the material (the bandage) is moved to the location. Since the oblique argument in (42b) cannot be deleted, we can confirm that *maku* ‘roll’ involves the perspective shift, which has the effect of adding the change-of-state frame to the verb *maku*, where it only has a lexical specification for the motion frame.

- (42) a. John-ga (ude-ni) hootai-o mai-ta.  
 John-NOM arm-on bandage-ACC roll-PAST  
 ‘John rolled a bandage around his arm.’ (Motion)  
 b. John-ga \*(hootai-de) ude-o mai-ta  
 John-NOM bandage-with arm-ACC roll-PAST  
 ‘John rolled the arm with a bandage.’ (Change of State)

Thus, it should be clear that this type of compounding—i.e. compounding with the motional *ageru*—does not bring out the effect of excluding the syntactic frame provided

by the perspective shift.<sup>15</sup> In the light of this fact, we can see easily that for the purpose of checking whether a verb has a lexical specification for the change-of-state frame, it is necessary to look at the completive verb *ageru*, which expresses the meaning of ‘completion’ rather than ‘motion’.

The data suggest that the presence or absence of the change-of-state variant involving the compound verbs with the completive *ageru* correlates with the question of whether or not the base verb obtains the change-of-state via the perspective shift.

(43)

	Oblique Argument Omission		V-V Compounding	
	Motion	Change-of-State	V- <i>tukeru</i>	V- <i>ageru</i> (completive)
<i>musubu</i>	√	*	√	*
<i>sibaru/yyu</i>	√	√	√	√

In the case of *musubu*, the change-of-state frame is derivationally created, which suggests that *musubu* has a lexical specification for the motion variant only. If the verb *ageru*, which has a completive meaning, picks out the change-of-state frame of the base verb, the unacceptability of (39b) follows, because *musubu* does not have a lexical specification for the change-of-state frame that the verb *ageru* should pick out.

Finally, recall that the verb *nuru* ‘paint’ allows the omission of the oblique argument in both motion and change-of-state variants, and that *nuru* can be compounded with either *tuku* ‘attach’ or *ageru* ‘up’. With the compound verb *nuri-tukeru* ‘paint-attach’, only the motion variant is available, whereas only the change-of-state variant is possible with *nuri-ageru* ‘paint-up’, where the second verb *ageru* conveys a completive sense. The fact that the oblique argument can be dropped in the change-of-state variant of *nuri-ageru* suggests that this variant is not derived from the motion variant via the perspective shift.<sup>16</sup> The reverse also holds, since the oblique argument of *nuri-tukeru* in the motion variant can be dropped. The data show then that the verb *nuru* has a lexical specification for the two variants—i.e. both of the morphological forms are not derived via the perspective shift.

To summarize, in this section, by looking at compound verbs formed from *nuru* ‘paint’, *sibaru* ‘bind’ and *musubu* ‘tie’, we have argued that some locative alternation verbs should be ambiguous intrinsically, in that they have a lexical specification for both motion and change-of-state frames (i.e. the perspective shift does not provide any of these frames).

<sup>15</sup> The meaning of directionality is readily detected if *sita-kara* ‘from below’ is added.

<sup>16</sup> The verb *nuru* ‘paint’ can be combined with *ageru* ‘up’, which carries a completive meaning, but apparently, it does not take the material (i.e. the theme) as its accusative argument.

(i) ?\*John-ga akai penki-o nuri-age-ta.  
 John-NOM red paint-ACC paint-up-PAST  
 ‘John painted up the red paint.’

The compound verb implies that some complete change of state takes place on the object, but since the material *penki* ‘paint’ does not change its state merely by the act of painting, the sentence causes a conflict in meaning, hence, (i) should be excluded by a semantic deviance.

## 5. Conclusion

In this paper, mainly on the basis of compound verbs in Japanese, it has been argued that locative alternation verbs consist of the following two types: (1) one type which is lexically ambiguous in expressing both change-of-state and motion meanings (as its basic meanings), and (2) the other which has one of the two meanings as basic, while the other meaning is derived by the perspective shift (in the sense of Pinker (1989)). The Japanese data have shown that some locative verbs come to acquire a derivationally-created frame via the perspective shift. At the same time, the data suggest that other locative alternation verbs should be ambiguous intrinsically, in that they have a lexical specification for both motion and change-of-state frames (i.e. the perspective shift does not play a role in determining the possibility of the locative alternation).

These two types of verbs show distinct syntactic behavior. On the one hand, locative alternation verbs which are lexically ambiguous allow the omission of their arguments freely (insofar as their reference is recoverable from context). On the other hand, if one variant is derived via the perspective shift, it does not allow its oblique argument to be omitted. Accusative arguments are freely dropped in both basic and derived frames. The observed patterns of argument drop in Japanese show that for the perspective shift to be successful, the presence of a derivationally-created frame is syntactically identified by way of overtly expressing its oblique argument, while satisfying a certain semantic condition that allows us to recognize the meaning of an affected location.

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