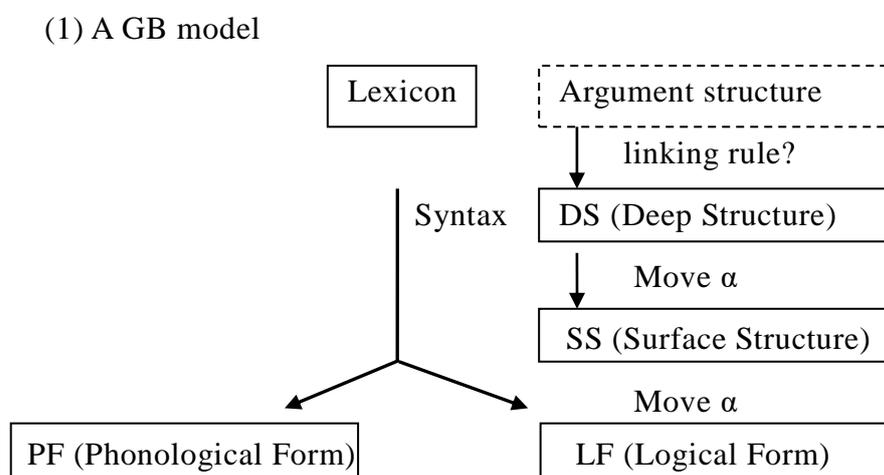


# Chapter 1

## Introduction: Framework and Overview

### 1 Argument Structure in the GB framework

In the Government and Binding (GB) framework (Chomsky 1981, 1986), argument structure is assumed to be lexical information encoded in a verb. The number of arguments is specified for each verb, as traditionally formulated in formal logic as “one-place predicate,” “two-place predicate,” etc. Thematic roles which the arguments of a verb play are designated in the theta ( $\theta$ )-grid. The lexical information above, namely the number and types of arguments, must be represented in syntax at the level of D-structure, which is defined by the Projection Principle (Chomsky 1981). The  $\theta$ -roles of a verb are discharged to each argument position through the one-to-one relationship, which is ensured by the  $\theta$ -Criterion (Chomsky *ibid.*) D-structure is thus regarded as the interface between lexicon and syntax, as illustrated below:



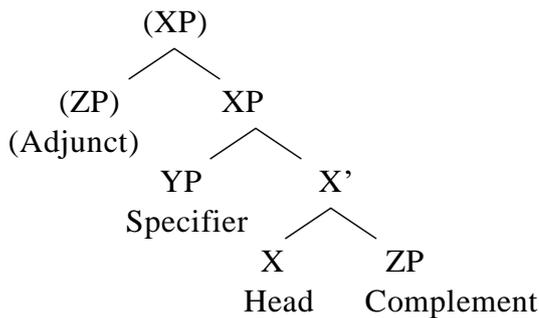
In model (1), four levels, <DS>, <SS>, <LF>, and <PF> are assumed, and at each level, relevant rules or operations apply to representations.

Phrase structure, to which argument structure is mapped, is designated by X'-theory. X'-theory is a theory to generate legitimate phrase structure in natural language, and proposes the following structure for all phrases cross-categorically and cross-linguistically.

- (2) a.  $X' = X X''^*$   
 b.  $X'' = X''^* X'$

(Chomsky 1986: 3)

(3)



The schemata of X'-theory is presented in (2), where X stands for a head (i.e. a category such as N, V, A, and P). The head X is projected: X' represents for the intermediate projection, and X'' for the maximal projection, XP. X\* stands for zero or more occurrences of some maximal projection. Based on (2), a general phrase structure is demonstrated in (3). Binary branching (Kayne 1984) places further restrictions, allowing only two configurationally defined positions locally related to the head X: Specifier (Spec) and Complement. The former is dominated by the maximal projection of X, and the latter is the sister of X. These positions are allowed to enter into a grammatical relation with the head X. Adjuncts are assumed to adjoin to XP or X'. The related items of a head are generated within the same

projection of the head, and the positions of the subject and the object of a predicate are configurationally defined in the projection of the predicate: the subject is Spec of the head, and the object is Complement of the head. For example, the sentence in (4) is generated through the mapping of the argument structure in (5) to the syntactic representation in (6).

(4) John reads a book.

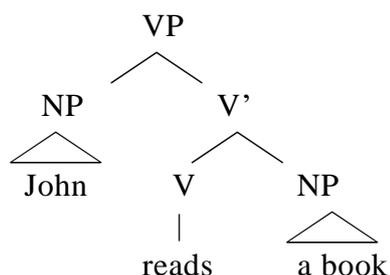
• Argument structure of the verb *read*

(5) *read*: [ NP1, NP2 ]

$\theta$ -grid: [ Agent, Theme ]

• Syntactic representation for (4)

(6)



The information in (5) is independent of syntax, and once it is mapped to the syntactic representation, the derivation proceeds in a way designated by the Principles in syntax, being ensured by the autonomy of syntax.

The discussion above is summarized in (7):

- (7) a. Argument structure (the number and types of argument) is lexical information encoded in a verb.
- b. D-structure is the interface between lexicon and syntax, where argument structure is mapped to syntactic representation and  $\theta$ -roles are assigned.
- c. X'-theory designates legitimate phrase structure to the arguments.

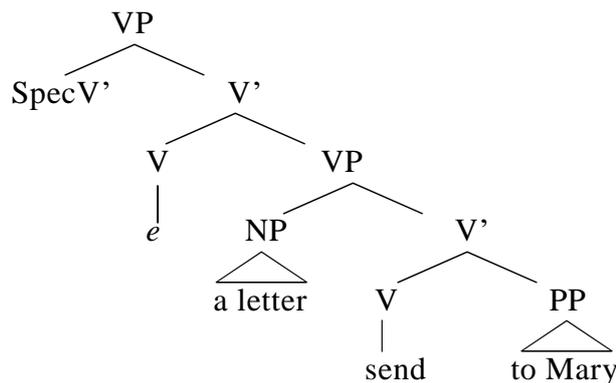
## 2 Argument Structure as Phrase Structure

### 2.1 Hale and Keyser (1993)

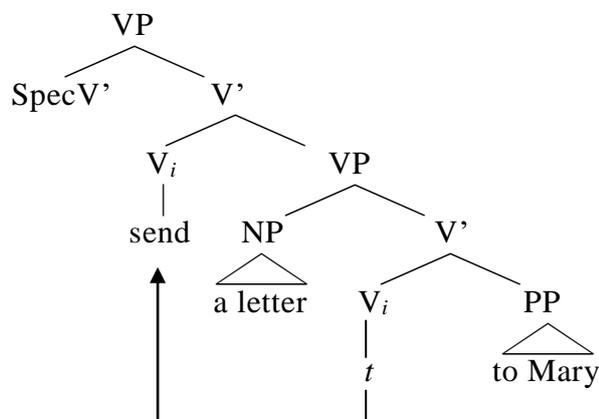
One problem which arises in the GB framework outlined above is how to deal with three-place predicates. A sentence such as *John sent a letter to Mary* has two internal arguments and one external argument, though VP has only two positions to accommodate arguments, Spec and Complement, as shown in (3). To solve the problem, Larson (1988) proposes an innovative structure where two verbs are involved, which creates three slots for arguments, and the lower verb moves to the higher verb to assign a  $\theta$ -role.<sup>1</sup>

(8) John sent a letter to Mary.

(9) a.



b.



(Larson 1988: 342, 343)

<sup>1</sup> The structure proposed by Larson (1988) is desirable not only in terms of the  $\theta$ -role assignment, but also accounting for the puzzling binding facts pointed out by Barss and Lasnik (1986). See Section 2.1 in Chapter 3.

In (9a), the verb *send* takes the Goal phrase *to Mary* as its complement and forms a constituent, which functions as a predicate: *send-to Mary*. Notice that the lower VP in (9b) corresponds to an unaccusative VP. On this VP, the higher VP is built up to accommodate the external argument in its Spec. The lexical verb *send* is raised to a higher abstract verb and compositionally assigns a  $\theta$ -role to the external argument *John*.<sup>2</sup> This  $\theta$ -role assignment mechanism by a complex verb head has a great impact on the theory, because the D-structure as the level for introducing all the arguments and assigning all the  $\theta$ -roles can no longer be maintained. This leads to the elimination of D-structure in the Minimalist framework (Chomsky 1995). Larson (1988) will be reviewed in more detail in connection with ditransitives in Section 2.1 in Chapter 3.

Hale and Keyser (H&K) (1993) advocate that Larson's "VP-shell" structure can be taken as a representation for argument structure, not necessarily as a representation for D-structure. That is, argument structure is not static information encoded in a verb, but a dynamically derived phrase structure which possesses properties of syntax. H&K investigate denominal verbs such as *shelve*, *calve*, *bottle*, and *saddle*. Verbs of this type are assumed to be derived from nouns, as indicated by the term "denominal," and the relevant word formation process would be considered to be lexical. However, H&K show that the process involved is in fact syntactic. They present the data in (10) and ask why (10b) is not permitted.

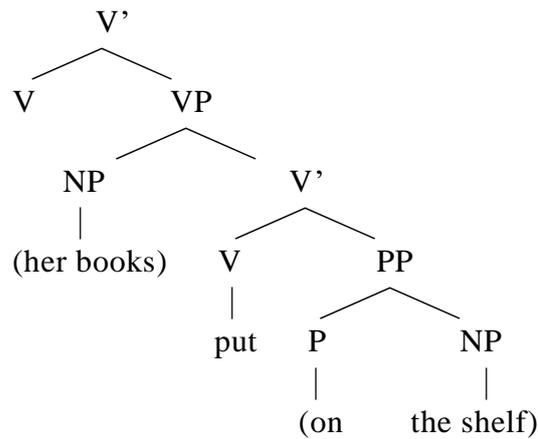
- (10) a. She put her books on the shelf.  
b. \* He shelved the books on.

H&K propose the following derivation for (10a):

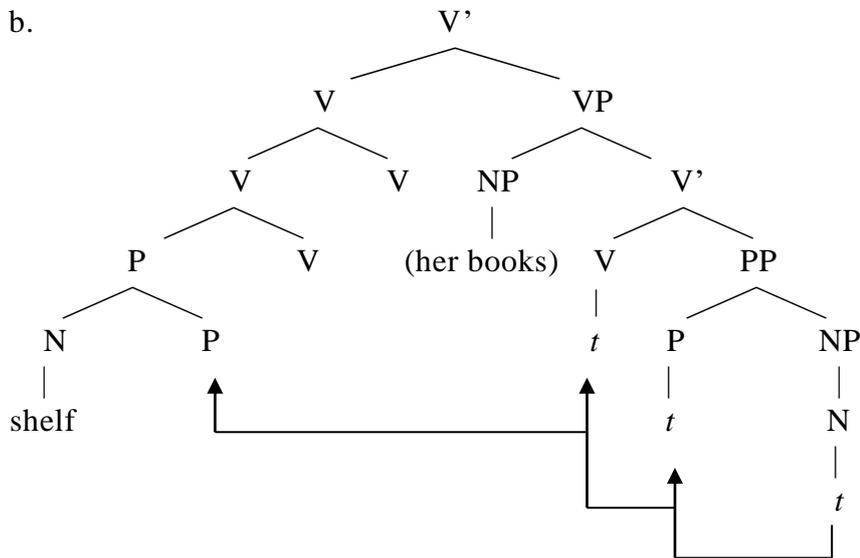
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<sup>2</sup> As for Case, the raised verb governs the direct object, *a letter*, and assigns Case. From a conceptual point of view, Larson maintains that all the arguments of a predicate must be realized within a projection of the predicate, which coincides with the "VP-internal hypothesis," advocated by Fukui and Speas (1986), Kitagawa (1986), Kuroda (1988), and Sportiche (1988).

(11) a.



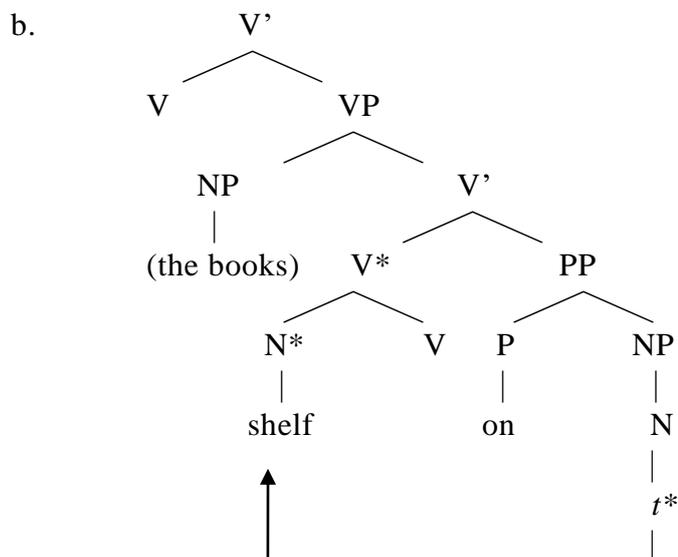
b.



(H&K *ibid.*: 56, 58)

In (11a), the verb *put* takes the Goal phrase *on the shelf* as Complement, and the Theme *her books* as Spec. The representation denotes “her books are (in a state of being) put on the shelf.” This is the structure which Larson (1988) proposes for three-place predicates (compare (11a) with (9a) above). Next, as demonstrated in (11b), the verb *shelf* is derived (or “denominalized”) by head movement (Baker 1988), applied three times. Each step obeys the Head Movement Constraint (Travis 1984), which prohibits head movement from skipping the closest head. The ungrammaticality in (10b), repeated as (12a), is accounted for by a violation of the Head Movement Constraint, as illustrated in (12b).

(12) a. (= (10b)) \* He shelved the books on.



(H&K *ibid.*: 60, 61)

H&K show that the word formation process involving argument structure obeys the Head Movement Constraint, namely, a syntactic constraint. This means that argument structure is derived in syntax, and that argument structure itself is phrase structure, a syntactic object. Consequently, the number and types (i.e.  $\theta$ -roles) of arguments are configurationally restricted.

H&K assume the level “*l*-syntax,” where the above operations apply and argument structure is derived; however, Chomsky (1995) argues that there is no need to assume such a different level. Developing Larson’s (1988) VP-layered structure and H&K’s (1993) view, Chomsky (1995) regards the upper V as a lexical-functional category, little *v*, which introduces an external argument and builds up the structure.<sup>3</sup> In Chomsky (2001), he assumes two types of little verb: *v*\* for transitives, and *v* for intransitives (cf. Collins 1997). Hasegawa (2001) refines the dual (i.e. thematic and Case-related) properties of little verb through the feature specification involving [+/- External role] and [+/- Object Case], which will be reviewed in Section 3 in Chapter 2.

The discussion in this section is summarized below:

<sup>3</sup> Little *v* is also assumed to check Acc Case of the object, since AgrO, which was postulated to bear that function, is eliminated from the theory (Chomsky 1995).

- (13) a. Argument structure is not static information encoded in lexicon, but dynamically derived in syntax.
- b. Argument structure is phrase structure, restricted by syntactic constraints.
- c. The number and types of arguments are configurationally restricted.

### **3 Argument Structure as Restriction on Derivation**

#### **3.1 Functional vs. lexical**

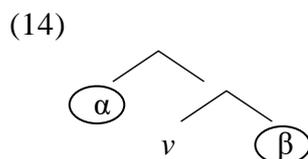
Turning back to the GB framework, types of heads are taken into focus as X'-theory is developed. Some items are problematic, for they cannot be classified into the lexical categories: N, V, A, and P. For example, Tense and Inflection do not have semantic contents like lexical items, but they do bear a certain abstract function in language. They are classified as functional categories, such as T (Tense) or I (Inflection). Questions about the component (i.e. lexical or syntactic) in which the verbal inflection should be dealt with once raised controversy, but now that verbal inflection is analyzed as a functional head, related processes are considered to be syntactic operations. Further, by assuming functional categories, it becomes possible to give a unified explanation to syntactic phenomena from cross-linguistic perspective. A functional head X may not be visible in a particular language, or it may be realized by a completely different morphological system in another language, but the functional head X can be assumed to exist in these languages, so far as the functional head X is part of Universal Grammar (UG). Certain properties of the head X are expected to be shared in the relevant constructions. In this sense, little verb belongs to the functional category. It is an abstract item, not necessarily realized by a morpheme, but it determines transitivity of verbs. It is also capable of assigning Accusative Case. Little verb thus determines core properties of verbs, and its existence is assumed cross-linguistically, since it is an important element of human language.

However, we should notice that little verb has dual properties: it is lexical-functional. If we follow Hale and Keyser's (1993) standpoint that argument

structure is phrase structure dynamically derived in syntax, then this amounts to saying that assigning a  $\theta$ -role (i.e. a lexical property) and building up phrase structure (i.e. a functional property), are like the two sides of a coin. These dual properties should go together and interact with each other. Pylkkänen (2002) pursues this issue and shows how these dual functions are correlated, which changes our view of argument structure.

### 3.2 Pylkkänen (2002)

Hale and Keyser show that deriving argument/phrase structure is a syntactic operation; therefore, it is restricted by syntactic constraints such as the Head Movement Constraint. Developing their view, Pylkkänen (2002) further proposes that not only syntactic operation but also a  $\theta$ -role-assigning head itself designates legitimate argument/phrase structure. This is possible because a  $\theta$ -role-assigning head also mediates the relationship between  $\alpha$  and  $\beta$ , and restricts the relationship, as illustrated in (14) below:



Suppose that  $v$  is a  $\theta$ -role-assigning head; a kind of little verb. The head mediates the relationship between  $\alpha$  and  $\beta$ . The head introduces an argument  $\alpha$  to assign a  $\theta$ -role, and at the same time, the  $\theta$ -role-assigning head selects  $\beta$  to build up phrase structure. Through these operations, the head completes the derivation of a legitimate phrase structure,  $vP$ .

Pylkkänen argues that arguments can be introduced by “Applicative (Appl)” heads. In her view, Agent is also an “applied” argument to VP, introduced by an Appl head:  $v^*$  (cf. Marantz 1984). Exploring various types of constructions where additional arguments appear from a cross-linguistic perspective, she shows licit constructions in a particular language are designated by types of Appls. For example,

an applied argument, the Benefactive, may be added to an event which is denoted by an unergative verb in Chaga, a Bantu language, but it is impossible in English.

- Chaga

- (15) N-a-i-zrìc-í-à mbùya  
 Foc-1Sg-Pres-run-Appl-Fv 9-friend  
 ‘He is running for a friend.’

(Pylkkänen *ibid.*:17, originally in Bresnan and Moshi 1993)

- English

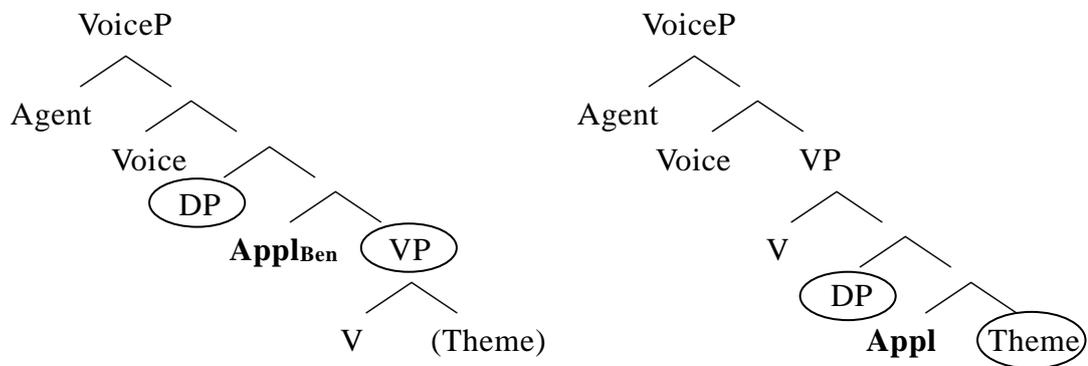
- (16) a. I ran.  
 b. \* I ran him.

(Pylkkänen *ibid.*:17)

This difference is explained by assuming that Chaga has “high Appl,” whereas English has “low Appl.” High Appl represents a relationship between an individual and an event, realized as DP and VP respectively, as shown in (17a). On the other hand, the low Appl in (17b) denotes a relationship between two individuals: DP and Theme.

- Two Applicatives

- (17) a. High Appl (e.g. Chaga)                      b. Low Appl (e.g. English)



(Pylkkänen *ibid.*: 19 with relevant notation)

As illustrated in (17b), the relationship between the applied DP and Theme is obligatory in English. The structure in (17b), which requires Theme, does not match the unergative sentence in (16b), and the sentence is never generated. Thus, possible argument structures in a language are attributed to possible Applicative constructions in the language. In Pykkänen's system, a functional head "Voice" (Kratzer 1996) is used, instead of  $v^*/v$ , to introduce Agent. Pykkänen clarifies that one functional head, Voice or  $v^*/v$ , is not sufficient, and a more articulated head system of little verbs, including Appl heads, is required to derive legitimate argument structure and phrase structure in a particular language. Pykkänen (2002) will be reviewed in more detail in Section 2.2 in Chapter 3.

The discussion in this section is summarized below:

- (18) a. Little verbs have dual properties: one is lexical ( $\theta$ -related), and the other is functional (building-up phrase structure).
- b. A  $\theta$ -role-assigning head also restricts the legitimate derivation in a particular language.

## **4 Proposal: The Generalized Little-Verb Hypothesis**

### **4.1 Theoretical aim**

Based on the previous studies briefly reviewed above, in Chapters 2-4, we will investigate various types and properties of "little verbs," under which  $v^*$ ,  $v$ , Cause, and Appl are subsumed. We will use the term Applicative (Appl) in a narrow sense, referring to the head which introduces a certain applied argument, such as a Benefactive/Malefactive DP. Developing the ideas presented by above-mentioned studies, we will present (19) as the "generalized little-verb hypothesis":

- (19) The generalized little-verb hypothesis

Properties of little verbs restrict legitimate derivation in a language by interacting with each other, with a lower head V, or with a higher head T.

Theoretically, in the Minimalist framework, stipulations made in the GB theory have been eliminated. In doing so, X'-theory, including "artificial" products such as labels and intermediate projections, is also reduced to one operation, "Merge," in which two elements simply merge (Chomsky 2006). X'-theory was a theory of possible phrase structure in natural language. We consider that (19) partially replaces the function covered by X'-theory. That is, instead of X'-theory, the head which derives argument structure also derives legitimate phrase structure.

To assume more than one little verb in syntax is conceptually desirable as well. As is often pointed out in the literature, a one-to-one relationship between a  $\theta$ -role and a  $\theta$ -role-assigning head is simple and therefore desirable, although the layered structure looks complicated on the surface. Further, assuming an Applicative head and an applied argument explains an "applied interpretation." For example, consider the transition from a transitive to ditransitive.

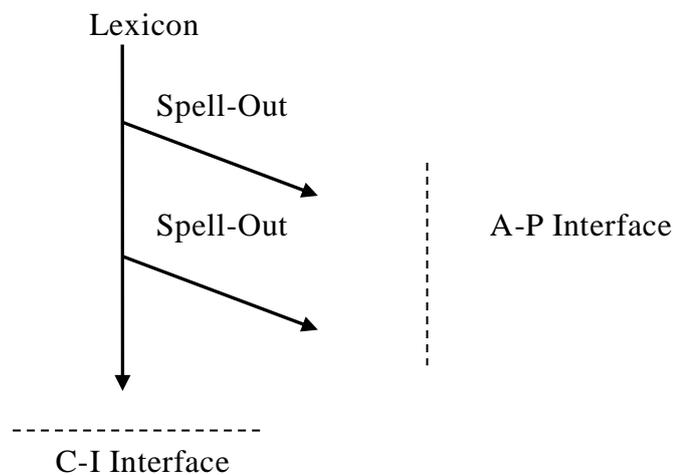
- (20) a. Mary baked a cake.
- b. Mary baked John a cake.

The difference between (20a) and (20b) is not merely the increase in the number of arguments. In (20b), The Benefactive interpretation of *John* is obtained, but how the interpretation is derived is not completely clear. If we assume that an abstract head, Appl, introduces an applied argument, Benefactive, to VP, then the thematic interpretation of ditransitives is also attributable to the Appl head, as discussed by Pylkkänen.

## 4.2 Theoretical implication

In the Minimalist framework (Chomsky 1995), all the levels and components assumed in the GB model, including D-Structure, are eliminated and unified into one derivation heading to the C-I (Conceptual-Intentional) interface. Incidentally, phonological information is Spelled-Out towards the A-P (Articulatory-Perceptual) interface.

(21) A Minimalist model



As reviewed above, Hale and Keyser (1993) argue that the representation of argument structure is itself a phrase structure. That is to say, thematic interpretation is obtained based on phrase structure configuration. Together with (21), the description in (22) can be obtained in the Minimalist framework:

(22) Thematic interpretation is configurationally obtained at the C-I interface.

We assume (22), though we will still use the conventional expression “assign a  $\theta$ -role.”

This change in frameworks has two implications. First, the level of D-Structure is abandoned, where the  $\theta$ -criterion, which requires the one-to-one correspondence between an argument and a  $\theta$ -role to be assigned, is concerned. Consequently, movement into a  $\theta$ -role position can be allowed so long as other independent factors do not prevent it (Bošković 1994, Hornstein 1999, and Watanabe 1999, among many others). Second, if thematic interpretation is configurationally obtained at the C-I interface, as in (22), then a head which “assigns a  $\theta$ -role” and an argument must be in a local relationship. That is, an operation to achieve thematic interpretation cannot be replaced by a remote control such as “Agree,” which is applicable in the case of formal feature agreement (Chomsky 2000, 2001). In

Chapters 2-4, we will carefully attest movement of a DP to a  $\theta$ -role assigning head, and clarify how thematic interpretation is derivationally achieved.

### 4.3 Empirical discussion

In the following chapters, we will empirically show how the hypothesis in (19) works in the following three cases. First, in Chapter 2, we will focus on how the thematic relationship between the subject and the object is influenced by little verbs. Observe the pair of sentences in (23) and (24):

(23) a. Taroo-ga daidokoro-de yasai-o kit-ta.  
Taroo-Nom kitchen-in vegetables-Acc cut-Past  
'Taroo cut vegetables in the kitchen.'

b. Taroo-ga ziko-de yubi-o kit-ta.  
Taroo-Nom accident-by finger-Acc cut-Past  
'Taroo cut his finger in the accident.'

(24) a. Hanako-ga koozyoo-de nuno-o some-ta.  
Hanako-Nom factory-in cloths-Acc dye-Past  
'Hanako dyed cloths in the factory.'

b. Hanako-ga biyooin-de kami-o some-ta.  
Hanako-Nom beauty shop-at hair-Acc dye-Past  
'Hanako had her hair dyed at the beauty shop.'

The (a)-sentences are “regular” transitive, where the subject is interpreted as Agent, and the object as Theme. In these sentences,  $v^*$ , one of the little verbs, is assumed to be involved, and gives rise to transitivity and Agentivity. In the (b)-sentences, the predicates involved are the same as in the (a)-sentences: *X-o kit-ta* ‘cut X,’ and *X-o*

*some-ta* ‘dye X,’ where X indicates the object. However, the subjects of the (b)-sentences are interpreted as Experiencer: the Malefactive in (23b), and the Benefactive in (24b). How are the (b)-sentences derived and the Experiencer readings obtained? Since the predicates involved are the same on the surface as the (a)-sentences, one possibility is to postulate that a phonetically null little verb is involved, instead of  $v^*$ , in the (b)-sentences. We will pursue this possibility, and conclude that an Appl head, which introduces Experiencer (Benefactive/Malefactive), is encompassed in the (b)-sentences. This construction will be called the “Possessive Relationship Construction” (PRC), where the possessive relationship between the subject and the object plays a crucial role in deriving the syntactic and semantic properties. This types of sentences in Japanese have been widely discussed (e.g., Masuoka 1979, Amano 1987, 1991, Sato 1994, and Suzuki 2003), however, not many studies, (except for Takezawa 1991, Hasegawa 2001, 2004a, and Okura 2004a, b, 2005a), seem to give a unified account to the phenomenon that two thematic interpretations arise from one predicate.

Other than the PRC, the Japanese language has many cases where verbs involved in a non-Agentive construction are also used in the “regular” transitive, where the Agent subject appears. This difference in interpretation is brought about by little verbs. That is, though the predicates have identical forms on the surface, their inner structures, how little verbs are layered, are different. We will show how layered little verbs, including an invisible Appl head, designate legitimate representation and correctly exclude illegitimate non-Agentive constructions. We also discuss that little verbs function in a correlated fashion, as the head-head relationship generally decides properties of a sentence.

Since the existence of an invisible little verb, Appl, is detected in the PRC in Chapter 2, the next question will be whether there is a case in which Appl is phonetically realized. It will be shown in Chapter 3 that Japanese provides us with such a case. As is generally known, Japanese is a head-final language, and the heads are often morphologically marked to show their functions. The agglutinated heads are realized at the end of a clause in a set sequence. We will observe a construction

in which a head that can be analyzed as an instance of Appl appears following a lexical V. The head is morphologically realized as *age-ru* or *yar-u*, which are originally “lexical” donative verbs, corresponding to the English verb *give*. The verbs *age-ru/yar-u* may be connected to another verb with the participle *-te*, which has sometimes been conceived of to have a sort of “auxiliary” use.<sup>4</sup> We will use the gloss ‘Give’ for the “auxiliary” use.

(25) a. Watasi-wa hon-o kai-ta.  
 I-Top book-Acc write-Past  
 ‘I wrote a book.’

b. ?? Watasi-wa Hanako-ni hon-o kai-ta.  
 I-Top Hanako-*ni* book-Acc write-Past  
 (Lit.) ‘I wrote a book to Hanako.’

c. Watasi-wa Hanako-ni hon-o kai-te-age-ta.  
 I-Top Hanako-*ni* book-Acc write -Give-Past  
 ‘I wrote a book for (the good of) Hanako.’

(26) DP1 DP2 (Object) V *-te -age/yar -(r)u/ta*  
 Agent Benefactive/Malefactive Theme verb Give Tense  
 ‘DP1 does something and DP2 {benefits from / is adversely affected by} it.’

Sentence (25a) is a transitive sentence, and adding another argument, *Hanako*, degrades the sentence, as shown in (25b). If the morpheme *age-ru* ‘Give’ is attached to the stem verb *kak-u* ‘write’ as in (25c), then *Hanako* is readily introduced as a Benefactive argument. The donative morpheme *age-ru* has a variant *yar-u*, which may be used in the Malefactive sense. The construction exemplified by (25c) is

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<sup>4</sup> This construction has been extensively discussed: see Nakau 1973, Inoue 1976, Shibatani 1978, 1994, 2000, Machida 1996, 1998, Hasegawa 2000a, and Okura 2006, among many others.

schematized in (26), and this will be termed the “Give Benefactive/Malefactive Construction” (GBC), explored in Chapter 3. One of the main issues concerning the GBC is how the Benefactive/Malefactive interpretation is achieved. Traditionally, it has been considered that these types of constructions have an embedding structure, namely, complex clauses. However, as reviewed above, assigning a  $\theta$ -role and deriving a phrase structure are like the two sides of a coin, both of which are attributable to one head, a little verb. We will argue that a head realized by *age-ru/yar-u* is a little verb, Appl, which is responsible for the Benefactive/Malefactive interpretation, and introduces a Benefactive/Malefactive argument. The existence of the Appl head is empirically verified by syntactic diagnostics such as indeterminate binding, pronoun binding, and scope interaction. In doing so, “Benefactive raising” to the Appl head is also detected. This is compatible with the conceptual view in (22) that thematic interpretation is configurationally obtained at the C-I interface, and therefore, a local relationship between a head and an argument must be maintained, which is different from assigning Case by a remote operation, Agree.

Now that one predicate is decomposed into V and little verbs (including Appl), a conceptual question that might arise is whether they function independently from each other. We will show that they do not; rather, the properties of V and little verbs are closely connected and correlated to each other. To be specific, the way that Appl introduces a Benefactive argument and marks it with or without the Dative *-ni* is closely related to the verb-type. A little verb is not something like an extra predicate, but a head functions together with a lower head, V, and thus plays a crucial role in deriving argument structure. Although *ni*-marking has been extensively investigated in Japanese linguistics, there have been not many studies which explain data from the perspective of a systematic relationship between V and a higher functional head, Appl.

Finally, we will investigate V-V compounds in Japanese in Chapter 4. Head-head incorporation is a productive process in the Japanese language, and V-V compounds provide us with ideal data to investigate how one argument structure is derived from more than one verb. The following four types of V-V compounds, the first three of which are presented by Kageyama (1989, 1993), will be examined:

(27)

**Type A**    **V1-V2**    *naguri-taos-u*    (“lexical” incorporation)  
hit    fell  
‘knock down’

Taroo-ga    Ziroo-o    naguri -taosi -ta.

Taroo-Nom    Ziroo-Acc    hit    -fell    -Past

‘Taroo knocked down Ziroo.’

**Type B**    **V1-V2**    *kaki -oe-ru*    (“syntactic” complementation: Control)  
write finish  
‘finish writing’

Hanako-ga    ronbun-o    kaki    -oe    -ta.

Hanako-Nom    paper-Acc    write -finish -Past

‘Hanako finished writing a paper.’

**Type C**    **V1-V2**    *oti -kake-ru*    (“syntactic” complementation: Raising)  
fall    almost/be going to  
‘almost fall’ ‘be going to fall’

Ringo-ga    oti -kake    -ta.

apple-Nom    fall -almost -Past

‘The apple almost fell.’

**Type D**    **V1-te-V2**    *kai-te-age-ru*    (“syntactic” Applicative)  
draw give  
‘draw (a picture) for the good of someone’

Taroo-ga    Hanako-ni    e-o    kai    -te -age -ta

Taroo-Nom    Hanako-Dat    picture-Acc    draw -te -give -Past

‘Taroo drew a picture for (the good of) Hanako.’

Kageyama analyzes Type A as “lexical” compounds, whereas Types B and C as “syntactic” compounds. Type D is what we will propose in Chapter 3. In view of Type D, we will be able to recast the issue of how V-V compounds are formed: whether the division in types is relevant (or corresponds) to component differences (Syntax vs. Lexicon, as Kageyama puts it), or if there are other ways of perceiving it. We will explore the latter direction. Extending the generalized little-verb hypothesis above to this case, we will go a step further than in the previous chapters. In Chapters 2 and 3, the focus is put on the head-head relationship between a little verb and V. In Chapter 4, we will further examine the head-head relationship between a little verb and T and observe how they correlate in deriving argument/phrase structure. We will show that possible variations of argument structure involving two certain Vs depend on the way that functional and lexical heads, T, *v*, and V are intertwined. Based on this observation, we will claim that V-V compounds, not only Types B and C, but all of the four types, are formed via syntactic processes.

Finally, Chapter 5 concludes the discussion. One main issue addressed throughout the thesis is the location of the interface between lexicon and syntax. Having verified and developed the hypothesis described in (19), we reach a view that the interface between lexicon and syntax exists not at the level of D-structure, as was assumed in the GB theory, but in the syntactic derivation itself, namely, in a process of deriving a phrase structure. That is, the “interface” exists in each head-head relationship between V and a little verb. The result of derivation and the configuration of phrase structure is interpreted at the C-I interface. Further, assuming that deriving argument structure is deriving phrase structure, T is also involved in relevant derivation, which will be observed in Chapter 4. T dominates little verbs and a head-head relationship is established between T and a little verb. T also correlates with a little verb in deriving argument/phrase structure, and actually, T functions as driving force of the derivation.

In conclusion, little verbs play a core role in generating legitimate phrase structure, and T leads the derivation, both of which constitute part of the work which is taken over from X'-theory.