

Notes on the Structures of Change of Location and Change of State Predicates*

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In the recent studies that make use of lexical semantic information for building syntactic structure such as Hale and Keyser (1993), Kageyama (1995), Rappaport Hovav and Levin (1997), etc., change of location and change of state predicates are treated alike in structure in the sense that a location phase and a (result) state phrase occupy the same syntactic position in relation to a verbal head and its object. In this paper, examining syntactic differences between these two type of predicates, I propose, along with Kaga (2001), that they be represented differently, where a locatum object is generated below a location phase and a theme object above a result phrase. The proposed structure fares well with the facts concerning the scope of adverbs and negation noted in Basilico (1998). It provides an interesting explanation for the differences between denominal and deadjectival predicates, which the previous analyses do not seem able to explain as easily as ours.

1. Introduction

One of the topics that have often been discussed in recent studies related to syntax, morphology, and lexical semantics is how predicates and their arguments are represented in syntactic structure. In syntactic studies, especially with the split VP hypothesis, the positions of arguments in structure can be viewed as the relation between a verbal head and its arguments. Hale and Keyser (H&K) (1993), for example, pursuing the

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hypothesis that “the proper representation of predicate argument structure is itself a syntax (p. 53)”, consider the structural relations that are held between the head, its projections, and its arguments equivalent to some version of Lexical Conceptual Structure (LCS).¹ This view of argument structure seems particularly revealing in accounting for denominal verbs of the type *shelve*, *bottle*, *saddle*, and the like and for deadjectival verbs of the type *clear*, *flatten*, *thicken*, etc. Examples with these verbs are given below.

- (1) a. Mary shelved the books.
- b. They bottled the wine.
- c. John saddled the horse.
- (2) a. Susan cleared the screen.
- b. Bill flattened the metal.
- c. The cook thinned the soup.

These sentences are quite close to the following in meaning. The denominal (1) can be paraphrased with a change of location (CL) predicate and the deadjectival (2) with a change of state (CS) predicate.

- (3) a. Mary put the books on a shelf.
- b. They put the wine in a bottle.
- c. John got the horse with a saddle.
- (4) a. Susan made the screen clear.
- b. Bill made the metal flat.
- c. The cook made the soup thin.

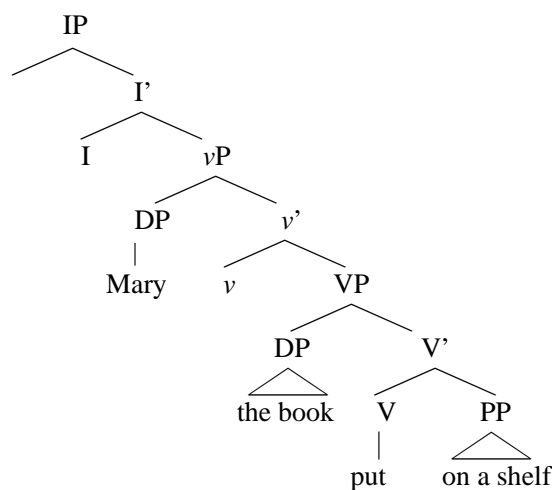
Take the CL case, (1) and (3), for example. These sentences seem to

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¹ The term LCS is used mainly by lexical semanticists and it may involve more than what H&K's Lexical Relational Structure (LRS) or Lexical Argument Structure represents. The latter may be confined to be what is representable in terms of 'syntactic' structures, whereas LCS may involve anything that would give rise to lexical semantic generalizations. In the following, we will mainly concerned with CL and CS predicates and see how they are represented in H&K's system (i.e., LRS) and in the LCS adopted in Kageyama (1993, 1996), Levin and Rappaport Hovav (1996), and Rappaport Hovav and Levin (1998). We will not get into the issue of what aspect of predicate meanings is to be formally represented, restricting ourselves to such aspects of meanings that are relevant to syntactic phenomena.

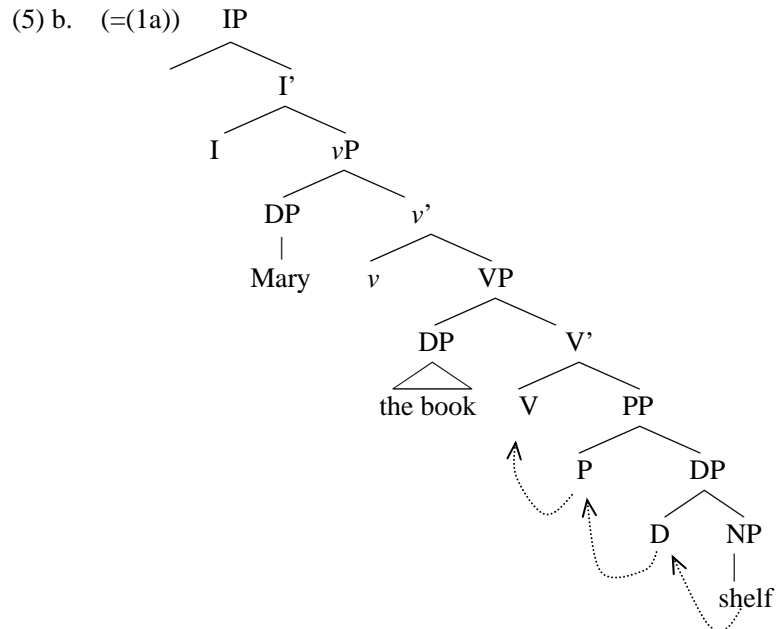
express as one event the relation of the three items involved, *Mary*, ‘agent’, *the book*, the thing that moves, which is sometimes referred to as ‘locatum’ but more often as ‘theme’, and *on a shelf*, the place where the thing ends up, which is ‘location’ (or ‘goal’). Hence, it is natural to assume that they share the same LCS (or LRS), and H&K propose an analysis where (1) is derived from the structure, which is essentially the same as (3). Taking (1a) and (3a) as representatives, let us illustrate their proposal in (5).² ((5b) is given in the following page.)

(5) a. (= (3a))

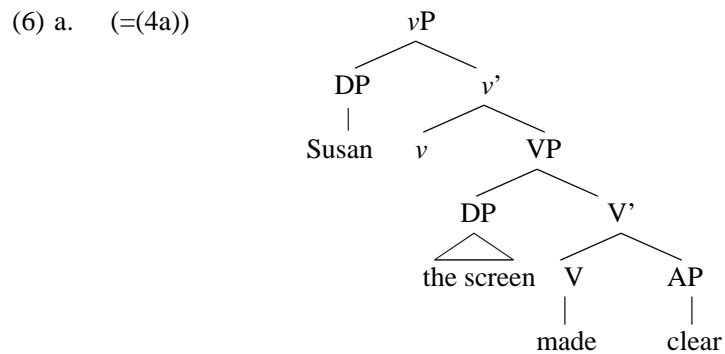


The difference between (5a) and (5b) is whether the heads, V and P, dominate a lexical item. In (5a) (= (3a)), nothing special takes place. That is, the verb *put* is raised to *v* (and eventually to I), the object receives Accusative Case from *v*, and the subject moves to Spec of I to receive Nominative Case. In (5b) (= (1a)), where the denominal *shelve* shows up, a series of Head Movement takes place, from N to D, from D to P, from P to V, and from V to *v*. The other operations in (5a) regarding the Case of the object and the subject also apply in (5b).

² In H&K's (1993) original proposal, not the *v* projection but simply a second V projection is used and the subject, Agent, is not represented under the V (*v* here) projections but is given in relation to I. The analysis introduced here thus is modified and close to what Chomsky's (1995) and Collins' (1997) systems. H&K (2002) has given up the analysis reviewed here, however. We will return to H&K (2002) in Section 4.

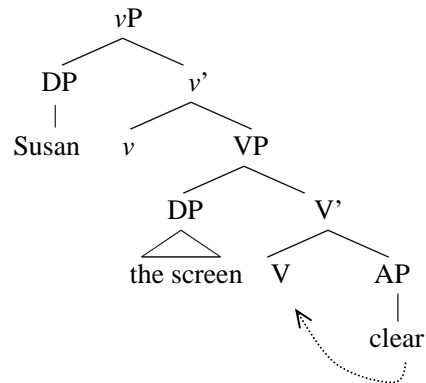


As for the CS cases, (2) and (4), basically the same processes apply, as illustrated in (6), where (2a) and (4a) are taken up as representatives. In (6), the IP projection is omitted since it does not have much relevance to the present discussion. ((6b) is given on the next page.)



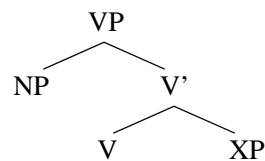
The case of the deadjectival predicate (6b) involves an AP as a complement of V and the head of the AP moves to V. All the rest is identical to the denominal (5b).

(6) a. (= (4a))



The LCS (or LRS) behind the above analysis, thus, assumes the following: both CL eventuality and CS eventuality involve the inner VP of (7), where the NP is considered to be ‘theme’ and it has special relation with the XP, which may be represented as an PP, in the case of CL, or an AP, in the case of CS.

(7)



(H&K (1993:85))

The same idea regarding how these eventualities are captured in terms of LCS (or relations among the arguments involved) is observed in much of the recent literature of lexical semantics. For example, the following kinds of LCS representations are often assumed for CL and CS predicates (cf. Levin and Rappaport Hovav (1996), Kageyama (1996, 1997), Kageyama and Yumoto (1997), Rappaport Hovav and Levin (1998), etc.)

(8) a. for CL predicates:

[]_x CAUSE [BECOME [[]_y BE AT-[Noun]_z]]

b. for CS predicates:

[]_x CAUSE [BECOME [[]_y BE [Adjective/ P-Noun]_z]]

In lexical semantics approaches, syntactic structure is mapped from LCS structure. For example, based on the LCS in (8), the agent x is

mapped onto the subject position and the theme y onto the object position and the location or the result state z in the position further away from the predicate. Thus, these representations give rise to the sentences in (9); (9a) an example of CL and (9b) an example of CS.

- (9) a. Mary threw the ball into the basket.
 b. Mary broke the glass into pieces.

Denominal verbs such as (1) and deadjectival verbs like (2) would be analyzed along the representations in (8), which is illustrated below by taking (1a) and (2a) as examples (cf. Kageyama (1997) and Kageyama and Yumoto (1997)).

- (10) a. []_x CAUSE [BECOME [[]_y BE AT-ON-**SHELF**]]
 b. []_x CAUSE [BECOME [[]_y BE **CLEAR**]]

As in (8), x is mapped to be a subject, y an object. The bold parts, which correspond to z in (8), show up in the form of verbs in their syntactic representations, leaving aside exact mechanisms of how this is done in the process of mapping from LCS to syntax.

The proposals reviewed above, thus, consider CL and CS predicates as alike and what differentiates them is the category and function (or meaning) of the third element; XP in (7) and z in (8). In H&K, XP is a PP in CL predicates and AP in CS predicates.³ In the lexical semantics approach, the meaning and function of z determines whether the LCS in question expresses the eventuality of CS or that of CL. In the following I would like to cast doubt on the assumption behind these analyses that CL and CS predicates share basically the same LCS or LRS. The closer examination of relevant data suggests that the locative

³ H&K do not examine CS predicates that involve a PP such as (i).

(i) John broke the glass into pieces.

Note incidentally that the N of change of state PP does not produce a denominal predicate. That is, (ii) is ungrammatical.

(ii) *John pieced the glass

It is not clear if this is an accidental gap (i.e., *piece* simply does not have its denominal verb counterpart) or a systematic gap (i.e., Unlike CL PPs, CS PPs may not become a verb). If the latter is the case, there must be an explanation for it. Though interesting and important this question may be, I leave it open for future research.

phrase be positioned higher than a ‘Theme’ argument or an item that moves (Locatum), while a result state phrase remains below ‘Theme’. We will pursue the consequences of this direction and reconsider the structures of denominal and deadjectival predicates.

2. A Location Phrase and a Result State Phrase

2.1 Argument or Adjunct

One thing common to the analyses reviewed above is their view concerning arguments and types of eventualities. That is, arguments are considered to be participants of eventualities. In H&K’s framework, for example, with the VP-shell structure in (5) and (6), it is expressed that the higher verb (*v*) causes the event of the inner VP. Theta-roles are entities that take part in such an event: Agent, the specifier of *v*P, has the role that has to do with the occurrence of the event expressed in the inner VP; Theme, the specifier of VP, is the entity that completes the spatial or locational relation, or is the entity that undergoes state changes; a Location or a Result, the complement of VP, specifies the eventuality of an interrelation or a state, respectively. In the lexical semantics approach, similarly, arguments are items that correspond to the variables, *x*, *y*, and *z*, whose semantic roles are determined by semantic predicates such as CAUSE, BECOME, and BE of LCS.

Prior to these approaches, on the other hand, when arguments are simply considered to be items that occupy certain syntactic positions, thematic roles are assigned to structural argument positions according to a thematic hierarchy. For example, Grimshaw (1990) assumes (11) for such a hierarchy.

- (11) (Agent (Experiencer (Goal/Source/Location (Theme))))

The role that is positioned higher in the hierarchy is to occupy a higher position in syntactic structure. What is interesting is the positions of Location and Theme: Location is positioned higher than Theme. This is opposite to what has been seen in the above in relation to H&K’s proposal. Another thing notable in (11) is that the result state, AP in

H&K's proposal and STATE z in the lexical semantics proposal, is not involved in (11). That is, in a purely syntax oriented approach, the expression for a result state is not considered to be an argument. This is understandable given that, unlike location or goal phrases, the occurrence of a result phrase is not required, which does not seem to satisfy the definition of 'arguments' in (12), which is often assumed in syntactic studies, if 'participants' here is taken narrowly as items that must be present in syntactic representations.

(12) arguments =_{def} participants involved in a event depicted by a predicate.

Compare (13), examples with a location phrase, and (14), those with a result phrase.

- (13) a. Susan put a coin *(in a can).
b. Tom inserted the key *(into the lock).
- (14) a. Ken painted the door (red).
b. Pam shut the door (tight).

On the other hand, if 'participants' are taken more generally to include the conceptual presence of an entity or situation involved in a event depicted by a predicate, result phrases should be taken as 'arguments'. This intuition is reflected in the approaches reviewed in Section 1.⁴ If they are in fact arguments, where in the hierarchy would they be positioned with respect to Theme? Would they be placed above Theme along with Location or below Theme, as LCS (or LRS) of the above proposals assume? As will be shown shortly, besides the mandatory or optional presence of the phrases in question observed in (13) and (14), there are other differences between location phrases and result phrases (or between CL predicates and CS predicates), which has to do with differences in their syntactic positions.

⁴ Carrier and Randall (1992), examining the status of result phrases under the Government and Binding framework, show that they behave like arguments with respect to various syntactic criteria even though their presence appears to be optional.

2.2 Scope Asymmetries and Floating Quantifiers

It has been noted, for example in Larson (1988), Aoun and Li (1993), Pesetsky (1995), and Basilico (1998), that CL sentences allow a scope ambiguity between an object and a location (or goal) phrase. Observe (15).

- (15) a. Mary put a book on every shelf.
b. Tom inserted a key into every lock.

In these examples, the indefinite existential expression, *a book* in (15a) and *a key* in (15b), may take scope over or below the *every* phrase. That is, (15b), for example, may involve a single key that was inserted into all the locks, which is the wide scope reading of *a key* with respect to *every lock*; or it may involve at most as many as the number of the locks and each lock got a key inserted in it, the narrow scope reading of *a key*. The same ambiguity is observed in Japanese as well, which is exemplified in (16).⁵

- (16) a. Hanko-ga [hon ka pen]-o dono tana-ni-mo oi-ta.
-Nom book or pen-Acc every-shelf-to put-past
'Hanako put a book or a pen on every shelf.'
b. Taro-ga dono hon-mo [kaban ka hako]-ni tume-ta.
-Nom every book bag or box-in stuff-past
'Taro stuffed every book in a bag or a box.'

In (16b), for example, each of *dono hon-mo* 'every book' may be either in a bag or a box, the wide scope of the object; or all the books are stuffed into one thing, either a bag or a box, which is the narrow scope of the object.

In contrast to these CL cases, CS predicates do not show such an ambiguity. Observe (17), where both English example and Japanese one are given, showing the same reading.

⁵ There are various types of quantifier expressions in Japanese. I use the expressions *A ka B* 'A or B' as an existential quantifier and *wh-N-(P)-mo* 'every N, (lit.) whichever N' as a universal quantifier. See Hoji (1985), Nishigauchi (1990), and Hasegawa (1993) for relevant discussion.

- (17) a. Pam painted every door red or pink.
 b. Tomoko-ga dono doa-mo [aka ka pinku]-ni nut-ta.
 -Nom every-door red or pink-NI paint-past
 ‘Tomoko painted every door red or pink.’

These sentences exhibit only the wide scope reading of the object: Every door was painted either red or pink and it does not have to be the case that every door was painted by the same color.⁶

Furthermore, Japanese examples exhibit an interesting phenomenon that is relevant to what structures these predicates have. As is well-known, the word-order of Japanese is rather free and the order of an object and a location phrase or a result phrase can be altered. Thus, (16) and (17b) can have the following ‘scrambled’ counterparts.⁷

- (18) a. Hannko-ga dono tana-ni-mo [hon ka pen]-o oi-ta.
 b. Taro-ga [kaban ka hako]-ni dono hon-mo tume-ta.
 (19) Tomoko-ga [aka ka pinku]-ni dono doa-mo nut-ta.

⁶ Since the wide scope reading of the object entails the narrow scope reading in (17), it is not completely clear if (17) is in fact not ambiguous. That is, if every door was painted red, which may be given rise to by the wide scope of the result phrase over the object, it meets the reading that every door was painted either red or pink, the narrow scope of the result phrase. It is difficult to make examples with resultative adjectives that crucially illustrate the scope fact of CS sentences. However, with a PP or DP phrase, examples can be made rather easily. The following are taken from Basilico (1998)

- (i) a. The farmer loaded a truck with every bale of hay.
 b. The committee sent a member of Congress every letter.
 (ii) a. The farmer loaded every bale of hay onto the truck.
 b. The committee sent a letter to every member of Congress.

(i) is not ambiguous in a relevant sense, while (ii) is. (ia) and (iia) constitute a pair of the so-called *spray/load* alteration and (ib)/(iib) is the case of Double Object/Dative alteration. Basilico argues that these alterations are examples of CS/CL alterations and the contrast observed here is the same contrast seen in (15/16) vs. (17). As far as Japanese is concerned, however, it is not clear if this in fact is the case. The result phrase seen in (16) involves the particle *in*, which marks an argument, while the alleged ‘CS’ case of the type (ia) uses *de*, as in *hosikusa-de torakku-o mitas-u* ‘fill a track with hay’, which marks an adjunct (cf. Hasegawa (1999a), Takezawa (1999)). Furthermore, Japanese does not exhibit a clear Double Object/Dative alteration (but see Kishimoto (2001)). In view of these, I consider it too hasty to conclude that (i) is a case of CS in the sense that (17b) is. See Oka (forthcoming) for some relevant discussion concerning *spray/load* alterations.

⁷ Here, it does not mean that (16)/(17b) is the basic order and (18)/(19) is a derived order, or vice versa. We will come back shortly to the issue of word order (as well as the base positions of the arguments concerned).

Though the judgment may not be too clear, it seems to me that sentences in (18), the CL examples, are not ambiguous, in contrast to (16), which is ambiguous. As for the CS examples, (17b) and (19), the judgment goes opposite to the CL cases: (19) is clearly ambiguous while (17b) may not.

The fact that scopal relations change depending on word orders has important implications for structures of these sentences. Since Hoji's (1985) careful study on the relation between scope ambiguity and word order in Japanese, it is widely accepted that Japanese is a language of scope rigidity. That is, if a sentence exhibits a rigid scope relation, it is of the basic word order and if scope ambiguities are observed, on the other hand, the word order is derived and there is expected to be a trace. The examples that clearly illustrate this point are given below.

- (20) a. Dono gakusei-mo [hon ka pen]-o kat-ta.
 every student book or pen-Acc buy-past
 'Every student bought a book or a pen.'
- b. [Hon ka pen]-o dono gakusei-mo kat-ta.
- (21) a. [Hanako ka Taro]-ga dono kuruma-mo unten si-ta.
 or -Nom every car drive-past
 'Hanako or Taro drove every car.'
- b. Dno kuruma-mo [Hanako ka Taro]-ga unten si-ta.

The (a) examples have the SOV order and the (b) examples the OSV order. And only the latter exhibit scope ambiguities between the subject quantifier and the object quantifier. In the former, the subject takes wide scope over the object. This asymmetry is explained by way of the existence of a trace in the (b) examples. Details aside, let us assume, as widely assumed, that the base order of Japanese is SOV and the OSV order is derived from the SOV order by moving the object over the subject via Scrambling. Then, only the latter involve a trace below the subject and the scope can be determined in terms of the positions of the subject, the object and the trace of the object. Without an object trace, the items relevant to scope determination in the (a) examples are the subject and the object. To the extent that the subject c-commands

the object, the scope is rigidly determined: the subject takes scope over the object. In the (b) examples, on the other hand, given the two positions for the scope determination of the object; i.e., the trace below the subject, and the object at the scrambled position above the subject, scope ambiguities result. The object takes wide scope over the subject if the scrambled object is taken to be relevant to scope determination. The narrow scope reading of the object obtains if the trace of the object is counted.

If the explanation above concerning the quantifiers in subject and object positions applies to the scope facts observed (16)-(19), we are lead to the following: as for CL examples, namely (16) and (18), a location phrase is ordered above an object in the base order, which is seen in the unambiguous (18), and the order of the ambiguous (16), in which the object precedes the location phase, is a derived one; and the opposite holds for the CS examples, i.e., (17b) and (19). (17b), which is unambiguous, is of the basic order, and ambiguous (19) has a derived order.

This conclusion is further supported by the facts concerning floating quantifiers. Takezawa (1999) observes the grammatical contrast between CL sentences and CS (resultative) sentences. Relevant examples follow.

- (22) a. Hanako-ga hako-ni koin-o 2-ko ire-ta.
 -Nom box-in coin-Acc 2-Cl put-past
 ‘Hanako put two coins in a box.’
 b. Hanako-ga koin-o hako-ni 2-ko ire-ta.
 c. Hanako-ga koin-o 2-ko hako-ni ire-ta.
- (23) a. Kyoko-ga pinku-iro-ni hako-o 2-tu nut-ta.
 -Nom pink-color-NI box-Acc 2-Cl paint-past
 b. *?Kyoko-ga hako-o pinku-iro-ni 2-tu nut-ta.
 c. Kyoko-ga hako-o 2-tu pinku-iro-ni nut-ta.

Assuming Miyagawa (1989) and Hasegawa (1993), a floating quantifier (FQ) (a numeral with a classifier (Cl)) is allowed when it is in the mutual c-command relation with its host NP or a trace of the host NP.

Given that the FQ and its host NP are next to each other, let us assume that the mutual c-command condition is met in the (a) and (c) examples. What is of particular interest is the contrast seen in the (b) examples, where the FQ and its host NP are separated across a location phrase in (22b) and a result phrase in (23b). The grammaticality of (22b) suggests that the FQ is mutually c-commanded by the trace of the object, while no such trace is available in (23b). That is, if (22b) and (23b) have the structures (24a) and (24b), respectively, the above contrast is explained.

- (24) a. [Hanako-ga [_{VP} koin_i-o [_{VP} hako-ni [_{V'} t_i 2-ko ire-ta]]]].
 b. [Kyoko-ga [_{VP} hako-o [_{V'} pinku-iro-ni 2-tu nut-ta]]]].

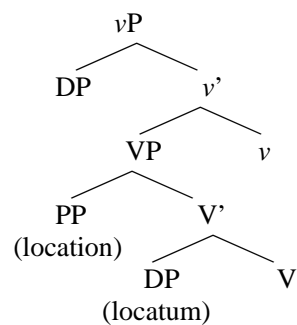
Exact details aside, the hierarchical structure in (24a) is what is suggested by the scope fact in (16) and (18)--the location phrase precedes (and c-commands) the object position at the base, which may be occupied by the trace. The object position where *koin-o* resides in (24a) is a position created by a movement. The ungrammaticality of (24b), on the other hand, suggests that there be no position at around the FQ *2-tu* and the position preceding the result phrase is where it is generated. This means that the sentences that are close to the base are (22a) for CL predicates and (23c) for CS predicates. The others are derived by Scrambling.

3. A Proposal

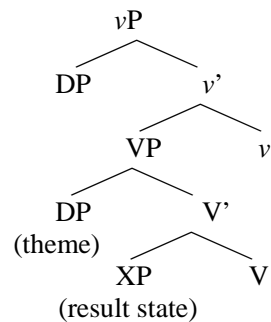
The discussion above naturally leads to the conclusion that CL predicates and CS predicates have different base structures, contrary to the LCS (or LRS) approaches reviewed in Section 1. The structure that these approaches assume is appropriate only for CS predicates and what the theta-role hierarchy (11) suggests in fact applies to CL predicates. This amounts to the VP shell in (25) in the following page, where Japanese is taken for illustration. To these structures, ordinary syntactic operations such as Case checking and predicate raising apply. That is, the subject is raised to IP-Spec for Nominative Case, the V is raised to *v* (and eventually to I), and the object is (covertly) raised to VP-adjoined position for Accusative Case (or the Case feature of the

object is simply attracted to the Case feature of the ν). The word orders that are different from what these structures indicate result from Scrambling. Thus, if Scrambling applies to the (locatum) object of (25a) and raises it to VP-adjoined position, the object ends up preceding the location phrase. Similarly in (25b), when the result phrase is scrambled over the (theme) object, we obtain the word order of Subject-Result-Object.

(25) a. Structure for Change of Location Predicates for Japanese



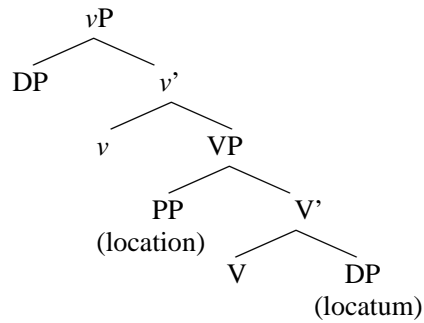
b. Structure for Change of State Predicates for Japanese



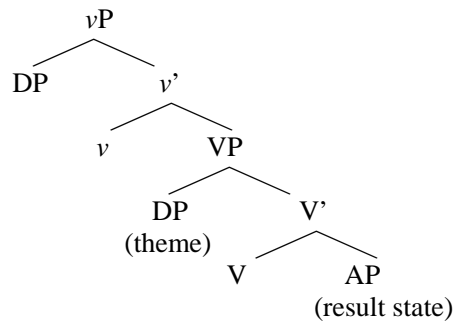
The same structural hierarchy is expected to hold across languages. Naturally, English is expected to have the structures in (26). Unlike Japanese, these structures as they are do not give rise to the appropriate surface order, which is Subject-Object-Location/Result. In addition to the operations of the subject movement to IP-Spec and the V to ν movement, which are seen also in Japanese, we need to assume that the object overtly moves to the position adjacent to the ν (or the amalgam

of V-v after verb raising) for Case, which is the VP adjoined position (or perhaps at the VP-Spec position in (26b)).⁸

(26) a. Structure for Change of Location Predicates for English



b. Structure for Change of State Predicates for English



Kaga (2001) as a matter of fact proposes basically the same structures in (26) and the same derivations described above. He proposes the same system as ours based mainly on his conceptualization of 'Location' in reference to Localist Theory. He argues for an abstract (or macro, in his term) concepts of 'Location' and 'Locatum' and, in his system, the former takes the VP-Spec position and the latter the VP-Complement position when structurally realized. These macro-roles include micro theta-roles: i.e., 'Location' includes Location,

⁸ It is not clear if the object invariably moves to the VP-Spec position for Accusative Case, which is checked by *v*'s Case feature. I would like to leave open the exact mechanisms for Case checking of these objects. Syntax theory has rapidly been developed concerning checking mechanisms of relevant features. I hope that the issue here will be solved or acquire more precise formulation in due course.

Goal, Source, Path, Target, Possessor, Recipient, Benefactor, Experiencer, and Patient; and ‘Locatum’ includes Theme and Result. Though I am sympathetic to his proposal and I certainly owe him much of the initial development of the proposal above, I am not convinced that all these micro-roles are in fact subsumed under one macro-role. In particular, I am not sure what common feature the object of CL predicates (i.e, a thing that exists or ‘theme’) and the Result phrase of CS predicates possess. It seems to me that Kaga, in an attempt to generate the structures like (26), chooses the direction of categorizing unrelated micro-roles under one macro-role perhaps somewhat unjustifiably, in order to take the Uniformity of Theta Assignment Hypothesis (UTAH) too strongly, ignoring the relation between types of predicates and theta-roles⁹ involved. That is, Kaga takes the stand that if one syntactic position is shared by several roles, the several roles must be categorized in one macro-role. I consider this interpretation of UTAH too strong, which only regulates the relationships between roles in question. Different roles can occupy the same syntactic position if they can maintain constant relationships with other roles. Thus, if two roles never cooccur due to the differences of predicate or eventuality types for which they serve as arguments, it is not against UTAH for the two roles to take the same syntactic position.

Thus, my view differs from Kaga’s. My position is closer to Basilico (1998) and H&K (2002) in the sense that predicate types or types of eventualities are reflected in the structure of the inner VP. Basilico assumes the following types of representations for the inner predication for CL predicates and CS predicates, which are mapped onto the syntactic structures in (28).¹⁰

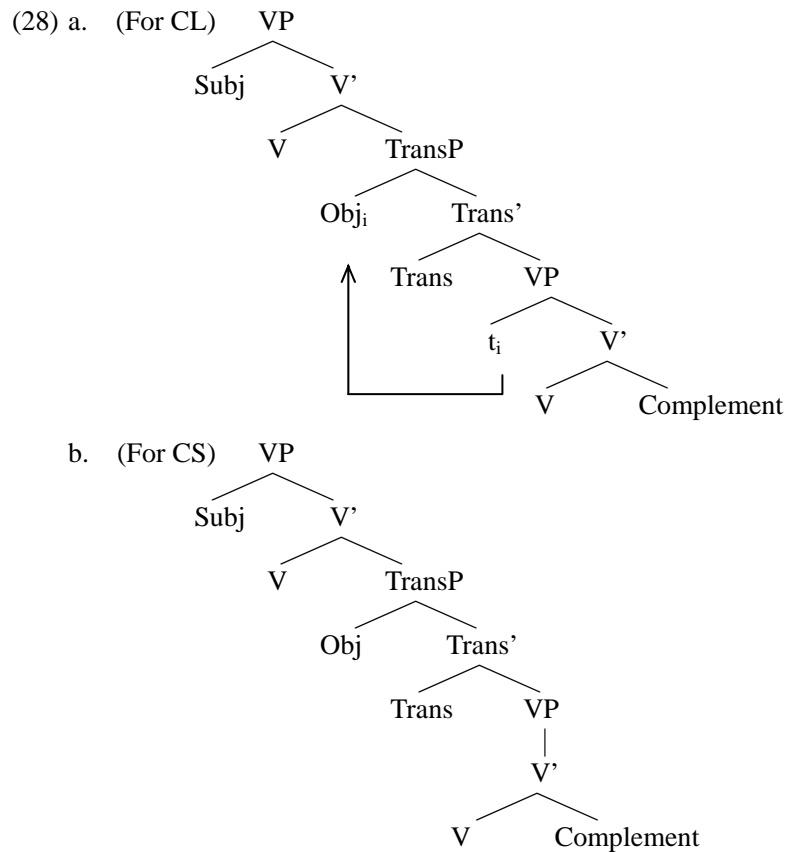
⁹ UTAH is stated as below (Baker (1988:46)).

(i) Uniformity of Theta Assignment Hypothesis (UTAH)

Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-Structure.

¹⁰ The representations in (27) are slightly modified from Basilico’s original representations (p.549), which are given for concrete sentences. There, concrete lexical expressions occupy where the terms, object NP, location PP, state XP, are given in (27). It is not of our interest to see whether the categories and structures of (28) are appropriate. These structures are presented here to simply show that Basilico also makes use of two positions for the object of CL predicates. He explains the scope ambiguity of (15) and non-ambiguity of (17a) based on

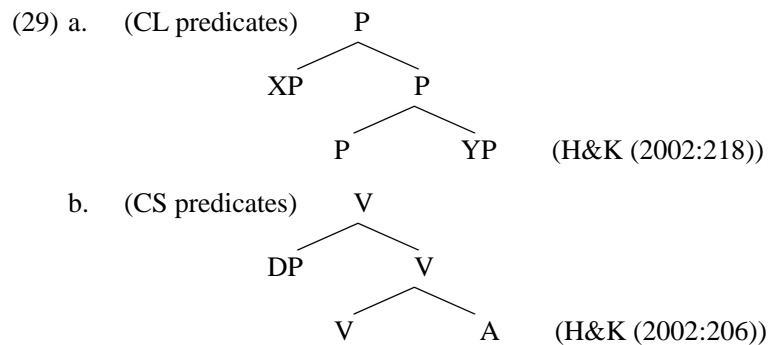
- (27) a. for CL predicates
 [BECOME [BE<event> [[object NP], [location PP]]]]
 b. for CS predicates
 [BECOME [[object NP] [BE<property> [state XP]]]]



(Basilico (1998:544))

The intuition behind Basilico's proposal is that CL predicates and CS predicates are of different eventualities, which is manifested in the semantic specifications of BE; CL predicates involve an inner predicate that expresses an event and CS predicates a property. Similar

characterizations are assumed in H&K (2002), where CL predicates involves a P projection under which an object appears at its Spec and a location NP at its complement and CS predicates involves a V projection under which an object appears at its Spec and a stative AP at its complement. This is shown in (29).



It is too far beyond the scope of this paper to compare our analysis with these predecessors; however, let me state that our analysis is unique in the sense that it captures syntactic facts concerning the base positions of the object reviewed in Section 2 and, at the same time, it reflects what LCS (LRS) approaches attempt to express by differentiating two predicate types. In view of this, I believe that our analysis is worth pursuing.

4. Consequences

4.1 Scope of Adverbs and Negation

In support of the proposal above, I would like to examine how it deals with the interesting facts that Basilico (1998) reports and how denominal and deadjectival predicates, which have been touched upon in Section 1, are accounted for in our system. Basilico notes that there is a difference between CL predicates and CS predicates regarding the scope of the object NP in relation to frequency adverbs such as *frequently*. Observe the following, which is due to Basilico (1998:558-560).

(30) a. During the hold up, the robber *frequently* stuffed a wad of

- cash into a bag.
- b. During the hold up, the robber stuffed a wad of cash *frequently* into a bag.
- (31) a. During the hold up, the robber *frequently* stuffed a bag with a wad of cash.
- b. During the hold up, the robber stuffed a bag *frequently* with a wad of cash.

(30) and (31) are examples of *spray/load* type sentences, which Basilico considers constitute CL and CS alternations. According to him, (30) is a case of CL predicate and (31) a case of CS predicate.¹¹ In the (a) examples, where the adverb *frequently* appears pre-verbally, both (30a) and (31a) are scopally ambiguous between the object NP and the adverb. For example, (31a) means either that the robbers' stuffing a bag with cash takes place frequently (which is the wide scope reading of *frequently* with respect to *a bag* and different bags may be used) or that there is one bag that the robbers used to frequently stuff it with cash (which is the wide scope reading of *a bag* with respect to *frequently*). The same kind of ambiguity obtains in (30a). This is rather natural, if the indefinite NP undergoes Quantifier Raising which moves the DP to IP or somewhere above where the adverb is generated, which may be at v'-adjoined position. What is of interest is the facts concerning the (b) examples. When the adverb is placed after the object, the ambiguity disappears in (31b), while it still is observed in (30b). That is, (31b) only has the reading where the object takes wide scope over the adverb. This difference naturally follows given the analysis in (26). For CL predicates (i.e., (26a)), the object is related to two positions, the complement of V at its base and the VP adjoined position for Case. Let us assume that the adverb is adjoined at V' (Travis (1989)). Then, the ambiguity in (30b) is expected since the adverb c-commands the trace of the object and, at the same time, it is c-commanded by the

¹¹ As briefly mentioned in fn. 6, I am not sure if the *spray/load* pair (as well as the other pairs he considers) in fact corresponds to a pair of CS/CL sentences; however, I follow his discussion here to make it clear that the object of CL predicates involves two syntactic positions to account for the noted ambiguity, which our analysis also assumes.

object at the VP adjoined position. The CS case of (31b), on the other hand, since the object, regardless of whether it is at the base or adjoined at VP, always c-commands the adverb at V'-adjoined position, does not exhibit the relevant ambiguity, only showing the reading where the object has wide scope over the adverb.

Another fact that motivates Basilico to assign two different structures in (28) is the difference between CL predicates and CS predicates concerning the scope of negation. Observe (32), which is the negation of CL/CS sentences.

- (32) a. Mary didn't put the books on the table.
b. Sue didn't paint the door red.

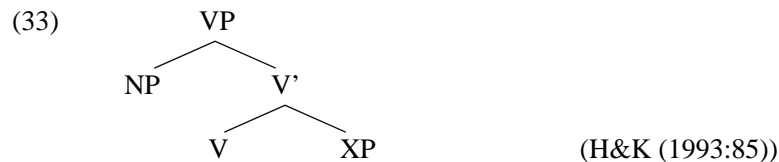
In (32a), with its normal intonation, what is denied is the existence of the whole event of Mary's putting the books on the table. In (32b), on the other hand, what is denied may not be the entire event but the color of the door--i.e., Sue painted the door but the color she used was not red but some other color.¹² This means that CL predicates involve only one predicate that can be denied but CS predicates involve not only the predicate that is relevant to the entire event but also the secondary predicate that identifies the state. This distinction can be expressed in our structures in (26). It seems reasonable to assume that what can be negated is a predicate like an AP not an entity or a DP at the complement position of the inner VP. Then, only the structure (26b), but not (26a), can allow the negation to have scope over a predicative constituent inside the VP; i.e., the AP at the complement position of the VP can be negated.

4.2 Denominal and Deadjectival Predicates in the Proposed Analysis

At the outset of the paper, we reviewed H&K's (1993) proposal, where denominal and deadjectival predicates are derived in a similar way by way of head movement from a complement position of the inner VP to the head V (then to *v*). The fact that these predicates can be derived by the same head movement operation seems to be one of the strong

¹² Basilico, considering this difference as the *thetic/categorical* distinction, calls CL sentences *thetic alternants*, CS sentences *categorical alternants*.

motivations for H&K to assume (7), repeated here as (33), as LRS for both CL and CS predicates.



If our proposal above is on the right track, however, H&K's account for these derived predicates cannot be maintained. In H&K (1993), it is argued that incorporation (or head movement) necessary for the derivation of these predicates is crucially from the complement position of the inner VP, not from the specifier position of the VP. If so, only deadjectival predicates can be derived in our system where an AP, a result phrase, takes place at complement position and denominal predicates cannot be given rise to by the same operation. This, however, seems to be a welcome result and H&K (2002) in fact, departing from the position of H&K (1993), propose a system in which denominal predicates and deadjectival predicates are derived by different operations.¹³ We will not review their new system here but simply refer to the factual differences between the two types of derived predicates that motivate H&K to treat them differently, which I also consider important to analyze these derived predicates.

First, Location/Locatum predicates such as *shelve* and *saddle* allow an additional cognate locational PP, whereas deadjectival predicates do not allow an additional cognate state AP. Compare (34) and (35), which are due to H&K (2002) with some modification.

- (34) a. John shelved the books (on the top shelf).
 b. Leecil saddled the horse (with a new Schowalter).
- (35) a. * Susan reddened the cloth bright red.
 b. * They lengthened the road two miles long.

¹³ H&K (2002) drop the condition that incorporation is allowed only from a complement, examining Hopi's incorporation verbs where a noun at specifier position is incorporated into a verb.

Second, deadjectival verbs typically involve a verbalizing morpheme such as *-en* as seen in (35), while denominal verbs take basically the same form as their noun counterparts, without involving a verbalizing morpheme. These characteristics of deadjectival verbs can be explained, as H&K do, if they are derived by a head movement operation, as has been assumed all along. That is, the presence of a verbalizing morpheme indicates that it, as a head of V, attracts a head of a complement AP and the trace of head movement at the complement position cannot be covered by another lexical item and a chain created by movement is spelled out at its head (cf. H&K (2002:101)).

This explanation of the characteristics of deadjectival verbs directly provides a reason for not deriving denominal verbs via head movement. In other words, if head movement (or incorporation) necessarily requires the presence of a morphological element such as *-en* as a head of an inner VP, and if the presence of a cognate PP is the indication of non-existence of a trace, denominal verbs must be derived by a different operation. H&K propose a selection theory for denominals, which we will not review here. Instead, though tentative, I would like to claim that they are derived by an operation that is driven for a Case reason. Given our structure (26a), the item that bears a Location role is generated at Spec of VP. In ordinary CL sentences, that position is occupied by a PP as in the case of *put*. Suppose that the Location role can also be satisfied by a nominal phrase, like *shelf* (or *shelve*). Then, inside the inner VP, there are two items that require Case. Suppose further that a verb (or a *v* with Case feature) can assign or check Case externally as well as internally. If this is allowed, a verb (or *v*, or an amalgam of V-*v*) can incorporate the closest item, the item at the Spec of VP, and checks its Case internally and then it checks externally the Case feature of the object that is adjoined to VP.

This proposal is not as far-fetching as it may appear. I would like to remind the reader of how passives are derived. Passives crucially involve the passive morpheme *-en*, which is considered to be a kind of clitic that absorbs a subject theta-role and Accusative Case. One way to execute this is that *-en* is generated where the subject is, most probably at Spec of *v*P, and it is incorporated into a verb (or an amalgam

of a *v* and a functional category that gives rise to passives) absorbing its Case feature. The proposal for denominals sketched above is quite similar to this. The nominal part of denominal verbs is like *-en* of passive verbs: i.e., it is generated at the position where a Location role is given, at the Spec of VP, and it is incorporated into a verb (or a amalgam of *v* and V) absorbing its Case feature. The difference is that in passives the Case feature of the verb that is absorbed by *-en* would never be exercised again externally, while in denominal verbs the Case feature of the verb remains active and checks Case of the object externally. This discrepancy may disappear if we consider P of a Locative PP is some realization of (inherent) Case and it can be exercised either internally as in the case of denominal verbs or externally as in PP. This kind of dual Case checking is anyway necessary to account for the Double Object construction and may be more widely available in grammar.

The characteristic of the denominal verbs that they may optionally allow a cognate Location phrase is not surprising if they are treated just like passives. Though the passive *-en* absorbs a subject role of the predicate, the item that assumes the same role can optionally show up as a *by*-Agent phrase. Whatever mechanism it may be that allows both occurrences of *-en* and a *by* phrase, the same mechanism can be assumed here to account for the presence of the cognate Location phrase observed in (33). This account of denominals seems able to explain the productivity of this type of denominal verbs. In principle, any Location noun can be used as a verb, though its actual use may be subject to how commonly or frequently they are used. Thus, sentences like *the waitresses often forget to table utensils before customers come in* is perfectly understandable, where *table* is used as a denominal verb.

The above analysis further explains why denominal verbs, as opposed to deadjectival verbs, do not have unaccusative counterparts. Observe (36) and (37).

- (36) a. They shelved the books. b. * The books shelved.
 c. Susan saddled the horse. d. * The horse saddled.

- (37) a. They cleared the screen. b. The screen cleared.
 c. Bill flatten the metal. d. The metal flattened.

It is a mystery in the theory of H&K (1993) or the LCS approach reviewed in Section 1 why only deadjectival (or CS) predicates have unaccusative counterparts, since both deadjectival and denominal predicates share the same LCS (or LRS) representations and undergo the same incorporation operations in these analyses. Given our analysis, this discrepancy between deadjectivals and denominals naturally follow. Deadjectivals involve operations inside the inner VP and whatever happens there does not have to do with the shell part vP , which may be a transitive v , assigning an external theta-role (Agent) and checking Case of the object, or an intransitive (or unaccusative) v , which does neither. Hence, deadjectivals may appear either transitive or intransitive. Denominals, however, must involve a transitive v , since the nominal part of denominals is amalgamated into a v (or the combination of v -V) for the sake of Case. Thus, the v that allows denominals must be a transitive one and an unaccusative v cannot host a nominal of denominal predicates.

5. Summary

In this paper, I cast doubt on the assumption behind the proposals where CL predicates and CS ones share the same LCS (or LRS) structure, which in turn gives rise to the same syntactic structure, in terms of the structural relation between an object and a location/result phrase. Examining the scope asymmetries and different behaviors of FQs between CL predicates and CS predicates, we have reached the conclusion that CL predicates have a Location phrase at Spec of VP and an object at complement of VP at base, while for CS predicates an object is generated at VP-Spec and a result phrase at complement position. The same structural configurations are proposed by Kaga (2001). Our proposal is supported by the phenomena concerning the scope of adverbs and negation. Furthermore, the processes of deriving deadjectival and denominal predicates, which originally motivate the approaches where CL and CS predicates are treated alike in LCS (or

LRS) as well as in syntax, are reconsidered and we have argued that treating them differently along the lines of our proposal in fact better explains the properties of deadjectival and denominal predicates. In particular, our account of denominals, which resorts to Case, provides a principled reason for why denominals do not have unaccusative counterparts, while deadjectivals do.

I would like to close this paper by commenting on the nature of Theme. It is often considered that Theme is given to an argument that undergoes state changes or location changes. This description of Theme right fits to the LCS (or LRS) representation reviewed in Section 1. That is, Theme is a DP at the Spec of the inner VP of (7) (= (33)) in H&K (1993) or y in (10) in Lexical Semantic approaches. In our proposal, however, the item that undergoes state changes takes place at Spec of the inner VP as in (26b) but the item that changes locations does not occur there, which, instead, occupies the complement position of the inner VP. Thus, if we take UTAH (i) of fn. 9 seriously, we may conclude that these items are not of the same theta role. Kaga, who proposes the same structures as ours, in fact claims that only the DP that is generated at Spec of the inner VP, which undergoes state changes or is affected by the eventuality expressed by the inner VP, is Theme and the item that changes locations (but do not undergo any internal or property changes) is Locatum not Theme. I am for Kaga's position. It seems that researchers have been misled by the Case and syntactic realization of the items in question. Both items are objects with Accusative Case, taking place right next to a verb. But Case and the position relative to a verb is independent from what theta role the item assumes and it does not mean that the items of the same Case at the same syntactic position relative to a verb receive the same theta role. Along with Kaga's, our proposal here calls for a more careful examination of theta roles and how they are realized in syntactic structure.¹⁴

¹⁴ In fact, drawing on the insight of H&K (1993), in my previous work (Hasegawa (1999b)), I have dealt with the serial verb construction of Japanese in relation to resultatives. If the conclusion and the proposal I reached in this paper is on the right track, I need to reconsider some of what I presented there, which is left for future research.

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