Argument Structure and Absolute Prominence Theory*

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1. Introduction

The purpose of this study is to argue for an absolute prominence theory (hereafter, APT) of argument structure. I will show that relative prominence theory (hereafter, RPT), which has been assumed in the literature, is invalid.

RPT has been assumed in Grimshaw &Mester (1988) and Grimshaw (1990), and is used by Li (1990) in predicting the argument structures of Chinese compound verbs. This study shows that RPT is not appropriate; (i) it cannot make distinction between unergatives and unaccusatives, and (ii) it makes wrong predictions for argument structure of Korean compound verbs. It will be shown that APT as proposed here will do the two jobs above which RPT cannot, as well as those which RPT can.

2. Argument Structure and RPT

In this section, I will briefly introduce Grimshaw's (1990) argument structure theory and RPT, and discuss Li (1990), which shows how we can predict the argument structure of Chinese compound verbs. I will focus on Li (1990), where RPT plays a crucial role. Some problems with the theories and assumptions taken by Li (1990) will be pointed out.

2.1. Grimshaw (1990) and Grimshaw & Mester (1988) show that argument structure is structured as in (1):[1]

(1) <Agent <Experiencer <Goal/Source/Location <Theme>>>>

The hierarchical argument structure in (1) represents the prominence relation. That is, Agent is more prominent than Experiencer, Experiencer is more prominent than Goal, and so on. Here Grimshaw (1990) and Grimshaw & Mester (1988) assume that the prominence relation is relative.[2] So each argument has a relative prominence status, which is measured only by comparing with the others. This prominence theory is called RPT (Relative Prominence Theory) here.

2.2. Li (1990)

Li (1990) shows how the argument structure of Chinese compound verbs can be predicted. To do the job, Li (1990) takes several theories and assumptions: (i) Theta-role Prominency (termed by Li) which follows from the hierarchical prominence relation in (1), (ii) the Theta-role identification of Higginbotham (1985), (iii) Head-feature Percolation (Lieber 1983), and (iv) RPT.

First, Theta-role Prominency is a property of theta-grid; the less prominent theta-role is assigned earlier than the more prominent one. If a verb has a theta-grid, <1, 2, 3>, then the lowest one <3> must be assigned prior to all the others, and <2> must be assigned before <1>. Second, Li adopts the idea of Theta-role

identification of Higginbotham (1985). That is, when two verbs, V1 and V2, form a compound verb V3, a theta-role of V1 may be identified with that of V2 in V3. This identification operation is optional and not restricted by the hierarchical theta-grid of a verb.[3] Third, Li adopts Head-feature Percolation as proposed in Lieber (1983); relevant features of a head are maintained throughout its projections. Li assumes that the theta-role prominency of a head verb is a head feature[4] and thus is maintained in the theta-grid of the compound. Fourth, Li adopts RPT. Specifically, he adopts the Left-Right version of RPT.[5] So the leftmost theta-role is counted as the most prominent one, the next one is the second, and so on. One important claim in Li (1990) is that he does not make any new rule or assumption, but he just resorts to the given theories and assumptions which are independently motivated.

Now I will illustrate how Li (1990) predicts the argument structure of Chinese compound verbs by using the theories and assumptions above. Chinese has the type of resultative compound verbs illustrated in (2).

(2) Baoyu qi - lei - le neipi ma.
ride tired Asp that horse
'Baoyu rode that horse (and as a result it/he) got tired.' (Li 1990: (2))

From the theta-grids of the two verbs, V1 and V2, in (3), we may have argument combinations for the theta-grid of the compound verb V3 in (4).

(3) a. V1: *qi-* 'ride' <1, 2> b.V2: *-lei-* 'tired' <x>

(4) V3: a. <1, 2=x> b. <1=x, 2> c.<2=x, 1> d. <2, 1=x> e. <1, 2, x> ...

In (4), the sign '=' indicates theta-role identification. Now the question is which one in (4) is the correct theta-grid for the compound verb, *qi-lei-*. According to Li, the correct theta-grid is predicted by the theories and assumptions we introduced just before. One important assumption of Li is that the Chinese resultative compound is headed by V1.[6] Now let's apply each theory to each case in (4). Theta-role Prominency will require that the orders of theta-roles of V1 and V2 are maintained in V3. Then, this theory rules in (4a), (4b), and (4e), whereas it rules out (4c) and (4d) because the theta-role <2> must be assigned prior to <1> but this is not the case in (4c) and (4d). The theta-role identification is optional and thus it will allow for all the cases in (4). Head-feature Percolation requires that the theta-role prominency of a head must be maintained in the compound. So, the theta-role prominency of the head V1, <1, 2>, must be maintained in V3 (Here the Left-Right version of RPT is assumed). Thus, it will rule in (4a), (4b), and (4e), but rule out (4c) and (4d).[7] That is, in (4c) and (4d) the theta-roles, <1> and <2>, have different prominence from those in (3a). For example, <1> is the most prominent one in (3a), but it is not in (4c). So, this change of prominence violates Head-feature Percolation. Thus, the theories rule in (4a), (4b), and (4e). Here Li is required to note one more thing, Case Theory. He assumes that a Chinese sentence allows for only two structural cases, accusative and nominative, unless it is a special construction like BA-construction.[8] Then Case Theory rules out (4e) because it has three theta-roles and thus it requires three Cases; an overt argument must have Case in order to get a theta-role. Now, we have two cases, (4a) and

(4b), and they are attested in (2), which is ambiguous. That is, we get the interpretations (4a) and (4b) in (2).

This is a nice result because we get the correct interpretation(s) by using independently motivated theories and assumptions only. In the following section, I will point out some problems in Li (1990).

2.3 Problems

2.3.1. Head-feature Percolation

Li (1990) assumes that the theta-role prominency is a head feature. But we need to ask whether theta-role prominency is a head feature.[9] More basically, we need to ask what a head feature is. It seems that the basic idea for a head feature comes from the head-to-head relationship.[10] When a lexical head takes an argument or subcategorizes a category, the argument or the subcategorized category is required to have some specific features like categorial features, [+N] and [-V]. If a head feature is defined this way, theta-role prominency is not a head feature because it is not required by an external lexical head. So, we cannot use Head-feature Percolation for the theta-role prominency of a head.

But we need to keep the theta-role prominency of a head verb in the compound. Otherwise, we cannot predict the correct theta-grid of a compound verb from those of its component verbs. Suppose that a head verb has a theta-role, Agent. Then, we do not want the theta-role to be Theme in the compound. To keep the theta-role prominency of a head, I propose the following:

(5) Head Prominence Preservation (HPP)[11,12]
Each argument of a head has its prominence preserved in a compound.

2.3.2 Relative Prominence Theory (RPT)

We have seen that Li (1990) follows Grimshaw (1990) and Grimshaw & Mester (1988) for RPT. In this section, I will point out the problems of RPT in general.

There are three problems for RPT. First, it cannot distinguish between unergatives and unaccusatives. Unergatives and unaccusatives have single arguments, so RPT will represent them as follows:

(6) a. unergative: <x> b. unaccusative: <x>

As we see in (6), we cannot distinguish between unergatives and unaccusatives. But we know that they should be distinguished cross-linguistically (Cf. Perlmutter 1978 and Burzio 1986). For this reason, Grimshaw (1990) tries to distinguish them as in (7).[13]

(7) a. unergative: <x> b. unaccusative: <<x>>

The distinction in (7) is just a notational difference and it does not explain the fundamental difference; That is, the argument of unergatives is Agent and that of unaccusatives Theme.

Second, RPT cannot make correct predictions for the argument structure (or theta-grid) of some compound verbs. The compound verbs in question can be found in Korean. Suppose that V1 takes the argument structure, <1, 2>, and V2 <x, y, z>, and the compound verb V3 (=V1+V2) is double-headed. Theta-role

Prominency, Head Prominence Preservation, and the Left-Right version of RPT allow for <1=x, 2=y, z> only. This is not attested, but <1=x, y, 2=z> is. I will discuss this problem in detail in the next section, comparing RPT with APT.

Third, each version of RPT makes a different prediction for the argument structure of compound verbs. As noted in endnote 5, there are three versions of RPT. Furthermore, no version of RPT makes a correct prediction. This problem will also be discussed in detail in the next section.

Because of these problems of RPT, I propose an absolute prominence theory (APT).

3. Absolute Prominence Theory (APT)

3.1 The main thesis of APT is that each argument has its own absolute value. Thus, the absolute value is not affected by the presence or absence of other arguments. Suppose that there is a definitely given number of arguments, and thus we may represent the argument structure as in (9) which roughly corresponds to (1) which is repeated here.

(1) <Agent <Experiencer <Goal/Source/Location<Theme>>>>

(9) <1<2<3<4>>>>

(9) is interpreted as follows: <1> corresponds to the most prominent argument with the absolute value 1, and <4> corresponds to the least prominent with the absolute value 4, and so on. But <1> is not interpreted as Agent and <4> as Theme because APT does not use theta-role labels, following Rappaport & Levin (1986) and Grimshaw (1990). Rather, I assume that each predicate has its argument structure with these values. For example, the English verb *hit* will have the argument structure, <1, 4>, and the verb *hate* <2, 4>. These values are determined in Lexical Conceptual Structure (for Lexical Conceptual Structure, see Rappaport & Levin 1986 and Grimshaw 1990). So, the semantics of each predicate will determine the absolute values of its arguments.

APT differs from the thematic hierarchy theory where thematic roles are employed. First, as mentioned earlier, APT does not use the thematic role labels. As noted in the literature, it is very difficult to define each thematic role. Second, an absolute value may have more than one thematic role. As indicated in (9), the argument <3> may correspond to the thematic roles, Goal, Source, and Location. Korean has an example to show that Goal and Source have the same value. This example will be shown in section 4. And Experiencer may have the value <1> as Agent does. Korean has two types of Experiencer: agentive ones and non-agentive ones.[14] So, an agentive experiencer verb will have the argument with the value <1> as the English agentive verb *hit* does.

3.2. Analysis

3.2.1. Unergatives and Unaccusatives

Now we can distinguish unergatives from unaccusatives easily. The difference between them is that an unergative verb has an argument with the value <1>, and an unaccusative one has an argument with the value <4>. They are represented in (10):

(10) a. unergative : <1> b. unaccusative : <4>

3.2.2 Argument Structure of Compound Verbs

In this section, I will show how APT makes correct predictions on argument structure of compound verbs in Chinese and Korean, and it will be shown that RPT makes wrong predictions.

Like Li (1990), I adopt hierarchical argument structure, more specifically, Li's Theta-role Prominency, and Theta-role Identification of Higginbotham (1985) or argument merger of Rosen (1989). Unlike Li (1990), I adopt APT and Head Prominence Preservation (HPP); Li uses RPT and Head-feature Percolation.

Crucial data to distinguish APT from RPT come from Korean compound verbs.[15] Let's look at example (11) and the argument structure of each verb in (12).

(11) Mary-ka John-eykey moca-lul mantul-e-cwu-ess-ta.
Nom Dat hat Acc make give Past Dec
'Mary made/gave a hat to John.' ('Mary made a hat and gave it to John.')

(12) a. V1: *mantul-* 'make' <1, 4> b. V2: *cwu-* 'give' <1', 3', 4'>[16]

Here we are interested in the argument structure of the compound verb V3 (=V1+V2) 'make/give' in (11). By applying Theta-role identification or argument merger, we may have many possible argument combinations from the argument structures of V1 and V2, as shown in (13).

(13) a. <1=1', 3', 4=4'> b. <1=1', 4=3', 4'> c. <1', 1=3', 4=4'>
d. <4=1', 3', 1=4'> e. <1=3', 1', 4=4'> ...

Now it is time to consider which one, APT or RPT, makes correct predictions. The two cases (13a) and (13b) are enough to see the result. The table (14) shows how APT and each version of RPT make predictions concerning (13a) and (13b).

(14)

		(13a)	(13b)
APT		^	*
RPT	LR	*	^
	RL	*	*
	ND	^	^

(^ : grammatical, *: ungrammatical)

From the table (14), we can see that each theory and each version makes a different prediction.

One important note here is that this type of Korean compound verbs is double-headed. Both components of the compound are clearly verbs and the compound is also a verb. If it is possible pragmatically, V1 and V2 may change their positions. For example, for the compound verb, *tolli-e-chi-* 'turn/hit,' we may have the compound *chi-e-tolli-* 'hit/turn.'[17]

First, (13a) and (13b), which are potential argument structures of V3, do not violate the hierarchical argument structure or Theta-role Prominency. That is,

the argument orders of V1 and V2 do not change in V3. Thus, this does not distinguish between (13a) and (13b).

Now, considering APT and HPP, take a look at (13a). The verb V1 in (12) has two arguments whose values are <1> and <4> and their status does not change in (13a). The argument, <1>, of the verb V1 maintains its status, the absolutely highest one in (13a), because it is identified with an argument of the same value and there is no other argument higher than <1>. This is also the case for the argument <4> of the verb V1. The same story holds for the arguments <1'> and <4'> of the verb V2: They do not change their absolute values. Only the argument <3'> remains alone. This means that (13a) is subject to HPP and thus APT predicts that (13a) is a correct argument structure for the compound verb V3 as shown in the table (14).

What about RPT for (13a)? Each version makes a different prediction. Let's consider first the Left-Right version of RPT, which Li (1990) adopts. The Left-Right version says that in the argument structure of V1, the argument <1> is the most prominent one, and <4> is the second most prominent. This relative prominence of each argument is not maintained in V3, i.e., in (13a); the argument <4> is the second most prominent in V1, but the third in V3. So, the Left-Right version of RPT predicts that (13a) is an incorrect argument structure for V3, as shown in (14), violating HPP (or Head-feature Percolation).[18]

The Right-Left version of RPT makes the same prediction as the Left-Right version, but in a different way. The argument <1> of the verb V1 is the second to the last in V1, but it is the third to the last in V3, i.e., in (13a). So, it violates HPP, predicting that (13a) is incorrect as shown in (14).

The Non-directional version of RPT makes a different prediction from the other versions of RPT. In (12), the argument relation that <1> is more prominent than <4> is maintained in (13a), and the argument relation that the argument <1'> is more prominent than the argument <3'> which is more prominent than <4'> is maintained in (13a). So, the Non-directional version of RPT predicts that (13a) is a correct argument structure for the compound verb V3. This is also shown in (14).

Now let's go to (13b). APT and HPP predict that (13b) is an incorrect argument structure because the argument <4> of the verb V1 does not maintain its status in (13b); in (13b) the argument <4> is not the absolutely lowest one because the argument <4'> is the lowest one. So, (13b) violates HPP.

The Left-Right version of RPT predicts that (13b) is correct because the relative prominencies of left-right order of arguments in V1 and V2 are maintained in V3, i.e., in (13b). The Right-Left version predicts that (13b) is incorrect because the argument <1> of V1 is the second to the last in V1, but the third to the last in (13b), so it violates HPP. The Non-directional version predicts that (13b) is correct. All these predictions are shown in (14).

So far, we have seen that each one makes a different prediction for the argument structure of the compound verb V3. Then, which one is correct? As we see in (11), only (13a) is attested. So, APT makes the correction prediction. No version of RPT makes a correct prediction for the Korean compound verb.

Now we can predict the correct argument structures of the Korean compound verbs (15) - (20) by applying the theories taken here, especially, APT. Some example sentences are given in (21).

(15) V1's valency = 1, V2's valency =1
a. *kel-e-ka-* 'walk/go' b. *talli-e-ka-* 'run/go' c. *kulm-e-cwuk-* 'starve/die'

(16) V1's valency = 2, V2's valency = 1
a. *cap-e-ka-* 'catch/go b. *kkul-e-ka-* 'drag/go' c. *mul-e-ka-* 'bite/go'

(17) V1's valency = 2, V2's valency = 2
a. *cap-e-mek-* 'catch/eat' b. *kkul-e-tangki-*'drag/pull' c.*cap-e-tangki-* 'hold/pull'

(18) V1's valency = 2, V2's valency = 3
a. *sa-e-cwu-*'buy/give' b. *mantul-e-cwu-* 'make/give' c. *ssa-e-cwu-* 'wrap/give'

(19) V1's valency = 3, V2's valency = 3
a. *ponay-e-cwu-* 'send/give' b. *kenney-e-cwu-* 'hand/give'

(20) Multiple compound verbs
a.*cap-e-tangki-e-olli-* 'hold/pull/raise' b.*cip-e-tenci-e-cwu-* 'pick-up/throw/give'
c. *cap-e-kkul-e-tangki-e-olli-* 'hold/drag/pull/raise'

(21) a. John-i hakkyo-ey kel-e-ka-ess-ta. (<=15a)
Nom school to walk go Past Dec
'John walked to school.' or 'John went to school on foot.'

b. kyungchal-i ku memin-ul cap-e-ka-ess-ta. (<=16a)
police Nom the criminal Acc catch go Past Dec
'The police caught and took away the criminal.

c. saca-ka thokki-lul cap-e-mek-ess-ta (<=17a)
lion Nom rabbit Acc catch eat Past Dec
'The lion caught the rabbit and then ate it.'

d. John-i Mary-eykey chayk-ul sa-e-cwu-ess-ta. (<=18a)
Nom Dat book Acc buy give Past Dec
'John bought Mary a book. (involved the event of giving)'

e.John-i Mary-eykey chayk-ul ponay-e-cwu-ess-ta. (<=19a)
Nom Dat book Acc send give Past Dec
'John sent Mary a book.'

f. John-i kabang-ul cap-e-tangki-e-olli-ess-ta. (<=20a)
Nom bag Acc hold pull lift Past dec
'John held and pulled and lifted the bag.'

We can apply APT to Chinese resultative compound verbs. The only difference between Korean compound verbs and Chinese resultative compound verbs are the headship; Korean ones are double-headed and Chinese ones single-headed (headed by V1).[19] The headship difference results in more restricted interpretations in Korean than in Chinese because both heads are subject to HPP.

4. An Alternative - Role Matching

Some may suggest that the argument structures of compound verbs are determined just by matching of the same thematic roles (hereafter, Role Matching). That is, Agent is identified with Agent and Theme with Theme (This is suggested by P. Sells). But this is wrong.

The first problem arises in the following Korean compound verb:[20]

(22) kutul-un panci-lul selo cwu-ko-pat-ess-ta.
they Top ring Acc each other give take Past Dec
'They gave and took rings.' or They exchanged rings.'

(23) a. V1: *cwu-* 'give' <Agent$_1$<Goal$_1$<Theme$_1$>>>
b. V2: *pat-* 'take' <Agent$_2$<Source$_2$<Theme$_2$>>>
c. V3: *cwu-ko-pat-* 'give/take' <A_1=A_2<G_1=S_2<T_1=T_2>>>

As we can see in (23c), different roles, Goal and Source, are identified, violating Role Matching.

The second problem is in the difficulty of defining each role: How is Agent or Theme defined?

On the other hand, these are not problems for APT. First, APT allows that two thematic roles may belong to the same value. That is, Goal and Source in APT have the same absolute value <3>. Second, APT does not use thematic role labels so that we do not have the difficulty of defining the thematic roles.

5. Apparent Problems

One problem with APT is that an NP may have more than one value as in the example below. This problem was pointed out by S. Wechsler.

(24) John purchased a book from Bill for $5.

In (24), 'John' can be Agent (that is, purchaser), Goal (receiver of the book), and Source (of the money). This means that 'John' may have the two absolute values, <1> and <3>. To this problem, I may suggest that the most prominent theta-role is Agent, i.e., <1>. The predominant meaning of the predicate 'purchase' is in the action of purchasing rather than in receiving the book or in paying the money. The nominalization of the sentence, *purchase of a book by John/*Bill,* shows that 'John' is Agent because it can occur with the agentive *by*-phrase. So, I don't think that this is a serious problem with APT.

Another problem arises in a Korean compound verb where two different values are identified as shown below.

(25) John-i ku khal-ul ttang-ey pha-mut-ess-ta.
Nom the knife Acc ground at dig bury Past Dec
'John dug (the ground) and buried the knife in the ground.'

Each verb of the compound verb *pha-mut-* will have the argument structures as in (26), and (27) show example sentences:

(26) a. *pha-* 'dig' : <1, 4> b. *mut-* 'bury' : <1', 3', 4'>

(27) a. John-i ttang-ul pha-ess-ta.
Nom ground Acc dig Past Dec
'John dug the ground.'
b. John-i ku khal-ul ttang-ey mut-ess-ta.
Nom the knife Acc ground at bury Past Dec
'John buried the knife in the ground.'

The predicted correct argument structure of the compound verb in (25) by APT and HPP is (28).

(28) <1=1, 3', 4=4'>

But sentence (25) has a different interpretation from (28); in (25), <4> of V1 and <3'> of V2 are identified. So, APT and HPP do not make correct prediction for the compound verb in (25).

To this apparent counterexample, I suggest that we need to distinguish between synthetic compounds and root compounds, as suggested in Grimshaw (1990). The argument structure of a synthetic compound verb is predictable from its component verbs, whereas that of a root compound is not. So, I would say that the compound verb *pha-mut-* 'dig/bury' in (25) is a root compound verb. Some Korean compound verbs are lexicalized and they have some figurative meanings as in (29).

(29) a.tol-e-ka-shi-
turn go Hon 'die'
b. al -e- tut-
know listen 'understand'

In (29a), the compound verb contains even the honorific marker (inflectional morpheme) and thus this expression is used only for some honorific person. In (29b), two verbs make a new meaning. These compound verbs as well as that in (25) may belong to the class of root compounds.

The peculiar behavior of the compound verb *pha-mut-* 'dig/bury' is not found in other compounds where the verb *pha-* 'dig' is employed.

(30) a. John-i ttang-ul pha-heychi-ess-ta.
Nom ground Acc dig scatter Past Dec
'John dug/scattered the ground.'
b. John-i swupak-lul pha-mek-ess-ta.
Nom watermelon Acc dig eat Past Dec
'John dug/ate the watermelon.'

The argument structures of the compound verbs in (30a) and(30b) are predicted correctly. So, the pecularity of the compound *pha-mut-* may be accredited to the property of its being root compound.[21]

Finally, it is pointed out by H. Pan that the theories taken here are too powerful; in that sense, they are too weak. This problem arises in Chinese resultative compound verbs which are single-headed. Let's look at the Chinese example in (31).

(31) John chui - mie - le deng.
blow die-out Asp light
'John blew out the light.' (From Pan 1991)

The theories predict that the sentence (31) may have more than one interpretation, but it has only one in (31). For the sentence (31), why do we not have another interpretation, 'John blew the light and as a result John died out.' The reason is that it is not possible (or plausible) pragmatically, although the theories do not themselves disallow it.

6.Concluding Remarks

In this study, I have proposed an absolute prominence theory (APT) of argument structure. We have seen that the APT makes correct predictions in determining the argument structures of compound verbs in Korean and Chinese, whereas the relative prominence theory (RPT) makes wrong predictions. APT is also necessary to distinguish unergatives from unaccusatives. I also proposed Head Prominence Preservation (HPP) because we have seen a problem in Li (1990) who assumes that a theta-role prominence is a head feature.

This study implies that any operation on argument structure should be aware of the status of arguments, i.e., absolute values.[22]

Endnotes

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1 See Baker (1989) and Bresnan & Kanerva (1989) for somewhat different argument structures.

2 Grimshaw (1990:10) says that " The argument structure contains ... only information about the relative prominence for the arguments."

3 According to Li (1990:181), theta-roles are identified before the theta-roles are assigned. Thus, the identification is not restricted by the hierarchical theta-grid.

4 It will be pointed out shortly that this assumption is not correct.

5 There can be three versions of RPT: the Left-Right (LR) version, the Right-Left (RL) version, and the Non-directional (ND) version. The following example shows how each version measures the prominence status of each theta-role. Suppose that a verb takes a theta-grid, <1, 2, 3>.

	< 1, 2, 3 >
LR	1st 2nd 3rd
RL	3rd 2nd 1st
ND	1 > 2 > 3

LR and RL measure the relative position of each theta-role from the left end and from the right, respectively. ND just indicates the relative prominence relation of

theta-roles. In fact, Li (1990) does not explain why he takes LR, not the other versions.

6 According to Li (1990: 182), the reason that V1 is the head of the compound is that V1 is a verb and V2 is 'adjective-like', but the whole compound is 'verb-like.' So, Li assumes that V1 is the head of the compound. I will follow Li's assumption for the Chinese compound verbs here, although clear evidence is required for the assumption.

7 Here Theta-role Prominency and Head-feature Percolation bring about the same result; they both rule in (4a), (4b), and (4e), but rule out (4c) and (4d). But they have different functions in the following case. Suppose that V1 has <1> and V2 <x, y>, and V1 is the head. For the theta-grid <x, 1=y> of V3, Theta-role Prominency rules it in, but Head-feature Percolation rules it out because the theta-role prominency of the head V1 is not maintained; <1> is the most prominent theta-role (by the Left-Right version of RPT) but it is not the most prominent in V3.

8 Li follows the assumption that BA can assign Case to its complement.

9 This question was raised by P. Sells and C.L. Baker.

10 This is suggested by C. L. Baker.

11 I thank C. L. Baker for his help to clearly express the constraint, HPP.

12 Head Prominence Preservation plays the same function as that of Head-feature Percolation in Li (1990).

13 Grimshaw (1990:39) suggests that we need some measure of absolute prominence.

14 For the distinction between these two types of experiencer verbs, see Kim (1990) and Hong (1991). Many tests are given there to tell one from the other. For example, the agentive experiencer verbs may take imperative forms as follows:

Agentive Experiencer verb: Mary-lul coh-e-ha-ela.
Acc like Imperative
Lit. (as an imperative) 'Like Mary.'

Non-agentive Experiencer verb: *Mary-lul coh-ela.
Acc like Imperative
* 'Like Mary.'

15 Here the compound verbs in Korean are limited to the type, V1+*e*+V2, where *-e-* is an affix which itself does not have any semantic content, and it does not change the categorial status. Note also that V2 in the compound verb is not a clausal-taking verb. Korean has the latter type verb like *mek-e-po-* 'attempt to eat,' where V2 takes a clausal complement. For the argument structure of this type of complex verb, see Sells (1991).

16 The prime notation indicates the arguments of a different predicate. But it still shows the absolute values; That is, the arguments <1> and <1'> have the same absolute value.

17 The same type of compound verbs are *olli-e-chi-* 'raise/hit' and *chi-e-olli-* 'hit/raise,' and *mil-e-chi-* 'push/hit' and *chi-e-mil-* 'hit/push.'

18 As mentioned earlier, HPP plays the same function as that of Head-feature Percolation in Li (1990).

19 Chinese also has double-headed compound verbs as follows:

jian-zhu 'build/construct,' *jian-cha* 'examine/check'
lai-wang 'come/go' *jian-nan* 'hard/difficult' (From Li 1990:190)

This type of compound verb has only one interpretation, as the theories predict.

20 This compound is different from the compounds dealt with so far in their affixes: the first one takes the affix *-e-* and the second *-ko-* (not a conjunctive form). Both share the same property, according to which an adverb cannot be inserted between the two verbs. But the *-ko-* type compounds are much more limited than the *-e-* type one: in fact, there are less than ten compound verbs of the *-ko-* type, as far as I know. I think that this type of compounds can be dealt with without any problems within the system that we propose here.
21 The pecularity of the compound verb *pha-mut-* is also noted in Kang (1991).
22 The absolute values of arguments may be reflected in the syntax. Note that argument structure is projected to D-structure (See Grimshaw 1990). M. Baker (1989) shows that two verbs in the serial verb construction should share a D-structure object, that is, a Theme. This object sharing property of serial verb constructions follows from APT.

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