UNIVERSITY OF CALIFORNIA,
IRVINE


Parametrization of Features in Syntax


DISSERTATION


submitted in partial satisfaction of the requirements for the degree of


DOCTOR OF PHILOSOPHY


in Social Science


by


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1998

The dissertation of Sze-Wing Tang is approved
and is accepted in quality and form
for publication on microfilm:

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Committee Chair

University of California, Irvine
1998

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To my beloved parents

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# ACKNOWLEDGMENTS

I would like to thank many people whose intellectual and personal support made this dissertation possible.

First and foremost, I am grateful to the chair of my dissertation committee, Jim Huang, for his wealth of knowledge and endless intellectual and personal support. Despite his hectic schedules, he always showed patience in listening to my sketchy ideas and by making many exciting comments. I never felt lost after every meeting with him. His insightful suggestions and criticisms on my work often led me to reconsider the data and the arguments very carefully. I consider myself extremely fortunate for the opportunity to have his valuable and incredible guidance.

It is my pleasure to thank the other two committee members: Naoki Fukui and Audrey Li. I would like to thank Naoki for insightful stimuli and useful suggestions, which were inspirational in working out my ideas. His high standards have had a great influence on me. A warm and special thank you goes to Audrey who generously agreed to be a member of my committee. I benefited enormously from her criticisms and comments when I was writing this dissertation. All the meetings we had in Los Angeles, San Gabriel, and Irvine were so wonderful and I will cherish them for many many years. For her kindness and support I am most grateful.

I wish to thank other faculty members who taught me at UC Irvine. Many discussions with Lisa Cheng, especially when I was writing my syntax generals paper, were extremely helpful. She deserves special thanks for her incisive guidance and generous support over the last several years. I thank Utpal Lahiri and Robert May for my

1997, and the Northwest Linguistics Conference at Simon Fraser University in March 1998. I would like to thank these institutions and the audiences there as well.

I would like to reserve this last paragraph for three people who deserve the most mention of all. I wish to thank Janet Kong for her understanding, patience, waiting, and unconditional help. Without her love, my life would not be colorful and enjoyable. My parents Yiu-Chi Tang and Wai-Ling Chung have provided unquestioning support and encouragement. No 'features' can express my deep gratitude for their love and care from childhood. I would like to dedicate this dissertation to them.

# ABSTRACT OF THE DISSERTATION

Parametrization of Features in Syntax

By

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Doctor of Philosophy in Social Science

University of California, Irvine, 1998

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The major focus of this study is to propose a restrictive theory of parameters of Universal Grammar in terms of the principles-and-parameters approach. I propose that semantic features are invariant across languages; only features that may play a role in the derivation from N to the PF interface level including phonetic features, categorial features, and affix features are subject to parametric variation, which is called the ʻOvert Parametrization Hypothesis' (OPH).

It is argued that where affix features are associated with a word is subject to parametric variation. Movement is largely determined by morphology: movement in the overt component can be signaled by 'impoverished' morphology; movement of morphologically 'rich' elements takes place in the phonological component. Under this approach, a variety of syntactic differences among Chinese (Cantonese and Mandarin), English, French, Japanese, Navajo, and Hebrew can be accounted for.

Based on the idea of parametrization of affix features, I claim that T has an affix feature [-V] in English. Such an affix feature is missing in Chinese. Consequently, there is no V-to-T movement in Chinese and V moves out of $v$P in English. A number of

apparently disparate differences between these two languages, including postverbal *no*-phrases, the distribution of focus elements, binominal *each*, the 'SOV' focalization construction, scopal ambiguity of quantifiers, definiteness of preverbal numeral phrases, gapping, and heavy NP shift, receive a unified explanation.

The data presented as evidence for the claim that categorial features are subject to parametric variation are primarily based on small clauses in Chinese, English, and Japanese. It is argued that Chinese small clauses are bare, English small clauses are 'not-so-bare', and Japanese allows both types of small clauses. The major typological differences among these languages regarding the structure of small clauses are derived from a parameter related to the combination of categorial features of nouns and adjectives. The findings lend support to the OPH.

# CHAPTER 1

## BLUEPRINT OF THE LANGUAGE FACULTY: A PROLOGUE

### 1.1 Introduction

In this study, I try to answer two questions: (i) What features can be parametrized? (ii) How can features be parametrized?

Regarding the first question, I will argue that only features that play a role in the derivation from the numeration to the PF interface level should be parametrized, which is dubbed the Overt Parametrization Hypothesis. Features that are subject to parametric variation include phonetic features, categorial features, and affix features.

Regarding the second question, I will argue that features can be parametrized in the following ways: (i) affix features could be associated with a word either in the numeration or in the derivation, (ii) phonetic features and affix features could be either present or absent, and (iii) categorial features could have different combinations. The theory of parameters advocated here is supported by empirical evidence from natural languages.

In this chapter, I first introduce some basic theoretical assumptions adopted in this study in section 1.2. I will review some theories of parameters in the literature and propose a restrictive theory of parameters in section 1.3. The organization of this dissertation is outlined in section 1.4.

**1.2  Theoretical background**

1.2.1  Computational system $C_{HL}$

A concern of generative grammar is to determine and characterize the linguistic capacities of human beings. The language faculty, a particular component of the human cognitive system, has an initial state, genetically determined and uniform for the species. The goal of generative grammar is to provide a theory of the initial state of the language faculty, namely Universal Grammar. Following Chomsky (1993, 1994, 1995, 1996), I assume the following view on the structure of language. The language faculty is a component of the human mind/brain that is specifically dedicated to the use and understanding of language. The faculty includes two major parts: a cognitive system that stores information and performance systems that access the information provided by the cognitive system. The performance systems fall into two categories: the conceptual-intentional systems and the sensorimotor systems. The cognitive component of the language faculty consists of a computational system for human language $C_{HL}$ and a lexicon. The computational system is a generative procedure mapping some array of lexical choices from the numeration N to the LF representation $\lambda$ and PF representation $\pi$ at the two interface levels. The conceptual-intentional systems and the sensorimotor systems use the information in $\lambda$ and $\pi$ respectively. Phonological information is interpreted at the PF interface level. Semantic, cognitive, conceptual, as well as pragmatic information will be interpreted at the LF interface level.

The two interface levels are required by bare output conditions, which are legibility requirements imposed by the performance systems. The computational system applies to N and forms a sequence of symbolic elements. The sequence of symbolic

elements formed in this way is called a derivation, which may converge if bare output

conditions are met at the two interface levels; otherwise, it crashes.

According to Chomsky (1995), at some point in the derivation, there is an

operation Spell-Out that applies to the structure. After Spell-Out, the derivation

continues, leading to the LF interface level and the PF interface level. The post-Spell-Out

derivation to $\lambda$ is called the 'covert component'. The post-Spell-Out derivation to $\pi$ is

called the 'phonological component'. The pre-Spell-Out derivation is called the 'overt

component'. The phonological component is the part of the computation that is only

relevant to the PF interface level. The covert component is the part of the computation

that is only relevant to the LF interface level. The overt component is the part of the

computation that is relevant to both the LF and PF interface levels. Presumably there is

no connection between the two interface levels. The relevant portions of the language

faculty can be schematized as follows.

(1)
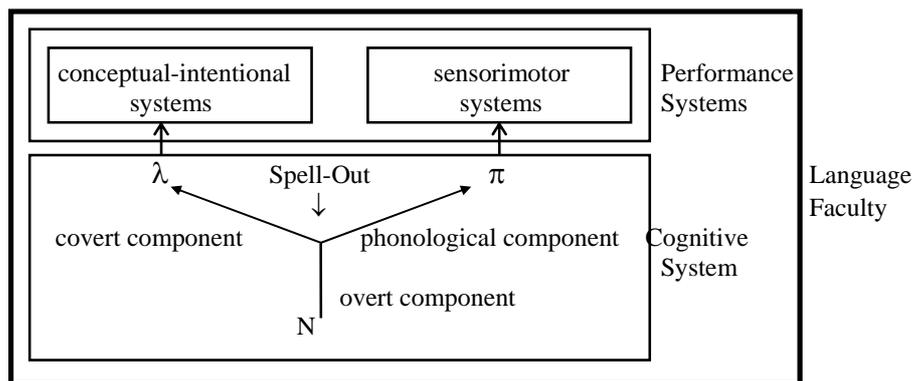
1.2.2  Classification of features

As pointed out by Chomsky (1995), the grammar meets a condition of inclusiveness which requires that the principles of Universal Grammar involve only elements that function at the interface levels; nothing else can be seen in the course of the computation. In the Minimalist Program, features are syntactic primitives. I assume with Chomsky (1995) that the interface levels consist of nothing more than arrangements of features.

There are only four kinds of features in the present framework: semantic features, phonetic features, categorial features, and affix features. Categorial features and affix features are accessible in the course of the computation. Semantic features receive an interpretation only at the LF interface. Phonetic features receive an interpretation only at the PF interface.

According to Chomsky (1995), categorial features are interpretable at the LF interface and they are not interpreted at the PF interface. However, categorial features seem also relevant in the N to $\pi$ mapping. It is a well-known fact that categorial information cannot be missing in determining prosodic structure (Selkirk 1984, Chen 1987, among others). Furthermore, word stress placement is sensitive to categorial status. Stress shift in English marks the difference between related nouns and verbs, for example *récord* (N) vs. *recórd* (V), *tórment* (N) vs. *tormént* (V).[1] These examples suggest that categorial features also play some role in the phonological component.

Affix features are morphological features (Chomsky 1995:285), which are also known as '-Interpretable categorial features' in Chomsky 1995. They are morphologically 'defective' elements and must be supported by a 'host' before reaching the PF interface level. There are two types of affix features: [-X$^{MIN}$] and [-X$^{MAX}$]. The former requires a

minimal projection $X^{MIN}$ to be in its checking domain and the latter requires a maximal

projection $X^{MAX}$ to be in its checking domain. For example, C in (2) bears two affix

features: [-T] and [-DP]. The former attracts *did* and the latter attracts *what*. I agree with

Chomsky (1995) that intermediate projections are invisible in the computation. There is

no affix feature sensitive to intermediate projections.

(2)     [$_{CP}$ [$_{DP}$ What][$_{C'}$ [$_{T}$ did]-C [$_{TP}$ you $t_{did}$ say $t_{what}$]]]?

In the present framework, affix features are the only cause of the displacement

property of human language. Movement must be triggered by affix features. No other

features may trigger movement. As argued by Ikawa (1996), movement can be regarded

as a direct reflex of morphological processes. Let us assume that this view is correct.

Chomsky (1995) proposes that in addition to categorial features, there are other

kinds of 'formal features', such as φ-features, Case features, and strong features. φ-

features of nominals have semantic correlates and reflect some semantic properties,

which are interpreted at the LF interface level and need not be checked. φ-features of

verbs are also known as 'agreement features' which presumably have to 'agree' with the

subject and/or the object of the verb triggering subject-verb agreement and/or object-verb

agreement (Chomsky 1981). According to Chomsky (1995), φ-features of verbs are

regarded as uninterpretable features which do not provide any instructions at either or

both interface levels. However, as argued by Rohrbacher (1994) and Griffith (1996), φ-

features of verbs are 'referential' in a sense that they are interpretable at the LF interface

---

[1] Thanks to Brian Agbayani and Naoki Fukui for drawing my attention to stress shift in English.

level and are never eliminated. Let us assume that they are right and regard ϕ-features as semantic features.

Case features present some peculiar properties. As pointed out by Chomsky (1995), both Case features of nominals and Case features of verbs are uninterpretable and thus must be eliminated at the LF interface. As they never have any effects at the interface levels, the existence of Case features is not motivated by properties of the interface levels. Under the spirit of the Minimalist Program, the status of Case features is dubious. In the present framework, the Case theory could be derivable. For instance, Chomsky (1981:176, 1986a) attempts to integrate the Case Filter with θ-theory. There may be a correlation between accusative Case and transitivity (Chomsky 1995:fn14). To reduce the Case theory to some independent principles in the grammar should be a desirable move. The relation between Case assignment and θ-theory will be discussed in chapter 2.

According to Chomsky (1995), strong features must be checked off even though they may be interpretable at the LF interface level. Weak features may be checked in the covert component by virtue of 'Procrastinate'.[2] In the present framework, affix features are the only cause of the displacement property. As affix features are morphological features and their nature is fundamentally morphological/phonological, a natural consequence is that movement is driven by the sensorimotor systems and must be overt. Covert movement should be prohibited, and for that reason the strong/weak distinction should be eliminated. See also Groat and O'Neil 1996 and Kayne 1998 for elimination of covert movement.

---

[2] See Collins 1997 for problems of Procrastinate.

In sum, there are only four kinds of features in the present framework, namely semantic features, phonetic features, categorial features, and affix features. Other features proposed in the literature should be subsumed under either one of these four types of features.

## 1.2.3 Structure of features

In the Minimalist Program, features are syntactic primitives. Lexical items are complexes of features (Chomsky 1995:243). 'Categories' are in fact derivative. Though the term 'category' will be used in our later discussion from time to time, the reader should bear in mind that it is only an informal use for the sake of convenience.

Following Chomsky (1970, 1981), I assume that there are two primitive categorial features in the lexicon: [N] and [V]. The former is substantive whereas the latter is predicative. Given that [N] and [V] are the two primitive features, Universal Grammar allows only four possible options, as listed in (3). For the ease of presentation, categorial features are ordered (cf. Urushibara 1993). The first feature of the ordered pair is called the 'primary categorial feature' and the second feature of the ordered pair is called the 'secondary categorial feature'. Notice that ordering here does not imply temporal order of the features. In addition, negative categorial features and the '+' sign of positive categorial features are omitted for the sake of brevity. $<+\alpha>$ and $<\alpha>$ are only notation variants.[3]

---

[3] $<N>$ and $<V>$ in (3) could conceivably be $<+N, -V>$ and $<+V, -N>$, respectively. In Chomsky's system, prepositions are [-N, -V]. Abney (1987:63) treats P as [-N] (=[+V]). Grimshaw (1991) treats P as an extended projection of N. If she is right, the primary categorial feature of P should be [+N]. As there are no negative features, the notation '[-$\alpha$]' will be reserved for affix features in this work.

(3)	(i)	&lt;N&gt;		(ii)	&lt;V&gt;
	(iii)	&lt;N, V&gt;		(iv)	&lt;V, N&gt;


Whether a lexical entry has the primary categorial feature and the secondary categorial feature, if any, is listed in the lexicon as categorial features are unpredictable from other properties of the lexical entry. Categories or 'parts of speech' of natural languages are characterized by a variable set of categorial features. Suppose that categories in natural languages can be informally divided into two major types: nominal categories and verbal categories. The necessary features that determine a nominal category and a verbal category are [N] and [V], respectively. Along these lines, in (3) &lt;N&gt; and &lt;N, V&gt; would be grouped under nominal categories and &lt;V&gt; and &lt;V, N&gt; would be grouped under verbal categories.

The primary categorial feature could be a necessary feature for some categories, which is essentially motivated by semantic factors. For example, nouns are substantive while verbs are predicative (Chomsky 1970, 1981). The primary categorial feature of a noun and a verb must be [N] and [V], respectively. T is associated with eventualities (Higginbotham 1985, Déchaine 1993, Chomsky 1995), which can be treated as a predicate (Stowell 1996). The primary categorial feature of T should be [V] by virtue of its semantic properties (Fukui 1986, Abney 1987, Déchaine 1993). However, the status of adjectives is not very clear. Adjectives could be either a nominal category or a verbal category with respect to categorial features, depending on what feature(s) adjectives are composed of in particular languages. The primary categorial feature of adjectives could be either [N] or [V]. The choice of the primary categorial feature of adjectives is arbitrary and subject to parametric variation.

1.2.4  Extended projection and the theory of bare phrase structure

In pursuing the Minimalist Program, I have been assuming that features are primitive

notions. Only [N] and [V] are primitive categorial features in the lexicon. To meet the

condition of inclusiveness, the interface levels consist of nothing more than arrangements

of features. Along these lines, 'categories' such as 'lexical categories' and 'functional

categories' are derivative notions. Classifications and labels of categories are not

identified by any special marking. There are no 'lexical category' versus 'functional

category' distinctions in the lexicon. A 'category' is defined as a 'lexical category' or a

'functional category' only in a certain syntactic structure in which it appears. In other

words, the 'lexical category' versus 'functional category' distinctions are relational

instead of properties inherent to them, on a par with the concepts minimal and maximal

projections in the bare phrase structure theory. As pointed out by Grimshaw (1991), it is a

functional category by virtue of its relationship to a lexical category. For example, T is

not just a functional category. It is the functional category for V.

In this study, I follow the theory of extended projection advocated by Grimshaw

(1991). Some relevant definitions with modifications are listed as follows.[4]

---

[4] Notice that (4) is a modified version of Grimshaw's original proposal. 'Perfect projections' are not
included in (4). According to her, the definitions of extended projection are given in (i).
(i)      x is the extended head of y, and y is an extended projection of x iff:
         (a)  y dominates x,
         (b)  y and x share all categorial features,
         (c)  all nodes intervening between x and y share all categorial features.
         (d)  If x and y are not in the same perfect projection, the F value of y is higher than the F value.
         Where n intervenes between x and y if y dominates x and n; n dominates x, and n does not
         dominate y.
(ii)     x is the perfect head of y, and y is a perfect projection of x iff:
         (a)  y dominates x,
         (b)  y and x share all categorial features,
         (c)  all nodes intervening between x and y share all categorial features.
         (d)  The F value of y is the same as the F value of x.

(4)     α is an extended projection of β and β is an extended head of α if and only if
     (i)  the maximal projection of β is the complement of α; and
     (ii) β and α share all categorial features.


According to (4), T is an extended projection of V in (5) because (i) the maximal projection of V, i.e. $V^{MAX}$, is the complement of T and (ii) V and T share the same categorial feature, namely <V>. However, V is not an extended projection of N in (5) because they do not share the same categorial feature. In the following configuration, the extended head, such as V, is regarded as a 'lexical category' and the extended projection, such as T, is regarded as a 'functional category'.[5]


(5)

$$
\begin{array}{c}
T^{MAX} \\
\diagup\diagdown \\
T \quad\; V^{MAX} \\
{\scriptstyle <V>}\; \diagup\diagdown \\
V \quad\; N^{MAX} \\
{\scriptstyle <V>}\; \diagup\diagdown \\
\ldots N \ldots \\
{\scriptstyle <N>}
\end{array}
$$
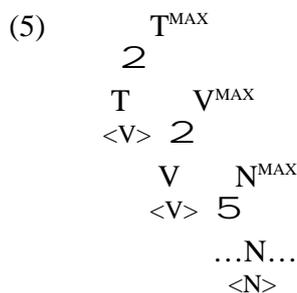

How can the theory of extended projection be subsumed under the bare phrase structure theory? I assume with Chomsky (1995) that structure building is a bottom-up process. Structure building consists of two operations: Copy and Merge. Copy creates a new syntactic object by copying a term within a syntactic object. Merge is an operation

---

For example, DP is a perfect projection of D' and D since they share the same F value, i.e. belonging to the same functional projection. DP is not a perfect projection of N since they do not share the same F value. DP is an extended projection of N.

[5] In Grimshaw's (1991) system, the extended head V receives an {F0} feature (=lexical category) and the extended projection T receives an {F1} feature (=functional category).

that takes a pair of syntactic objects $SO_i$ and $SO_j$ and replaces them by a new combined

object $SO_{ij}$. Informally speaking, structure building is a process of 'movement', assuming

that Move is a complex operation consisting of Merge and Move (Bobaljik 1995 and

Collins 1997).[6]

Suppose that a set of categorial features $\alpha$ in (6) will have its extended projection.

$\alpha$ is copied and the copy of $\alpha$, i.e. the underlined $\underline{\alpha}$, is merged with the base K = {$\alpha$, {$\alpha$,

$\beta$}} and projects yielding L = {$\alpha$, {$\alpha$, K}}. In the configuration in (6), the maximal

projection of $\alpha$ is the complement of $\underline{\alpha}$ and they share all categorial features. The  two

properties stated in (4) are derived. $\alpha$ is the extended head and $\underline{\alpha}$ is an extended

projection of $\alpha$.


(6)        $\alpha$                          $\underline{\alpha}$    $\alpha$                        $\underline{\alpha}$
        ╱╲            Copy $\Rightarrow$        ╱╲        Merge $\Rightarrow$        ╱╲
     $\alpha$      $\beta$                      $\alpha$      $\beta$                    $\underline{\alpha}$      $\alpha$
                                                                            ╱╲
                                                                        $\alpha$          $\beta$
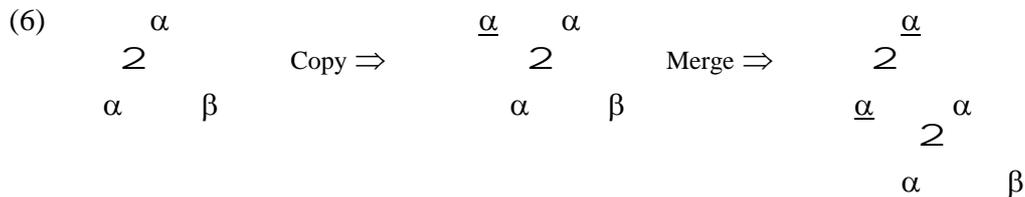

The extended head and the extended projection are distinct. The position $POS_1$ of

the extended projection $\underline{\alpha}$ is <$\alpha$, K> (i.e. K is the co-constituent of $\alpha$ in Σ') and the $POS_2$

of the extended head $\alpha$ is <$\alpha$, $\beta$> (i.e. $\beta$ is the co-constituent of $\alpha$ in Σ). $POS_1$ and $POS_2$

are distinct objects constituting the chain CH = <$POS_1$, $POS_2$>.[7] These positions lack

semantic features and phonetic features. I assume that semantic features and phonetic

---

[6] Though the terms like 'movement' or 'raising' will be used in our later discussion informally, they should
be understood as a complex operation Copy + Merge.
[7] See Chomsky 1995: 251-252 for details.

features are supplied after Spell-Out by insertion into these positions in the covert component and in the phonological component, respectively.[8]

Chomsky (1995) points out that movement of α targeting K is permitted only if the operation is morphologically driven: 'Last Resort'. There are at least three possibilities to interpret the principle of Last Resort.

(7)     α can target K only if
        a.   a feature of α is checked by the operation
        b.   a feature of either α or K is checked by the operation
        c.   the operation is a necessary step toward some later operation in which a
             feature of α will be checked.
        (Chomsky 1995:257)

In the configuration in (6), the extended projection α̲ is the head and K = {α, {α, β}} is the complement. As pointed out by Chomsky (1995), no property can be checked in the head-complement structure. Under versions (7a) or (7b) of Last Resort, such operations of 'self-attachment' in (6) should be barred. However, the configuration in (6) will be permissible if (7c) is adopted: an extended projection is needed only if it will bear an affix feature that has to be checked off in some later operation. In other words, the extended projection is to create a position to carry an affix feature.

Let us consider the following configurations in which α̲ is regarded as the extended projection of α. Suppose that there is an affix feature that has to be checked off by α. In order to check off the affix feature, a position must be created to hold the affix

---

[8] This assumption is reminiscent of Late Insertion in Distributed Morphology (Halle and Marantz 1993, 1994), according to which phonetic features are inserted in the phonological component. Covert insertion of semantic features could be necessary on the grounds of economy (Chomsky 1995:292). Notice that

feature. In (8a) α extends to α̲ and α̲ bears the affix feature. Eventually, the affix feature

of α̲ is checked off by α, as (8b). The Last Resort defined in (7c) is satisfied. For

example, V moves to *v* in English (Hale and Keyser 1993, Chomsky 1995), as (9a). The

partial derivation is shown in (9b). A set of categorial features of V is copied and merged

with $V^{MAX}$. In this regard, V̲ (=*v*) is an extended projection of V (=V). V̲ will eventually

bear an affix feature [-V] that triggers V movement.

(8)  a.

$$
\begin{array}{c}
\alpha \\
\diagup\diagdown \\
\underline{\alpha} \qquad \alpha \\
\phantom{xx}\diagup\diagdown \\
\phantom{xx}\alpha \qquad \beta
\end{array}
$$

   b.

$$
\begin{array}{c}
\alpha \\
\diagup\diagdown \\
\alpha\text{-}\underline{\alpha} \qquad \alpha \\
\phantom{xx}\diagup\diagdown \\
\phantom{xx}\alpha̶ \qquad \beta
\end{array}
$$

(9)  a.    …[$_{vP}$ hit-*v* [$_{VP}$ $t_{\text{hit}}$ John]]

   b.

$$
\begin{array}{ccccc}
V^{MAX} & & \underline{V}^{MAX} & & \underline{V}^{MAX} \\
\diagup\diagdown & & \diagup\diagdown & & \diagup\diagdown \\
V \quad John & \Rightarrow & \underline{V} \quad V^{MAX} & \Rightarrow & V\text{-}\underline{V} \quad V^{MAX} \\
 & & \phantom{xx}\diagup\diagdown & & \phantom{xx}\diagup\diagdown \\
 & & \phantom{xx}V \quad John & & \phantom{xx}V̶ \quad John
\end{array}
$$
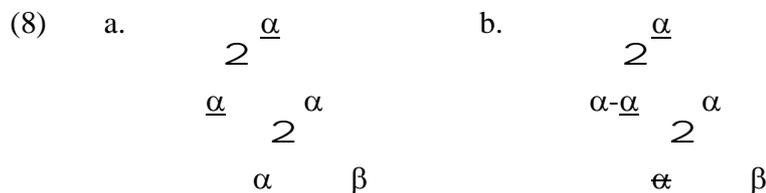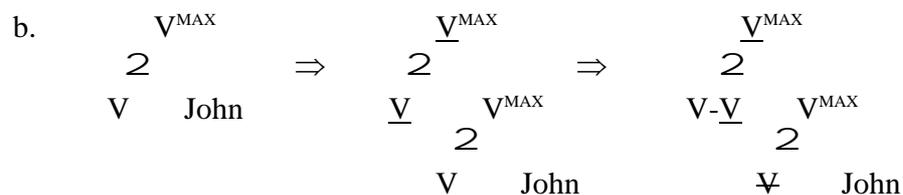
Delete is an operation that marks some objects as 'invisible' which do not receive

any phonetic features in the phonological component (cf. Chomsky 1995:228). A

question arises: Why is the copy of α deleted in (8b)? Why isn't the copy of α in (8a)

deleted? The crucial difference is that 'movement' in (8b) is to check off the affix feature

while 'movement' in (8a) is just to create a position to hold the affix feature. The deletion

semantic features and phonetic features are already present in the numeration. No new objects are added in
the course of computation. The inclusiveness condition is not violated (Chomsky 1995:228).

of the copy of α in (8b) is required by the affix feature, which is a morphological requirement.

In the Minimalist Program, movement is costly. If extending projections is subsumed under movement, a natural consequence is that extending projections is also costly. The existence of extended projections, i.e. functional projections, must be motivated. In other words, the extended projections must be associated with a lexical item at some point in the derivation, deriving the claim that 'empty' functional projections are banned universally (Grimshaw 1993, Speas 1994, Koopman 1996). Furthermore, the claim that extended projections are always as small as possible, which is known as 'Minimal Projection' (Grimshaw 1993), is thus derived. If the present proposal is correct, Minimal Projection is not an independent principle of Universal Grammar. It should be subsumed under a more general principle: Last Resort.

## 1.3  A restrictive theory of parameters

1.3.1  Theories of parameters: an overview

Recent studies on language variation under the principles-and-parameters approach have been converging on the reduction of the parametric properties proposed in the literature to formal-morphological features of the lexicon. Borer (1984) makes an attempt to restrict parametric variation to inflectional properties of lexical items. She proposes that the application of inflectional rules in a particular grammar $G$ to a particular level $L$ are restricted as a language-particular option. Such a restriction is formulated as (10).

(10)    a.      Given an inflectional rule *R*, *R* may apply at any level.
           b.      The application of *R* may be restricted to particular levels.
           c.      *R* in *G* may not apply at *L*.
                  (Borer 1984:252)

Based on the study of binding theory, Wexler and Manzini (1987) extend Borer's parametric model to all lexical items, which is known as the 'Lexical Parametrization Hypothesis' in their work.

(11)    *Lexical Parametrization Hypothesis*
        Values of a parameter are associated not with particular languages, but with particular lexical items in a language.
        (Wexler and Manzini 1987:55)

Fukui (1988) points out that the differences among languages with respect to linear order cannot be reduced to properties of lexical items. Parameters related to linear order should be possible parameters, such as the 'head parameter' (Chomsky 1981) and the directionality parameter for $\theta$-marking and Case marking (Koopman 1984, Travis 1984). Among lexical items, Fukui proposes that only functional categories are subject to parametric variation. The existence and the 'contents' (features) of functional categories are subject to parametric variation. Chomsky (1991:419) has a similar idea that parameters of Universal Grammar relate, not to the computational system, but only to the functional elements in the lexicon. Substantive elements, such as verbs and nouns, are drawn from an invariant universal vocabulary. The hypothesis stated in (12b) is referred to as the 'Functional Parametrization Hypothesis' (Fukui 1988).

(12)  a.    Parameters are restricted to those having to do with linear order.
      b.    Lexical categories are essentially invariant across languages; only
            functional categories are subject to crosslinguistic variation.
            (Fukui 1988: 267)


Lexical categories are supposed to have 'descriptive content' which constitute the

basic units of expression and thought whereas the basic role of functional categories is to

mark grammatical or relational features and to connect syntactic constituents via some

purely syntactic relationship (Fukui 1986, Abney 1987). Functional categories could

include T (tense), C (complementizer), and D (determiner). According to the Functional

Parametrization Hypothesis, functional categories may be absent in some languages. The

rationale for this hypothesis is that a language could still serve as a free instrument of

expression and thought even though functional categories are missing. For example,

Fukui (1986, 1988) argues that Japanese lacks the class of functional categories entirely.

Radford (1990 et seq) argues that early child clauses lack all functional projections and

are analyzed as bare small clauses.

　　　　To achieve explanatory adequacy, Fukui (1990) further constrains possible

parameters of Universal Grammar and proposes the following modified theory of

parameters.


(13)  *A restrictive theory of parametric variation*
      a.    Parametric variation outside of the lexicon must be limited to ordering
            restrictions ('linearity').
      b.    Inside the lexicon, only [+F] elements ('functional elements') are subject
            to parametric variation.
      c.    Among the functional elements, only those that do not play any role in LF
            can be absent in the lexicon of a particular language.
            (Fukui 1995: 343)

To distinguish functional categories from lexical categories, Fukui (1995) proposes that functional categories have a feature [+F] and lexical categories have a feature [-F]. (13c) implies the existence of the functional categories, i.e. [+F] elements, that are motivated by semantics have to be assured in the lexicon of any language. Fukui (1990) argues that T must be present at LF as it functions as an operator binding an event of a predicate. D should also be present at LF as it functions as a kind of operator. Hence, the existence of T and D must be assured in the lexicon of every language. He further argues that C and Agr do not play a role at LF because they can be deleted at LF (Lasnik and Saito 1984, Chomsky 1991). Therefore, functional categories such as C and Agr can be absent in the lexicon of a particular language.[9]

1.3.2 Overt Parametrization Hypothesis

I have been assuming that categories are derivative notions and they are not primitive notions. The 'lexical category' vs. 'functional category' distinctions are relational and determined in a configuration instead of properties inherent to them. The functional feature [+F], if any, should not be a primitive feature.

In the present framework, what can be parametrized in syntax? I propose a restrictive theory of parameters, which I call the 'Overt Parametrization Hypothesis' OPH, as stated in (14).

---

[9] Notice that Fukui's (1995) consideration is based on the pre-Agr-less theory.

(14)     *Overt Parametrization Hypothesis*
         Features that play a role only in the covert component are invariant across
         languages; features that may play a role in the derivation from N to π are subject
         to cross-linguistic variation.


         Among the four types of features, semantic features play a role only in the covert

component. According to the OPH, they should be universal and their existence has to be

assured in the lexicon of every language. For example, a transitive verb should have two

θ-roles cross-linguistically. Every language should have an interrogative feature,

quantificational features, tense features, definiteness features, etc. The proposal of the

universality of semantic features maintains the insight of (13c).

         Regarding the rest of the features, phonetic features are inserted in the

phonological component; categorial features and affix features may play a role in the

derivation from N to π. According to the OPH, phonetic features, categorial features, and

affix features are the only source that determines language-specific variations.

         The OPH essentially maintains the spirit of the Functional Parametrization

Hypothesis that the elements that constitute the 'basic units of expression and thought',

for instance, semantic features, should be universal while elements that mark

'grammatical relations', for instance, affix features whose sole function is to trigger

extending projections and movement, are subject to parametric variation. Moreover, the

OPH covers a wider range of features that may be parametrized. Particularly, the OPH

allows parametrization of (lexical) categorial features which is not permitted under the

Functional Parametrization Hypothesis. Also, phonological variation, i.e. parametrization

of phonetic features, is beyond the scope of the Functional Parametrization Hypothesis.

The fundamental difference between the Functional Parametrization Hypothesis and the

OPH is that it is claimed explicitly in the OPH that (lexical) categorial features and phonetic features are subject to parametric variation.

Given that only the features that may play a role in the derivation from N to $\pi$ can be subject to parametric variation, how can they be parametrized? To achieve the goal of explanatory adequacy, parametric values of features should be very restricted. I propose that Universal Grammar only allows the following options for parametrization of features.

(15)   *Possible parameters permitted by Universal Grammar*
     a.   where features are assigned (affix features)
     b.   the presence or absence of features (phonetic features and affix features)
     c.   the combination of features (categorial features)

Let us first consider the option in (15a). According to Chomsky (1995:235), the lexicon is a list of 'exceptions', which follow neither from principles of Universal Grammar nor from those of a specific language. Suppose that a verb has a tense feature. Chomsky (1995:238) explicitly points out that the tense feature of verbs should not be indicated in the lexical entry because 'that much is determined by its category V (presumably by UG)'. As suggested by Chomsky (1995:238), there are two possible ways for a verb to pick up the tense feature: (i) the tense feature could be chosen arbitrarily and assigned to the verb as it enters the numeration, or (ii) the tense feature could be associated with the verb by syntactic or phonological operations.[10] He further points out

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[10] It seems that there is an operation in the numeration N that adds optional features to a word, and such an operation 'reduces reference sets' (Chomsky 1995:236). An implication is that a derivation in which affix features are assigned to a word in N and a derivation in which affix features trigger movement cannot be evaluated for economy because they have different reference sets, which should be a desirable outcome.

that these choices 'could vary across or within languages'. Along these lines, I propose

that affix features could be associated with a word either in the numeration or in the

derivation, as (15a) says. These two choices are subject to parametric variation.[11] I will

argue that if affix features are combined with a word in the derivation, they are

responsible for triggering movement in the overt component. Consequently, typological

differences among human languages with respect to the displacement property can be

explained.

Under the OPH, some affix features can be absent in the lexicon in particular

languages even though they might contribute to some semantic interpretation. The value

of some affix features could be either 'on' or 'off'. For example, English has an affix

feature of C that triggers movement of *wh*-words but such an affix feature is missing in

Chinese.[12]

Under the OPH, categorial features are allowed to be parametrized. However,

parametrization of categorial features is not free. Given that the two primitive categorial

features [N] and [V] are universal in the lexicon, the parametric options are restricted to

the combination of categorial features.

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Otherwise, affix features would always be added in N to avoid movement, given that movement is costly. Determination of the reference set is not a trivial question. Further investigations are needed.

[11] This parameter is reminiscent of Borer's (1984) parametrization of the application of inflectional rules to different levels (cf. (10)). Based on Chomsky 1995, Sakai (1996:141) proposes a similar parameter, as (i), according to which an optional feature is added to α when it enters the numeration if option (ia) is chosen while an optional feature is added to an independent feature-realizer β if (ib) is chosen. However, he assumes that movement should take place in the core computation for checking off the optional feature if (ia) is chosen while the optional feature is combined with α by Merger in the phonological component, à la Halle and Marantz (1993), Takano (1996), and Fukui and Takano (1998), if (ib) is chosen and thus no movement takes place, departing from what I argue here. See chapter 2 for details.

(i)        Feature-Realization Parameter

        A feature [realize F] of α can enter into the numeration either:

        (a)  within α (i.e. added to α)

        (b)  outside of α (i.e. added to an element other than α)

In this study, I assume that linear order does not play a role in the 'core computation', i.e. the overt component and covert component (Kayne 1994, Chomsky 1995, Takano 1996, and Fukui and Takano 1998). Under this approach, whether the head precedes the complement or the complement precedes the head in the these two components does not matter. The only concern is the question of how the phrase structure is mapped onto the PF interface level after Spell-Out. In this study, I assume with Kayne (1994) that the head should always precede the complement at the PF interface, deriving the 'specifier-head-complement' S-H-C word order. Word order variation of natural languages would be attributed to parametrization of affix features.[13]

The rationale for the OPH is that overt properties may differ across languages. The PF output ultimately interfaces with modules involved with phonetic perception and motor systems that govern articulation. The information provided by the computational system must be accommodated to the sensory and motor apparatus. Parametric values should be deduced from detectable perceptual and motor data. The OPH is compatible with a fundamental assumption in the Minimalist Program that variation must be determined by visible and detectable properties (Chomsky 1993 et seq). An implication of the OPH is that phonological properties are 'extraneous' to the computational system inducing parametric variation and departures from 'perfection' in human languages.

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[12] *Wh*-movement in English contributes to clausal typing, as suggested by Cheng (1991) and Chomsky (1995). See Ikawa 1996 for an extensive study of the relation between movement and morphology along these lines.

[13] See Takano 1996 and Fukui and Takano 1998 for an alternative proposal for word order, who assume that S-C-H is the basic word order.

## 1.4 Outline

Let me summarize some major theoretical assumptions in this study: (i) Features are syntactic primitives (Chomsky 1995); (ii) There are only four kinds of features: semantic features, phonetic features, categorial features, and affix features (cf. Chomsky 1995); (iii) [N] and [V] are two primitive categorial features in the lexicon (Chomsky 1970, 1981); (iv) Categorial features extend projections (Grimshaw 1991); (v) Semantic features and phonetic features are inserted in the covert component and the phonological component, respectively (cf. Halle and Marantz 1993, 1994, Chomsky 1995); and 'S-H-C' is the basic word order (Kayne 1994).

The major proposals in this study are: (i) only features that play a role in the derivation from N to $\pi$ are parametrized, and (ii) parametrization of features is restricted to the following choices: affix features could be associated with a word either in the numeration or in the derivation, phonetic features and affix features could be either present or absent, and categorial features could have different combinations.

The major concern in this work is about parametrization of affix features and categorial features. Chapter 2 is devoted to parameters that determine where affix features are associated with a word. I will show that the parameters interact in an interesting way with a variety of syntactic differences among Chinese (Cantonese and Mandarin), English, French, Modern Hebrew, Japanese, and Navajo. It is argued that movement in different components is largely signaled by morphology: movement in the overt component must be driven by the conceptual-intentional systems signaled by

'impoverished' morphology while movement driven purely by the sensorimotor systems takes place only in the phonological component signaled by 'rich' morphology.

Based on the idea of parametrization of affix features, in chapter 3, I claim that T has an affix feature [-V] in English but such an affix feature is missing in Chinese. Consequently, there is no V-to-T movement in Chinese. The path of V movement in Chinese is shorter than the path of V movement in English: V moves out of $v$P in English but not in Chinese. A number of apparently disparate differences between Chinese and English, such as the distribution of focus elements, binominal *each*, the possibility of focalized preverbal objects and their characteristics, the definiteness of preverbal nominal phrases, gapping, scopal ambiguity of quantifiers, adverb placement, and heavy NP shift, receive a unified explanation.

The data presented as evidence for the claim that the combination of categorial features is subject to parametric variation are primarily based on small clauses in Chinese, English, and Japanese. In chapter 4, I first argue that Chinese small clauses are bare, English small clauses are 'not-so-bare', and Japanese allows both types of small clauses. Then I argue that the major typological differences among these languages regarding the structure of small clauses are derived from a parameter related to the combination of categorial features. The findings lend support to the OPH defended in this study.

# CHAPTER 2

## TWO TYPES OF MOVEMENT

### 2.1 Introduction: two types of affix features and movement

I have pointed out in chapter 1 that affix features could be associated with a word when it enters the numeration N or in the derivation by overt operations. Affix features that are associated with the word in the derivation trigger movement (Copy + Merge). Those assigned to the word in N do not trigger movement. These choices are subject to parametric variation under the Overt Parametrization Hypothesis OPH.

In this chapter, I will argue that if an affix feature is assigned to a word as it is selected for N, the word becomes 'inflected' and has 'rich' morphology when it is introduced into the derivation. Basically it has the relevant features when it is introduced into the derivation and can be interpreted at the interface levels without moving anywhere. If an affix feature is combined with a word in the derivation, the word is morphologically 'impoverished' and semantically 'defective' when it is introduced into the derivation. The morphologically 'impoverished' word has to move to pick up the inflectional affix feature before Spell-Out.

Affix features are classified into two types: inflectional affix features and phonological affix features. Inflectional affix features are semantically-oriented. If they are combined with a word in the derivation by overt operations, the operations must be syntactic, i.e. that the word must check off the inflectional affix features before Spell-

Out. Movement triggered by inflectional affix features is basically driven by the conceptual-intentional systems, whose purpose is to derive a well-formed LF representation. The operations cannot be phonological because the derivation in the phonological component does not feed the output of the covert component.

Phonological affix features are purely driven by the sensorimotor systems, which are supplied after Spell-Out in the phonological component, on a par with other phonetic features ('Late Insertion').[1] A lexical entry could provide some information for the operations of the phonological component (cf. Halle and Marantz 1993, 1994, Chomsky 1995:239).

I would like to make a strong claim that a morphologically 'rich' element, i.e. a word that is associated with inflectional affix features as it is selected for N, must undergo movement in the phonological component. Though the correlation seems arbitrary, such a requirement could be morphological, which departs from perfection in human languages. The rationale for this idea is that each head in a configuration must be associated with some overt element in the derivation. Phonetically empty heads are banned (Grimshaw 1993, Speas 1994, Koopman 1996). Let us consider the following configurations.

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[1] Phonological affix features should be present in the numeration in the first place before being inserted into the derivation in the phonological component, obeying the inclusiveness condition, on a par with phonetic features, as I have already pointed out in chapter 1. An alternative analysis is that phonological affix features are already introduced in the overt component but are accessible only after Spell-Out. The notion of accessibility needs to be further scrutinized, which I leave open here. Thanks to Naoki Fukui, Jim Huang, and Audrey Li for useful discussion on this issue.

(1)    a.
$$
\begin{array}{ccccc}
\text{X}^{\text{MAX}} & & & & \text{X}^{\text{MAX}} \\
\wedge & & & & \wedge \\
\text{X} \quad \text{Y}^{\text{MAX}} & & \Rightarrow & & \text{Y-X} \quad \text{Y}^{\text{MAX}} \\
\qquad | & & & & \qquad | \\
\ldots\text{Y}\ldots & & & & \ldots t_{\text{Y}}\ldots \\
& & & & (\text{Spell-Out} = \text{PF})
\end{array}
$$

b.
$$
\begin{array}{ccccc}
\text{X}^{\text{MAX}} & & & & \text{X}^{\text{MAX}} \\
\wedge & & & & \wedge \\
\text{X} \quad \text{Y}^{\text{MAX}} & & \Rightarrow & & \text{Y-X} \quad \text{Y}^{\text{MAX}} \\
\qquad | & & & & \qquad | \\
\ldots\text{Y}\ldots & & & & \ldots t_{\text{Y}}\ldots \\
(\text{Spell-Out}) & & & & (\text{PF})
\end{array}
$$

Suppose that an inflectional affix feature is an overt realization of X in (1a) which is indicated by a special font X. Y must move to X before Spell-Out to check off the inflectional affix feature for LF as well as PF convergence. In any event, X in (1a) is not phonetically empty at PF. On the other hand, suppose that an inflectional affix feature is assigned to Y when it enters N. Y becomes morphologically 'rich' when it is introduced in the derivation, as (1b), which is indicated by a special font Y. If Y does not move to X, X would become phonetically empty and the derivation crashes at PF. To solve the problem, Y moves to X in the phonological component for PF convergence. In other words, if an element is morphologically 'rich', a phonological affix feature that attracts the 'rich' element in the phonological component must be present in N (see footnote 1). The speculation is explicitly stated in (2).


(2)    Movement of morphologically 'rich' elements takes place in the phonological
       component whereas movement of morphologically 'impoverished' elements takes
       place in the overt component.

26

According to (2), if inflectional affix features are assigned to a word when it enters N, the word undergoes movement in the phonological component; if inflectional affix features are combined with a word in the derivation by syntactic operations, the word undergoes movement in the overt component. Where inflectional affix features are added is subject to parametric variation.

In this chapter, I will argue that the claim in (2) is supported by empirical evidence and has some interesting consequences. Typological differences among Chinese (Cantonese and Mandarin), English, French, and Japanese with respect to various types of movement are attributed to parametrization of affix features. Arguments from this chapter may further support the OPH advocated in this work. In section 2.2, I argue that V moves to T in the overt component in English and in the phonological component in French. In 2.3, I argue that in Japanese V moves to C in the phonological component. In section 2.4, I argue that T in Chinese is overtly realized as sentence final particles and they could move to C in two different components. In 2.5, I argue that TP in Chinese and Japanese moves to the specifier of CP in two different components depending on where T moves to C. In 2.6, I argue that TP movement in English intonation question is triggered by an inflectional affix feature. In 2.7, I will examine the relationship between the existence of inflectional affix features that trigger V movement and the Case particle system.

## 2.2 V movement in English and French

It is a well-known fact that English and French are different with respect to adverb placement, as the contrast between (3) and (4).

(3)     John (often) kisses (*often) Mary.

(4)     Jean (*souvent) embrasse (souvent) Marie.


        Let us assume that the adverbs in (3) and (4) are adjoined to VP. Building on the
insights of Emonds (1978), Pollock (1989) proposes that V moves to T in French whereas
V does not move to T in English because Agr in English, unlike Agr in French, is not
'rich' enough morphologically to permit transmission of the verb's θ-role(s). If V moves
to T via Agr, as (5a), the θ-grid of V cannot percolate up to Agr in English because Agr
is opaque and thus the trace of the amalgamated Agr + V has no θ-grid to assign, causing
a θ-Criterion violation. Affix lowering (= 'Affix Movement' in Pollock's term) instead of
V-to-T movement is possible in English, as in (5b). In terms of Pollock's account, since
V moves to T in French overtly, the adverb always follows the verb. However, since V
never moves to T in English, the verb cannot precede the adverb. This analysis is also
adopted by Chomsky (1991).


(5)     a.      $[_T [_{Agr} V Agr] T] \ldots t_{Agr} \ldots t_V$

        b.      $t_{Aff} \ldots [_V V Aff]$


        Contra the Emonds-Pollock's approach, Chomsky (1993, 1995) adopts a strictly
lexicalist view under which verbs taken from the lexicon are already inflected, i.e. that
the inflectional features are chosen optionally and assigned to the verb as it enters the
numeration. The difference between English and French is that T in French is 'strong' so

that V moves to T in French overtly whereas T in English is 'weak' so that V moves to T covertly by virtue of the principle of 'Procrastinate'.

Chomsky's (1993, 1995) analysis is challenged by Lasnik (1995). Based on the observation by Warner (1986) (cf. Quirk et al 1972, Sag 1976), Lasnik (1995) points out that the bare form of V other than *be* or auxiliary *have* can be deleted under identity with any other form of the same V. *Be* or *have* can only be deleted under identity with the very same form. The contrast is shown in (6), (7), and (8).

(6)     John slept, and Mary will too.
        (i) *John <u>slept</u>, and Mary will <u>slept</u> too.
        (ii) John <u>slept</u>, and Mary will <u>sleep</u> too.

(7)     *John was here, and Mary will too.
        (i) *John <u>was</u> here and Mary will <u>was</u> here too.
        (ii) John <u>was</u> here and Mary will <u>be</u> here too.

(8)     John will be here, and Mary will too.
        (Lasnik 1995:262-263)

Lasnik argues that *be* and *have* are fully inflected in the lexicon and all other English verbs are bare in the lexicon. The affixal inflectional morpheme is the overt realization of T, which merges with the bare verb by a PF process demanding adjacency. As we can see, Lasnik's analysis is reminiscent of 'Affix hopping' (Chomsky 1957). He argues that French verbs are fully inflected in the lexicon by virtue of the fact that there are no bare forms in French. Even the infinitive has an ending in French. English *be* and *have* are similar to French verbs in that they are fully inflected in the lexicon. Lasnik uses the contrast between (9) on the one hand and (10) and (11) on the other hand to support

his analysis that the negation *not* blocks the adjacency needed for PF merger in English whereas French verbs and English *be* and *have* move to T overtly.

(9)     *John not likes Mary.

(10)    Jean (n')aime pas Marie.

(11)    John is not leaving.

To explain why preverbal adverbs, such as *never* in (12), do not block PF merger, Lasnik (1995:fn11) assumes with Bobaljik (1995) that adjuncts are not relevant to PF adjacency, unlike heads and specifiers.

(12)    John never left.

There are some problems with Lasnik's analysis. As admitted by Bobaljik (1995:73), the stipulation that adjuncts are not relevant to PF adjacency is 'not deep' and 'somewhat *ad hoc*'. Furthermore, it seems that PF merger is the same as affix lowering because the affix must move to the right/downwards and the stem cannot move to the left/upwards. Otherwise, (13) would also be grammatical in English (cf. (12)). If leftward/upward movement is a natural assumption in Universal Grammar, affix lowering should not be a welcome solution.

(13)    *John left never.

Based on Lasnik's observation that English verbs (except *be* and *have*) are 'bare' whereas English *be* and *have* and French verbs are fully inflected, I argue that inflectional affix features are combined with verbs in the derivation by syntactic operations in English whereas inflectional affix features are assigned to verbs when they enter the numeration in French (and English *be* and *have*).[2] Informally speaking, English verbs are morphologically 'impoverished' and French verbs are morphologically 'rich' when they are introduced in the derivation.

Recall that I claim in (2) that morphologically 'impoverished' elements move in the overt component and morphologically 'rich' elements move in the phonological component. My prediction is that English verbs should move to T in the overt component triggered by an inflectional affix feature whereas English *be* and *have* and French verbs should move to T in the phonological component triggered by a phonological affix feature. In other words, unlike English verbs, French verbs do not move in the overt component, contra Emonds-Pollock-Chomsky's approach. I will argue that this prediction is supported by adverb placement in these two languages.

To account for the typological variation of adverb placement in English and French, I assume that adverbs cannot be licensed by traces. (14) is a natural assumption. As argued by Travis (1988), adverbs are 'defective' and have to be licensed. The intuition is that traces do not have enough 'content' to license an adverb.

---

[2] Sakai (1996) assumes that inflectional features are added to a verb when it enters the numeration and thus V movement is necessary for feature checking. However, his assumption does not hold if English verbs are are' when they are introduced into the derivation.

(14)    *Adverb Licensing*
        Adverbs cannot be licensed by a trace at the LF interface level.


Suppose that an adverb is adjoined to VP.[3] If English verbs move to T to check

off the inflectional affix feature [-V] of T in the overt component, the LF representation

will be (15a), in which irrelevant details are omitted. (15a) is ungrammatical because the

adverb is licensed by a trace. Hence, 'V + Adv + Obj' is banned in English. The only

possible solution is that the adverb is adjoined to T without violating Adverb Licensing.

(15b) shows that the adverb is still licensed by V at LF after V-to-T movement. The

'unmarked' order 'Adv + V + Obj' in English is thus derived.


(15)    a.      *…$[_{TP}$ V-T $[_{VP}$ Adv $[_{VP}$ $t_V$ Obj              (LF representation)

        b.      …$[_{TP}$ Adv $[_{TP}$ V-T $[_{VP}$ $t_V$ Obj              (LF representation)


Given that French verbs are morphologically 'rich', they move to T after Spell-

Out, i.e. in the phonological component. If an adverb is adjoined to VP, the LF

representation and the PF representation will be (16a) and (16b), respectively. Since V

moves to T after Spell-Out, the adverb is still licensed by V at the LF interface level.

Adverb Licensing is satisfied. Hence, 'V + Adv + Obj' is 'unmarked' in French.[4]

---

[3] Suppose that V moves to *v* in both English and French. The adverb should be adjoined to *v*P instead of VP. However, 'VP' will suffice to illustrate my analysis in this section.
[4] It does not necessarily mean that French verbs must stay *in-situ* at Spell-Out. It could be possible that in French V moves to an extended projection between TP and VP to which the adverb is adjoined. The crucial point I want to make here is that the path of V movement in English should be longer than that in French in the overt component even though they could look identical at PF.

(16)　a.　　　...[$_{TP}$ T [$_{VP}$ Adv [$_{VP}$ V Obj　　　　　(LF representation)

　　　b.　　　...[$_{TP}$ V-T [$_{VP}$ Adv [$_{VP}$ $t_V$ Obj　　　　(PF representation)


Recall that 'Adv + V + Obj' is ungrammatical in French (cf. (4)). To derive the word order, the adverb must be adjoined to TP, as in (17a). If the adverb must be licensed by V at LF, (17a) is ungrammatical. V-to-T movement at PF does not save the ungrammaticality because the adverb is licensed by V only at PF, as in (17b).


(17)　a.　　　*...[$_{TP}$ Adv [$_{TP}$ T [$_{VP}$ V Obj　　　　(LF representation)

　　　b.　　　*...[$_{TP}$ Adv [$_{TP}$ V-T [$_{VP}$ $t_V$ Obj　　　(PF representation)


My analysis successfully accounts for the parametric variation between English and French with respect to adverb placement. I have argued that 'Affix hopping' in English is an instance of V movement, which is always upward. No lowering operation is needed. My analysis should be conceptually more appealing.

Under the present account, parametric variation between English and French with respect to adverb placement is attributed to the nature of affix features that trigger V-to-T movement. The findings can be summarized in (18).


(18)　V moves to T in the overt component in English while V moves to T in the phonological component in French.

Suppose that an adverb must be licensed by V at LF. An implication of my analysis is that the adverb must be adjoined to TP in English because V moves to T before Spell-Out whereas it must be adjoined to VP in French because V still stays *in-situ* at Spell-Out. Notice that such a requirement of adverb placement in these two languages is not a stipulation, which should be a natural consequence of parametric variation of V movement. In fact, some adverbs are allowed to be adjoined to VP in English. In chapter 3, I argue that postverbal focus adverbs in English, such as *only* and *even*, show that adverbs can be adjoined to VP (=*v*P) in English. Further consequences of V-to-T movement in English and the significance of the condition of Adverb Licensing will be discussed when we compare English with Chinese in the next chapter.

## 2.3  V movement in Japanese

In this study, I assume with Kayne (1994) that 'S-H-C' is the universal word order. To derive the SOV order in Japanese, I assume that V moves to C and then TP moves to the specifier of CP, as in (19).[5]

(19)



---
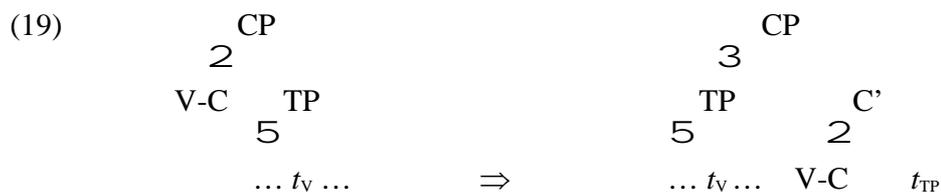
[5] For discussion of V movement in Japanese, see Whitman 1991, Fukui and Nishigauchi 1992, Kubo 1992, Lasnik and Saito 1992:202 fn 24, and Koizumi 1995. Koizumi (1995:203) has a similar suggestion as (19).

V-to-C movement is essentially triggered by an affix feature [-V] of C and TP remnant movement is triggered by an affix feature [-TP] of C.[6] My analysis correctly generates the 'Subj + Obj + V-C' word order in Japanese without postulating any additional 'unknown' functional categories, contra Kayne (1994).

The claim that V moves out of VP to C in Japanese can be supported by clefting and coordination, as argued by Koizumi (1995). (20) is the double object construction. (21) shows that both the indirect object *John* and the direct object *ringo* 'Apple' can be clefted with the verb being stranded. Koizumi argues that to derive (21) V moves out of VP and the remnant VP (or some larger phrase) containing the indirect object and the direct object is clefted.

(20)    Mary-ga    John-ni ringo-o    san-tu    age-ta    (koto).
        Mary-Nom John-to apple-Acc three-Cl give-Past fact
        'Mary gave three apples to John.'

(21)    Mary-ga    age-ta    no-wa    [John-ni ringo-o    san-tu] da.
        Mary-Nom give-Past Nm-Top John-to apple-Acc three-Cl be
        'Lit.: It is [three apples to John] that Mary gave.'
        (Koizumi 1995:166)

Koizumi argues that coordination further shows that V moves out of VP in Japanese. In (22), the verb *ageru* 'give' moves out of the two coordinates.

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[6] To derive the SOV order from the universal word order 'S-H-C' in Japanese, Aoyagi (1997) has a similar solution that the head final property is attributed to suffixation. Contrary to my analysis, he suggests that suffixation is not satisfied by movement. According to him, all functional heads in Japanese are [+suffix] so that the functional heads are attached to a lexical head under string adjacency in morphology deriving the 'SOV' order in Japanese. Though the technicality is different, the spirit of his analysis and mine is

(22)  Mary-ga [[John-ni ringo-o    ni-tu] to [Bob-ni banana-o    san-bon]]
      Mary-Nom John-to apple-Acc two-Cl and Bob-to banana-Acc three-Cl
          age-ta   (koto).
          give-Past fact
      (Koizumi 1995:170)


What is the status of the affix feature that triggers V-to-C movement in Japanese? Is it an inflectional affix feature or a phonological affix feature? Let us consider the morphology of Japanese verbs. Japanese has rich verbal morphology. Verbal inflectional affix morphemes indicate aspect, tense, and mood. Some selected examples are illustrated in (23).


(23)  Basic stem       yom-  'read'     tabe-  'eat'
      Non-past         yom-u             tabe-ru
      Past             yon-da            tabe-ta
      Participle       yon-de            tabe-te
      Progressive      yon-de iru        tabe-te iru
      Probable mood    yom-oo            tabe-yoo


If Sells (1995) is correct (see also Fukui 1986), Japanese inflectional affix morphemes are not combined with the verb in syntax; instead, verbs are fully inflected in the lexicon.[7] 'Rich' morphology of Japanese verbs implies that inflectional affix features are assigned to the verbs when they enter the numeration. The prediction is that V

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essentially the same: verbal affixation in Japanese takes place in the phonological component. See Takano 1996 for a similar analysis but based on the 'S-C-H' order.

[7] See Fukui 1986, Sakai 1996, Takano 1996, Aoyagi 1997, Fukui and Takano 1998 for an alternative solution that Japanese inflectional elements are independent heads in the structure, according to which the inflectional morphemes are combined with a verb by Merger in the phonological component. As I have pointed out in the discussion of V movement in English, the distinction between Merger and lowering/movement seems ambiguous.

movement in Japanese should take place in the phonological component by virtue of 'rich' morphology of verbs.

The analysis of adverb placement supports my prediction. The possibility of having an adverb between the subject and the object in (24) shows that V should not move out of VP before Spell-Out, assuming that manner adverbs are adjoined to VP. If V does not move before Spell-Out, the LF representation of (24) would be (25), in which irrelevant details are omitted. As we can see, the adverb is not licensed by a trace in the structure.

(24)    John-ga    isoide  ronbun-o  yonda.
        John-Nom quickly paper-Acc read
        'John read the paper quickly.'

(25)    [$_{CP}$ C [$_{TP}$ T [$_{vP}$ Subj $v$ [$_{VP}$ Adv [$_{VP}$ V Obj]]]]]        (Spell-Out = LF)

One piece of evidence to show that manner adverbs are adjoined to VP comes from the following sentences. As pointed out by Miyagawa (1997), who owes the observation to Hiroaki Tada, there is a contrast between (26a) and (26b). The object with the contrastive marker -*wa* has a contrastive focus reading. It is argued in chapter 3 that it is *v*P that the focalized object is adjoined to. In (26) the focalized object *hon-wa* 'book' is adjoined to *v*P. If the manner adverb *isoide* 'quickly' is adjoined to VP, the unnaturalness of (26a) is explained.

(26)    a.    ??John-ga    isoide hon-wa        katta.
                John-Nom quickly book-Contrast bought
                'John quickly bought A BOOK.'

b.	John-ga	hon-wa	isoide	katta.
John-Nom book-Contrast quickly bought
(Miyagawa 1997:10)


Considering that adverbs can be adjoined to VP, I conclude that V does not move before Spell-Out in Japanese. V-to-C movement takes place only in the phonological component, which is triggered by a phonological affix feature [-V] of C. (27a) is the representation we see at the LF interface (= Spell-Out) and (27b) (=(19)) is the representation after V-to-C movement and TP remnant movement in the phonological component. The generalization is stated in (28).


(27)	a.	[ C [ T [ $v$ [ V]]]]			(Spell-Out = LF)

	b.	[$_{CP}$ [$_{TP}$ T [$_{vP}$ $v$ [$_{VP}$ $t_V$]]]][$_{C'}$ V-C $t_{TP}$]]	(PF)

(28)	V moves to C in the phonological component in Japanese.


If (27a) is the correct LF representation, it implies that Japanese is a 'V *in-situ*' language at the LF interface level but is a 'V2' language only at the PF interface level. In the present framework, V movement in Japanese is triggered by phonological affix features instead of inflectional affix features. It is purely a phonological operation and does not contribute to semantics at all.

As we can see, my analysis maintains the view defended by Fukui (1986), Kuroda (1988), among others, that unlike English, T and C in Japanese do not have agreement features. Japanese is not a 'forced agreement language'. As pointed out by Fukui (1986), if T (=Infl) exists in Japanese, it must be 'very defective'. Under the present framework,

what T and C lack in Japanese is inflectional affix features. If the approach developed along these lines is on the right track, the merits of both analyses (V movement and V *in-situ*) of Japanese can be nicely captured.

**2.4  T-to-C movement in Cantonese and Mandarin**

In this section, I am going to argue that there are two types of T-to-C movement: one taking place in the overt component and one taking place in the phonological component by using the data from two Chinese languages, namely Cantonese and Mandarin.[8] Before proceeding, I have to first show that V may extend to TP in Chinese languages.

2.4.1  Does Chinese have T?

Every language should be able to use some way to realize tense. Under the OPH, the existence of the semantic feature [Tense] should be assured in the lexicon of every language. What can be parametrized is whether TP is projected. Since Chinese verbs lack tense marking, whether T exists in Chinese is a debatable issue in the literature.

Following the Internal Subject Hypothesis (Fukui and Speas 1986, Kuroda 1988, among many others), Huang (1993) argues that the subject moves from its original position in Chinese and there should be a functional projection by which the subject is housed at Spell-Out. Assuming that the subject is merged within *v*P (Chomsky 1995), there should be at least an extended projection of V above *v*P in Chinese.

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[8] Notice that in the following discussion, the term 'Chinese' covers both Cantonese and Mandarin when the distinction between these two languages is irrelevant. Unless specified, all 'Chinese' examples are from Mandarin. The romanization system for Cantonese used in this study is the Linguistic Society of Hong Kong Cantonese Romanization System. The numbers indicate tones: 1=high level, 2=high rise, 3=mid-level, 4=low fall, 5=low rise, and 6=low level.

In terms of the theory of extended projection, the partial structure of a clause in Chinese should be (29), in which the categorial feature [V] of the verb, i.e. V1, extends projections. V3 and V2 are the extended projections of V1. Suppose that features of eventuality are inserted into V2 in the covert component. V2 could be labeled as 'v'. V3 should be the extended projection that bears an affix feature that triggers subject movement. In English, V3 could be labeled as 'T' where semantic feature [Tense] is inserted. What is the semantic content of V3 in Chinese? Can V3 be phonetically realized in Chinese?

(29)
```
            V3
          2
      V3    V2
          2
        V2    V1
            2
          V1
```
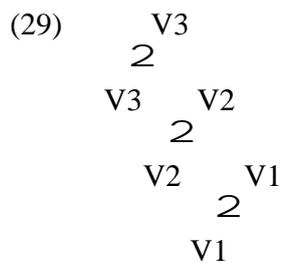
Roughly speaking, there are three different views in the literature regarding the status of V3 in Chinese. The first view is that V3 is phonetically realized as aspect markers in Chinese (Cheng 1989, T.-C. Tang 1992:329, Chiu 1993). The aspect marker will move down to the verb at Spell-Out and the verb complex moves up to V3 at LF. V3 is called 'Asp' in Cheng 1989, 'I' in T.-C. Tang 1992, and 'T' in Chiu 1993.

The second view is that V3 in Chinese is morphologically realized as the sentence final particle *le* (Sybesma 1996, Zhou 1996, D. Xu 1997, Zhang 1997). The sentence final particle *le* is realis with respect to a reference time and is anchored on a deictic time.

V3 is called 'Deik' (deictic) in Sybesma 1996 and Xu 1997, 'Asp' in Zhou 1996, and 'T' in Zhang 1997.

The third approach is to claim that V3 in Chinese is null. It does not have agreement such that it does not attract the subject (Wible 1990); or it is a null functional predicator which contains neither agreement nor tense (J. Xu 1993).

In this study, I assume that in Chinese the semantic feature [Tense] is inserted into V3 in the covert component. In addition to the semantic feature [Tense], other semantic features, such as [Focus], may also be inserted into that position. Phonetically, V3 could be overtly realized as sentence final particles, à la Sybesma (1996), Zhou (1996), D. Xu (1997), and Zhang (1997). In addition to the sentence final particle *le*, I will argue that V3 may be realized as other sentence final particles in Chinese, such as *laizhe* in Mandarin and *lei* and *zaa* in Cantonese. By virtue of its semantic nature, V3 could conceivably be called either 'T' or 'Infl'. For the ease of presentation, V3 is called 'T' in our discussion. But notice that in the bare phrase structure theory, the label of the category is not a matter of grammatical representation, which is only a convenience to the researcher.

Based on the observation by Hu (1981), Zhu (1982), and Ota (1987) in Mandarin and Cheung (1972), Kwok (1984), and Law (1990) in Cantonese, sentence final particles can be classified into two major categories: (a) inner particles and (b) outer particles. Inner particles are associated with either temporal information or focalization. Outer particles are also known as 'typing particles', which are used to indicate the clause type and illocutionary force of a sentence (Cheng 1991). Particularly, I would like to argue

that inner particles are realizations of T in Chinese. Some examples of Mandarin final

particles and Cantonese final particles are presented in (30) and (31), respectively.[9]

(30)    *Sentence final particles in Mandarin*
        a. Inner particles
                *le* (    ) 'current relevant state'
                *laizhe* (        ) 'recent past'

        b. Outer particles
                *ma* (    ) 'yes-no question particle'
                *ne* (    ) 'response to expectation, interrogative particle'[10]
                *ba* (    ) 'solicit agreement'
                *a* (    ) 'reduce forcefulness'

(31)    *Sentence final particles in Cantonese*
        a. Inner particles
                *laa2* 'current relevant state'
                *lei4* 'recent past'
                *zaa3* 'restrictive focus only'

        b. Outer particles
                *maa3* 'yes-no question particle'
                *me1* 'yes-no question particle, with negative presupposition'
                *aa4* 'interrogative'
                *ne1* 'interrogative, with presupposition'
                *bo3* 'exclamatory, appreciative'

Among the inner particles in Cantonese, *laa* and *lei* are the counterparts of *le* and

*laizhe* in Mandarin. The inner particle *le* is to signal a 'current relevant state' which

claims that 'A state of affairs has special current relevance with respect to some

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[9] Notice that Cantonese has a rich system of sentence final particles, which could have more than thirty particles (Yau 1980, Kwok 1984). I only show some selective examples in (31).
[10] In the literature, *ne* may be treated as an inner particle (Zhu 1982, Ota 1987). Shi and Zhang (1995) argue that *ne* is to indicate the fact conveyed by the sentence, which is essentially a focus marker. Cheng (1991) proposes that *ne* is a *wh*-particle which types a sentence as an interrogative (cf. Li 1992). If Shi and Zhang's observation is correct, the interrogative meaning of *ne* is derived from the meaning of focus.

particular situation' (Li and Thompson 1981:240). The status of referring to the current

relevant state of *le* shows that *le* links the event with the real world being interpreted as a

deictic element. The interpretation of *le* could be analyzed as the perfect.[11] In the

Reichenbachian system, the perfect conveys the meaning that the event time precedes the

reference time. For example, the sentence final particle *le* in (32) says that his shopping is

current with respect to some particular situation. The situation could refer to the present.

The interpretation of *le* in (32) is similar to the present perfect tense in English.

(32)  Ta chu qu mai dongxi le.
      he exit go buy thing    Part
      'He's gone shopping.'
      (Li and Thompson 1981:242)

The inner particle *laizhe* refers to an event in the 'recent past' (Chao 1968, Lü et

al 1980, Zhu 1982). For example, (33) has a meaning that the rain just happened in the

recent past. If the time is not specified in the sentence, *laizhe* must refer to the recent

past. (34) shows that it is incompatible with future tense.

(33)  Xia yu  laizhe.
      fall  rain Part
      'It just rained.'                    (Zhu 1982:209)

(34)  *Mingtian  hui xia  yu  laizhe.
       tomorrow will fall rain Part
      'It will rain tomorrow.'

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[11] If T is realized as *le* in Chinese, it may be considered 'Relt' (relative tense) in Solà 1996 or 'T(anterior)' in Cinque 1996. The perfect tense and the perfective aspect should not be the same. See Smith 1997 for

The inner particle *laizhe* is used frequently in colloquial speech (Lü et al 1980), particularly in northern Mandarin (Ota 1987). The inner particle *lei* in Cantonese is the counterpart of *laizhe*, as exemplified by (35).[12] I assume that *laizhe* in Mandarin and *lei* in Cantonese are overt realizations of T.[13] For differences between *laizhe* in Mandarin and *lei* in Cantonese, see the appendix in this chapter.

(35)    Ngo ukkei ting  din        lei.
        I    home  stop electricity Part
        'My home had a power failure a short while ago'

As noted by Chao (1968) and X. Li (1997), the 'recent past' is more psychological than factual. The sentence final particle *laizhe* could refer to an event which occurred long before the speech time. Consider (36).

(36)    Wo hai jide,      xiao  shihou women zai neige hu-li  youyong laizhe.
        I   still remember small time   we    at   that  lake-in swim    Part
        'I still remember that we used to swim in that lake when we were children.'
        (X. Li 1997:120)

Let us examine some properties of the inner particle *zaa* in Cantonese. *Zaa* is a restrictive focus particle which means 'only' (Cheung 1972, Kwok 1984, X. Li et al

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details.

[12] The inner particle *lei* may also be pronounced as *lai* in Cantonese.

[13] X. Li (1997) assumes that *lai*, which was the origin of *laizhe*, was T in early Mandarin (from the late Tang Dynasty to the end of the Ming Dynasty). However, he assumes that *laizhe* in modern Mandarin is an 'adverb-like element rather than the head of IP' (X. Li 1997:125) and does not specify the syntactic position of *laizhe*.

1995). Focalization of *zaa* seems to exhibit some locality effects. Let us consider the

following examples.

(37)    Ngo tai-zo    ni  bun syu zaa.             (*Subj/V/Obj)
        I     read-Perf this Cl   book only
        'I only read this book.'

(38)    Ngo tai-zo    bun syu  jat-ci    zaa.         (Freq>Obj>V>*Subj)
        I     read-Perf Cl  book one-time only
        'I read the book once only.'

(39)    Ngo hou faai-gam tai-zo    bun syu  zaa.     (*Subj/?Adv/V/Obj)
        I    very fast-ly  read-Perf Cl  book only
        'I only read the book quickly.'

(40)    Ngo manmangam haang zaa.         (*Subj/Adv/V)
        I    slowly      walk  only
        'I only walk slowly.'

(41)    Ngo hai tousyugwun tai-syu    zaa.      (*Subj/Loc/V)
        I   in library      read-book only
        'I only read in the library.'

(42)    Ngo camjat    tai-syu    zaa.        (*Subj/Temp/V)
        I    yesterday read-book only
        'I only read yesterday.'

(43)    Camjat    ngo tai-syu    zaa.      (*Temp/*Subj/V)
        yesterday I    read-book only
        'Yesterday I read only.'

(44)    Ngo jung ni  zi  bat  cimmeng zaa.    (*Subj/Instr/V)
        I    by   this Cl pen sign     only
        'I only sign documents by using this pen.'

(45)    Ngo bei  pin man  bei Siu Ming zaa.    (DO/IO)
        I    give Cl paper to  Siu Ming only
        'I gave (only) the paper (only) to Siu Ming.'

(46)    Ngo man-zo Siu Ming jat-tiu  mantai   zaa.    (DO>??IO)
        I    ask-Perf Siu Ming one-Cl question only
        'I asked Siu Ming only one question.'

(47)　　Ngo man-zo  loeng-go jan　　ni　tiu mantai　　zaa. (IO>DO)
　　　　I　　ask-Perf two-Cl　person this Cl question only
　　　　'I asked only two people this question.'

(48)　　Bun syu,  ngo saumaai zaa.　　　　　　　　　　(*Obj/*Subj/V)
　　　　Cl　book I　store up only
　　　　As for that book, I only store it up.'


　　　　In the sentences with *zaa*, the object of the transitive verb (=(37) and (39)), the

verb (=(37), (39), etc.), and post-verbal modifiers (=(38)) can be focalized. If there is no

object (or any post-verbal elements), preverbal adverbs, such as manner adverbs (=(40)),

locative adverbs (=(41)) temporal adverbs (=(42)), and instrumental PPs (=(44)) may be

focalized. However, the judgment is deviant when the adverbs of transitive verbs are

focalized (=(39)). Notice that *syu* 'book' in (41), (42), and (43) is treated as part of the

VO compound *taisyu* 'read'. In the dative construction, either the direct object or the

indirect object can be focalized (=(45)). In the double object construction, either the

direct object or the indirect object can be focalized by *zaa* (=(46) and (47)). The subject

(=(37), etc.) and any adverbs preceding the subject (=(43)) are always excluded from

focalization of *zaa*. However, the topicalized object cannot be focalized (=(48)).

　　　　Notice that definiteness of nominals plays a role in focalization of *zaa*. The

indefinite nominals seem to 'Attract' the attention of *zaa*. For example, the preferable

reading of (38) is that the frequency phrase *jat-ci* 'once' is focalized. Though either one

of the objects in the double object construction can be focalized by *zaa*, the preference

always goes to the indefinite object.

　　　　The observations on focalization of *zaa* are summarized as follows.

(49)    *Properties of* zaa *in Cantonese*
        a.  Verbs and postverbal elements could be focalized in the transitive.
        b.  Verbs and preverbal adverbs (below the subject) could be focalized in the intransitive.
        c.  Subject and any pre-subject elements (adverbs and topics) cannot be focalized.
        d.  Focalization of *zaa* is sensitive to indefinite nominals.

To capture the generalizations listed in (49), I assume that the focus particle *zaa* is a phonetic realization of T in Cantonese. It is not surprising that T may bear the semantic feature [Focus]. For instance, T may be realized as the emphatic *do* to convey a meaning of focus in English.

(50)    She DID come.

One piece of evidence to support the claim that *zaa* is a realization of T comes from the cooccurence with other inner particles. Given that inner particles are phonetic realizations of T, we expect that *zaa* should be incompatible with other inner particles, e.g. *lei* (= *laizhe* in Mandarin) and *laa3* (= *le* in Mandarin). The prediction is borne out, as shown in (51) and (52).

(51)    Ngo tausin sai-zo     gaa-ce (*zaa) lai (*zaa).
        I    just    wash-Perf Cl-car   only Part  only
        'I just (*only) washed the car.'

(52)    Ngo sai-zo      gaa-ce (*zaa) laa (*zaa).
        I    wash-Perf Cl-car    only Part  only
        'I have (*only) washed the car.'

If the claim that *zaa* is an overt realization of T is correct, the syntax of *zaa* can be

informally represented by the structure in (53), in which word order is irrelevant.

(53)    Topic … [$_{TP}$ Adv [$_{TP}$ Subj [$_{T'}$ [$_T$ *zaa*][$_{vP}$ <u>Adv</u> [$_{vP}$ $t_{Subj}$ [$_{vP}$ <u>V-$v$</u> [$_{VP}$ $t_V$ <u>Obj</u> …
                 *theme $\Leftarrow \Rightarrow$ rheme

The scope of *zaa* is over *v*P. All elements beyond T cannot be focalized by *zaa*.

From a syntactic point of view, only the elements c-commanded by *zaa* can be focalized,

i.e. the underlined elements in (53). Since the subject and sentential adverbs are not c-

commanded by *zaa*, they are beyond the scope of *zaa* and cannot be focalized by *zaa*.

Notice that the trace of the subject left in the specifier of *v*P does not count, assuming that

traces are not subject to focalization (Tancredi 1990, Aoun and Li 1993).

From a functional point of view, the dichotomy could be due to the distinction

between 'theme' and 'rheme'. Everything in the complement of T is regarded as the

rheme conveying new information. It seems that *zaa* only focuses on the elements from

the domain of the rheme.[14] Along these lines, it is not surprising to see that *zaa* is

sensitive to indefinite nominals because they usually convey new information.

2.4.2 Deriving the sentence final particles in Chinese

If inner particles are overt realizations of T in Chinese, what is the status of outer

particles in Chinese? How are they located in the sentence final position, assuming that

'S-H-C' is the basic word order? Let us tackle the first question.

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[14] Thanks to Thomas Lee (personal communication) for drawing my attention to the relation between
focalization of *zaa* and new information.

T.-C. Tang (1989:235) points out that sentence final particles in Chinese occur only in the root clause. For instance, the scope of the interrogative particle *ma* in (54) is only over the matrix clause. However, his observation is not very accurate. As pointed out by Zhu (1982:210), the interpretation of (55) is ambiguous. The inner particle *le* could either refer to the embedded clause having the reading (i), refer to the matrix clause having the reading (ii), or refer to both the embedded clause and the matrix clause having the reading (iii). The reading (iii) could be derived from (56). To avoid haplology, the two *le*'s are merged in the phonological component. Data from Cantonese further support the claim that sentence final particles could occur in embedded clauses. For example, in (57) the past tense particle *lei* refers to the event in the embedded clause whereas the interrogative particle *aa3* refers to the matrix verb.

(54)　Ni　zhidao ta hui  lai　　ma?　　　　　　　　　　　(Mandarin)
　　　you know  he will come Q
　　　(i) 'Do you know he will come?'
　　　(ii) *'You know whether he will come or not.'

(55)　Wo zhidao ni　qu-guo  le.
　　　I　　know  you go-Exp Part
　　　(i) 'I know that you had already visited somewhere.'
　　　(ii) 'I already know that you have visited somewhere.'
　　　(iii) 'I already know that you had already visited somewhere.'

(56)　*Wo zhidao [ni　qu-guo le]　le.
　　　 I　 know　you go-Exp Part Part

(57)　Nei zi-m-zidou　　[zingwaa lok-gwo jyu　lei] aa?　　　(Cantonese)
　　　you know-not-know just　　　fall-Exp rain Part Q
　　　'Do you know it just rained?'

49

Based on the above observations, the correct generalization in Chinese seems to be the following. The generalization in (58) captures the contrast between (54) and (55).[15]

(58)    In Chinese outer particles occur only in the root clause whereas inner particles could occur either in the root clause, the embedded clause, or both.

As C is related to illocutionary force, I assume that CP is projected in Chinese and outer particles are overt realizations of C in Chinese.[16] The clausal structure of Chinese should be (59), in which the extended projection of the categorial feature [V], i.e. V4, is informally labeled as 'CP'. Given that inner particles are overt realizations of T, they could appear in both root clauses and embedded clauses. Hence, only 'real' complementizers are sensitive to the distinction between root vs. embedded contexts in Chinese.

(59)        V4   (= CP)
          2
      V4      V3   (= TP)
          2
        V3      V2   (= $v$P)
            2
          V2      V1   (= VP)
              2
            V1
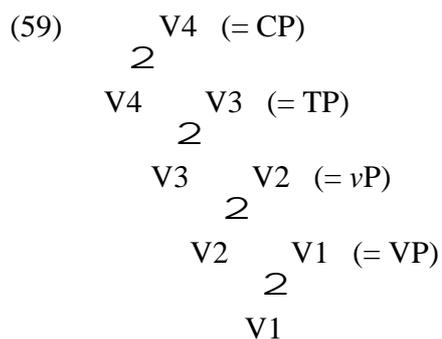
[15] With respect to clause type, complementizers can be divided into two groups: mood markers and subordinators (Bhatt and Yoon 1992). Mood markers appear in the root clause whereas subordinators appear in the embedded clause.

Let us now consider the issue of word order. Linear order between these two types of sentence final particles is fixed. Inner particles must precede outer particles. For example, in Mandarin the outer particle *ma* always follows the inner particle *le*. The contrast can be shown in (60a) and (60b).

(60)  a.    Ni  chi-le   fan <u>le</u> <u>ma</u>?
            you eat-Perf rice Part Q
            'Have you eaten?'

      b.    *Ni  chi-le   fan <u>ma</u> <u>le</u>?
             you eat-Perf rice Q  Part

If inner particles are overt realizations of T and outer particles are overt realization of C in Chinese, why does T always precede C? Why are these particles always in the final position? I assume that C bears two affix features. Let us call them [-T] and [-TP]. The affix feature [-T] of C is a suffix that triggers T-to-C movement and then TP moves to the specifier of CP to check off the affix feature [-TP] of C, deriving the word order 'TP + T + C' in Chinese. The derivation can be represented as in (61).

(61)

| CP | | |
|---|---|---|
| T-C | TP | |
| | …$t_T$… | |

$\Rightarrow$

| CP | | |
|---|---|---|
| TP | C' | |
| …$t_T$… | T-C | $t_{TP}$ |

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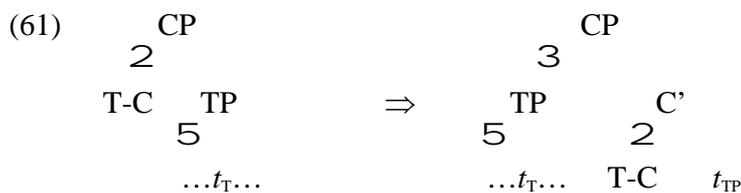
[16] See T.-C. Tang 1989, Cheng 1991, and Li 1992 (cf. Lee 1986:§1.3.2) for an assumption that the interrogative particle *ma* is an overt realization of C.

Are the affix features that trigger T-to-C movement and TP movement in Chinese inflectional or phonological? This question will be answered in the next subsection.

## 2.4.3  Two types of T-to-C movement

Among the sentence final particles in Chinese we have discussed so far, only the inner particle *zaa* in Cantonese is 'inflected'. It has different variants, as shown in (62). *Zaa3* may have the ordinary declarative meaning. *Zaa4* has an interrogative meaning. *Ze1* has a meaning of 'not too excessive' or 'not too much' (Kwok 1984:53). *Zek1* has a similar meaning as *ze1* but is mainly used by female speakers (Cheung 1972, Matthews and Yip 1994, see also Chan 1996 for socio-cultural differences between *ze* and *zek*). The 'inflection' of *zaa* may indicate illocutionary force of a sentence, such as the declarative *zaa3* and the interrogative *zaa4*, and speech-level information, such as *ze1* and *zek1*.

(62)    declarative        *zaa3*
        interrogative      *zaa4*
        emphatic           *ze1*
        emphatic           *zek1*

Based on the paradigm in (62), I conclude that inflectional affix features are assigned to the inner particle *zaa* when it enters the numeration. The particle *zaa* becomes morphologically 'rich' when it is introduced into the derivation. An implication is that movement of *zaa* to C should be triggered by a phonological affix feature by virtue of its 'rich' morphology. Since *zaa* still remains in its original position at Spell-Out, its scope is over everything within *v*P, as in (63). The subject is not c-commanded by *zaa* at LF and

thus it is outside the scope of *zaa*. Even though *zaa* moves to C in the phonological component, movement of *zaa* does not extend the scope at LF. The locality effect of *zaa* supports the claim that *zaa* moves to C in the phonological component.

(63)    [$_{CP}$ C [$_{TP}$ Subj [$_{T'}$ *zaa* [$_{vP}$    ]]                          (Spell-Out = LF)

As for other inner particles, such as *le* and *laizhe* in Mandarin and *laa* and *lei* in Cantonese, T-to-C movement should take place in the overt component by virtue of their 'impoverished' morphology. In the next section, I will show that the analysis of two types of T-to-C movement has some interesting consequences.

**2.5  TP movement in Chinese and Japanese**

2.5.1  TP movement in Chinese

To derive the right word order, I have proposed that the affixal feature [-T] of C first triggers T-to-C movement and then the affix feature [-TP] of C triggers TP remnant movement in Chinese. Let us assume that the nature of the affix feature that triggers remnant movement depends on the affix feature that triggers minimal projection movement, as formally stated in (64).[17]

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[17] The requirement in (64) could be motivated by a general mechanism of 'activation'. The 'inflectional' nature of the affix feature [-X$^{MAX}$] is 'activated' by the inflectional affix feature [-X$^{MIN}$]. For further discussion of 'activation', see chapter 3.

(64)    If the affix feature [-X$^{MIN}$] of H is an inflectional affix feature, then the affix feature [-X$^{MAX}$] of H must be an inflectional affix feature. If the affix feature [-X$^{MIN}$] of H is a phonological affix feature, then the affix feature [-X$^{MAX}$] of H must not be an inflectional affix feature.


According to (64), if the affix feature [-T] of C that triggers movement of inner particles in Chinese is an inflectional affix feature, the affix feature [-TP] of C that triggers TP movement must be an inflectional affix feature. A prediction in Chinese is that if inner particles move to C in the overt component, TP must move in the overt component. If inner particles move to C in the phonological component, TP must not move in the overt component. I will argue that the prediction is supported by the fact of extraction of *wh*-words in Chinese.

Let us consider some inner particles in Mandarin. When the inner particles *le* and *laizhe* occur, the contrast between *wh*-words in argument position, such as *shenme* 'what', and *wh*-words in adjunct position, such as *weishenme* 'why', emerges. The judgment is deviant when the inner particles *le* and *laizhe* cooccur with *weishenme* 'why'. Such a contrast can also be seen in the embedded clauses in (68) and (66). Notice that in (65) and (66) the inner particle *le* is referring to the event in the embedded clause and the interrogative particle *ne* forces the *wh*-words to have a wide scope reading. Cantonese also exhibits such an argument/adjunct asymmetry: the cooccurence of *matje* 'what' and the inner particles *laa* and *lei* is acceptable whereas *dimgaai* 'why' is incompatible with *lei*, as shown in (69), (70), and (71).

*Mandarin*

(65) a.      Ta chi shenme le?                  (what)
           he eat what     Part
           'What did he eat?'

         b.      ??Ta weishenme chi yao      le?             (why)
            he why        eat medicine Part
           'Why did you take medicine.'

(66) a.      Ni    zhidao [ta chi shenme le]    ne?         (what)
           you know    he eat what     Part Q
           'What do you know he just ate?'

         b.      ??Ni zhidao [ta weishenme chi yao      le]    ne?     (why)
            you know   he why       eat medicine Part Q
           'Why do you know [he just took medicine *t*]?

(67) a.      Ni    gangcai chi shenme laizhe?           (what)
           you just      eat what     Part
           'What did you just eat?'

         b.      ??Ni gangcai weishenme chi yao      laizhe?      (why)
            you just     why        eat medicine  Part
           'Why did you just take medicine?'

(68) a.      Ni  renwei [ta gangcai chi shenme laizhe]?        (what)
           you think    he just     eat what     Part
           'What do you think he just ate?'

         b.      ??Ni   renwei [ta gangcai weishenme chi yao      laizhe]? (why)
            you think    he just     why       eat medicine Part
           'Why do you think [he just took medicine *t*]?

*Cantonese*

(69) a.      Nei sik-zo    matje laa?                  (what)
           you eat-Perf what Part
           'What did you eat?'

         b.      ??Nei dimgaai sik-zo    go caang  laa?          (why)
            you why      eat-Perf Cl orange Part
           'Why did you eat the orange?'

(70) a.    Nei zingwaa sik-zo   matje lei?              (what)
           you just     eat-Perf what Part
           'What did you just eat?'

      b.    ??Nei zingwaa dimgaai sik caang lei?      (why)
          you just   why    eat orange  Part
           'Why did you just eat an orange?'

(71) a.    Nei jiwai [keoi zingwaa sik-zo   matje lei]  a?     (what)
           you think he   just     eat-Perf what  Part Q
           'What do you think he just ate?'

      b.    ??Nei jiwai [keoi zingwaa dimgaai sik caang lei]  a?    (why)
          you think he   just     why    eat orange Part Q
           'Why do you think [he just ate an orange *t*]?'

To derive the argument-adjunct asymmetry of *wh*-movement, Aoun and Li (1993) argue that *in-situ wh*-words are bound by a question operator. A *wh-in-situ* such as *weishenme* 'why' in adjunct position must be bound by a question operator in the minimal clause in which it occurs and the question operator undergoes *wh*-movement whereas a *wh-in-situ* such as *shenme* 'what' in argument position may be bound by a question operator outside the minimal clause in which it occurs.[18]

Let us consider the derivation of the above examples in Chinese. If T-to-C movement in Chinese is triggered by an inflectional affix feature, TP must undergo movement to the specifier of CP in the overt component, according to (64). The LF representation of the above examples is shown in (72). (72a) shows that the question operator Qu that binds the *wh*-adjunct moves out of the TP remnant, which exhibits the CED effect. Even though the Qu-operator could move to CP before TP undergoes remnant movement, the LF representation is still ungrammatical because the *wh*-adjunct

cannot be bound by the Qu-operator, as shown in (72b). In any event, the occurrence of the *wh*-adjunct is ungrammatical.[19] On the contrary, the *wh*-argument in (72c) can be bound by the Qu-operator base-generated in the matrix clause. No condition is violated in the configuration in (72c). The grammaticality judgment of the two types of *wh*-words supports the claim that morphologically 'impoverished' particles, such as *le* and *laizhe* in Mandarin and *laa* and *lei* in Cantonese, move to C in the overt component.

(72)  a.  *CP                    b.        *CP                 (*wh*-adjunct)

      Qu$_i$     CP                         TP          CP

          TP     C'              $t_{Qu}$…$wh_i$   Qu     C'

      $t_{Qu}$…$wh_i$  T-C     $t_{TP}$              T-C     $t_{TP}$

   c.         CP                 (*wh*-argument)

      Qu$_i$     CP

          TP        C'

      …$wh_i$…  T-C     $t_{TP}$
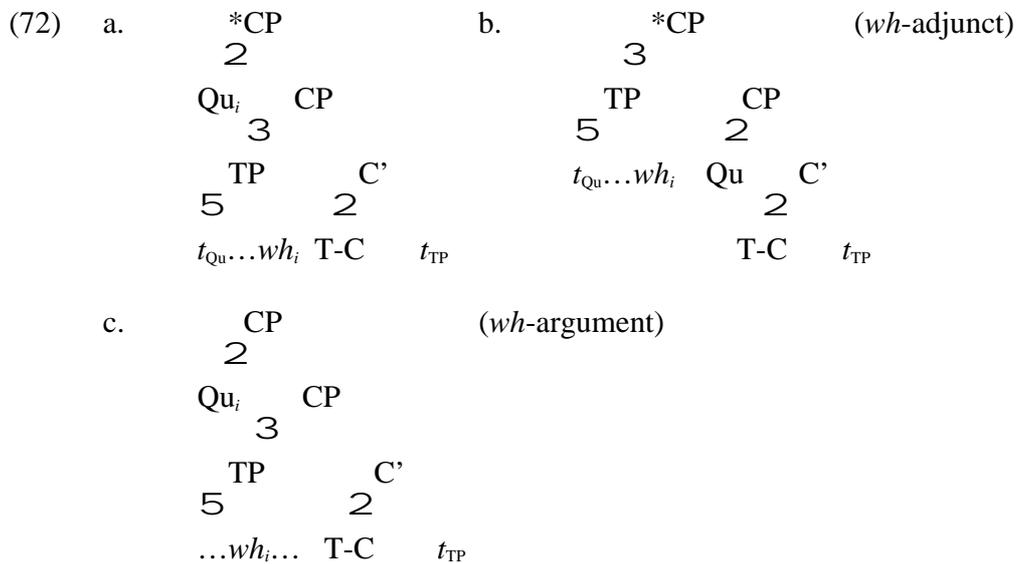
Recall that the inner particle *zaa* in Cantonese is morphologically 'rich'. If it moves to C, movement should take place in the phonological component. According to the generalization in (64), TP must not move to the specifier of CP in the overt component. This claim correctly predicts the grammaticality judgment of extraction of

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[18] See Tsai 1994 for a similar proposal along these lines.
[19] It is not clear why the judgment of the (b) examples in (65-71) is slightly better than the canonical CED violation. I suspect that the acceptability may improve due to some parsing factors. In any event, the crucial point I want to make is that there is a contrast between the (a) examples and the (b) examples.

*wh*-words. (73) shows that the adjunct type *wh*-word *dimgaai* 'why' is perfectly

compatible with the inner particle *zaa* in Cantonese. The derivation can be shown in (74),

in which TP still stays *in-situ* before Spell-Out. Extraction of the Qu-operator that binds

the *wh-in-situ* violates no constraint. Hence, (73) is an acceptable sentence.


(73)    Keoi dimgaai sik-zo    jat-go  caang  zaa.
        he    why      eat-Perf one-Cl orange only
        'Why did he eat only one orange?'

(74)    [$_{CP}$ C [$_{TP}$ …Qu…*zaa...wh*…]]    ⇒    [$_{CP}$ Qu$_i$ [$_{CP}$ C [$_{TP}$ …$t_{Qu}$…*zaa*…*wh$_i$*…]]]


Interestingly, compared with (65), (75) sounds much better.[20] One possibility to

capture the grammaticality judgment of (75) is that *le* and *ne* could form a complex

particle in Mandarin. In other words, the Q feature (or focus feature, see footnote 10)

conveyed by *ne* could be assigned to *le* when it enters the numeration. When the complex

particle *le-ne* is introduced into the derivation, it is morphologically 'rich'. According to

my prediction, it should move to C in the phonological component and thus TP

movement should be in the phonological component as well. Extraction of the Qu-

operator that binds *weishenme* 'why' before Spell-Out does not exhibit any CED effects,

on a par with *zaa* in Cantonese. The claim that *ne* can go with *le* is not ad hoc. In fact, *ne*

can also be analyzed as an inner particle (see footnote 10). The complex inner particle *le-*

*ne* conveys both the perfect tense and the interrogative/focus interpretation.

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[20] Thanks to Audrey Li (personal communication) for drawing my attention to (75).

(75)    Ta weishenme chi yao      le   ne?
        he  why      eat medicine Part Q
        'Why did you take medicine?'

        Notice that (76) is also acceptable in which *le* is missing.

(76)    Ni  weishenme chi yao       ne?
        you why       eat medicine Q
        'Why did you take medicine?'

        One possibility is that (76) is derived from (75) by deleting *le* in the phonological

component. An alternative solution is to assume that there is no T-to-C movement in

Chinese if T is empty. If *ne* is treated as an outer particle in (76), then T is phonetically

empty. Consequently, TP moves to the specifier of CP only in the phonological

component in (76). As TP is still in the complement position of C at Spell-Out, extraction

of the Qu-operator should be grammatical. The grammaticality judgment of (76) is

explained.

2.5.2  TP movement in Japanese

I have argued in the previous section that in Japanese V moves to C in the phonological

component (see the generalization in (28)). According to (64), TP movement should take

place in the phonological component in Japanese. I take (77) to be correct.

(77)    In Japanese TP movement takes place in the phonological component.

We expect that extraction of the Qu-operator that binds a *wh*-adjunct out of TP is grammatical. This prediction is supported by the grammaticality judgment of (78) and (79). As TP moves in the phonological component, (80) would be an informal LF representation, in which TP is still in the complement position of C and extraction of the Qu-operator that binds *naze* 'why' is grammatical.

(78)   Kimi-wa naze ebi-o       tabe-ta-no?
       you-Top why  shrimp-Acc eat-Past-Q
       'Why did you eat shrimp?'

(79)   Kimi-wa [Mary-ga    naze ebi-o       tabe-ta-to] omot-ta-no?
       you-Top  Mary-Nom why  shrimp-Acc eat-Past-C think-Past-Q
       'Why did you think [Mary ate shrimp *t*]?

(80)   $[_{CP}$ Qu$_i$ $[_{CP}$ C $[_{TP}$ …$_{Qu}$…*wh$_i$* …]]]                    (*wh*-adjunct)

## 2.6  TP movement in English

Let us now consider a subset of interrogative sentences in English which display some interesting properties regarding TP movement. With some special rising intonation at the end of the sentence without changing the word order, (81) can be interpreted as an echo question, in which the *wh*-word *what* stays *in-situ*. I assume that echo question sentences in English belong to intonation interrogative sentences, such as the intonation yes-no question in (82).

(81)   You ate WHAT?

(82)   You saw John?

Following Sportiche's (1995) analysis of intonation yes/no questions in French, I assume that C in intonation interrogative sentences in English bears an affix feature [-TP] that triggers TP movement. The affix feature is realized as a supersegmental affix feature. The structure of (81) and (82) can be represented by (83).


(83)    $[_{CP}$ TP $[_{C'}$ C $t_{TP}$ ]]


What is the motivation for moving TP to the specifier of CP in English intonation interrogative sentences? TP movement in (83) could be a requirement of clausal typing which requires that every interrogative clause must be typed such that CP cannot be 'empty' before Spell-Out (Cheng 1991, Chomsky 1995).[21] To satisfy clausal typing, C may be phonetically realized as a lexical item or it may bear an inflectional affix feature to attract some element to its checking domain. The interrogative C in English may bear either an inflectional affix feature [-DP] or [-TP]. The choice between these two options is not optional. If the inflectional affix feature that C bears is [-DP], it triggers movement of *wh*-words in English. C bears the supersegmental inflectional affix feature [-TP] only if the sentence is an intonation interrogative sentence in English.

C in echo questions may be phonetically realized as a segmental morpheme in other languages. For example, in (84) the interrogative particle *waa2* in Cantonese is an

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[21] According to Cheng (1991:30), the definition of the Clausal Typing Hypothesis is given in (i). If my analysis is correct, fronting of TP may also satisfy clausal typing.

(i)      Every clause needs to be typed. In the case of typing a *wh*-question, either a *wh*-particle in $C^0$ is used or else fronting of a *wh*-word to the Spec of $C^0$ is used, thereby typing a clause through $C^0$ by Spec-head agreement.

overt realization of C in echo questions. Notice that (84) can only be interpreted as an echo question.

(84)     Nei sik-zo    matje <u>waa</u>?
         you eat-Perf what Q
         (i)  'You ate WHAT?'
         (ii) *'What did you eat?'

Interestingly, echo question sentences behave differently in Cantonese and English regarding the judgment of *wh*-words in adjunct position. Compare (85) with (86).

(85)     *You laughed WHY?

(86)     Nei dimgaai siu    waa?
         you why     laugh Q
         'Lit.: You laugh WHY?'

The contrast between Cantonese and English is not surprising. Since TP moves to the specifier of CP in the overt component in English echo question sentences, (87) will be the LF representation of (85). Given that the Qu-operator that binds a *wh*-adjunct must move to CP, extraction of the Qu-operator out of the moved TP to CP in (83) exhibits the CED effect. Hence, (85) is ungrammatical. If T is null in Chinese, the affix feature [-TP] that C bears must be a phonological affix feature and thus TP movement is in the phonological component. Along these lines, the LF representation of (86) should be (88), in which TP stays *in-situ* at Spell-Out. Extraction of the Qu-operator that binds *dimgaai* 'why' in Cantonese echo question sentences is grammatical.

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(87)  $*[_{CP}$ Qu$_i$ $[_{CP}$ $[_{TP}$ …$_{Qu}$…$wh_i$…$[_{C'}$ C $t_{TP}]]]]$        (English)

(88)  $[_{CP}$ Qu$_i$ $[_{C'}$ C $[_{TP}$ …$_{Qu}$…$wh_i$…$]]]$        (Cantonese)


Additional evidence to support the claim that TP movement in English intonation interrogative sentences is in the overt component comes from licensing of polarity items. The contrast between (89a) and (89b) shows that the negative polarity item *anyone* can only be licensed in yes-no questions formed by subject-auxiliary inversion. The polarity item cannot occur in the intonation yes-no question.[22] A similar effect can also be observed in French, as in (90) given by Sportiche (1995:389).


(89)   a.     Did you see anyone?          (English)

       b.     *You saw anyone?

(90)   a.     A-t-il vu qui que ce soit?          (French)
              'Has he seen anybody?'

       b.     *Il a vu qui que ce soit?
              'Has he seen anybody?'


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[22] As pointed out by Brian Agbayani (personal communication), (i) is acceptable to some speakers of English. Notice that the verb is not inflected. I speculate that that (i) is derived from (ii) by deleting the inverted auxiliary *do*. My speculation could be supported by the contraction of the auxiliary in (iii) and (iv). Brian Agbayani (personal communication) suggests that auxiliary deletion in (ii) could be a kind of 'radical contraction'. The contraction is constrained by phonological factors. The ungrammaticality of (v) shows that the contraction is possible only if the onset of the subject is a glide.
(i)     He eat anything?
(ii)    ~~Does~~ he eat anything?
(iii)   D'you eat anything?
(iv)    D'we eat anything?
(v)     *D'I/he/she/it/they eat anything?

Chinese provides some interesting data. Indefinite *wh*-words in Mandarin, which are treated as polarity items, can have a non-interrogative interpretation when they are in the interrogative sentences having a yes-no question particle *ma* (Li 1992, Cheng 1994), as in (91). *Wh*-words in Cantonese, such as *matje* 'what', display similar effects with the interrogative particle *maa3*, as (92).

(91)    Ta xihuan shenme ma?               (Mandarin)
       he like   what   Q
       'Does he like anything?'

(92)    Nei sik-gwo matje maa?           (Cantonese)
       you eat-Exp what  Q
       'Have you eaten anything?'

Polarity items must be c-commanded by a licenser. The interrogative C in yes-no questions is the polarity item licenser (Li 1992, Progovac 1994, among others). If TP movement in English takes place in the overt component, (93a) is the LF representation for (89b). Since the polarity item PI is not c-commanded by C, (89b) is ungrammatical. Given that the judgment of (91) and (92) is acceptable, *shenme* 'what' in (91) and *matje* 'what' in (92) must be c-commanded by the polarity licenser, namely the yes-no question particle, at LF, as in (93b).

(93)    a.       *[$_{CP}$ [$_{TP}$ … PI …][$_{C'}$ C $t_{TP}$]]

        b.      [$_{CP}$ C [$_{TP}$ … PI …]]

Interestingly, if the inner particle *lei* in Cantonese occurs, the judgment of the polarity item *matje* 'what' is somewhat deviant. Compare (94) with (92). Recall that TP moves in the overt component if T-to-C movement is triggered by an inflectional affix feature of C in Chinese. TP movement in (94) should take place in the overt component by virtue of movement of the inner particle *lei* in the overt component. (95) will be the LF representation of (94). As the polarity item is not c-commanded by the polarity licenser, namely C, at LF, the judgment is deviant.

(94)    ?Nei sik-gwo matje lei    maa?
         you eat-Exp what  Part Q
        'Did you just eat anything?'

(95)    *[$_{CP}$ [$_{TP}$ …$t_T$… PI …][$_{C'}$ T-C $t_{TP}$]]

Based on the facts from echo questions and polarity items, I conclude that TP movement in English intonation questions is triggered by an inflectional affix feature.

## 2.7 Whether V moves before Spell-Out: indirect evidence from Case

I have argued that whether an element moves before Spell-Out depends on the existence of inflectional affix features. Morphology provides a clue: movement of morphologically 'impoverished' elements is triggered by inflectional affix features and movement of morphologically 'rich' elements should be triggered by phonological affix features. Before closing this chapter, I would like to show that Case is a clue to the question of whether an inflectional affix feature that triggers V movement exists in a particular language.

Kuroda (1988) points out that Case-marking is forced in English while it is not in Japanese. In this regard, Japanese appeals to another mechanism to license the object by assigning the marker -o.[23] To explain the difference between English and Japanese with respect to Case assignment, Takano (1996) correlates accusative Case assignment with the possibility of V movement:

(96)    If a language lacks verb raising, it must invoke the particle system for accusative
        Case.
        (Takano 1996:68)

The rationale for (96) is that the checking system for accusative Case is available for free in languages with V-to-$v$ movement and the particle system is not available, assuming that $v$P is for checking accusative Case. According to Takano, V moves to $v$ in English but it does not move in Japanese. Hence, Japanese has the particle system for accusative Case. He goes a step further and tries to show that the existence of the Case particle system supports his claim that 'S-C-H' is the universal word order.

As far as Case assignment is concerned, my analysis of Japanese is compatible with Takano's observation. According to my analysis, V in Japanese does not move before Spell-Out. It moves to C only in the phonological component triggered by a phonological affix feature. (96) can be reinterpreted as (97). According to (97), the omission of the particle system for accusative Case would imply the existence of inflectional affix features that trigger V movement.

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[23] In Kuroda's (1988) terminology, English has (upper-case) Case-marking while Japanese has (lower-case) case-marking. According to Fukui (1986), the Case assignment in Japanese is known as 'Case checking'.

(97)     If there is an inflectional affix feature triggering V movement in a language, the
         particle system for accusative Case should not be available.


Though Japanese is an SOV language, it does not mean that all SOV languages

should make use of the Case particle system. Navajo is an SOV language. Unlike

Japanese, Navajo nouns do not have morphological Case markers.[24] Another crucial

difference that makes Navajo depart from Japanese is that Navajo verbs have rich

agreement morphology, as shown in (98).


(98)     At'ééd ashkii yiyiiłtsá.
         girl    boy    3O-3SgS-saw
         'The girl saw the boy.'
         (Speas 1990:203)


Speas (1990) argues that in Navajo tense and agreement morphemes are not

assigned to the verb in the lexicon; instead, they occupy some syntactic position

independent of the verb. To reinterpret her observation under the present framework, we

may say that inflectional affix features, such as tense and agreement morphemes, are

combined with the verb in the derivation by syntactic operations in Navajo. Verbs that

are introduced from the numeration are morphologically 'impoverished' in Navajo. To

check off the inflectional affix features, V must move in the overt component. According

to (97), Navajo should not have the particle system for accusative Case.

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[24] Thanks to Yuji Takano (personal communication) for drawing my attention to Navajo.

Takano (1996) tries to correlate the particle system for accusative Case to 'strict' OV languages to support his claim that 'S-C-H' is the universal word order. However, the Case particle system is not monopolized by OV languages. I notice that VO languages may allow the Case particle system. For example, Modern Hebrew is an SVO language. A definite direct object must have an accusative Case marker *et*, as in (99).[25] According to (97), I would conclude that in Modern Hebrew V does not move and should stay *in-situ* before Spell-Out.

(99)    Raiti  et  Miriam  etmol
        I-saw Acc Mary    yesterday
        'I saw Mary yesterday.'
        (Cole 1976:233)

Evidence to support the present analysis comes from verbal morphology. Modern Hebrew has rich verbal morphology. Inflectional affix features are assigned to a verb when it enters the numeration in adult Modern Hebrew (Borer 1998). When the verb is introduced in the derivation, its morphology is 'rich'. According to our previous discussion, V should not move in the overt component and thus the manipulation of the Case particle system is expected.

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[25] An indefinite object in Hebrew does not have the accusative Case marker *et*, as in (i). The accusative Case marker *et* has been regarded as a preposition in the literature (Glinert 1989). However, a 'real' preposition in Modern Hebrew, such as *al* in (ii), is not sensitive to definiteness. That Case assignment is sensitive to definiteness is not impossible in natural languages. See Mahajan 1990 for a similar case in Hindi.
(i)     Raiti (*et)  ec  yafe      etmol
        I-saw   Acc tree beautiful yesterday
        'I saw a beautiful tree yesterday.'   (Cole 1976:233)
(ii)    Hitsbáti al zvuv/ha-zvuv.
        I-point   to a fly/the fly
        'I pointed to a fly/the fly.'           (Glinert 1989:157)

If the argument presented here is on the right track, typological variation in the Case system could be attributed to parametrization of inflectional affix features: in Japanese and Modern Hebrew inflectional affix features are assigned to the verb when it enters the numeration and for that reason, V does not move in the overt component and the particle system for accusative Case is invoked; whereas in Navajo inflectional affix features are combined with the verb in the derivation by syntactic operations and for that reason, V moves in the overt component and the particle system is not available.

I have been assuming that the Case theory is derivable. The relation between Case assignment and the (non)existence of inflectional affix features could be broader. Fukui (1986) speculates that the presence/absence of agreement features is the parametric property of the structural nominative Case assignment mechanism. Gerdts (1990) observes that there is a tendency for languages of the world that languages do not use the agreement system and the Case particle system simultaneously. Based on the observations by these researchers, I claim that the Case particle system (= 'case-marking' in Kuroda's term or 'Case-checking mechanism' in Fukui's term) has the following property.

(100)   The Case particle system is a 'last resort' strategy offered by Universal Grammar to mark the thematic relation in the derivation at Spell-Out.

The intuition behind (100) is that V-to-$v$ movement seems to be a 'default' mechanism offered by Universal Grammar to indicate the thematic relation in a clausal structure. Following Hale and Keyser's (1993) configurational approach to θ-theory,

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Chomsky (1995) argues that the *v*-VP configuration can be taken to express the causative or agentive role of the external argument. V-to-*v* movement in the overt component could be required by the properties of θ-theory. As pointed out by Chomsky (1995:fn94), after V moves to *v*, the complement of V becomes the complement of *v*, as in (101a). There may be a correlation between accusative Case and transitivity (Chomsky 1995:fn14).

If V does not move out of VP in the overt component, the complement of V will not be the complement of *v* at LF. To receive a proper thematic interpretation, the object in the complement position of V is assigned a Case particle at Spell-Out, as in (101b). In a metaphorical way, the Case particle system could be regarded as a 'repair strategy' required by θ-theory, assuming that the thematic relationship among the arguments must be visible, on a par with clausal typing.[26]

(101)   a.      ...[$_{vP}$ V-*v* [$_{VP}$ $t_V$ Obj]]

        b.      ...[$_{vP}$ *v* [$_{VP}$ V Obj-Case]]

Case theory is concerned with the thematic relationship among the arguments in a syntactic structure at Spell-Out. It could be subsumed under θ-theory. The correlation between the manipulation of the Case particle system and parametrization of inflectional affix features that trigger V movement is significant.

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[26] This assumption is reminiscent of the principle of 'Relational Visibility' in Relational Grammar proposed by Gerdts (1990), according to which every nominal must be relationally identified by some morphosyntactic means. The assumption may also capture the phonological nature of the Case particle system (Fukui 1986, Takano 1996).

**2.8 Conclusion**

Movement can be triggered by different affix features in different components and can be signaled morphologically: movement of morphologically 'rich' elements takes place in the phonological component whereas movement of morphologically 'impoverished' elements takes place in the overt component. Where inflectional affix features are added is subject to parametric variation.

In this chapter, I have examined a range of facts such as V movement in English, French, and Japanese, T-to-C movement in Cantonese and Mandarin, TP movement in Chinese (Cantonese and Mandarin), English, and Japanese, and Case assignment in Japanese, Navajo, and Modern Hebrew. All these facts are correlated with parametrization of where affix features are added.

I have also suggested that the Case particle system is a 'last resort' strategy offered by Universal Grammar to mark the thematic relation in the derivation at Spell-Out. Typological variation of Case assignment is attributed to parametrization of inflectional affix features that trigger V movement. Further explorations of the analysis developed here should be very fruitful, which I leave open in this work.

**2.9  Appendix: differences between *laizhe* in Mandarin and *lei* in Cantonese**

A difference between *laizhe* in Mandarin and *lei* in Cantonese is that *lei* is incompatible with stative verbs. Compare (102) with (103).

(102)  Ni   xing     shenme laizhe?                    (Mandarin)
       you surname what    Part
       'What was your surname?'
       (Chao 1968:810)

(103)  *Nei sing     matje lei?                        (Cantonese)
        you surname what  Part
       'What was your surname?'


As pointed out by Lü et al (1980:311), verbs cannot have the perfective marker *le*

and the experiential marker *guo* in Mandarin when the inner particle *laizhe* occurs.

However, Cantonese does not have such a restriction. Compare (104) with (105).


(104)  Bie   gaoshu ta wo qu-*le/*guo youyong laizhe.    (Mandarin)
       don't tell    he I  go-Perf/Exp swim     Part
       'Don't tell him that I just went to swim.'

(105)  Nei heoi-zo/gwo bindou lei?                       (Cantonese)
       you go-Perf/Exp where  Part
       'Where did you go only a short while ago?'


Notice that *laizhe* in Mandarin and *lei* in Cantonese are different respect to

cooccurrence with the negation, as exemplified by (106) and (107).[27]


(106)  *Wo mei qu Lanzhou laizhe.                        (Mandarin)
        I    not go Lanzhou  Part
       'I did not go to Lanzhou a short while ago.'
       (Lü 1980:312)

---

[27] Interestingly, if the object is definite, the judgment seems degraded in Cantonese.
(i)        ?Ngo mou taam-gwo Wong sinsaang/go  go jan    lei.
            I    not   visit-Exp  Wong mister/  that Cl person Part
           'I didn't visit Mr. Wong/that person a short while ago.'

(107)  Ngo mou taam-gwo bingo lei.                              (Cantonese)
       I    not  visit-Exp  who  Part
        'I didn't visit anyone a short while ago.'


        Another difference between Mandarin and Cantonese with respect to the inner

particle is that *laizhe* is incompatible with resultative verbs and manner adverbs (Lü et al

1980). However, *lei* in Cantonese does not have these properties. The contrast is shown

by (108) and (109).


(108)  a.      *Wo na-chuqu laizhe.                    (Mandarin)
                I    bring-out Part
                'I just brought something out.'

       b.      *Wo toutoude na    laizhe.
                I    secretly   bring Part
                'I just secretly brought something.'
                (Lü et al 1980:312)

(109)  a.      Dip sung, ngo ling-zo-ceotheoi lei.       (Cantonese)
               Cl  dish  I    bring-Perf-out   Part
               'I just brought the dish out.'

       b.      Keoi tautaudei sik     jin      lei.
               he    secretly   smoke cigarette Part
               'He just secretly smoked.'


        The observations on the inner particle in Mandarin and Cantonese are

summarized as the following table.


73

|  | Mandarin *laizhe* | Cantonese *lei* |
|---|---|---|
| stative verbs | OK | * |
| aspect markers | * | OK |
| negations | * | OK |
| resultative verbs | * | OK |
| manner adverbs | * | OK |

# CHAPTER 3


# PARAMETRIZATION OF AFFIX FEATURES: SOME CONSEQUENCES


## 3.1 Introduction

According to the Overt Parametrization Hypothesis OPH, an affix feature may be either present or absent in a particular language. The presence/absence of affix features is subject to parametric variation regardless of whether they play at role at LF.

Chinese does not have words or phrases corresponding to *nothing* and *nobody* in the postverbal position, as shown in (1) and (2). Based on the analysis in Scandinavian by Christensen (1986) and the analysis in English by Kayne (1998), Huang (1997b) argues that in English V moves higher than in Chinese, assuming that *no*-phrases are formed by negation + *any*-phrase under adjacency (Klima 1964).[1]


(1)    a.    Nobody saw me.

        b.    I saw nobody.

(2)    a.    Meiyouren kanjian wo.
                nobody    see    I
                'Nobody saw me.'

        b.    *Wo kanjian meiyouren.
                 I   see    nobody
                'I saw nobody.'

---

[1] Kayne (1998) assumes that *no*-phrases are derived by VP pied-piping, as in (i). Following Kayne's analysis, Huang (1997b) proposes that verbs do not move in Chinese.
(i)        I [[$_{VP}$ saw $t_{anybody}$] [Neg [anybody [ $t_{VP}$

Huang (1991 et seq) argues that V moves to an eventuality predicate (=*v*) in the following sentences in Chinese. He argues that the possessive object *wo-de* 'my' in (3a) is in the specifier (=XP) of VP and V moves to an eventuality predicate DO (=*v*). (4a) contains an expression of frequency *san-tian* 'three days' and (4b) contains a genitive modifier *ni-de* 'your'. These sentences are analyzed as gerundive nominalization IP [+N] whose verbal head has moved out to the eventuality predicate DO (=*v*). The frequency phrase modifies the gerund *kan shu* 'reading books' in (4a) and the genitive modifier is an agent argument of the gerundive phrase. The frequency phrase and the genitive modifier are in the specifier position (=XP) of the gerundive phrase IP [+N].

(3)　　a.　　Tamen bang-le wo-de piao.
　　　　　　　they　tie-Perf my　　ticket
　　　　　　　'They kidnapped me.'

　　　　b.
```
              vP
             2
        Subj     v'
               2
          V-v      VP
                 2
            XP       V'
                   2
                 tᵥ     NP
```
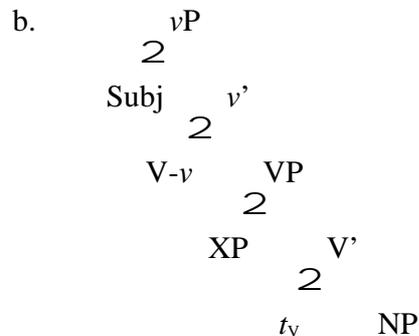
(4)　　a.　　Ta kan-le　san-tian　(de)　shu.
　　　　　　　he read-Perf three-day (Mod) book
　　　　　　　'He read (books) for three days.'

　　　　b.　　Ni　haohao jiao　ni-de Yingwen ba.
　　　　　　　you well　　teach your English　Part
　　　　　　　'Lit.: You better teach your English well.'

c.

```
            vP
           ╱╲
       Subj    v'
              ╱╲
          V-v    IP [+N]
                ╱╲
             XP    I' [+N]
                  ╱╲
              I [+N]  VP
                     ╱╲
                  t_V    NP
```
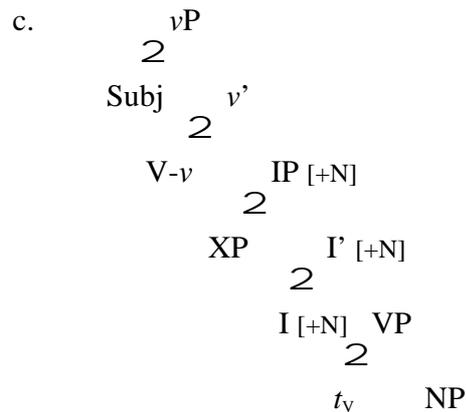
Following Huang (1991 et seq), I assume that V moves only to *v* in Chinese. I have argued that English verbs are 'impoverished' so that V-to-T movement is triggered by an inflectional affix feature [-V] of T. To capture Huang's (1997b) observation, I claim that such an inflectional affix feature does not exist in Chinese. Consequently, there is no V-to-T movement in Chinese. The path of V movement in Chinese is shorter than the path of V movement in English: V moves out of *v*P in English but not in Chinese. Differences between Chinese and English with respect to verb movement should be attributed to parametric variation of the inflectional affix feature [-V] of T.

(5)     T has an affix feature [-V] in English. Such an affix feature is missing in Chinese.

In the rest of the chapter, I will elaborate a range of phenomena in Chinese and English to support this claim. A number of apparently disparate differences between these two languages, such as the distribution of focus elements, binominal *each*, the 'SOV' focalization construction, scopal ambiguity of quantifiers, definiteness of

preverbal numeral phrases, gapping, and heavy NP shift can be accounted for. The

empirical consequences of my claim further support the OPH proposed in this work.

## 3.2 Parametric variation I: distribution of focus adverbs

3.2.1 Basic data

The restrictive focus element *only* essentially can occur in all positions in a sentence in

English, as illustrated in (6).


(6)     (Only) John (only) kisses (only) Mary (only).


        Interestingly, unlike English, the distribution of the restrictive focus element *zhi*

'only' is very restricted, which is always preverbal in Chinese. The focus element *zhi*

'only' never occurs in a postverbal position, as exemplified by (7).


(7)     Zhi??(you) Zhangsan (zhi(you))   kanjian (*zhi(you))   Lisi (*zhi(you))
        only(have) Zhangsan   only(have) see         only(have) Lisi   only(have)
        '(Only) Zhangsan (only) saw Lisi.'


Notice that it is more natural to have a verbal element *you* 'have' when *zhi* 'only' is

preceding the subject.[2] If the element following *zhi* 'only' is a verb, the occurrence of *you*

'have' is optional.

---

[2] If *zhi* 'only' precedes a nominal element directly, it is understood that there is an empty verb, such as *shi* 'be' in (i).
(i)     Zhi ni  yi-ge ren     qu xing     ma?
        only you one-Cl person go  possible Q
        'Is it possible for you only to go?'          (Lü et al 1980: 605)

The additive focus element *even* can occur either in a preverbal position or in a postverbal position in English whereas the additive focus element *shenzhi* 'even' must be preverbal in Chinese. The contrast can be seen in (8) and (9). Notice that unlike *only*, the additive focus element *even* cannot follow an object in English.


(8)     (Even) John (even) loves (even) Mary (*even).

(9)     (Shenzhi) Zhangsan (shenzhi) xihuan (*shenzhi) na   ge shagua (*shenzhi).
         even       Zhangsan even    like      even    that Cl idiot    even
        '(Even) Zhangsan (even) likes that idiot.'


        The focus element *also* and *ye* 'also' have similar distributions in English and Chinese. The additive focus element *ye* 'also' is always preverbal in Chinese.


(10)    a.      (Also) John (also) invited (also) his wife's cousin Jane (also).

        b.      ?He invited also Jane.

(11)    (*Ye) Zhangsan (ye)  yaoqing-le (*ye)  Lisi (*ye).
          also Zhangsan  also invite-Perf   also Lisi   also
        'Zhangsan also invited Lisi.'


As noted by Taglicht (1984:83), the object following *also* must be heavy, such as *his wife's cousin Jane* in (10a). If the object is phonologically light, such as *Jane* in (10b), the judgment is degraded. Essentially the focus element *ye* 'also' in Chinese is preverbal. However, it cannot precede the subject, as shown in (11).

        In sum, the descriptive generalization can be summarized as in (12).

(12)    The focus elements could be either preverbal or postverbal in English whereas
        they must be preverbal in Chinese.

Since the distribution of all these focus elements is quite similar, in what follows, my

attention will be restricted mainly to *only* and *zhi* 'only'.

3.2.2  Are the focus elements adverbs?

Can we provide a theoretical analysis to account for the generalization in (12)? One

possibility is to assume that there is a 'Quantificational Force Parameter' proposed by

Lin (1997), à la Tsai (1994), that quantificational force can be realized at different

syntactic levels. In English quantificational force may be realized on nominals whereas in

Chinese quantificational force is realized at the sentential level only. Lin suggests that

focus elements in Chinese, such as *zhi* 'only', are adverbs realized at the sentence level

whereas those in English could be adjoined to DP. Hence, focus elements can serve as

sentential adverbs only and postverbal focus elements are prohibited in Chinese.

        The claim that focus elements, such as *zhi* 'only', are adverbs in Chinese is not

controversial. The focus elements in English, such as *only*, *even*, and *also*, are also

treated as adverbs by grammarians (Quirk et al 1972:§8). Some pieces of evidence

suggest that the focus element and the nominal do not form a syntactic constituent.

Examples (13), (14), and (17) are from Rooth (1985:93). The ungrammaticality of (13)

and (14) shows that '*only* + nominal' cannot be the complement of a preposition. (15)

and (16) further suggest that the focus element and the nominal do not form a syntactic constituent.[3]

(13)    *The library is closed on only Sunday.

(14)    *The children play in only the common.

(15)    ?*I saw John and even the student.

(16)    *John and even the student came.

(17)    *The entrance only to the Santa Monica freeway was blocked off.

Interestingly, if the two conjoined elements are verbal projections, such as (18), the judgment improves.[4] (18) shows that in principle the focus element *even* can enter the coordinate construction. The contrast between (15) and (16) on one hand and (18) on the other hand suggests that the focus element and the nominal do not form a syntactic constituent.

(18)    John hugged Bill and even kissed Peter on the lips.

---

[3] The judgment of (15) and (16) may improve if there is a pause before *and*. (i) and (ii) could be formed by conjunction reduction. If this is correct, it is clauses that are conjoined, instead of nominals.
(i)      I saw John, and even the student.
(ii)     John, and even the student came.
The grammaticality of (iii) may show that *only* and *Sunday* form a constituent. I suspect that (iii) is derived from (iv) in which *on* is deleted. Thanks to Jim Huang for pointing out (iii).
(iii)    It is closed on Sunday, and only Sunday.
(iv)     It is closed on Sunday, and only on Sunday.
Furthermore, I do not know how (v) is derived and leave it open in the discussion.
(v)      the only entrance to the Santa Monica freeway
[4] Thanks to Kazue Takeda (personal communication) for drawing my attention to verbal coordination and to Ed Zoerner (personal communication) for constructing the example in (18).

Though in some cases the focus elements may follow a preposition, they are not counterexamples.

(19)    John wrote about only linguistics.

Those prepositions in (13) and (14) belong to temporal prepositions. Notice that the status of the preposition in (19) and those in (13) and (14) should be different. For example, *about* allows preposition stranding whereas temporal prepositions do not. Consider the contrast between (20) and (21).[5]

(20)    What did you write about?

(21)    *What time did John arrive at?

I assume with Hornstein and Weinberg (1981) that the verb and the preposition may be reanalyzed as a verb. For example, the verb *write* and the preposition *about* in (19) and (20) undergo reanalysis. It is a complex verb that the focus element *only* and the *wh*-word follow. The temporal prepositions cannot undergo reanalysis and thus remain their original status.

However, there seem to be some examples that suggest that the focus element and the nominal form a constituent.[6] Rooth (1985:90-91) cites the following examples from

---

[5] As pointed out to me by an anonymous reviewer, the contrast between *about* and temporal prepositions can also be shown by pseudopassivization as in the following examples.
(i)      This was talked about.
(ii)     *Today was closed on.
[6] See Bayer 1996 for a constituency test for German to show that the focus element and the nominal form a constituent.

Taglicht (1994) to show that (22) is ambiguous while the scope in (23) is fixed. These examples imply that *only* and the nominal form a constituent which can be assigned scope at LF.

(22)    I knew he had learnt only <u>Spanish</u>. (I knew he hadn't learnt any other language/I didn't know he had learnt any other language.)

(23)    I knew he had only <u>learnt</u> <u>Spanish</u>.

Based on the observation of Jackendoff (1972), Rooth (1985:91-92) points out that the postverbal *even* and the nominal must form a constituent because *even* in (25) can associate only with the nominal that follows it, unlike the preverbal *even* in (24)

(24)    a.    JOHN even gave his daughter a new bicycle.
        b.    John even GAVE his daughter a new bicycle.
        c.    John even gave HIS daughter a new bicycle.
        d.    John even gave his DAUGHTER a new bicycle.
        e.    John even gave his daughter a NEW bicycle.
        f.    John even gave his daughter a new BICYCLE.

(25)    a.    *JOHN gave even his daughter a new bicycle.
        b.    *John GAVE even his daughter a new bicycle.
        c.    John gave even HIS daughter a new bicycle.
        d.    John gave even his DAUGHTER a new bicycle.
        e.    *John gave even his daughter a NEW bicycle.
        f.    *John gave even his daughter a new BICYCLE.

As pointed out by Jim Huang (personal communication), (26) may suggest that *only* and the nominal form a syntactic constituent.

(26)    It is only linguistics that John wrote about.

Are postverbal focus elements in English adverbs? Do the focus element and the nominal form a constituent? I will try to solve the above dilemma in the next subsection.

### 3.2.3  Analysis

Travis (1988) argues that adverbs are 'defective' categories and related to some feature of a verbal head. Horvath (1995) argues that the focus feature is associated with functional categories. Based on these two ideas, I conclude that the following generalization holds in every language.

(27)    Focus adverbs must be adjoined to a verbal functional category.

According to (27), focus adverbs can merge with *v*P, TP, and CP, which are regarded as the extended projections of the categorial feature [V]. Adjunction of the focus adverbs to VP and DP is prohibited in both of these languages by (27).

Ting (1995) and Huang (1997c) argue that the complement of *get* in the short passive is a bare VP. The ungrammaticality of (28a) supports the generalization in (27). (28b) is grammatical because there are some additional functional projections in the long passive.

(28)   a.      John (only) got (*only) blamed.                    (short passive)

      b.      John (only) was (only) blamed.                    (long passive)

Based on the generalization stated in (27), to derive the word order 'Subj + V + *only* + Obj' in English, the focus adverb *only* is adjoined to *v*P and V moves out of *v*P, as in (29).[7]

(29)    … [$_{TP}$ V-T [$_{vP}$ *only* [$_{vP}$ $t_{Subj}$ [$_{v'}$ $t_V$-*v* [$_{VP}$ $t_V$ Obj …

To derive the word order 'Subj + V + Obj + *only*', I assume that movement of the focalized object to *v*P is triggered by an affix feature [-DP] of *v*. Informally, the affix feature could be regarded as a focus feature, which is driven by focalization or prosody. The affix feature [-DP] could be 'activated' when the focus adverb is adjoined to *v*P.[8] Given that verbs move out of *v*P overtly, focalized object is always in a postverbal position, as indicated in (30).

(30)    … [$_{TP}$ V-T [$_{vP}$ Obj [$_{vP}$ *only* [$_{vP}$ $t_{Subj}$ [$_{v'}$ $t_V$-*v* [$_{VP}$ $t_V$ $t_{Obj}$ …

---

[7] Kayne (1998) has a similar analysis of *only*. According to him, *only* is a head which bears a feature [+w] (mnemonic for word order) that must be checked by another head. *Criticized only Bill* has the following derivation. However, the nature of the feature [+w] and the head that *only* moves to are not clear. Also, he does not explain how *criticized Bill only* is derived.

(i)      …only [criticized Bill]              ⇒      (attraction by *only*)
          …Bill only [criticized $t_{Bill}$]        ⇒      (raising of *only*)
          …only Bill $t_{only}$ [criticized $t_{Bill}$]    ⇒      (VP-preposing)
          …[criticized $t_{Bill}$] only Bill $t_{only}$ $t_{VP}$

In addition, V may have some additional extended projections between *v*P and TP in English. They could be AspP (aspect phrase), ReltP (relative tense phrase), etc. when auxiliaries are realized. See Solà 1996 and Cinque 1996.

[8] The condition of 'activation' seems to vary. The discussion here suggests that the element that is in the checking domain of a head H may 'activate' a feature of H. Zhang (1997) proposes that a feature of H may be 'activated' by some feature in the complement domain of H. Takeda (1997) and X. Li (1997) propose that a feature of H may be 'activated' by feature movement. I leave all these interesting consequences open here.

I have suggested in chapter 2 that adverbs cannot be licensed by a trace at LF. In principle, (29) and (30) would be ungrammatical because *only* is licensed by a trace of V (or a trace of V-*v*). To avoid the problem, English may allow the focus adverb and the nominal to 'reanalyze' as one constituent at Spell-Out, as (31a) and (31b). In other words, the postverbal focus elements are adverbs underlyingly but they become part of the nominal at Spell-Out after reanalysis.[9] Hence, the dilemma of the constituency test of the focus elements we have seen previously is solved.

(31)   a.       … [$_{TP}$ V-T [$_{vP}$ *v* [$_{DP}$ *only* DP]]]                    (cf. (29))

       b.       … [$_{TP}$ V-T [$_{vP}$ [$_{DP}$ DP *only*][$_{vP}$ *v* [$_{VP}$ $t_V$ $t_{DP}$]]]]     (cf. (30))

Reanalysis of the focus adverbs is reminiscent of the derivation of *no*-phrases along the lines in Klima 1964. The formation of *no*-phrases in English seems to be in parallel fashion. Let us assume that the negation is adjoined to *v*P, on a par with focus adverbs, as in (32). After V moves to T, the negation would be licensed by the trace of V (or the trace of V-*v*). The negation and the nominal may reanalyze as one constituent, as (33a). If reanalysis does not take place, the negation will be licensed by the trace of V and thus it is ungrammatical, as in (33b).[10]

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[9] Thanks to Jim Huang (personal communication) for the suggestion of reanalysis.
[10] Adverbs that can be reanalyzed in English seem to be restricted to those quantifier-like and operator-like adverbs, such as *only*, *even*, *also*, *not*, and *exactly*.
(i)       I saw exactly five people.

(32)    … [$_{TP}$ V-T [$_{vP}$ Neg [$_{vP}$ $v$ [$_{VP}$ $t_V$ Obj]]]]

(33)    a.    I saw nobody.

    b.    *I saw not anybody.


Consider the following examples, in which the focus adverb *only* is focusing on the head of the object *a picture*. The extraction of the *wh*-word *who* from the focalized object is acceptable in (34) and (35). I propose to explain the contrast in the following way. The focalized object in (34) and (35) does not move to *v*P and it remains *in-situ*. To derive the word order in (36), the focalized object moves to *v*P triggered by the affix feature [-DP] of *v* so that it precedes the focus adverb in linearization. The judgment of the extraction of the *wh*-word from the moved object is degraded, which exhibits the CED effects. Though *a picture of* and *only* may reanalyze as one constituent, i.e. [a picture of *t* only], at Spell-Out, extraction of the *wh*-word is still ungrammatical because the object is still adjoined to *v*P. Reanalysis does not change the syntactic position of the object.


(34)    Who did John only draw [a picture of *t*]?

(35)    Who did John draw only [a picture of *t*]?

(36)    ?*Who did John draw [a picture of *t*] only?


Can we appeal to a non-movement approach to explain the unacceptability of (36)? It seems that (36) violates Kuno's (1973) 'Clause Nonfinal Incomplete Constituent Constraint' formulated in (37).

(37)     *The Clause Nonfinal Incomplete Constituent Constraint*
It is not possible to move any element of phrase/clause A in the clause nonfinal position out of A if what is left over in A constitutes an incomplete phrase/clause. (Kuno 1973:381)

According to Kuno, an incomplete constituent is still in the clause final position if it is followed by 'optional' elements, such as *from Mary* in (38). As *a finishing touch* is a 'nonoptional' element, the judgment of (39) is degraded. These two examples are from Kuno (1973:380). The contrast between (38) and (39) can be explained by his Clause Nonfinal Incomplete Constituent Constraint.

(38)     Who did you buy a picture of from Mary?

(39)     ??Who did John give a picture of a finishing touch?

However, the Clause Nonfinal Incomplete Constituent Constraint still cannot explain why extraction is unnatural in (36) because the 'incomplete' DP is followed by an 'optional' element, i.e. the adverb *only*, in the sentence and the 'incomplete' DP is still considered to be in the clause final position, which should not violate that constraint.

The analysis in Chinese seems straightforward. The focus adverb *zhi* 'only' is adjoined to *v*P. As V does not move out of *v*P, the focus adverb *zhi* 'only' is always in the pre-verbal position, as shown in (40).

(40)     ... [$_{TP}$ Subj T [$_{vP}$ *zhi* [$_{vP}$ $t_{Subj}$ [$_{v'}$ V-*v* [$_{VP}$ $t_V$ ...

In addition, because of the generalization stated in (27) which requires that focus adverbs be adjoined to a functional verbal category, the focus adverb *zhi* 'only' cannot be adjoined to VP. Hence, Chinese never allows postverbal focus adverbs.

So far, I have shown that the parametric theory of V movement provides a plausible account for the differences between these two languages with respect to the distribution of focus adverbs.

### 3.2.4  Some residues

### 3.2.4.1  Object shift

There are several questions regarding the analysis proposed here. First of all, what triggers overt object shift in English? Johnson (1991), Koizumi (1995), and Runner (1995) propose that overt object shift is obligatory in English for Case checking. If my analysis on the distribution of focus adverbs is correct, object shift in English should be triggered by an affix feature [-DP] which is driven by focalization instead of Case, otherwise the object would never follow the focus adverb. Let us consider the following examples.

(41)  a.  John read the magazine only.

   b.  … [$_{TP}$ read-T [$_{vP}$ the magazine [$_{vP}$ only [$_{vP}$…

(42)  a.  John read only the magazine.

   b.  … [$_{TP}$ read-T [$_{vP}$ only [$_{vP}$ $t_{Subj}$ [$_{v'}$ $t_{V-v}$ [$_{VP}$ $t_V$ the magazine

   c.  … [$_{TP}$ read-T [$_{vP}$ only [$_{vP}$ the magazine [$_{vP}$ $t_{Subj}$ [$_{v'}$ $t_{V-v}$ [$_{VP}$ $t_V$ $t_{Obj}$

If Johnson, Koizumi, and Runner are right, the object *the magazine* should be adjoined to a functional category to check the accusative Case feature. In terms of the Agr-less theory outlined in Chomsky 1995, the functional category that is responsible for accusative Case checking is *v*. To check the Case feature, the object moves to *v*P preceding the focus adverb as in (41b) and it never stays *in-situ* before Spell-Out. According to them, (42b) should be an illegitimate derivation because the Case feature of *v* has not been checked and (42a) should be ungrammatical. However, (42a) is an acceptable sentence in English.

One may assume that the Case feature of *v* attracts the object before the adjunction of the focus adverb to get the right word order in (42a), as represented in (42c). If this is correct, both the objects in (41a) and (42a) undergo overt object shift. As I have shown in the previous section, only the 'Subj + V + Obj + *only*' sentences display the CED effects, for instance, (36). If the object is adjoined to *v*P obligatorily, the contrast between the 'Subj + V + Obj + *only*' and the 'Subj + V + *only* + Obj' sentences with respect to the CED effects cannot be explained.

On the contrary, I assume that it is the affix feature [-DP] of *v* that triggers object shift in English, which is driven by focalization or prosody. The assignment of the affix feature to *v* is optional. For example, the affix feature [-DP] of *v* that attracts object shift could be 'activated' by the focus adverb *only* when it is adjoined to *v*P.

In addition to focalization, the assignment of the affix feature [-DP] to *v* may be driven by specificity.[11] If the definite/specific object must undergo movement to check off the affix feature of *v*, we predict that extraction out of the definite/specific object

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[11] See Diesing 1997 for a discussion along these lines in Yiddish.

should display the CED effects. This prediction is actually borne out. The contrast between (43) and (44) is also known as the 'specificity effect' (Chomsky 1973, Fiengo and Higginbotham 1981). If the overt object shift in English is driven by specificity, the specificity effect could be derived from the CED (Mahajan 1992).

(43)    Who did you see a picture of?

(44)    *Who did you see the picture of?

I have suggested that the affix feature of *v* could be 'activated'. Notice that the 'activation' of the affix feature of *v* that attracts the object depends on the lexical property of the focus adverb that is adjoined to *v*. Consider the following example.

(45)    *John loves Mary even.        (=(9))

The affix feature [-DP] of *v* cannot be 'activated' by the additive focus adverb *even*. Therefore, the object does not move to *v*P deriving the word order 'Subj + V + Obj + *even*'. (45) is thus ungrammatical. The focus adverb *even* cannot occur in the post-object position because *v* (modified by *even*) does not have the affix feature that attracts the object.

3.2.4.2 Adjacency Condition and the distribution of adverbs

The fact that Chinese does not allow postverbal focus adverbs could be associated with a

more general property of this language that postverbal adverbs are banned in Chinese.

Postverbal adverbs are not allowed in Chinese, as exemplified in (46).

(46)    Wo (hen  kuaide) xie-le     (*hen kuaide) zhe pian lunwen.
        I    very fast    write-Perf very fast      this Cl   thesis
        'I wrote this thesis very fast.'

        To rule out the postverbal adverbs in Chinese, one possibility is to assume that the

postverbal object in (46) is precluded by the Adjacency Condition (Li 1990, à la Stowell

1981). However, regarding the analysis of the Adjacency Condition, if the word order 'V

+ Adv + Obj' in Chinese is ruled out by Case theory, it is not clear why (47) is still

ungrammatical, given that the PP *gei wo* 'to me' is not assigned Case. The English

counterpart, as shown in the translation, is perfectly acceptable.

(47)    *Ta song-le   yi-zhang zhaopian toutoude gei wo.
         he give-Perf one-Cl   photo     secretly   to  I
        'He gave a picture secretly to me.'

        If a manner adverb is adjoined to VP, after V moves to *v*, the adverb will be

licensed by the trace of the verb, as in (48), in which the subject trace is omitted.

Therefore, adverbs cannot be adjoined to VP in Chinese, regardless of whether XP in

(48) is DP or PP. As a result, adverbs are adjoined to *v*P and the projections above *v*P in Chinese (C.-C. J. Tang 1990).

(48)     ...[$_{TP}$ Subj T [$_{vP}$ (Adv) [$_{vP}$ V-*v* [$_{VP}$ (*Adv) [$_{VP}$ *t*$_V$ XP]]]]]

English allows the word order 'V + Obj + Adv + PP' because the object moves to *v*P overtly. P has already incorporated into *v* to license the adverb.[12] After V moves out of *v*P, the word order 'V + Obj + Adv + PP' is derived. However, given that V never moves out of *v*P in Chinese, the adverb always stays in the preverbal position and thus (47) is ungrammatical. The analysis of (46) and (47) is compatible with the parametric theory of V movement defended in this study.

Apparently, some adverbial elements, such as duration phrases, may occur in a postverbal position, as in (49). Would (49) be a counterexample?

(49)     Wo lai    Meiguo <u>wu   nian</u> le.
         I    come America five year Part
         'I have been in America for five years.'

Li (1987) argues that the duration phrase *wu nian* 'five years' is an indefinite NP which is the complement of the verb. As the position of the duration phrases is different

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[12] The preposition in the English translation in (47) may be treated as a particle so that V and P may form a complex verb in the first place and then the verbal complex undergoes movement to a higher functional head, à la Johnson (1991).

from that of adverbs in Chinese, (49) should not be a counterexample to the claim that V

does not raise out of *v*P in Chinese.[13]


## 3.3 Parametric variation II: binominal *each*

Binominal *each* is an 'anti-quantifier' that marks an element as the distributee having

scope under the distibutor (Choe 1987, Safir and Stowell 1988, Moltmann 1991). In (50),

the binominal *each* marks the indefinite object *a balloon* as the distributee having scope

under the distributor *the children*. If there are five children, there could be five balloons.

As noted by Huang (1997b) and Lin (1997), Chinese does not have the counterpart of

binominal *each* in English, as shown by the ungrammatical example in (51a). To express

distributivity, the anti-quantifier *ge* 'each' should be in the preverbal position, as in

(51b).


(50)    The children are holding a balloon each.

(51)    a.       *Tamen na-zhe    yi-ge   qiqiu    ge.
                    they   hold-Prog one-Cl balloon each
                  'They are holding a balloon each.'

         b.      Taman ge    na-zhe     yi-ge  qiqiu.
                  they    each hold-Prog one-Cl balloon


        The contrast between Chinese and English with respect to the distribution of the

anti-quantifier can be captured by the claim that English has the affix feature [-V] of T

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[13] To derive the postverbal adverb in (i) without violating Adverb Licensing, one possibility is that object
shift takes place in the phonological component. An alternative solution is that VP undergoes remnant
movement in the phonological component, à la Cinque (1996).
(i)       John wrote his dissertation <u>secretly</u>.

while Chinese lacks such an affix. Let us consider the following structures, in which the trace of the subject is omitted.

(52)    ...[$_{TP}$ Subj V-T [$_{vP}$ Obj [$_{vP}$ *each* [$_{vP}$ *v* [$_{VP}$ $t_V$ $t_{Obj}$]]]]]      (English)

(53)    ...[$_{TP}$ Subj T [$_{vP}$ *ge* [$_{vP}$ V-*v* [$_{VP}$ $t_V$ Obj]]]]      (Chinese)

In (52), *each* is adjoined to *v*P. An affix feature [-DP] that triggers object shift is activated by *each*, on a par with the affix feature activated by the focus adverb *only*. After V moves to T, *each* will be licensed by the trace of V. To avoid any violation of Adverb Licensing, the object and *each* reanalyze as one constituent. However, as V never moves out of *v*P in Chinese, the anti-quantifier *ge* 'each' is always in the preverbal position, as in (53). Therefore, Chinese does not have a postverbal binominal *each*.

## 3.4 Parametric variation III: preverbal focalized object

Chinese allows the SOV focalization construction in which the preverbal object is focalized. However, the 'SOV' word order cannot be found in English. The contrast is illustrated by (54) and (55).

(54)    Wo yuyanxue xihuan. (Xinlixue    bu   xihuan.)
        I    linguistics like     Psychology not like
        'I like linguistics. (But not psychology).'

(55)    *I linguistics like.

To derive the word order 'Subj + Obj + V' in (54), I assume with Lu (1994), Qu (1994), Ernst and Wang (1995), Shyu (1995), and Zhang (1997) that the preverbal object undergoes movement. Notice that in (54) the preverbal object receives a contrastive and focalized interpretation. I assume with Zhang (1997) that the focalized object moves to $v$P to check the affix feature [-DP] of $v$ driven by focalization or prosody.[14] In (56), the preverbal object is in the checking domain of $v$. The affix feature [-DP] of $v$ can be checked off. Since verbs in Chinese do not move out of $v$P, the focalized object is always preverbal.[15]

(56)     … Subj [$_{v\text{P}}$ Obj [$_{v\text{P}}$ $t_{\text{Subj}}$ [$_{v'}$ V-$v$ [$_{\text{VP}}$ $t_{\text{V}}$ $t_{\text{Obj}}$

Given that verbs move out of $v$P in English, if the focalized object is adjoined to $v$P to check off the affix feature of $v$, it is always in a postverbal position preserving the 'SVO' order. When V moves, the focalized object has the possibility of movement without ending up to the left of V, as in (57). Therefore, English does not have the SOV order.

(57)     … [$_{\text{TP}}$ V-T [$_{v\text{P}}$ Obj [$_{v\text{P}}$ $t_{\text{Subj}}$ [$_{v'}$ $v$ [$_{\text{VP}}$ $t_{\text{V}}$ $t_{\text{Obj}}$

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[14] With respect to the landing site of the preverbal object, Lu (1994) proposes that it is adjoined to either MP (modal phrase) or VP; to Qu (1994), it moves to the specifier of AgrOP; to Ernst and Wang (1995), it is adjoined to a verbal projection (e.g. VP); and to Shyu (1995), it is adjoined to FocP above VP. Regardless of how the position is labeled, the insight of the 'collective wisdom' is that the preverbal object is located between TP and VP in Chinese.

[15] As observed by Qu (1994), the focalized object in Chinese can be preceded or followed by sentential adverbs and must be followed by manner adverbs and locatives. Word order suggests that adjoining of manner adverbs and locatives to $v$P must precede checking the affix feature [-DP] of $v$ in SOV focalization constructions. One possible solution is to assume with Noji (1997) that the insertion of lexical items that do not enter into feature checking occurs before checking takes place. Another possibility is to follow

The difference between Chinese and English with respect to the preverbal object lies in the parametric variation of verb movement: V moves out of *v*P in English whereas V never moves out of *v*P in Chinese.

To capture the parametric variation between Chinese and English with respect to the SOV focalization construction, Ernst and Wang (1995) propose the following parameters in (58).

(58)    a.      Languages are parameterized as [±TopC];

        b.      [+TopC] potentially occurs in both IP and VP;

        c.      If [+TopC] is allowed in a given projection, then so is [+Foc].

According to them, the feature [+TopC] licenses an additional nominal element both in IP and in the 'extended' VP, which is interpreted as a topic. For example, Korean permits double topicalization and in Chinese the *ba*-construction allows an 'extra' position for a preverbal object. According to them, these two languages are considered to be [+TopC] languages and should have a landing site in VP for preposed focalized objects. As English has neither double topicalization nor the *ba*-construction, it is a [+TopC] language and thus does not allow preverbal focalized objects. They try to correlate topicalization with focalization.

Ernst and Wang's account looks straightforward. However, there are many questions that need to be answered. First of all, the parameters stated in (58) are only a

Cinque's (1996) approach that every adverb is in the specifier of a unique functional projection. The

descriptive generalization. Though the feature [±Foc] could be derived from [±TopC], in terms of the restrictive theory of parameters, the status of the parameter of the feature [±TopC] has to be further scrutinized in the Minimalist Program.

Secondly, the correlation between topcalization and focalization is dubious. Ernst and Wang treat the preverbal object preceded by *ba* in Chinese as a [+TopC] position. According to (58) the [+TopC] position should be a [+Foc] position as well. Consider (59) and (60).

(59)   Wo (zai jia-li)    ba   zhe ben shu (*zai jia-li)     kan-wan-le.
       I     at  home-in BA this Cl   book  at  home-in read-finish-Perf
       'I have finished reading this book at home.'

(60)   Wo (??zai jia-li)    zhe ben shu  (zai jia-li)      kan-wan-le.
       I       at  home-in this Cl   book at  home-in read-finish-Perf
       'I have finished reading THIS BOOK at home.'

(59) is the *ba*-construction and (60) is the preverbal focalized object construction, in both of which the object *zhe ben shu* 'this book' is in a preverbal position. The preverbal object preceded by *ba* cannot be followed by a locative phrase. As noted by Qu (1994), the preverbal focalized object must precede the locative phrase. If C.-C. J. Tang's (1990) observation is correct, locative adverbs are licensed by *v* (='Pr' in her system) or T. This shows that the position of the preverbal focalized object should be higher than that of the preverbal object in the *ba*-construction.[16] Hence, the licensing correlation between [+TopC] and [+Foc] is weak.

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relative order of adverbs is beyond the scope of this study.
[16] If Huang (1991), Gu (1992), and Sybesma (1992) are correct, *ba* is an overt realization of *v* and the object is in the specifier of VP.

My proposal is simply that languages are parameterized as to whether the affix feature that triggers V movement exists or not without positing any language particular features, such as [±TopC]. Since V always moves out of *v*P in English, the focalized object has the possibility of movement without ending up to the left of V and thus there is no 'SOV' contrastive construction in English. The analysis on preverbal focalized objects conforms to the parametric theory of V movement defended here. It should be a desirable move.

## 3.5  Parametric variation IV: scopal ambiguity of quantifiers

It is a well known fact that the English sentences involving two or more quantifiers are ambiguous whereas the Chinese examples are unambiguous. The contrast can be shown in (61) and (62).

(61)    Everyone bought a book.                        ($\forall>\exists$, $\exists>\forall$)

(62)    Meigeren dou mai-le    yi-ben shu.
        everyone all    buy-Perf one-Cl book
        'Everyone bought a book.'                        ($\forall>\exists$, *$\exists>\forall$)

Assuming the Internal Subject Hypothesis, the subject moves out of *v*P and leaves a trace in the specifier of *v*P. English could have overt object shift to *v*P triggered by an affix feature [-DP] of *v*. As the verb moves out of *v*P, the word order is still 'Subj + V + Obj'. The LF representation of (61) will be the same as what we get after Spell-Out, as exemplified in (63a). The motivation of object shift in (63a) is driven by focalization/specificity. The wide scope reading of *a book* in (61) arises from interpreting

*a book* as presupposed/specific. If the object does not move to *v*P, as in (63b), the narrow

scope reading is derived.


(63)  a.  ...[$_{TP}$ everyone [$_{T'}$ bought-T [$_{vP}$ a book [$_{vP}$ $t_{everyone}$ $v$ [$_{VP}$ $t_{bought}$ $t_{a\ book}$

   b.  ...[$_{TP}$ everyone [$_{T'}$ bought-T [$_{vP}$ $t_{everyone}$ $v$ [$_{VP}$ $t_{bought}$ a book


Object shift in (63a) is driven by focalization/specificity. However, this kind of

quantifier movement could be obligatory in other languages. As noted by Pollock

(1989:369), the quantifier *tout* 'everything' must move overtly in French, as in (64).

Diesing (1997:fn19) also notes that the unmarked position of the quantifier *yeder eyner*

'everyone' in Yiddish is to the left of verb due to object shift, as in (65).


(64)  a.  Elle comprend <u>tout</u>   mal.      (French)
      she understand everything badly
      'She understands everything badly.'

   b.  ??Elle comprend  mal   <u>tout</u>.
       she understand badly everything

(65)  Ikh hob  <u>yedn eynem</u> gezen.          (Yiddish)
   I   have everyone   seen
   'I have seen everyone.'


In Chinese, as there is no object shift in SVO sentences, the object is always c-

commanded by the subject. No ambiguity arises. (66) will be the LF representation for

(62) in which the object does not move out of VP.


(66)  … [$_{TP}$ everyone [$_{T'}$ T [$_{vP}$ $t_{Subj}$ [$_{v'}$ bought [$_{VP}$ $t_V$ a book

To account for the lack of scopal ambiguity in Chinese, Aoun and Li (1989) claim that subject raising is possible in English but the subject is base-generated in the specifier of TP in Chinese, as shown in (67). According to them, the object quantifier is adjoined to VP at LF, à la May (1985). As the trace of the subject can be c-commanded by the object quantifier that is adjoined to VP at LF in English, ambiguity arises only in English but not in Chinese.[17]

(67)   a.     ...[$_{TP}$ Subj T [$_{VP}$ $t_{Subj}$ V Obj]]       (English)

       b.     ...[$_{TP}$ Subj T [$_{VP}$ V Obj]]         (Chinese)

However, Huang (1993) argues that the Internal Subject Hypothesis holds in Chinese, i.e. that Chinese also has a similar structure as (67a). Hence, Aoun and Li's claim that the subject does not move in Chinese cannot be maintained. An advantage of my analysis is that it not only accounts for the lack of scopal ambiguity in Chinese but also follows the Internal Subject Hypothesis.

Under my analysis, parametric variation of scopal ambiguity in Chinese and English is attributed to parametric variation of the affix feature [-V] of T in these two languages. Under the present account, the object should be in different positions in the overt component in Chinese and English SVO sentences, which eventually leads to different semantic interpretations of the quantifiers. If the analysis of scopal ambiguity of quantifiers presented here is correct, it implies that the scopal relation is determined at

Spell-Out, which is reminiscent of the 'Isomorphic Principle' (Huang 1995 and references cited therein). Scopal ambiguity of quantifiers in English can be derived directly from movement in the overt component without appealing to covert movement (Kayne 1998, cf. May 1977, Aoun and Li 1989, Hornstein 1995, Kitahara 1996).

## 3.6 Parametric variation V: definiteness of preverbal numeral phrases

If my claim that T has the affix feature [-V] that triggers V-to-T movement in English whereas such an affix feature is missing in Chinese is correct, the differences between these two languages with respect to the definiteness of preverbal nominals can be explained.

Unlike English, an indefinite DP is not allowed in the subject position in Chinese. Consider the contrast between (68) and (69).

(68)　　A child laughed.

(69)　　*Yi-ge　xiaohai xiao-le.
　　　　 one-Cl child　　laugh-Perf
　　　　'A child laughed.'

Here I follow the Extended Mapping Hypothesis proposed by Tsai (1994).[18] The copy of the English subject is under the scope of ∃-closure by virtue of V movement out

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[17] The Scope Principle: A quantifier A has scope over a quantifier B in case A c-commands a member of the chain containing B. (Aoun and Li 1989:141).

[18] Extended Mapping Hypothesis (Tsai 1994:127)
a.　Material from a syntactic predicate is mapped into the nuclear scope.
b.　Material from the immediate dominating XP of a syntactic predicate (excluding that predicate) is mapped into a restrictive clause.
A major difference is that in my analysis V-to-T movement in English is an overt operation while Tsai assumes that V-to-T movement in English takes place in the covert component.

of *v*P. English indefinite subjects can be subject to ∃-closure, as in (70). In contrast,

Chinese subjects are always beyond the scope of ∃-closure since V movement cannot be

beyond *v*P, as in (71).[19]


(70)    … [$_{TP}$ Subj ∃ [$_{T'}$ V-T [$_{vP}$ $t_{Subj}$ [$_{v'}$ *v* [$_{VP}$ $t_V$ …          (English)

(71)    … [$_{TP}$ Subj [$_{T'}$ T [$_{vP}$ $t_{Subj}$ ∃ [$_{v'}$ V-*v* [$_{VP}$ $t_V$ …          (Chinese)


Another type of preverbal numeral nominals in Chinese includes the following

example. According to Tsai, *dou* 'all' or *ye* 'also' is a trigger of universal quantification

over the contrast set associated with the presupposition of *lian* 'even' in (72). The

preverbal numeral phrase *yi-fen qian* 'one penny' can be licensed by *dou* 'all' or *ye*

'also'.


(72)    Akiu (lian) yi-fen      qian   dou/ye yao.
        Akiu  even one-penny money all/also want
        'Akiu also wants (even) one penny.'
        (Tsai 1994:24)


In the previous section, I have argued that in the 'Subj + V + Obj + *only*'

sentences in English, the object moves to *v*P to check off the affix feature [-DP] of *v*. To

derive the 'SOV' contrastive focalization sentences in Chinese, the object moves to *v*P to

check off the affix feature [-DP] of *v*. Though the object could be adjoined to *v*P in both

languages, only in English the object that is adjoined to *v*P could have an indefinite

reading. As noted by Qu (1994), the pre-*v*P object must be definite in Chinese. The

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[19] For the discussion of other preverbal numeral nominals in the *ba*-construction and PPs, see Tsai 1994.

contrast is illustrated by (73) and (74).[20] Recall that the object moves to *v*P preceding

*only* in (73).

(73)    John wants to eat <u>an apple</u> only.

(74)    *Wo <u>yi-pian lunwen</u> hen   xihuan.
          I    one-Cl thesis    very like
        'I like a thesis very much.'

The reason why the indefinite object that is adjoined to *v*P in English can have an

indefinite reading is that the indefinite object is still under the scope of ∃-closure by

virtue of V moving out of *v*P. (74) is ungrammatical because V does not move out of *v*P

in Chinese. The indefinite object that is adjoined to *v*P would be beyond the scope of ∃-

closure, as shown in (75).

(75)    … [$_{TP}$ Subj [$_{T'}$ T [$_{vP}$ Obj [$_{vP}$ $t_{Subj}$ ∃ [$_{v'}$ V-*v* [$_{VP}$ $t_V$ $t_{Obj}$          (Chinese)

Recall that to rule in the indefinite subject in English, the indefinite subject can be

'reconstructed', i.e. that the copy of the subject is allowed to be bound by ∃-closure, à la

Tsai. A question arises: Why can't the preverbal focalized object in (75) be

'reconstructed' in the same fashion?

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[20] Shyu (1995:117) points out that the preverbal focalized object could be indefinite. However, according to native speakers I consulted with, (i) is very unnatural, which I will not consider in our discussion.
(i)       Wo yi-ben shu    kan-wan-le,      yi-pian wenzhang mei kan-wan.
          I    one-Cl book read-finish-Perf one-Cl article      not  read-finish
          'I finished reading a book but didn't finish reading an article.'

The object that moves to *v*P to check off the affix feature [-DP] of *v* which is

driven by focalization cannot be 'reconstructed' because the operation of moving the

focalized object to *v*P for checking the affix feature of *v* contributes to semantic

interpretation and the focalized object must stay in that position at LF for interpretation,

similar to *wh*-movement and topicalization in English discussed in Saito 1992. On the

contrary, subject moving to T for checking the 'EPP' feature is not for interpretation and

thus the subject could be 'reconstructed'. Since the preverbal focalized object cannot be

'reconstructed', it is always beyond the scope of ∃-closure in Chinese and should not be

indefinite. The following examples further support the claim that the preverbal focalized

object cannot be 'reconstructed'.


(76)  a.  *Wo gei-le    $ta_i$ [$John_i$ de   shu].
          I    give-Perf he   John Mod book
          '*I gave $him_i$ $John_i$'s book.'

      b.  ?Wo [$John_i$ de    shu] yijing  gei-le     $ta_i$.
          I    John  Mod book already give-Perf he
          '$John_i$'s book, I already gave $him_i$.'

(77)  a.  Wo gei John kan [$tajizi$   de   zhaopian].
          I    to John see   himself Mod photo
          'I showed John his own photos.'

      b.  *Wo [$tajizi$   de    zhaopian] gei John kan-guo.
          I    himself Mod photo      to   John see-Asp


The examples and their judgments in (76) and (77) are due to Qu (1994:89-90). As

observed by Qu, in (76a) the preceding indirect object cannot be a pronoun co-indexed

with the R-expression in the direct object position. When the object is in a preverbal

position, such as in (76b), coindexing is possible. He further notes that (77b) is

ungrammatical because the reflexive *tajizi* 'himself' cannot be bound by its antecedent.

These data strongly show that there is no 'reconstruction' effect in preverbal focalized

object construction.

However, in some contexts, the numeral phrase could be in a preverbal position.

Example (78) is from Tsai (1994:138).

(78)    Zhangsan yi-pian lunwen keyi yingfu, (liang-pian jiu   bu xing    le).
        Zhangsan one-Cl thesis   can  handle   two-Cl    then not capable Part
        'One paper, I can handle. (But two papers, I am not capable of handling.)'

Tsai assumes that the preverbal focalized object *yi-pian lunwen* 'one paper' in

(78) could be bound by ∃-closure under 'reconstruction'. I have shown that the preverbal

focalized object cannot be 'reconstructed' and thus Tsai's analysis cannot be maintained.

If both (74) and (78) have the representation in (75), how can we rule in (78)?

First of all, what the contrastive preverbal nominal in (78) indicates is not

individuals; instead, it expresses quantity, as noted by Audrey Li (1996). The numeral

phrase is a quantity expression rather than an individual denoting expression.

Secondly, the environment that the quantity expressions occur in is quite

restricted. The crucial difference between (74) and (78) is that (78) expresses modality.

The modal *keyi* 'can' in (78) plays an important role, which seems to allow the quantity

interpretation of the numeral phrase. In what follows, I examine all the constructions in

which the numeral phrases are used as quantity expressions and argue that modality is

relevant to the quantity interpretation. Let us consider the following data.[21]

- *Modal  constructions*
(79)    Liang-ge ren    keyi chi shi-wan fan.
        two-Cl  person can  eat ten-Cl   rice
        'Two persons can eat ten bowls of rice.'

(80)    Wu-ge ren      zhunneng wancheng renwu.
        five-Cl person definitely  complete  task
        'Five persons can definitely complete the task.'

(81)    Wu-ge ren      chi-de-wan    shi-wan fan.
        five-Cl person eat-can-finish ten-Cl   rice
        'Five people can finish ten bowls of rice.'

- *Gou 'enough' sentences*
(82)    Yi-zhang chuang gou     shui  liang-ge ren.
        one-Cl   bed       enough sleep two-Cl  person
        'One bed is enough for two people to sleep in.'

- *Flip-flop constructions*
(83)    a.      Yi-zhang chuang shui  liang-ge ren.
                one-Cl    bed sleep two-Cl  person
                'One bed should/may hold two people in sleeping.'

        b.      Liang-ge ren     shui  yi-zhang chuang.
                two-Cl   person sleep one-Cl   bed
                'Two people should/may sleep in one bed.'

- *Conditional clauses*
(84)    Ruguo liang-ge jiaoshou  quexi, hui      jiu kai  bu  cheng.
        if     two-Cl   professor absent meeting then start not accomplish
        'If two professors are absent, the meeting cannot be held.'

(85)    San-ge   ren    jiu/cai zou.
        three-Cl person then   go
        'When the number of people reaches three, three leave.'

---

[21] The source of some of them is the following: (79), (80), (84), (87), and (93) are from Lee (1986:87-89), (85), (86), and (88) are from Li (1996), (81), (82), and (83) are from Tsai (1998) and Li (1996).

(86)    San-ge    ren    zuo yi-jian shi,  jiu-ge    ren    zuo ji-jian         shi?
        three-Cl person do  one-Cl thing nine-Cl person do  how.many-Cl thing
        'If three people do one thing, how many things do nine people do?'

- *Sentential subject/topic*
(87)    [San-ge  pengyou chi fan] duo  hao.
         three-Cl friend    eat rice very good
        'It would be nice for three friends to have a meal.'

(88)    [San-ge  ren    zhi jiaolai  yi-pian wenzhang],
         three-Cl person only hand-in one-Cl  article
                  tai  duo ren    zuo tai shao shi   le    ba.
                  too many person do  too few   thing Part Part
        'Three people only handed in one article. Too many people did too little, isn't it?'

- *Math contexts*
(89)    Liang-zhi songshu jia   san-zhi   songshu yigong you wu-zhi  songshu.
        two-Cl    squirrel   plus three-Cl squirrel totally  have five-Cl squirrel
        'Two squirrels and three squirrels equals five squirrels totally.'

- *Characterizing sentences*
(90)    Yi-bei  kafei  yao  liang kuai.
        one-Cl coffee need two dollar
        'One cup of coffee costs two dollars.'

(91)    Yi-ge   xiaoshi you  liushi fenzhong.
        one-Cl hour    have sixty minute
        'One hour has sixty minutes.'

(92)    Liang-zhang jipiao      zhibuguo shi san  bai       kuai.
        two-Cl         air-ticket only       be three hundred dollar
        'Two air-tickets costs only three hundred dollars.'

- *Adverbial usage*
(93)    Tamen dou yi-ge  ren      shuijiao.
        they   all  one-Cl person sleep
        'They all sleep alone.'

(94)    (Wo) yi-ge   ren      shenghuo. Meiyou shenme wenti.
         I    one-Cl person live           not     what    problem
        'I live alone. I don't have any problems.'

- *Names*
(95)    'Yi-ge  guojia,  liang-zhong zhidu' yijing   zai Xianggang shishi       le.
         one-Cl country two-Cl         system already in  Hong Kong implement Part
        "One country, two systems" has already been implemented in Hong Kong.'

- *Headlinese sentences*

(96) WU REN   SIWANG. SHI REN   SHOUSHANG.
     five person die        ten   person injured
     'FIVE PEOPLE DIE. TEN PEOPLE INJURED.'

In sum, the quantity interpretation of the numeral phrases emerges in modal contexts (with modal verbs, *gou* 'enough', and flip-flop constructions), conditional clauses, sentential subjects/topics, math contexts,[22] characterizing sentences, adverbial usage,[23] names, and headlinese sentences.[24]

Lee (1986) and Tsai (1998) point out that modality plays a role in licensing the preverbal indefinite nominals in Chinese. Particularly, Tsai assumes that in the modal contexts the indefinite subject is generated in the specifier of VP and moves to ModP (modal phrase). V moves out of VP to Mod (overtly or covertly) so that the copy of the indefinite subject can be bound by ∃-closure, as in (97).

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[22] Li treats (86) as a sentence used in the math context. However, (i) shows that the first clause cannot be used alone. It would be acceptable only if the second clause is present. I treat (86) as a conditional construction. The real math contexts are the examples like (89).
(i)      *San-ge   ren     zuo yi-jian shi.
          three-Cl person do  one-Cl thing
          'Three people do one thing.'

[23] The adverbial usage of the numeral phrases in (93) and (94) is restricted to *yi-ge ren* 'a person', as pointed out by Lee (1986) and Li (1996). Notice that aspect markers are not allowed. Compare (93) with (i). The sentences with the adverbial numeral phrases denote a habitual reading. Hence, perfective markers are not allowed.
(i)      *Tamen dou yi-ge ren     shuijiao-le.
          they    all   one-Cl person sleep-Perf
          'They all slept alone.'

[24] Interestingly, classifiers may be omitted in headlinese sentences. However, if the noun is mass, as in (i), the classifier cannot be omitted. The distinction between classifiers and 'massifiers' (classifiers that modify mass nouns) in Chinese is that the former is functional and the latter is still lexical (Cheng and Sybesma 1997a).
(i)      YI *(PI) RAN O-157 NIUROU YI      YI     GUQING.
          one Cl  catch O-157 beef        suspect already sell out
          'It is suspected that a batch of beef that is infected by O-157 has already been sold out.'
          (*Sing Tao Daily*, April 26, 1998)

(97)     … [$_{ModP}$ Subj $\exists$ [$_{Mod'}$ V-Mod [$_{VP}$ $t_{Subj}$ [$_{V'}$ $t_V$ …

There are several questions related to Tsai's analysis. Firstly, as pointed out by Li (1996), the numeral phrases in the modal contexts actually denote quantity instead of individuals.

Secondly, what is the status of 'VP' in (97)? Suppose that in (97) VP is a bare verb phrase without being dominated by $v$P. If the subject is allowed to be generated in the specifier of VP in modal contexts, why can't it be generated in the same position and move to specifier of $v$P in non-modal contexts? The undesirable result is that after V moves to $v$, the copy of the subject in the specifier of VP is under the scope of $\exists$-closure and Chinese should have indefinite subjects in non-modal contexts.

Thirdly, if there is no $v$P in the modal constructions, we need to posit an additional verb phrase to accommodate the indirect object in the double object construction because the specifier of VP is already occupied by the subject. (98) is a grammatical sentence.

(98)     San-ge ren     yinggai song san-fen liwu     gei Zhangsan.
          three-Cl person should  give three-Cl present to  Zhangsan
          'Three people should give three presents to Zhangsan.'

Fourthly, if there is $v$P in modal constructions, V-to-Mod movement should not be overt. Otherwise, (99) would be grammatical, in which *zhi* 'only' is adjoined to $v$P and V moves out of $v$P overtly.

(99)    *Liang-ge ren    chi-de-wan    zhi  san-wan fan.
         two-Cl    person eat-can-finish only three-Cl rice
        'Two people can eat only three bowls of rice.'


Let us tentatively assume with Tsai that covert movement is possible and V-to-Mod movement takes place in the covert component. We may wonder why in Chinese Mod triggers V movement but T does not in Tsai's theory. V-to-Mod movement cannot be driven by morphology because it is covert. If it is driven by semantics, then it is not very clear why covert V-to-T movement is prohibited in Chinese.

According to Li (1996), modality does not play a crucial role in licensing the numeral nominals. In her story, a numeral nominal that denotes quantity is a NumP (number phrase). When NumP is used, the sentence expresses quantity. In other words, if a sentence denotes a quantity interpretation, the occurrence of NumP is legitimate. The quantity interpretation is contributed by the 'overt linguistic contexts'.

I basically agree with Li that the judgment of NumP is felicitous if the context expresses a quantity interpretation. Discourse factors may improve the acceptability of preverbal numeral phrases in Chinese. For example, the judgment of (100) is deviant in an out of the blue context. However, if the speaker knows that the answer is given in a uantity context', the judgment of the preverbal numeral phrase improves, as in (101).[25]

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[25] Compared with (101), the judgment of the preverbal numeral phrase in (i) is deviant. As pointed out to me by Audrey Li, the unnaturalness of (i) could be due to the omission of *you* 'have' in the answer, which has to be copied from the question.
(i)      *Q*:      Zuotian you ji-ge        ren    lai ni-de      yanjiang?
                  yesterday have how.many-Cl person come you-Mod talk
         *A*:      ??Sanshi-ge ren      lai-le.
                    thirty-Cl person come-Perf
        'How many people came to your talk yesterday? Thirty people came.'

(100) ??Sanshi-ge ren    zuotian  lai-le    wo-de yanjiang.
        thirty-Cl   person yesterday come-Perf I-Mod talk
      'Thirty people came to my talk yesterday.'

(101) *Q*:    Zuotian  ji-ge        ren    lai  ni-de      yanjiang?
              yesterday how.many-Cl person come you-Mod talk
      *A*:    Sanshi-ge ren    lai-le.
              thirty-Cl person come-Perf
      'How many people came to your talk yesterday? Thirty people came.'


However, the dichotomy between DP and NumP is not always overridden by

discourse. According to Li's (1996) observation, a difference between DP and NumP is

that NumP has singular agreement. For example, the number expression *three men* in

(102) has singular agreement when it is interpreted as denoting quantity. (103)

presumably expresses the quantity interpretation. However, the plural agreement shows

that the occurrence of NumP is impossible.


(102)   Three men is not enough to handle this job.

(103)   *Q*:    How many people are coming tomorrow?

        *A*:    Three people are/*is coming tomorrow.


Notice that sentences (100) and (103) express no modal interpretation. That may

be the reason why the use of NumP is impossible. The occurrence of NumP is not free,

which is restricted by some contexts. The 'overt linguistic contexts' that license NumP

should be scrutinized. I argue that preverbal numeral phrases are licensed by modality in

'unmarked' contexts and they may occur in non-modal constructions only in 'marked'

contexts.

The 'unmarked' contexts in which the quantity interpretation emerges are sentences having a meaning of modality (e.g. modal constructions, *gou* 'enough' sentences, and flip-flop constructions), necessity (e.g. conditionals, sentential subject/topic, math contexts, and characterizing sentences),[26] and habitual meaning (e.g. adverbial usage). Notice that preverbal numeral phrases in the 'unmarked' contexts can be used in an out of the blue context. If the numeral phrase is used as a name, it may occur in an out-of-the-blue context. Headlinese sentences are quite 'marked' and they could be treated as a kind of telegraphic speech in which functional words are deleted, for instance, the omission of classifiers (see footnote 24). It could be the case that an existential *you* that licenses an indefinite subject is deleted. Since the treatment of the adverbial usage of numeral phrases, proper names, and headlinese sentences are quite distinct, I put these three cases aside and just concentrate on the modal contexts, math contexts, conditionals, and characterizing sentences in our following discussion.

These four contexts, namely the modal contexts, math contexts, conditionals, and characterizing sentences, are not homogeneous. Though Li's observation about agreement is essentially correct, not all NumP will trigger singular agreement in English. With respect to agreement, conditionals and characterizing sentences should be different from the other two constructions in English. Consider (104) to (107).

- *Modality*
(104)   Three men is not enough/sufficient to handle this job.

- *Math contexts*
(105)   Two and two equals four.

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[26] Math contexts and the characterizing sentences (90), (91), and (92) denote a meaning of necessity. The

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- *Conditionals*
(106)   *If three men comes, we can leave.

- *Characterizing sentences*
(107)   *Two apples costs five dollars.


Furthermore, Li observes that a quantity denoting expression does not allow a coreferential pronoun. For example, (108) is given by Li. With respect to pronominal coreference, I notice that conditionals (=(110)) and characterizing sentences (=(111)) should be different from the modal contexts (=(108)) and the math contexts (=(109)).[27] The numeral phrases in conditionals and characterizing sentences have a kind-referring reading while the numeral phrases in the modal contexts and the math contexts refer to a group of numbers. Pronouns may refer to a kind instead of a number.[28]


- *Modal contexts*
(108)   *Yi-ge ren     bu keneng tai-de-qi  ni   gei ta de   gangqin.
           one-Cl person not possible lift-can-up you give he Mod piano
           'A person cannot lift the piano that you gave to him.'

---

former refers to a mathematical necessity whereas the latter is context-dependent.
[27] Pronominal coreference is subject to pragmatic factors. As pointed out by Audrey Li (personal communication), (i) is a characterizing sentence but the judgment is deviant. The unnaturalness of (i) should be pragmatic. (ii) shows that it is still unnatural even though the subject is not a numeral phrase.
(i)       #Yi-ge ren     you liang-tiao tui. Wo mei banfa zhaogu    ta.
            one-Cl person have two-Cl    leg I    not way   look after he
            'A person has two legs. I have no way to look after him.'
(ii)      #Zhangsan you   liang-tiao tui. Wo mei banfa zhaogu    ta.
            Zhangsan have two-Cl    leg I    not way   look after he
            'A person has two legs. I have no way to look after him.'
[28] It has been noted in the literature that pronouns may have an existential reading (=(i)) or a generic reading (=(ii)) in English. One possibility as suggested by Krifka et al (1995) is to assume an ontology where it is possible that a kind is in some way 'identical' with the objects or with collections of objects that belong to it. See Carlson 1977, Krifka et al 1995, and ter Meulen 1995 for details.
(i)       My mother hates raccoons [generic] because they [existential] stole her sweet corn last summer.
(ii)      Look kids, this is the lion. It lives in Africa.

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- *Math contexts*
(109)  #Liang-zhi songshu jia    san-zhi    songshu yigong you wu-zhi  songshu.
        two-Cl    squirrel   plus three-Cl squirrel  totally  have five-Cl squirrel
            Tamen hen    keai.
            they    very lovely
        '#Two squirrels and three squirrels equals five squirrels totally. They are very lovely'

- *Conditionals*
(110)  Ruguo sanshi-ge ren      tongshi        likai  huichang,
        if       thirty-Cl   person simultaneously leave meeting place
            tamen suo fachu  de   zaoyin yiding    hui  yingxiang qita    ren.
            they   Rel create Mod noise  definitely will affect      other person
        'If thirty people leave the meeting place simultaneously, the noise created by them definitely will affect other people.

- *Characterizing sentences*
(111)  Yi-tou  daxiang qima    zhong wu  dun.
        one-Cl elephant at least weight five ton
            Ruguo ta daochu     luan     pao, yiding hen weixian.
            if      it everywhere disorder run  must   very dangerous
        'An elephant weights at least five tons. If it runs everywhere without control, it must be very dangerous.'


Based on the discussion above, the characteristics of the four major types: modal contexts, math contexts, conditionals, and characterizing sentences, can be summarized below.


|  | Agreement | Pronominal coreference |
|---|---|---|
| Modal contexts | singular | * |
| Math contexts | singular | * |
| Conditionals | plural | OK |
| Characterizing sentences | plural | OK |


Let us assume that NumP has to be licensed. If it is licensed by ∃-closure, it has an indefinite interpretation. If it cannot be licensed by ∃-closure, it has to be licensed somehow. Since the preverbal NumP cannot be licensed by ∃-closure in Chinese given

that V never moves out of *v*P, the preverbal NumP is grammatical only in the environment that can evoke an operator to bind it. The environment that allows the preverbal NumP includes the modality contexts (particularly denoting capability) and necessity contexts (including conditionals, math contexts, and characterizing sentences). I assume that in these contexts there is an operator that binds the preverbal numeral nominals, as (112). The operator could be a modality operator, a necessity operator, or a genericity operator, depending on the context. If the operator is missing, the existence of the preverbal NumP would become ungrammatical.

(112)   Op$_i$ [ ... NumP$_i$ ... [$_{vP}$ *t*$_{Subj}$ (∃) [$_{v'}$ V-*v* [$_{VP}$ *t*$_V$ ...

Notice that the licensing condition in modal contexts and math contexts on the one hand and that in conditionals and characterizing sentences on the other hand are different. The characteristic that the conditionals and the characterizing sentences share is that they denote a meaning of necessity which is context-dependent. One possibility is to attribute the differences to the nature of the operator. The operator occurring in the conditionals and the characterizing sentences is context-dependent, which has distinct properties that the non-context-dependent operator does not share.[29]

Recall that the preverbal focalized object in Chinese can be a numeral phrase only when it is in a modal context. Since the preverbal numeral nominal cannot be 'reconstructed' and V does not move out of *v*P, it cannot be bound by ∃-closure. Unless there is an operator supplied by the context which binds the numeral phrase, the numeral

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[29] See Heim 1982 and Krifka et al 1995 for discussion along these lines.

phrase cannot stay in the preverbal position. This should be a natural consequence of the parametric theory of V movement defended here.

## 3.7 Parametric variation VI: gapping

In this section, I show that the claim that T has an affix feature [-V] that triggers V movement in English and that such an affix feature is missing in Chinese provides a direct account of the difference between these two languages with respect to gapping.

Examples (113) and (114) are considered to be gapping sentences in English. As noted by Tai (1969), M.-D. Li (1988), and Tsai (1994), Chinese disallows gapping, as shown by the ungrammaticality of (115) and (116).

(113)  Chinese eat rice and Americans ~~eat~~ hamburgers.

(114)  John saw Mary and Bill ~~saw~~ Susan.

(115)  *Zhongguoren chi fan, Meiguoren ~~chi~~ hanbao.
     Chinese     eat rice  American  eat hamburger
     'Chinese eat rice and Americans hamburgers.'

(116)  *Wo kanjian-le Zhangsan, ni   ~~kanjian-le~~ Lisi.
     I    see-Perf  Zhangsan  you see-Perf  Lisi
     'I saw Zhangsan and you Lisi.'

Following Johnson's (1994) analysis, I assume that gapping is derived by Across-the-Board (ATB) movement rather than as an instance of deletion or ellipsis of the verb. The representation of examples (113) and (114) would be (117), in which V moves out of

the two coordinates to T in ATB fashion. The subject in the first coordinate moves to the

specifier of TP and the subject in the second coordinate remains *in-situ*.[30]

(117)

```
              TP
             2
        Subj1    T'
                2
            V-T     vP
             e      ɟ
          vP      and     vP
         2                2
      t_Subj1    v'    Subj2    v'
              2                2
           v    VP        v    VP
          2                2
        t_v    Obj      t_v    Obj
```
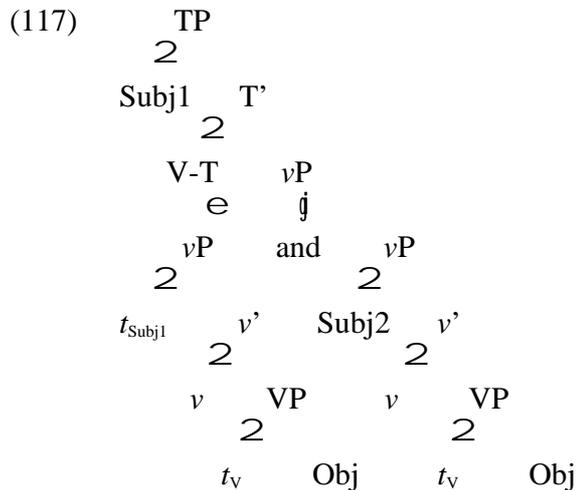
Chinese does not have gapping simply because V does not move out of *v*P.

Evidence from gapping strongly supports the parametric theory of V movement defended

here.[31]

However, as noted by Li (1988) and Paul (1996), there are some apparent

counterexamples to the fact that Chinese does not have gapping.

(118)  Zhangsan chi-le    san-ge   pingguo, Lisi si-ge    juzi.
       Zhangsan eat-Perf three-Cl apple     Lisi four-Cl oranges
       'Zhangsan ate three apples and Lisi four oranges.'          (Mei-Du Li 1988:41)

---

[30] Johnson (1994) argues that A-movement does not violate the coordinate structure constraint and thus subject raising in (117) is grammatical. The fact that the subject in the second coordinate does not have nominative Case, as pointed by Johnson, based on Siegel's (1987) observation, suggests that it does not move to TP.
(i)        We can't eat caviar and him/*he can't eat beans.
[31] Tsai (1994) also reaches the same conclusion that prohibition of gapping in Chinese is related to the lack of V-to-I movement in Chinese by assuming Johnson's analysis of gapping. However, it is not clear how English allows gapping if V-to-I movement is a covert operation in Tsai's framework.

(119)  Wo mai-le    na   bu qiche,  ta  na  bu zixingche.
       I    buy-Perf that Cl  car     he that Cl bicycle
       'I bought that car and him that bicycle.'                    (Paul 1996: 262)


Based on the data in (118) and (119), Li and Paul claim that Chinese does allow

gapping but it is subject to some constraints. According to Li, there is a 'surface filter' on

the output of gapping in Chinese, as formulated in (120), in which '∅' is a gap.


(120)   *N ∅ N, where 'N' = bare noun heads
        (Li 1988: 97)


The so-called 'bare noun heads' are those nominals without numeral-classifiers,

such as *fan* 'rice' and *Zhangsan* in (115) and (116). The filter in (120) captures the

contrast between (115) and (116) on one hand and (118) and (119) on the other hand.

To derive the filter in (120), Paul (1996) proposes that gapping in Chinese is

possible only in 'non-generic' VPs assuming that the properties of the object determine

the eventuality of the predicate. Along these lines, the major reason to preclude the

ungrammaticality of the examples of gapping in (115) is not the syntax/morphology of

the object; instead, it lies in the eventuality of the predicate. In other words, (115) is

precluded because the predicate is generic whereas the predicate in (118) and (119) is not

generic.

In addition, Paul assumes that the ungrammaticality of (116) is ruled out by an

independent constraint in Chinese that requires that the 'NP + proper name' sequences be

interpreted as 'NP = proper name' in which the proper name functions as a predicate

nominal and there is an identity relation between these two nominals. (116) is

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unacceptable because it will be interpreted as 'I saw Zhangsan and you are Lisi.'. The second conjunct is not related to the first conjunct.

Though the counterexamples seem to suggest that Chinese allows gapping and the constraints proposed by Li and Paul could capture all the ungrammatical examples, there still remain some unsolved problems.

The first problem of their accounts is a conceptual problem. Why are there some language particular constraints imposed on Chinese gapping, if any? Why isn't gapping in English also restricted to non-generic VPs? For example, in (121) the objects are 'bare nouns' and the predicates are generic. However, (121) is perfectly acceptable in English.[32]

(121)   Chinese eat rice and Americans hamburgers.

Even if gapping in Chinese is constrained by the genericity of the predicate, it is not clear whether the constraint is a phonological constraint, a syntactic constraint, or a semantic constraint and how it precludes V movement in gapping.

Secondly, Li's 'surface filter' is too weak to capture the empirical evidence. Gapping is still impossible even though the object is not a 'bare noun'.

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[32] Paul (1996:264) uses examples (ia-c) given by Hankamer (1973) to argue that the generic requirement on gapping also holds in English. However, it seems that gapping is more felicitous with a generic predicate in English. (i) is generic but is acceptable. In fact, the contrast among the following examples is aspectual viewpoints instead of eventuality.
(i)     a.      ?Max writes plays in the bedroom, and Harvey in the basement.
        b.      ??Max is writing a play in the bedroom, and Harvey in the basement.
        c.      ???Max is memorizing the play in the bedroom, and Harvey in the basement.

(122) *Wo shi yi-ge  xuesheng, Zhangsan yi-ge  jiaoshou.
       I  be one-Cl student    Zhangsan one-Cl professor
      'I am a student and Zhangsan a professor.'


In (122) the two remnants, namely *Zhangsan* and *yi-ge jiaoshou* 'a professor', do not violate her 'surface filter', i.e. that the second nominal has the numeral-classifier and is not a bare noun. (122) should be acceptable according to her 'surface filter'. Paul (1996:263) also points out some counterexamples to Li's 'surface filter', such as (123), in which the object has a possessor/modifier and is not a bare noun. Gapping is still precluded.


(123) *Zhangsan qing-le    ta de   xuesheng, Lisi ta de   tongxue.
       Zhangsan invite-Perf he Mod student    Lisi he Mod classmate
      'Zhangsan invited his students and Lisi his classmate.'


Thirdly, suppose that Li's 'surface filter' could be derived from the genericity requirement on the predicate, as argued by Paul. Why isn't gapping possible in some non-generic VPs in Chinese? Consider (124), (125), and (126).


(124) *Wo he-wan-le        tang, ni   qishui.
       I   drink-finish-Perf soup  you soft.drink
      'I finished the soup, you soft drink.'

(125) *Wo qi-de    zhe pi ma  hen lei, ni  na pi ma   hen lei.
       I   ride-Res this Cl horse very tired you that Cl horse very tired
      'I rode that horse and got it tired and you rode that horse and got it tired.'

(126) *Wo song-le   liang-ben shu  gei Zhangsan, ni  san-zhi  bi gei Lisi.
       I   give-Perf two-Cl    book to  Zhangsan  you three-Cl pen to Lisi
      'I gave two books to Zhangsan and you three pens to Lisi.'

In (124) the objects of the resultative verb compound are interpreted as specific and the predicates are not generic. (125) is the resultative construction and (126) is the double object construction. The predicates in these two examples are not generic. The genericity requirement fails to account for the ungrammaticality of these examples.

Last but not least, the grammaticality of (128) and (129) falsifies the claim that Chinese has gapping created by V-to-T movement in ATB fashion. (127) shows that the gap must be paired with an antecedent in the adjacent conjunct in English, on a par with a parallel constraint on ATB movement of *wh*-words in (130) (Sag 1976, Hankamer 1979, Johnson 1994). If so-called gapping in Chinese were created by ATB movement, the gap would never have an antecedent in the first conjunct. Interestingly, the judgment of the gap in (128) is ambiguous and pragmatics forces the gap in (129) to refer to the verb in the first conjunct because dumplings cannot be drunk.[33] I conclude that (128) and (129) are not instances of gapping created by ATB movement in Chinese.

(127) Some prepared beans, (and) others ate natto, and the rest ▲ rice.
      ▲ = ate/*prepared

(128) Wo chi-le liang-wan fan, Zhangsan zhu-le  san-wan tang, Lisi ▲ shi-ge shuijiao.
      I    ate   two-Cl   rice Zhangsan cooked three-Cl soup Lisi   ten-Cl dumpling
      (i)  'I ate two bowls of rice, Zhangsan cooked three bowls of soup, and Lisi ate
           ten dumplings.'
      (ii) 'I ate two bowls of rice, Zhangsan cooked three bowls of soup, and Lisi
           cooked ten dumplings.'

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[33] In fact, the gap in (128) also has another reference which is outside the sentence. For example, what Lisi did could be making (*bao* 'wrap') ten dumplings. See also (133). Thanks to Di Wu for helpful discussion on these examples.

(129)  Wo chi-le liang-wan fan, Zhangsan he-le  san-wan tang, Lisi ▲ shi-ge shuijiao.
I    ate    two-Cl    rice Zhangsan drank three-Cl soup  Lisi   ten-Cl dumpling
'I ate two bowls of rice, Zhangsan drank three bowls of soup, and Lisi ate ten
dumplings.'

(130)  a.        Who did [John visit *t*], [Bill talk to *t*] and [Mary like *t*]?

b.        *Who did [John visit *t*], [Bill talk to Susan] and [Mary like *t*]?

If V does not move out of *v*P in Chinese and Chinese does not allow gapping created by V movement out of *v*P in ATB fashion, all the problems I point out can be solved. To handle those so-called 'counterexamples', such as (118) and (119), I would like to seek a different solution.

Notice that in those so-called acceptable 'gapping' sentences in Chinese, the remnants can be used in a context where the verb does not occur in the antecedent.

(131)  Zhangsan san-ge    pingguo, Lisi si-ge    juzi.
Zhangsan three-Cl apple     Lisi four-Cl orange
'Zhangsan (has) three apples and Lisi four oranges.'

(131) is acceptable when there is rich contextual information. The most natural way to interpret (131) is that there is an Agent-Theme relation or a possessive relation between the first nominal and the second nominal. The interpretation of the relation in (131) could be buying, eating, selling, receiving, etc. depending on the discourse. (131) should not be classified as gapping sentences because gapping should be strictly a rule of sentence grammar, which does not have an option of finding antecedents provided by sentences in the discourse (Williams 1977). If this is correct, (118) and (119) are in fact

formed by two independent clauses: the first clause with a verb and the second clause is a 'verbless' clause indicating an Agent-Theme or a possessive relation.

The 'verbless' clauses are known as 'empty verb sentences'. In those so-called acceptable 'gapping' sentences, such as (118) and (119), the second nominal is a complement of an empty verb. The empty verb is not formed by V movement in ATB fashion. I will argue in the appendix in chapter 4 that it is a focus verb without any phonetic features. Its complement cannot be existential/indefinite. Consider the contrast between (124) (=(132a)) and (132b).[34]


(132)  a.      *Wo he-wan-le         tang, ni   qishui.
                 I    drink-finish-Perf soup  you soft.drink
                'I finished the soup, you soft drink.'

        b.      Wo he    tang, ni   qishui.
                 I    drink soup you soft.drink
                'I drink soup and you soft drink.'


According to Li's 'surface filter', both (132a) and (132b) should be ruled out because the second nominal in the 'remnants' is a bare noun. (132a) would be wrongly ruled in by Paul's analysis because the predicates are not 'generic'. Neither of the analyses could account for the contrast between (132a) and (132b).

How can the contrast between (132a) and (132b) be explained under the present analysis? The bare nouns in (132a) are interpreted as indefinites due to the presence of the perfective marker *le* (and the resultative verb *wan* 'finish'). The bare nouns have an existential reading in (132a). On the other hand, the bare nouns in (132b) have a generic

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[34] The contrast between (132a) and (132b) is observed by Jim Huang (personal communication).

interpretation. Assuming that there is a close relation between genericity and definiteness (Diesing 1992), generic nouns are treated as definite. The contrast between (132a) and (132b) is due to the definiteness requirement of the empty verb sentences in Chinese.[35] See the appendix in chapter 4 for a detailed discussion.

The antecedent of the empty verb could be either in the first conjunct or in the second conjunct, as I have already shown in (128) and (129). I have also pointed out in footnote 33 that the antecedent of the empty verb could also be provided by the discourse. Some other factors, such as the identity of the object, could affect the interpretation of the empty verb. For example, it is felicitous if the antecedent of the empty verb is in the second conjunct in (133).

(133)   Wo he-le  liang-wan tang, Zhangsan zhu-le   si-wan tang, Lisi ▲ san-wan tang.
        I    drank two-Cl    soup Zhangsan cooked four-Cl soup Lisi    three-Cl soup
        (i)  'I drank two bowls of soup, Zhangsan cooked four bowls of soup, and Lisi
             cooked three bowls of soup.'
        (ii) ??'I drank two bowls of soup, Zhangsan cooked four bowls of soup, and Lisi
             drank three bowls of soup.'

Why can't the empty verb be inserted in the second clause in (134) (=(115)) such that it could be interpreted as 'Americans [eat] hamburger' in which the two nominals in the remnants have an Agent-Theme relationship?

(134)   *Zhongguoren chi fan, Meiguoren hanbao.
         Chinese      eat rice  American   hamburger
        'Chinese eat rice and Americans hamburgers.'

---

[35] (118) is acceptable because the numeral phrase could be treated as definite (Li 1996).

'Verbless' sentences in Chinese that denote an Agent-Theme or a possessive relation are episodic (see also chapter 4). If there is an empty verb in the second clause, it will be incompatible with the generic interpretation in (134). Paul's (1996) observation is basically right: the ungrammaticality of (134) is due to genericity. But it is the 'verbless' construction that is subject to the genericity requirement. That requirement does not hold for gapping.

As noted by Paul, the second nominal in the 'remnants' cannot be an animate proper name in the so-called 'gapping' sentences in Chinese.

(135)   Wo Zhangsan.
        I    Zhangsan
        (i)  'I'm Zhangsan.'
        (ii)  'I have some relation with Zhangsan.'

The salient reading of (135) is the identity reading in which the second nominal is predicated of the first nominal. In some special context, the subject could be interpreted as the Agent and *Zhangsan* could be interpreted as the Theme. Since the salient reading of (135) is the identity reading, the unacceptability of (116), as repeated as (136), is due to pragmatics.

(136)   #Wo kanjian-le Zhangsan, ni    Lisi.
         I    see-Perf   Zhangsan   you Lisi
        *'I saw Zhangsan and you Lisi.'
        'I saw Zhangsan and you are Lisi.'

In some special context, if the Agent-Theme interpretation emerges, so-called 'gapping' is possible. For example, compared with (136), the acceptability of (137) improves.[36] In an 'unmarked' context, the identity reading of 'verbless' sentences blocks the Agent-Theme reading. Such blocking should be a pragmatic property.

(137)   Wo xuan-le   Zhangsan, ni  Lisi.
        I    elect-Perf Zhangsan  you Lisi
        'I voted for Zhangsan and you Lisi.'

Before closing this section, I would like to emphasize that what I have argued is that Chinese does not have the type of gapping that is created by V moving out of *v*P in ATB fashion. However, Chinese does have a phenomenon similar to 'gapping' which is created by V-to-*v* movement in ATB fashion. Consider the following examples.

(138)   a.      Wo song-le   Zhangsan yi-ben shu,  Lisi yi-zhi   bi.
                I    give-Perf Zhangsan one-Cl book Lisi one-Cl pen
                'I gave Zhangsan a book and Lisi a pen.'

        b.      (?)Ta gei  ni   Zhangsan, wo Lisi.
                  he give you Zhangsan  I   Lisi
                'He gave you Zhangsan and me Lisi.'

(139)   Wo fang-le   yi-ben  shu  zai zuozi-shang, san-zhi   bi   zai yizi-shang.
        I    put-Perf one-Cl book on table-top       three-Cl pen on chair-top
        'I put one book on the table and three pens on the chair.'

(140)   Wo quan     Zhangsan jie  yan,   Lisi jie  jiu.
        I    persuade Zhangsan quit smoke Lisi quit wine
        'I persuade Zhangsan to quit smoking and Lisi to quit drinking.'

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[36] Thanks to Jim Huang (personal communication) for drawing my attention to (137).

(141)  Wo ti-le      Zhangsan yi-jiao,  Lisi liang-jiao.
       I    kick-Perf Zhangsan one-Cl  Lisi two-Cl
       'I kicked Zhangsan once and Lisi twice.'

(142)  Wo ma-de      Zhangsan hen  bu  kaixin, Lisi hen   bu  manyi.
       I    scold-Res Zhangsan very not happy  Lisi  very not pleased
       'I scolded Zhangsan and got him unhappy and scolded Lisi and got him
       displeased.'

In terms of Larson's (1988) analysis, examples (138), (139), (140), (141), and

(142) could have the following representation in (143) in which the two conjoined

elements are VPs.[37] The 'gaps' in the conjoined VPs are traces of V created by V-to-*v*

movement in ATB fashion. The two 'XPs' could be direct objects in (138), locative PPs

in (139), controlled predicates in (140), frequency phrases in (141), and resultative

clauses in (142), which are treated as the complement of V.

(143)
```
              TP
             2
        Subj     T'
                2
            T       vP
                   2
               t_Subj    v'
                        2
                  V-v       VP
                   e         g
                   VP    and    VP
                  2              2
              Obj     V'    Obj     V'
                     2              2
                  t_V    XP     t_V    XP
```

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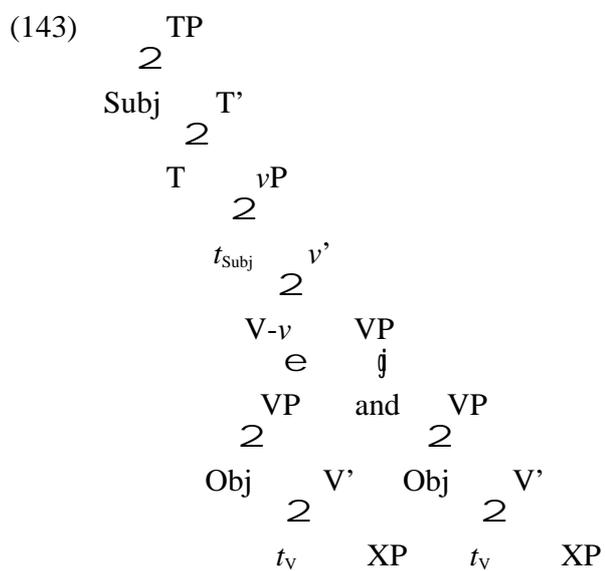
[37] See Huang 1994b and the references cited therein for details of the application of Larsonian structure to
Chinese. See also Cheng et al 1996 for a similar fact of the double object construction in Taiwanese.

Compare (138b) with (136). Interestingly, there is a contrast between these two examples. The judgment of (138b) is much better than (136) though (138b) might sound a little bit unnatural pragmatically because of the animate direct objects. (138b) differs from (136) because there is a possibility to treat *wo Lisi* 'I Lisi' in (138b) as the 'remnants' with a trace of V. However, the only way to analyze *ni Lisi* 'you Lisi in (136) is to treat it as a 'verbless' sentence since there is no trace between the two nominals.

Paul (1996:264) points out that there is a constraint on gapping in (Mandarin) Chinese that the second nominal in the 'remnants' cannot be a pronoun, as exemplified by (144). Such a constraint seems to hold in Cantonese, as in (145).

(144)   *Lisi da-le    ni,  Zhangsan wo.                    (Mandarin)
          Lisi hit-Perf you Zhangsan I
          'Lisi hit you and Zhangsan me.'

(145)   *Siu Ming daa-zo  nei,  Siu Koeng ngo.              (Cantonese)
          Siu Ming hit-Perf you Siu Koeng I
          'Siu Ming hit you and Siu Koeng me.'

Note that Cantonese allows the 'inverted' double object construction in which the indirect object is following the direct object without having an overt preposition, as in (146). Interestingly, if two VPs are conjoined, it is perfectly acceptable to have a pronoun in the 'remnants', as exemplified by (147).

(146)   Siu Ming bei-zo    loeng-bun syu  ngo.
         Siu Ming give-Perf two-Cl    book I
         'Siu Ming gave two books to me.'

(147)   Siu Ming bei-zo    loeng-bun syu  nei, saam-bun syu  ngo.
        Siu Ming give-Perf two-Cl     book you three-Cl   book I
        'Siu Ming gave two books to you and three books to me.'

   I have argued that the indirect object in the 'inverted' double object construction in Cantonese is a PP with a null preposition which is the complement of V (Tang 1996). (147) should have the same representation in (143). If (147) is also treated as a kind of 'gapping', it is not clear why the pronominal constraint on gapping applies to (145) but not to (147). On the contrary, my proposal provides a straightforward account: gapping created by V movement out of $v$P is banned whereas 'gapping' created by V-to-$v$ movement is grammatical in Chinese. Hence, (144) and (145) are ungrammatical whereas (147) is perfect.

## 3.8  Parametric variation VII: heavy NP shift

Kayne (1994:§7) argues that to derive the so-called 'heavy NP shift' in English, PP moves to a functional category by itself without the verb leftward past the heavy direct object and the verb moves above the moved PP. He does not specify the nature of the functional projection to which PP moves. In my proposal, the functional projection to which PP is adjoined in heavy NP shift is regarded as $v$P. For example, the structure of the prepositional construction in (148) can be represented in (149) in which PP moves from the complement position of V to $v$P and then V moves out of $v$P to T.

(148)   I gave [$_{PP}$ to John][$_{DP}$ all the dissertations that I ordered last year].

(149)   … V-T [$_{vP}$ PP [$_{vP}$ $t_{Subj}$ [$_{v'}$ $v$ [$_{VP}$ DP [$_{V'}$ $t_V$ $t_{PP}$ …

What triggers PP movement in (149)? I assume that PP is attracted by an affix feature [-PP] of *v*. Suppose that *v*P is a 'focus domain' and everything within *v*P, including the heavy object, is focalized. Movement of PP is essentially motivated by focalization, more specifically, by 'de-focalization': PP is 'de-focalized' by moving away from the scope of focus.[38]

If the analysis of 'heavy NP shift' presented here is correct, given that V never moves out of *v*P in Chinese, we predict that Chinese should not have the counterpart of 'heavy NP shift' that derives the 'V + PP + DP' word order. The prediction is borne out. For example, (150) and (151) are ungrammatical in Chinese.[39]

(150)   *Wo song-le  [gei ta][yi-ben wo zuotian  zai shuju      mai de    xiaoshuo].
        I    give-Perf to  he one-Cl I    yesterday in  bookstore buy Mod novel
        'I gave to him a novel that I bought in the bookstore yesterday.'

(151)   *Wo fang-le [zai zuozi-shang][yi-ben wo zuotian  zai shuju      mai de    xiaoshuo]
        I    put-Perf on table-top      one-Cl I    yesterday in bookstore buy Mod novel
        'I put on the table a novel that I bought in the bookstore yesterday.'

Another interesting prediction is that if PP in the prepositional construction moves to *v*P which is required by focalization, the word order 'PP + V + DP' should be grammatical in Chinese but not in English. Given that V only moves to *v* in Chinese and V moves out of *v*P in English, if PP moves to *v*P for focalization, it always precedes the

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[38] See Simpson 1997 and Costa 1997 for discussion on de-focalization.

[39] Notice that (i) is grammatical, in which *song-gei* 'give-to' is treated as a complex ditransitive verb, which can be followed by the perfective aspect marker *le*. (i) is regarded as the double object construction.
(i)        Wo songgei-le ta  yi-ben shu.
           I    give-Perf  he one-Cl book
           'I gave him a book.'

verb in Chinese and follows the verb in English. The contrast between (152) and (153) shows that the prediction is right.

(152)  Wo [gei ta] song yi-ben shu.
       I    to  he give  one-Cl book
       'I give a book to him.'

(153)  *I [to John] gave all the dissertations that I ordered last year.

Recall that I have suggested that PP movement in heavy NP shift is triggered by the affix feature [-PP] of *v*, which is motivated by de-focalization in English. Hence, PP moves only if the direct object is focalized, i.e. phonologically 'heavy'. What is the motivation for PP movement in the Chinese prepositional construction, as (152)? I assume that the affix feature [-PP] of *v* in Chinese is motivated by focalization. Unlike English, it is the moved PP that is focalized in Chinese. Some interesting consequences are derived from this analysis.

First of all, this analysis can explain why the direct object in (152) need not be 'heavy'. The direct object in Chinese can be 'light' because it is the moved PP that is focalized. The strategy of PP movement in Chinese is not for de-focalization.

Secondly, compare (152) with an example in which PP stays *in-situ*, for instance, (154). An additional reading of the moved PP in (152) is that he was given a book for a special purpose, which is not salient in (154). Such a reading could be derived from

focalization of PP in (152). PP may receive a Beneficiary θ-role when it is in a preverbal

position in Chinese.[40]

(154)  Wo song yi-ben  shu  [gei ta].
       I    give  one-Cl book to  he
       'I gave a book to him.'

Thirdly, a numeral nominal in the moved PP in Chinese must have a

specific/definite reading. However, the numeral nominal may have a nonspecific reading

in the postverbal position. Consider the difference between (155) and (156). If the

numeral nominal is focalized, it must have a specific/definite reading, which is

reminiscent of the SOV focalization construction in Chinese discussed in section 3.4 and

3.6.

(155)  Ta [gei san-ge   xuesheng] song zhexie shu.
       he  to three-Cl student    give these  book
       'He gives these books to the three students.'        (specific/*nonspecific)

(156)  Ta song zhexie shu  [gei san-ge   xuesheng].
       he give  these  book to three-Cl student
       'He gives these books to three students.'            (specific/nonspecific)

The specific reading of the preverbal numeral nominal may explain why it always

has scope over the postverbal numeral nominal. Lee (1986:145) notices that the preverbal

indirect object always has a wide scope reading, as (157). Aoun and Li (1989:167) and

Xu and Lee (1989) find the two quantifiers in (158) ambiguous. The point I want to make

here is that contrary to the indirect object in (158), the indirect object never has a narrow

scope reading in (157).


(157)   Zhangsan [gei meige ren]     song yi-ben shu.            ($\forall > \exists$, *$\exists > \forall$)
        Zhangsan  to   every person give one-Cl book
        'Zhangsan gave a book to everyone.'

(158)   Zhangsan song san-ben shu  [gei meige ren].       ($\forall > \exists$, $\exists > \forall$)
        Zhangsan give three-Cl book to  every  person
        'Zhangsan gave three books to everyone.'


        If PP movement in (157) is driven by focalization, the moved PP cannot be

'reconstructed' because the operation of movement the focalized PP contributes to

semantic interpretation and it must stay in that position at LF for interpretation, similar to

the cases of the preverbal numeral nominal I have shown in section 3.6. As the moved PP

is focalized, the preverbal quantifier always has a 'wide' scope reading.[41]


## 3.9  Conclusion and implications

In this chapter, I claim that the inflectional affix feature [-V] of T exists in English but is

missing in Chinese. The parametric variation between these two languages lies in the

existence of the affix feature that triggers V-to-T movement. I have shown that there are

several consequences of this analysis, which provides a unified explanation for the

apparently disparate variations between these two languages summarized in (159).

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which P is *gei* 'to' is beneficiary.
[41] To account for the scopal ambiguity in (158), we may follow Aoun and Li (1989) and Takano (1996)
that the indirect object undergoes object shift within VP.

(159)   Typological differences between Chinese and English

|  | Chinese | English |
|---|---|---|
| postverbal *no*-phrases | * | OK |
| postverbal focus adverbs | * | OK |
| binominal *each* | * | OK |
| preverbal focalized objects | OK | * |
| scopal ambiguity | * | OK |
| preverbal indefinite nominals | * | OK |
| gapping | * | OK |
| heavy NP shift | * | OK |

Besides accounting for the typological differences between Chinese and English, the parametric theory of V movement has several theoretical implications.

First of all, the analysis developed in this chapter sheds some light on the theory of V movement in Chinese and English. Since the work by Pollock (1989) and Chomsky (1991), it has been assumed in the literature that verbs undergo V-to-I movement at LF in both Chinese and English (Cheng 1989, Chiu 1993, Gu 1995, among others). These two languages should look identical at Spell-Out with respect to V movement.

An alternative view is that V movement in Chinese is shorter than that in English at LF. To account for the prohibition of indefinite subjects in Chinese, Tsai (1994 et seq) argues that covert V-to-I movement is possible only in English but not in Chinese. X. Li (1997) holds a similar view to account for the lack of distributivity in Chinese. This approach would have the same prediction that the landing site of V at Spell-Out in these two languages should be the same. Hence, some typological differences I have shown cannot be explained straightforwardly.

Another view of V movement is that the path of V movement in Chinese is shorter than that in English in overt syntax, which was originally suggested by Huang

(1997b) and adopted by Fukui and Takano (1998). Following Kayne (1998), Huang (1997b) suggests that there is VP remnant movement in English but V does not move in Chinese. Fukui and Takano (1998) propose that V moves to the specifier of *v*P in English and moves to the specifier of a light verb phrase below *v*P in Chinese. As we can see, my claim that the path of V movement in Chinese is shorter than that in English follows the general spirit of their analysis. The findings of this chapter provides further empirical evidence to support this view.

Secondly, to derive the word order S-V-O-*only* in English, I assume that the object moves to *v*P. Object shift in English is triggered by the affix feature [-DP] of *v* which is focus-driven or prosodically-driven instead of Case-driven, contra Johnson (1991), Koizumi (1995), and Runner (1995). As object shift is triggered by the affix feature of *v* which is driven by focalization and prosody, the so-called Adjacency Condition effects are derived from V movement and Adverb Licensing, which have nothing to do with Case. If the motivation of object shift is not for accusative Case checking in English, it should be a natural consequence of the claim that Case features are not features that trigger movement (see chapters 1 and 2).

Thirdly, in the discussion on focalization in English I have suggested that the affix feature [-DP] of *v* could be 'activated', for example, by some focus adverbs that are adjoined to *v*. If this is correct, Universal Grammar allows 'activation' to be a legitimate operation.[42] It seems that 'activation' could be treated on a par with assimilation in phonetics and phonology: the influence exercised by one element upon of another so that they become more alike or identical. 'Activation' in syntax and assimilation in phonetics

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[42] See footnote 8 for references on this issue.

and phonology could be regarded as processes of 'generalized feature assimilation'. The conjecture here suggests that 'activation' shares some phonological properties and could be motivated by the PF component.[43] It may further imply that 'activation' should be an overt process. This view in general is compatible with the view defended in this study that movement is fundamentally morphological/phonological and should be overt.

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[43] In X. Li's (1997) analysis of distributivity, the feature of Dist (distributivity) could be 'activated' by covert V-to-T movement. Assuming that his analysis of distributivity is right, some consequences related to his covert V-to-T movement in English could be derived from the story of overt V moving out of $v$P.

# CHAPTER 4

## TO PROJECT, OR NOT TO PROJECT; THAT IS THE QUESTION

### 4.1 Introduction

Under the Overt Parametrization Hypothesis OPH, categorial features are subject to

parametric variation. Parametrization of categorial features is restricted to the

combination of categorial features. Assuming that there are only two primitive categorial

features in the lexicon: [N] and [V], different combinations of these two categorial

features may derive various typologies of natural languages. The goal of this chapter is to

argue that the combination of categorial features is subject to parametric variation by

using the data of small clauses from Chinese, English, and Japanese. The findings of this

chapter lend support to the OPH advocated in this study.

The organization of this chapter is as follows. I will first introduce two different

views of predication in the literature with respect to the necessity of a functional

predicative head in predication in section 4.2. I will discuss the characteristics of

embedded epistemic small clauses in Chinese and English in detail in 4.3, in which I

argue that Chinese small clauses are 'bare' and English small clauses are 'not-so-bare'.

Both bare and not-so-bare small clauses are shown to exist in Japanese in section 4.4. In

4.5, I argue that the combination of categorial features of nouns and adjectives are subject

to parametric variation. Typological differences among Chinese, English, and Japanese

with regard to the structure of small clauses are accounted for. My analysis can also

capture the (non)existence of copula in these three languages. In 4.6, I discuss some questions related to learnability. In addition, I will examine the 'verbless' sentences in Chinese and the *you idiot* expressions in English in the appendices.

## 4.2 Predication and functional projections

Originally, according to Chomsky (1981, 1986a) and Rothstein (1985), predication was stated in very general terms: clauses have subjects. The requirement on predication is also known as the 'Extended Projection Principle'. For example, according to this principle, if there is T or I (T henceforth), the specifier of T is required (Chomsky 1986b).

Chomsky (1981) points out that predication with T is only a 'language-particular rule' of English and in principle all maximal projections, regardless whether there is T, may have subjects. In other words, T is not necessary to be present for predication.

Using the data from English small clauses, Stowell (1983) proposes that Universal Grammar defines the syntactic subject position in category-neutral terms:

(1)    The SUBJECT of a phrase XP is the argument of X or X' which is directly
       dominated by X".
       (Stowell 1983:295)

According to (1), all major syntactic categories, such as TP, NP, AP, VP, etc., may contain a structural subject position. According to Stowell, the empirical evidence for the postulate of (1) was originally from English small clauses. However, the claim is shaken if English small clauses are proved not to be bare lexical projections. As argued

by Kitagawa (1985), Hornstein and Lightfoot (1987), Bowers (1993), among others, embedded small clauses in English should have an additional predicative projection to contain a structural subject position. An implication of their analysis is that whenever there is predication, there is a predicative projection. Some researchers even claim that every sentence should have a functional layer, such as TP (or its equivalent) (Nakayama 1988, Déchaine 1993, Laka 1994, among others).

In our later discussion, I will argue that the claim in (1) is essentially correct. A predicative head is needed only when the lexical predicate is not predicative and the sentence is episodic. My claim is supported by the evidence from various types of small clauses in Chinese, English, and Japanese.

## 4.3  Embedded epistemic small clauses in Chinese and English

4.3.1  Nominal small clauses

In English, a small clause contains neither a finite nor infinitival verb preceded by *to* (Stowell 1981, 1983, among many others). The following examples are considered to be the 'canonical' epistemic small clause construction.

(2)     John considers [Mary a genius].

(3)     I consider [him intelligent].

The noun *a genius* is analyzed as a predicate nominal which is predicated of *Mary* in the nominal small clause *Mary a genius* in (2). The adjective *intelligent* is analyzed as a predicate adjectival which is predicated of *him* in the adjectival small clause *him*

*intelligent* in (3). The small clause is the complement of an epistemic verb (Svenonius 1994). The embedded clause describes a characterization about which a judgment or an opinion can be expressed (Rapoport 1995: fn13).

Compared with English embedded epistemic small clauses, to the best of my knowledge, embedded epistemic small clauses in Chinese did not receive too much attention in the past literature. Some researcher even denies the existence of small clauses in Chinese (Xu 1993). I would like to argue that Chinese does have small clauses. For instance, in (4) there is a predication relation between *ta* 'he' and *shagua* 'fool'. In (5) there is a predication relation between *ta* 'he' and *laoshi* 'teacher'. Lacking a verb between these two nominals, I propose that the sentences in (4) and (5) belong to the small clause construction, in which the first postverbal nominal and the second postverbal nominal form a small clause. The second postverbal nominal is the predicate nominal predicated of the first postverbal nominal.

(4)     Wo dang     [ta  shagua].
        I    consider he fool
        'I consider him a fool.'

(5)     Zhangsan cheng [ta  laoshi].
        Zhangsan call      he teacher
        'Zhangsan calls him a teacher.'

Basically all kinds of nouns can be the predicate nominal. However, there may be a distinction between the nouns that are easier to convey the speaker's belief and those that are more factual. For example, the predicate nominal *shagua* 'fool' in (4) involves a stronger subjective judgment of the speaker. In addition to *shagua* 'fool', nouns that may

carry a subjective judgment include *bendan* 'fool (*lit.*: silly egg)', *baichi* 'idiot', and *huaidan* 'bastard (*lit.*: bad egg)'. On the other hand, the predicate nominals *yisheng* 'doctor', *zhuxi* 'chairman', and *zongtong* 'president' in (6) usually denote an objective property. It is felicitous if some additional context, for instance, a subjective judgment of the speaker, is needed. Since epistemic modality is concerned with the speaker's judgment and attitude rather than fact, it is not too surprising to see that the acceptability of epistemic small clauses may be dependent on the choice of lexical items and some meta-linguistic factors.

(6)     (?)Wo dang    ta yisheng/zhuxi/zongtong.
          I    consider he doctor/chairman/president
        'I consider him a doctor/chairman/president.'

The embedded clauses in (7) are adjectival small clauses in Chinese. For example, in (7a) the adjective *congming* 'clever' is a predicate over attributes which is predicated of the small clause subject *ta* 'he'.[1]

(7)   a.     Wo zan   [ta congming].
             I    praise he clever
             'I consider him clever.'

       b.     Wo shuo [ta  ben].
              I    say    he stupid
              'I consider him stupid.'

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Sentences like those in (4) and (5) have been classified as a kind of double object construction by some traditional Chinese grammarians (Chao 1968, Zhu 1982, Ma 1992).[2] However, the sentences in (4) and (5) are different from the 'canonical' double object construction in which the main verb is a ditransitive verb, such as (8).

(8)     Wo song-le   Zhangsan yi-ben  shu.
        I    give-Perf Zhangsan one-Cl book
        'I gave Zhangsan a book.'

The crucial difference is that the indirect object *Zhangsan* and the direct object *yi-ben shu* 'a book' do not have a predication relation. If one attempts to use the two elements in the double object construction to form a clause, the direct object would not be predicated of the indirect object. The contrast is shown in (9).[3]

(9)     a.      #Zhangsan yi-ben  shu.
                  Zhangsan one-Cl book
                'Zhangsan is a book.'

        b.      Zhangsan shagua.
                Zhangsan fool
                'Zhangsan is a fool.'

Further evidence that the small clause subject is not selected by the matrix verb is that there is no entailment relation between the matrix verb and the small clause subject

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[2] See also Kayne 1981 for a similar idea in English.
[3] (9a) is acceptable when *Zhangsan* is interpreted as the possessor and *yi-ben shu* 'a book' is the theme in a contrastive context. In (i) *yi-ben shu* 'a book' and *wu-ben shu* 'five books' are not predicates.
(i)     Zhangsan yi-ben shu.  Lisi wu-ben shu.
        Zhangsan one-Cl book Lisi five-Cl  book
        'Zhangsan has one book and Lisi five books.'

(Rothstein 1997). For example, (10) does not entail that Zhangsan scolded him. This suggests that the small clause subject in (10) should not be the object of the matrix verb. What *ma* 'scold' selects is the small clause *ta huaidan* 'him a bastard'.


(10)     Zhangsan ma    ta huidan.
         Zhangsan scold he bastard
          'Zhangsan called him a bastard.'


Given that the two elements in (4), (5), and (7) have a predication relation, one possible analysis is to analyze the sentences in (4), (5), and (7) as complex predicates such that the secondary predicate is subject to control, in the sense of Williams (1980). For example, Chang and Tang (1995) propose that the matrix verbs of the sentences in (4) are treated as control verbs and the predicate nominal is subject to control. Interestingly, with respect to Visser's generalization, there is a contrast between the verb *dang* 'consider' (4) and the verb *cheng* 'call' in (5).[4] Only the verb *dang* 'consider' (=(4)) fits the pattern of object-control. Verbs that do not fit the pattern of object-control all belong to verbs of speech including *cheng* 'call', *jiao* 'call', *ma* 'scold', *kua* 'praise', *zan* 'praise', and *shuo* 'say'. For example, only *dang* 'consider' may enter the passive construction, as (11a), on a par with the English example in (12). It seems to suggest that the small clause predicate in (11a) is a secondary predicate subject to control.

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Sentence (9b) may also be classified as a 'verbless' sentence. See the appendix of this chapter.
[4] Thanks to Jim Huang, Audrey Li, and Waltraud Paul for pointing out the peculiar property of *dang* 'consider' with respect to Visser's generalization.

(11)  a.  Zhangsan bei wo dang    shagua.            (Visser's generalization)
          Zhangsan by  I   consider fool
          'Zhangsan is considered a fool by me.'

      b.  *Zhangsan bei ta cheng laoshi.
           Zhangsan by  I  call    teacher
          'Zhangsan is called a teacher by him.'

(12)  John is persuaded [PRO to leave].

The contrast between *dang* 'consider' and verbs of speech can further be shown in

the *ba*-construction. (13a) and (13b) show that *dang* 'consider' may enter the *ba*-

construction.

(13)  a.  Wo ba  Zhangsan dang    shagua.
          I    BA Zhangsan consider fool
          'I consider Zhangsan a fool.'

      b.  *Wo ba  Zhangsan ma   huaidan.
           I    BA Zhangsan scold bastard
          'I call Zhangsan a bastard.'

To account for the contrast between *dang* 'consider' and verbs of speech, I

assume that *dang* 'consider' selects a secondary predicate in its complement position that

is subject to control. The subject of the secondary predicate is controlled by the matrix

object. As *dang* 'consider' may enter the *ba*-construction, I assume that V does not move

to *v* when *v* is overtly realized as *ba*, along the lines in Huang 1991, 1992, Gu 1992, and

Sybesma 1992. Hence, the 'b*a* + DP + V + DP' word order is derived. The secondary

predicate in (14a) could be treated as a small clause in which the subject is PRO and PRO

is controlled by the object of *dang* 'consider'. On the other hand, verbs of speech select a

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small clause, as I have argued in (10), in which the subject is an overt nominal. The representation is given in (14b). Simply speaking, *dang* 'consider' is a control verb while verbs of speech are ECM verbs.[5]

(14) a. ...[$_{vP}$ V-$v$ [$_{VP}$ DP [$_{v'}$ $t_V$ [$_{SC}$ PRO pred]]]]       (*dang* 'consider')

b. ...[$_{vP}$ V-$v$ [$_{VP}$ $t_V$ [$_{SC}$ DP pred]]]       (verbs of speech)

Except for the status of the small clause subject, these two types of small clauses behave the same. In what follows, I focus on the epistemic small clause which is selected by *dang* 'consider'. My analysis also holds for verbs of speech.

4.3.2 'Bareness' of small clause predicates

In English small clauses the determiner of the predicate nominal cannot be omitted, as shown in (15).

(15)   John considers Mary *(a) genius.

The predicate nominal *genius* in (15) is a count noun. Notice that if the predicate nominal in the small clause is a mass noun, the so-called classifier (or measure phrase) is optional. The predicate nominal *furniture* in (16) is a mass noun. *Piece* is regarded as a classifier.

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[5] The choice between an ECM-style analysis and a control analysis seems to be attributed to the properties of the matrix verb in particular languages. For example, Hornstein and Lightfoot (1987:51) suggest that the speech verb *call* in English is a control verb. See Hornstein and Lightfoot 1987 and Stowell 1995 for a

(16)    I consider this (a piece of) furniture.

Compared with the small clauses in English, the predicate nominals must be bare

nouns in Chinese small clauses. Assuming that classifiers can be divided into two types,

count-classifiers and mass-classifiers (Cheng and Sybesma 1997a), the predicate nominal

has neither a count-classifier, such as *ge* in (17), nor a mass-classifier, such as *wan* in

(18).

(17)    Zhangsan dang     ta (*yi-ge)  shagua.
        Zhangsan consider he   one-Cl fool
        'Zhangsan considered him a fool.'

(18)    Ni   dang     na (*yi-wan)   renshen tang.
        you consider that one-bowl ginseng  soup
        'You consider that a bowl of ginseng soup.'

The descriptive generalization is that the predicate nominal in the Chinese small

clause has to be a bare noun. Count-classifiers and mass classifiers are precluded.[6]

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comparison between an ECM-style analysis and a control analysis in epistemic small clauses and
resultative clauses in English and Huang 1992 for such a comparison in Chinese resultative clauses.
[6] Interestingly, as pointed out to me by Luther Liu (personal communication), some predicate nominals
allow classifiers.
(i)      Wo dang     ta yi-keng dabian.
         I     consider he one-pit  shit
         'I consider him a good-for-nothing.'
Other predicate nominals that allow classifiers include *yi-tuo niufen* 'a lump of bullshit', *yi-pan sansha* 'in
a state of disunity (*lit.* a sheet of loose sand)', *yi-tan choushui* 'a pool of stinking smell water', and *ban-dun
feigang* 'half ton of waste steel'. Notice that these expressions are very idiomatic and the choice of the
classifier is not free. For example, in (i) the classifier *keng* 'pit' cannot be replaced by other classifiers,
such as *dui* 'load', even though *dui* 'load' could be used to refer to *dabian* 'shit' in Chinese. I assume that
these expressions are idioms and the classifiers are already 'fossilized'. See also footnote 21.
Yafei Li (personal communication) pointed out to me that the occurrence of the classifier seems acceptable
if it is preceded by a modifier, as in (ii). Interestingly, if the modifier follows the classifier, as in (iii), the

A question arises: How can we explain why the determiner of the predicate nominals cannot be omitted and the occurrence of the classifier of the predicate nominal is allowed in English small clauses on one hand but the classifier of the predicate nominal is obligatorily absent in Chinese small clauses on the other? Let us consider three possibilities to explain the variation.

4.3.2.1  Uniqueness of the predicate nominal

The first possibility to solve the problem is to appeal to the denotation of the predicate nominals. Stowell (1989, 1991b) observes that some predicate nominals in English small clauses do not allow determiners. Only titles that refer to a unique member at any given time can omit the article when they are used as predicate nominals.

(19)  a.  We elected John (*the/*some/*this) president of the class.

b.  The queen appointed her lover (*the/*that) treasurer of the realm.

(20)  a.  ?Massachusetts elected Ted Kennedy senator.

b.  *The constituents elected Dick Nixon congressman.

c.  ?Charles has become prince.

In Stowell's (1989, 1991b) analysis, the predicate nominals *president of the class* and *treasurer of the realm* in (19) belong to a semantic class of nouns referring to an

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judgment is degraded. I suspect that when the classifier is preceded by a modifier, it is no longer a classifier and becomes part of the adjectival modifier.

(ii)  Wo dang    ta quan shijie zui  da de    yi-ge shagua.
      I   consider he all    world most big Mod one-Cl fool
      'I consider him the biggest fool in the whole world.'

elected, inherited, or appointed office, the *president*-class nouns. The determiner need not occur with the *president*-class nouns only when they denote instantiation of kinds that have a unique occupant of the office at any given time and the property of instantiating the kind can be directly predicted of the individual. The absence of the determiner in the examples in (20) is ungrammatical because there could be several senators, congressmen, and princes at any given time. For example, *senator* in (20a) and *prince* in (20c) can be used as titles, such as *Senator Kennedy* and *Prince Charles*, but there could be more than one senator or more than one prince at any given time. Therefore, the judgment of (20a) and (20c) is degraded.

Can the analysis of the 'bareness' of English predicate nominals be extended to explain the 'bareness' requirement of predicate nominals in Chinese small clauses? Though the *president*-class nouns, such as *zongtong* 'president' and *zhuxi* 'chairman', and the profession-class nouns, such as *laoshi* 'teacher' and *lüshi* 'lawyer', can be used as titles, some predicate nominals, such as *shagua* 'fool', *baichi* 'idiot', *huaidan* 'bastard',

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(iii)  \*Wo dang  ta yi-ge quan shijie zui da de  shagua.
    I  consider he one-Cl all whole most big Mod fool

and *hao haizi* 'good boy', are unlikely to be classified as the profession-class nouns or as the *president*-class because they denote instantiation of kinds with any number of fools, idiots, bastards, and good boys at any given time. I conclude that Stowell's original analysis of English bare predicate nominals cannot be applied to Chinese.

4.3.2.2  Definiteness/specificity

The second possibility to explain the omission of the classifier in small clauses in Chinese could be related to the definiteness/specificity of the nominal predicate. Examining nominal small clauses in detail, Rapoport (1995) argues that in small clauses the predicate nominals are restricted to nonspecific nouns in English. The specific interpretation of the predicate nominal *two fools*, where *two* is stressed, in (21a) is ruled out, in which *two fools* has a quantifier reading, i.e. 'two of the fools'. In (21b), the addition of the adjective *absolute* makes the cardinality reading of *two fools* clearer. Following the theory of specificity by Enç (1991), Rapoport argues that the quantifier reading of weak quantifiers, such as the indefinite *two fools*, is specific and the cardinality reading is nonspecific. The judgment is due to Rapoport.

(21)  a.       #I find Smith and Jones TWO fools.

      b.       I find Smith and Jones two absolute morons.

        Numeral nouns in Chinese can be interpreted as either specific or nonspecific. As noted by Lee (1986:77), the indefinite numeral nouns can be interpreted as nonspecific when they are used in the context of irrealis verbs *xiang* 'want' and *hui* 'will', such as *yi-*

*ben wuxia xiaoshuo* 'a martial-arts novel' in (22a); in questions, such as *wu-ben shu* 'five books' in (22b); and in imperatives, such as *san-ge pingguo* 'three apples' in (22c).[7]

(22)  a.  Wo xiang mai [yi-ben wuxia       xiaoshuo].
          I    want  buy  one-Cl martial-art novel
          'I want to buy a martial-arts novel.'

      b.  Shei mai-le   [wu-ben shu].
          who buy-Perf five-Cl  book
          'Who bought five books?'

      c.  Na [san-ge   pingguo] lai!
          Fetch three-Cl apple      come
          'Fetch three apples (here)!'

Given that predicate nominals in small clauses must be nonspecific (Rapoport 1995), we expect that the occurrence of nonspecific indefinite predicate nominals in the context of irrealis verbs (=(23a)), in questions (=(23b)), and in imperatives (=(23c)) would be grammatical. However, the grammaticality judgment is deviant.

(23)  a.  Wo xiang dang     ta (*yi-ge) shagua.
          I    want  consider he  one-Cl fool
          'I want to consider him a fool.'

      b.  Shei dang     ta (*yi-ge)  shagua?
          who consider he    one-Cl fool
          'Who considered him a fool?'

      c.  Dang     ta (*yi-ge)  shagua!
          consider he    one-Cl fool
          'Consider him a fool!'

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[7] A noun is referential when it is used to refer to an entity. Only referential nouns can be definite or indefinite and only indefinite nouns can be specific or nonspecific. 'Referential/nonreferential distinction' in Lee 1986 is equivalent to 'specific/nonspecific distinction' here.

In (23), despite the fact that the numeral nouns can be interpreted as nonspecific, they are unacceptable and the predicate nominal should be a bare noun. The bare nouns in (23) are interpreted as nonspecific. The theory of definiteness/specificity cannot explain why the classifier of the predicate nominals is prohibited in small clauses in Chinese.

4.3.2.3 Agreement

One may suspect that the numeral *yi* 'one' in Chinese has some peculiar properties that prevent the numeral-classifier to occur in the small clause. In fact, other numeral-classifiers are precluded in Chinese small clauses. For example, in (24) the numeral-classifier *liang-ge* 'two-classifier' cannot precede the predicate nominal.

(24)    Zhangsan dang    tamen (*liang-ge) shagua.
        Zhangsan consider they    two-Cl    fool
        'Zhangsan considered them two fools.'

However, one may relate the bareness of predicate nominals in small clauses to the lack of agreement in number in Chinese. As Chinese does not have agreement at all, there should not be a 'subject-predicate agreement' relation in the small clause in Chinese.

Apparently, it seems that there is a 'subject-predicate agreement' relationship in the small clause in English. Muromatsu (1995) proposes that the article of the predicate nominal is required because English noun phrases require agreement in number. She

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suggests that the ungrammaticality of the examples in (25) is due to the fact that the

number of the predicate nominal has to agree with the subject. Her analysis seems

extendable to the ungrammatical examples in (26).


(25)    a.      John is *painter/a painter.

        b.      John and Peter are *painter/painters.

(26)    a.      I consider John a fool/*fools.

        b.      I consider them *a fool/fools.


        However, if we consider a language that has rich agreement morphology, the

above observation is not accurate. In Italian agreement is overtly realized in noun

phrases. The noun phrase in (27a) is masculine plural and that in (27b) is feminine

singular. They are mismatched in both gender and number, as clearly indicated by the

morphology. If there were a 'subject-predicate agreement' in the small clause, the

predicate nominal would agree with the subject.


(27)    a.      quest-i        libr-i
                this-Masc-Pl book-Masc-Pl

        b.      la             caus-a          della  rivolta
                the-Fem-Sing cause-Fem-Sing of-the riot


        In (28) there is an agreement mismatch between the predicate nominal *la causa

della rivolta* 'the cause of the riot' and the subject of the small clause *questi libri* 'these

books'. Interestingly, as pointed out by Moro (1995:114), (28) is grammatical in Italian.

Moro argues that there is no agreement in the small clause at all. The two noun phrases can enter a predicative relation without matching any agreement features.

(28)    Gianni ritiene [questi libri    la   causa della   rivolta].
        Gianni believe these   books the cause of-the riot

It is a well-known fact that Italian is a *pro*-drop language because of its rich agreement features. Moro (1995:123) shows that the subject of the small clause cannot be an empty pronominal *pro* in (29a) and (29b). This piece of evidence implies that the predicate nominal in the small clause does not have agreement ($\phi$-features) that can license *pro*. It is highly unlikely that Italian has two different sets of agreement features: one of which can license *pro* and the other cannot. The facts from Italian weaken the claim that small clauses have agreement.

(29)    a.      *Maria ritiene   [*pro* il    colpevole].
                  Maria consider *pro* the culprit

        b.      Maria ritiene   [Gianni il    colpevole].
                Maria consider Gianni the culprit

As pointed out by Heycock (1991:115), number agreement is not enforced in English small clauses. Notice that in (30) the subject of the small clause *them* is plural while the predicate nominal *my only hope* is singular.

(30)    I considered them my only hope.

In addition, a piece of evidence from verbal small clauses in English further shows that agreement is not involved in small clauses. Contreras (1995) argues that the 'naked-infinitive' in (31) is treated as a small clause. The verb *leave* does not agree with the subject *Mary*. This also implies that small clauses do not have agreement.[8]

(31)    John saw [Mary leave].

Based on the above discussion, I conclude that small clause predicates do not have agreement. As a result, the requirement of the article of the predicate nominal in English and the ungrammaticality of the occurrence of the classifier in Chinese small clauses cannot be attributed to the realization/lack of agreement.[9]

4.3.3  Analysis: structure of small clauses

4.3.3.1  Small clauses in English

How do we explain why the determiner of the predicate nominal is allowed in the small clause in English? I assume that there is a predicative head which is dominated by its 'extended projections', namely *v*P, TP, and CP, in the small clause in English. (32) (=(2))

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[8] See Tang 1997a for a consequence of this approach to explain why English obeys Simpson's generalization in the resultative construction.

[9] I assume that the ungrammatical examples in (26) are ruled out by semantics. In order for the small clause to be true, the subject has to satisfy the denotation denoted by the predicate nominal. For example, (i) is unacceptable even though the verb agrees with the subject. (i) is ruled out by semantics. Thanks to Jim Huang (personal communication) for drawing my attention to this possibility.

(i)        *John meets.

will be the representation in (33).[10] The embedded V is regarded as a null copula. English

small clauses are 'not-so-bare', contra Stowell (1981, 1983).


(32)    John considered Mary a genius.

(33)    ...V [$_{CP=SC}$ C$_i$ [$_{TP}$ Subj [$_{T'}$ V-T$_i$ [$_{vP}$ $t_{Subj}$ [$_{v'}$ $v$ [$_{VP}$ $t_V$ [$_{DP}$ D$_j$ [$_{NP}$ N$_j$]]]]]]]]]


The maximal projection of the small clause in English is CP. Following the

Internal Subject Hypothesis, I assume that the subject of the small clause is merged with

$v$ and moves to the specifier of TP.[11] In addition, I assume that every clause has an

operator related to the temporal interpretation. Sentences can be classified into two types:

episodic and generic (Carlson 1995). The former relates specific occurrences while the

latter expresses a generalization. The temporal operator is an episodic operator Ep in

episodic sentences while it is a generic operator Gen in generic sentences.[12] C in

embedded small clauses could conceivably be the generic operator Gen, which gives rise

to the permanent property interpretation associated with individual-level predicates in

small clauses.[13]

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[10] See Kreps (1994) for a similar analysis that there are VP and TP in English small clauses. See also
Pesetsky 1984 and Kitagawa 1985 for the claim that English small clauses are CP (=S'). In the literature, it
has been proposed that the predicative head is I (Kitagawa 1985, Hornstein and Lightfoot 1987), Pr
(Bowers 1993, Svenonius 1994), or Agr (Raposo and Uriagereka 1990, Chomsky 1993). If embedded
small clauses in English have T, then it should be tenseless (Hornstein and Lightfoot 1987, Guéron and
Hoekstra 1995).
[11] Small clauses exhibit the reconstruction effects, as noted by Huang (1993), Bowers (1993), and
Agbayani and Tang (1997).
[12] See Krifka et al 1995 for the status of the episodic operator and Krifka et al 1995 and Chierchia 1995 for
the status of the generic operator.
[13] Thanks to Akira Watanabe (personal communication) for this suggestion. An alternative candidate as
suggested by Molly Diesing (personal communication) is an existential quantifier that binds an event place
in the clausal complement of a nonfactive verb, in the sense of Melvold (1991). John Bowers (personal
communication) suggests that the operator could be a mood operator. In Tang 1997b, I assumed that the
operator is a modality operator.

The copula in (33) is null. If the embedded clause in (33) is episodic, for instance, infinitival, T and V will be overtly realized as *to* and the copula *be*, respectively, as in (34).

(34)    John considered Mary to be a genius.

Notice that English small clauses are not simply derived from (34) by deleting *to be* phonologically. In terms of semantics, (32) and (34) are not synonymous. As pointed out by Rothstein (1997), (32) asserts that there is a consider relation between John and the set of states of being a genius and the subject of the set of the states is Mary while (34) asserts that considering holds between John and the proposition. (34) involves John having the belief that there is an individuable event that warrants his opinion about there being a state of Mary being a genius seems not to be based on information about specific instances. In my analysis, the null copula and the copula *be* in English have a principled semantic difference and should have different semantic features.[14]

I assume with Higginbotham (1985) that a head noun, such as *dog*, has an open place in it, which has to be closed off by a referential category (see also Stowell 1991a). This mechanism is known as 'θ-binding'. Along these lines, I assume that in addition to Ns every referential element is subject to θ-binding. In (33), the null copula V moves to T and the V-T complex is θ-bound by C (=Gen), assuming that T is also a referential

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[14] Notice that Rothstein's (1997) analysis of (32) is different from mine. According to her, (32) is analyzed as a bare small clause and there is no null copula.

element which has to be bound by a temporal operator, à la Enç (1991), Guéron and Hoekstra (1995), and Stowell (1996).[15]

The predicate nominal in English small clauses functions as an argument by virtue of the complement of V. As an argument phrase, the predicate nominal should be headed by an argument category, such as the determiner D (Szabolcsi 1987, 1992, Stowell 1991a,b, Longobardi 1994). From this perspective, the presence of D within the predicate nominal is obligatory to form a well-formed argument structure. The determiner D functions as a $\theta$-binder that $\theta$-binds the noun.[16] Assuming that D may be lexically underspecified for specificity (Kallulli 1997), D of the predicate nominal in small clauses is interpreted as nonspecific having a property denotation rather than kind denotation. The three predicates in the small clause in (33), namely the predicate nominal N and the predicative head V-T are $\theta$-bound by D and C, respectively. Each of them is $\theta$-bound by an operator. (33) should be a well-formed structure.

I have shown that the so-called classifier of the predicate nominal can be omitted in English small clauses, such as the example in (35).

(35)    I consider this (a piece of) furniture.                    (=(16))

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[15] According to Higginbotham (1985), verbs also have an open place in it, i.e. a Davidsonian event argument, that has to be $\theta$-bound by tense. It could be the case that it is the event time (Stowell 1996) or the aspect (Smith 1997) that $\theta$-binds the event argument. Details of $\theta$-binding of the event argument are irrelevant in the discussion here.

[16] Higginbotham (1987:fn 4) suspects that the determiner of the predicate nominal is 'inserted purely as a syntactic reflex and plays no semantic role at all'. My analysis suggests that the role that D plays in small clauses is to function as a $\theta$-binder to bind the predicate nominal required by $\theta$-binding. On the role of D of predicate nominals, see also Rothstein 1997.

Longobardi (1994) argues that common nouns, mass nouns, bare plurals, and proper names are headed by D in English. If his analysis is correct, it is not the case that D is absent in (35); instead D is only phonetically empty. If the noun is mass, D could be phonetically empty, for instance, (36a), or it could be realized as *of* when the classifier is in the specifier position of DP, for instance, (36b), along the lines in Uriagereka 1993 (see also Kayne 1994). In Uriagereka's analysis, the so-called 'classifier' in English, such as *a piece*, is located in the specifier of DP and *of* is the head of DP.[17]

(36)　　a.　　　… [$_{DP}$ D [$_{NP}$ furniture]]

　　　　b.　　　… [$_{DP}$ a piece [$_{D}$ of][$_{NP}$ furniture]]

Given that the D position is there, the insertion of the classifier in the small clause in English is always free.

4.3.3.2 Small clauses in Chinese

I have argued why the presence of D of the predicate nominal is legitimate in English small clauses. However, why does Chinese differ from English in that the classifier of the predicate nominal is precluded in small clauses? I propose that the variation between Chinese and English lies in the structure of small clauses.

The crucial assumption is that there are no predicative head and its extended projections in the small clause in Chinese. Small clauses are bare lexical projections, where　P' is the subject of the small clause, which could be PRO if the matrix verb is

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[17] I ignore where the classifier is originally generated. See Uriagereka 1993 for a suggestion.

*dang* 'consider' or an overt nominal if the matrix verb is a verb of speech.[18] The generic

operator Gen is adjoined to the bare lexical projection. The predicate nominal is

predicated of the small clause subject directly without any functional projection. It could

be treated as a Stowell (1981, 1983) type small clause.[19]


(37)    ...V [$_{NP=SC}$ Gen$_i$ [$_{NP}$ XP N$_i$]]


The representation in (37) shows that there is only one referential element in the

small clause, namely the predicate nominal N. In (37) the predicate nominal is θ-bound

by Gen. θ-binding is satisfied. Both D and the classifier Cl have the function that can

mediate between the description provided by the noun and the specific entities in the

world.[20] Cl may function as a θ-binder that θ-binds nouns. If the predicate nominal has a

classifier, it will be θ-bound by Cl instead of Gen. As there is no free referential element

left for Gen in the small clause, Gen becomes vacuous. According to FI, (38) is

ungrammatical.[21] Every clause has an operator related to a temporal interpretation and

mood and it cannot be omitted, and for that reason only Cl can be omitted or FI is

violated.

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[18] The small clause subject could be in the specifier position (à la Stowell 1981, 1983), or adjoined to NP (Agbayani and Tang 1997, cf. Chomsky 1986b, Stowell 1989, Heycock 1991).
[19] As suggested by Naoki Fukui (personal communication), the bare structure in (37) could be labeled as 'predicate phrase' instead of 'NP' to avoid confusion.
[20] See also Longobardi 1994 and Cheng and Sybesma 1997a,b for discussion along these lines.
[21] Notice that in the idiomatic expressions mentioned in footnote 6 the predicate nominals belong to mass nouns and the classifiers are mass-classifiers. According to Cheng and Sybesma (1997a), the mass-classifier is a noun and is not generated under Cl. If there is Cl, the noun moves to Cl functioning as a mass-classifier. Thus, the so-called 'mass-classifiers' in those examples in footnote 6 are still nouns instead of operators.

(38)    *...V [$_{sc}$ Gen XP [Cl$_i$ N$_i$ ]]


Given that Chinese small clauses are bare, the omission of the predicative head
and other categories in Chinese nominal small clauses implies the omission of Cl of the
predicate nominal. That is the reason why the classifier of the predicate nominal is
always precluded in Chinese small clauses. Bareness of the predicate nominal in Chinese
small clauses indicates that the nominal is used as a predicate and not as an argument.
The puzzle raised in our previous discussion is thus explained.


4.3.3.3.  Some notes on the adjectival small clauses

My analysis of nominal small clauses seems to hold for adjectival small clauses. Similar
to the predicate nominal in the nominal small clauses in Chinese, the predicate adjectival
in the Chinese small clause must be bare. For example, the predicate adjectival *piaoliang*
'pretty' in (39) cannot be modified by a degree word *hen* 'very'.


(39)    *Wo zan  [ta   hen   piaoliang].
          I    praise she very pretty
         'I consider her very pretty.'


I assume that the adjectival small clauses in Chinese are bare lexical projections,
in which the predicate adjectival A is θ-bound by Gen, as exemplified in (40).


(40)    ...V [$_{AP=SC}$ Gen$_i$ [$_{AP}$ Subj A$_i$]]


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Let us assume that degree words may function as operators that restrict the denotation of the adjective (Bresnan 1973, Jackendoff 1977, Abney 1987, Corver 1991, 1997). If the adjective is θ-bound by a degree word, Deg, as in (41), Gen becomes vacuous and FI is violated.

(41)    *...V [$_{SC}$ Gen Subj [Deg$_i$ A$_i$]]

On the other hand, the predicate adjectival in English small clauses can be modified by a degree word because English adjectival small clauses have the predicative head V and its extended projections, as shown in.(42). A and V-T are θ-bound by Deg and C (=Gen), respectively.[22]

(42)    ...V [$_{CP}$ C$_i$ [$_{TP}$ Subj [$_{T'}$ V-T$_i$ [$_{vP}$ $t_{Subj}$ [$_{v'}$ $v$ [$_{VP}$ $t_V$ [$_{DegP}$ Deg$_j$ [$_{AP}$ A$_j$]]]]]]]]

Based on the discussion on the adjectival small clauses, the variation between Chinese and English with respect to the bareness of the predicate adjectival in small clauses can be accounted for by the (non)existence of the predicative head and its extended projections. Chinese small clauses are bare lexical projections while English small clauses are 'not-so-bare' small clauses.

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[22] Deg may be phonetically empty. It seems that adjectives and mass nouns can be treated on a par in such a way that the θ-binders, namely D and Deg, can be phonetically empty.

4.3.4  Some consequences

I have argued that the variation between Chinese and English with respect to the predicate nominal in small clauses lies in the (non)existence of the predicative head and its extended projections. If my analysis presented here is correct, some interesting differences observed with respect to small clauses in Chinese and English can be explained, namely the distribution of adverbs, extraction of the predicate nominal, extraction of the small clause subject, the possessor of the predicate nominal, and reflexives.

First of all, the variation of the distribution of sentential adverbs suggests that there should be a functional projection in the small clauses in English.[23] As shown by (43), the sentential adverb *probably* is allowed to occur in the small clause in English. Interestingly, the sentential adverb *dagai* 'probably' cannot occur in the small clause in Chinese, as shown in (44).

(43)    John considered Mary probably a genius.

(44)    *Zhangsan dang    ta dagai    hao   pengyou.
         Zhangsan consider he probably good friend
         'Zhangsan considered him probably a good friend.'

The contrast between Chinese and English is once again shown by the distribution of focus adverbs, as in (45) and (46).

(45)    I consider (only) John (only) a student (only).

(46)     Wo (zhi) ma  (*zhi) Zhangsan (*zhi)  bendan (*zhi).
         I    only scold only Zhangsan   only idiot       only
         'I only call Zhangsan a fool.'

The epistemic adverbs, such as *probably* and *dagai* 'probably', are licensed by a functional category (Travis 1988, C.-C. J. Tang 1990). I have argued in chapter 3 that the restrictive focus adverbs *only* and *zhi* 'only' are adjoined to a functional verbal projection. The distribution of the sentential adverbs and the focus adverbs strongly suggests that a functional projection exists in English small clauses whereas Chinese lacks such a category in small clauses.[24]

Secondly, the test of extraction of the predicate nominal shows that Chinese and English behave in a different way. Assuming that relativization involves A'-movement (Chomsky 1977, also Huang 1982 in Chinese), the contrast between (47) and (48) shows that the predicate nominal cannot be extracted in Chinese small clauses. According to Williams (1983) and Kitagawa (1985), extraction of non-maximal constituents by A'-movement is prohibited. Along these lines, if my analysis is correct, (48) is ungrammatical because the extracted element is a head or an X' constituent and such extraction is prohibited.[25]

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[23] Notice that the grammaticality judgment of (43) is subject to idiosyncratic variation. Our discussion is based on the judgment of those speakers who accepted (43).

[24] To those speakers who did not accept (43) it could be related to the peculiar nature of the generic T.

[25] Note that the observation by Williams and Kitagawa is only a descriptive generalization. Teun Hoekstra (personal communication) suggests that extraction of the relative operator in Chinese could be blocked by the operator Gen observing some sort of minimality effect. Brian Agbayani (personal communication) suggests that the distinction between Chinese and English lies in the categorial status of the operator: Gen is an $X^{MIN}$ projection (=C) in English small clauses while it is an $X^{MAX}$ projection in Chinese small clauses. The intuition is that $X^{MAX}$ operators block movement of maximal categories. It is not a trivial question which I leave open here.

(47)    the type of person that John considered Mary

(48)    *wo ma    Zhangsan de    na  zhong ren/huaidan
          I    scold Zhangsan Mod that kind   person/bastard
        'the type of person/bastard that I call Zhangsan.'


Thirdly, a difference between these two languages with respect to small clauses

emerges when we consider extraction of the subject of the small clause. (49) and (50)

show that relativization of the small clause subject is grammatical in English but

ungrammatical in Chinese. If relativization involves movement and small clauses in

Chinese are bare NPs, descriptively, the movement in (50) violates the Left-Branch

Condition (Ross 1967). As there is a functional projection, namely CP, in English small

clauses functioning as an 'escape hatch' such that extraction of the small clause subject is

allowed without any violations of the Subjacency Condition.[26] The contrast between

Chinese and English small clauses emerges once again.


(49)    the person who you consider a fool

(50)    *wo ma    huaidan de    na  ge ren
          I    scold bastard  Mod that Cl person
        'that person who I call a bastard.'


Fourthly, my analysis can account for the grammaticality judgment of the

possessor of the predicate nominal in Chinese small clauses. Assuming that the possessor

*my* occupies the D position (Abney 1987, Stowell 1989), (51) is grammatical because the

predicate nominal has D in English small clauses. According to Cheng's (1997) analysis

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[26] Extraction of the subject out of the small clause in Chinese could be blocked by Gen. See footnote 25.

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of nominal possession in Chinese, the *de*-possessors, such as *wo de* in (52b), could be in

NP or in a functional projection whereas in kinship terms the so-called 'bare' possessors,

such as *wo* in (52c), is the head of ClP. The ungrammaticality of (52b) and (52c) is due to

the prohibition of Cl in small clauses.[27]

(51)   I consider John my brother.

(52)   a.   Wo dang   Zhangsan didi.
            I    consider Zhangsan brother
            'I consider Zhangsan my brother.'

       b.   (??)Wo dang   Zhangsan wo de  didi.
             I   consider Zhangsan I   Mod brother

       c.   *Wo dang   Zhangsan wo didi.
             I    consider Zhangsan I   brother

Last but not least, my analysis predicts that reflexives cannot refer to the small

clause subject in Chinese.

(53)   John$_i$ considered Bill$_j$ an admirer of himself$_{*i/j}$.

(54)   Zhangsan$_i$ dang   Lisi$_j$ ziji$_{i/*j}$/tajizi$_{i/*j}$ de   ouxiang.
       Zhangsan consider Lisi  self/himself  Mod idol
       'Zhangsan considers Lisi his worshiper.'

Let us assume that reflexives are associated with a functional category T at LF

(Chomsky 1981, 1986a, Cole, Hermon, and Sung 1990 et seq). As English small clauses

have TP, the reflexive *himself* can be associated with the embedded T referring to the

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[27] To those speakers who accepted (52b), the possessor *wo de* could be generated within NP.

small clause subject, as shown in (53). Notice that *himself* cannot refer to the matrix

subject because it is not a long-distance reflexive and is not allowed to be associated with

the matrix clause.[28] Given that Chinese small clauses are 'bare', the reflexive must be

associated with the matrix clause and for that reason neither *ziji* 'self' nor *tajizi* 'himself'

could refer to the small clause subject, as shown in (54).[29]

The differences between Chinese and English with respect to embedded epistemic

small clauses can be summarized in table (55)

(55)   Differences between Chinese embedded SCs and English embedded SCs

|  | Chinese | English |
| --- | --- | --- |
| bare predicate nominal | OK | * |
| adverb placement | * | OK |
| extraction of predicate | * | OK |
| extraction of SC subject | * | OK |
| possessor | * | OK |
| local binding of reflexives | * | OK |

In sum, I have shown that a predicative head and its extended projections exist in

English embedded epistemic small clauses whereas they are missing entirely in Chinese

embedded epistemic small clauses. Several typological differences between these two

languages can be accounted for.

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[28] Small clauses should be different from the double object construction with respect to binding.
(i)       John gave Mary a picture of himself.
[29] (54) may sound slightly unnatural to some speakers. It could be due to the same reason for the
unnaturalness of (52b). In any event, the contrast between the matrix subject and the small clause subject
with respect to binding in (54) still exists.

**4.4 Two types of epistemic small clauses in Japanese**

4.4.1  Adjectival small clauses

Japanese has bare small clauses. The embedded clause in (56) is treated as a bare

adjectival small clause (Kikuchi and Takahashi 1991), in which the adjective *kasikoku*

'intelligent' is predicated of the small clause subject *Mary* without any tense morpheme

or copula.


(56)　　John-wa  [Mary-o　　kasikoku] omotta.
　　　　John-Top Mary-Acc intelligent considered
　　　　'John considered Mary intelligent.'


　　　　Though *Mary* in (56) has the accusative marker, honorification shows that *Mary*

is the subject of the small clause predicate. When an adjectival predicate has the

honorific prefix, it has to refer to the subject that is socially superior to the speaker

(Harada 1976). As pointed out by Kikuchi and Takahashi (1991), the honorific form of

the small clause predicate must refer to the small clause subject. In (57), the small clause

predicate *utukusiku* 'pretty' is marked with the honorific prefix *o-*, which refers to *watasi*

'I'. In (58), the honorific form of the adjective cannot refer to the matrix subject *Suzuki-*

*sensei* 'Prof. Suzuki'. These examples strongly show that the accusative nominal should

be the subject of the small clause.


(57)　　Watasi-wa Suzuki sensei-o　　o-utukusiku  omotta.
　　　　I-Top　　Suzuki teacher-Acc Hon-pretty   considered
　　　　'I considered Prof. Suzuki pretty.'

(58)  *Suzuki sensei-wa    watasi-o o-utukusiku omotta.
       Suzuki teacher-Top I-Acc    Hon-pretty   considered
      'Prof. Suzuki considered me pretty.'


       Furthermore, the negative polarity item (NPI) test further supports the claim that

the accusative phrase and the embedded predicate form a small clause. In Japanese an

indefinite *wh*-word constructs an NPI with a Q-morpheme *-mo* and the NPI must be in

the scope, i.e. in the c-command domain, of *-mo*. In (59) and (60), *-mo* is attached to the

embedded predicate *kasikoku* 'intelligent'. There is a clear contrast between these two

examples, which strongly suggests that the accusative *wh*-word is within the embedded

clause under the scope of *-mo* in (59).[30]


(59)   John-wa [dare-o       kasikoku]-mo omotte-inai.
       John-Top anyone-Acc intelligent-Q   consider-not
       'John considers nobody intelligent.'

(60)   *Dare-wa    [Mary-o     kasikoku]-mo omotte-inai.
        anyone-Top Mary-Acc intelligent-Q   consider-not
       'Nobody considers Mary intelligent.'


       The judgment of some adjectival small clauses may sound unnatural to some

speakers, as shown in (61). If the adjective is preceded by *itumo yori* 'than usual', the

judgment improves, as in (62).[31] It seems that *karaku* 'spicy' conveys more information

about the speaker's feeling than *sikakuku* 'square' does. This is reminiscent of the

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[30] The NPI test manipulated here is inspired by Sakai (1996), who uses the test to examine the position of
the embedded accusative phrase in raising to object constructions. Notice that (59) may sound slightly
unnatural without any special intonation, as pointed out by Naomi Harada (personal communication).
[31] Thanks to Kazue Takeda (personal communication) for pointing out the facts. However, the acceptability
is subject to idiosyncratic variation. As pointed out by Naomi Harada (personal communication), the
judgment of all the adjectives in (61) is perfect to her.

distinction between factuality and non-factuality we have seen in embedded epistemic

small clauses in Chinese.

(61)　John-ga　　sono senbei-o　　　　karaku/oisiku/?tiisaku/?sikakuku omotta.
　　　John-Nom that　rice cracker-Acc spicy/tasty/ small/square　　　　considered
　　　'John considered the rice cracker spicy/tasty/black/small/square/round.'

(62)　John-ga　　sono senbei-o　　itumo-yori sikakuku omotta.
　　　John-Nom that　rice cracker than usual　squire　　considered
　　　'Lit.: John considered that the rice cracker looks a square than usual.'

Notice that the adjectival predicate in (56) is marked with the suffix *-ku*.

According to the traditional Japanese grammarians, the adjective in (56) is in the so-

called 'adverbial form' (*renyoo-kei*). When the adjectival predicate is in the so-called

'conclusive form' (*syuusi-kei*), which is marked with the non-past tense suffix *-i*, the

embedded clause is no longer a small clause, as exemplified in (63). For the ease of

presentation, (63) is called the 'ECM construction'.

(63)　John-wa [Mary-o　　kasiko-i-to]　　　　omotta.
　　　John-Top　Mary-Acc intelligent-Present-C considered
　　　'John considered Mary to be intelligent.'

The small clause construction and the ECM construction in Japanese differ in the

following ways. Firstly, the complementizer *to* cannot occur in the small clause

construction (=(64)) whereas it cannot be omitted in the ECM construction (=(65)).

(64)  *John-wa  [Mary-o    kasikoku-to] omotta.
       John-Top Mary-Acc intelligent-C  considered
      'John considered Mary intelligent.'

(65)  *John-wa  [Mary-o    kasiko-i]            omotta.
       John-Top  Mary-Acc intelligent-Present considered
      'John considered Mary to be intelligent.'

Secondly, as pointed out by Takezawa (1987:74), the small clause subject cannot

have the nominative Case (=(66)) whereas the subject of the conclusive adjectival

predicate may have the nominative Case (=(67)).

(66)  *John-wa  [Mary-ga    kasikoku] omotta.
       John-Top Mary-Nom intelligent  considered
      'John considered Mary intelligent.'

(67)  John-wa  [Mary-ga    kasiko-i-to]            omotta.
      John-Top  Mary-Nom intelligent-Present-C considered
      'John considered that Mary was intelligent.'

Thirdly, the sentential adverbs, such as the epistemic adverb *tabun* 'probably',

cannot enter the small clause construction (=(68)). However, the ECM construction does

not have this restriction (=(69)).

(68)  *John-wa [Mary-o    tabun    kasikoku] omotta.
       John-Top Mary-Acc probably intelligent considered
      'John considered Mary probably intelligent.'

(69)  John-wa [Mary-o    tabun    kasiko-i-to]            omotta.
      John-Top Mary-Acc probably intelligent-Present-C considered
      'John considered that Mary probably was intelligent.'

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Fourthly, fronting of the small clause predicate is ungrammatical (=(70)), as observed by Kikuchi and Takahashi (1991).[32] On the other hand, the adjectival predicate in the ECM construction can be fronted (=(71)).

(70)    *[Kasikoku] John-wa   Mary-o *t*   omotta.
           intelligent  John-Top Mary-Acc considered
        'John considered Mary intelligent.'

(71)    [Kasiko-i-to]            John-wa  Mary-o *t*  omotta.
         intelligent-Present-C John-Top Mary-Acc considered
        'John considered that Mary was intelligent.'

The differences between the adjectival small clause construction and the ECM construction can be summarized in table (72).

(72)    Differences between the adjectival SC construction and the ECM construction

|  | adjectival SC | ECM |
|---|:---:|:---:|
| complementizer | * | OK |
| nominative Case marker | * | OK |
| epistemic adverbs | * | OK |
| predicate fronting | * | OK |

If the adjectival small clause is analyzed as a bare small clause, as in (73) and the ECM construction has some functional projections, as in (74), the contrasts between these two constructions can be accounted for.[33]

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[32] As pointed out to me by Hide Hoshi (personal communication), (i) may sound slightly better than (70). I do not know why there is such a contrast.
(i)       ??Donokurai kasikoku  John-wa Mary-o    omotta-no?
               how        intelligent John-Top Mary-Acc considered-Q
           'How intelligent did John consider Mary?'
[33] The operator Gen should be adjoined to the bare small clause in Japanese as well. For the sake of brevity, it is omitted in the following discussion.

(73)　　… [$_{SC=AP}$ Subj [$_{A'}$ A]]　　　　　　　　　　　　(SC)

(74)　　… [$_{CP}$ C [$_{TP}$ Subj [$_{T'}$ T [$_{AP}$ $t_{Subj}$ [$_{A'}$ A]]]]]　　　(ECM)


　　First of all, the complementizer *to* occurs only in the ECM construction but not in

the adjectival small clause because TP has its extended projection CP whereas CP is not

the extended projection of AP. Secondly, if T is responsible for the nominative Case

assignment (Takezawa 1987), it is not surprising that the subject in the small clause

construction cannot have the nominative Case. Thirdly, assuming that epistemic adverbs

are licensed by functional categories, à la Travis (1988), those adverbs cannot enter small

clauses because functional categories are missing. Fourthly, as suggested by Kikuchi and

Takahashi (1991), fronting of the adjectival predicate is ungrammatical in small clauses

because what is fronted is an A' element and movement of X' categories is not permitted

in general (Williams 1983, Kitagawa 1985, Chomsky 1986).[34] On the contrary, the

fronted predicate in the ECM construction is in fact AP. Hence, fronting is permitted.


4.4.2  Nominal and adjectival nominal small clauses

In addition to bare small clauses, Japanese also allows not-so-bare small clauses. I

assume that the embedded clauses in (76) and (79) in which a copula is missing are not-

so-bare small clauses, which are called 't*o*-small clauses'. The embedded clauses in

which an adjectival nominal is in the adverbial form (*renyoo-kei*), which are called 'n*i*-

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[34] See Tang 1998 for the problems of Kikuchi and Takahashi's analysis and an alternative analysis of
predicate fronting in Japanese small clauses, in which I argue that a moved maximal projection must not be
lexical. Another possible solution is to assume that the operator Gen blocks predicate fronting, see footnote
25.

small clauses', are assumed to be bare small clauses. The adverbial former -*ni* is a suffix

attached to nominals similar to the functional of the adverbial form -*ku*, which I will

discuss later.

The judgment of bare adjectival nominal small clauses and bare nominal small

clauses seems to be subject to idiosyncratic variation. To some speakers I consulted with,

the judgment of (75) may not be very natural and (78) is deviant. If the predicate in bare

small clauses can express a property and attribute of the small clause subject involving a

more subjective judgment, such as *mizime* 'miserable' in (77) and *orokamono* 'fool' in

(80), or the predicate nominal is modified by some additional expression as (81), the

judgment improves. Such a contrast may hold between the adjectival nouns in (82a) and

those in (82b) and between the nouns in (82c) and those in (82d). Only (82b) and (82d)

may enter *ni*-small clauses.[35] Notice that the judgments in (82) are subject to

idiosyncratic variation. To some speakers I consulted with, all the predicates in (82) are

acceptable. (83) and (84) are treated as the ECM construction in which the copula *ar* 'be'

occurs.[36]


(75)    (?)John-wa [Mary-o    kirei-ni] omotta.                    (Adjectival nominal)
          John-Top Mary-Acc pretty    considered
          'John considered Mary pretty.'

---

[35] It seems that the matrix subject is the experiencer of the property denoted by the adjectival nominal in
small clauses. The contrast between the adjectival nouns in (82a) and those in (82b) can be shown in (i)
and (ii). Thanks to Kazue Takeda (personal communication) for providing (81) and the data in (82).
(i)        *John-ni-wa  Mary-ga    kirei-da.
            John-to-Top Mary-Nom pretty-be
            'To John, Mary is pretty.'
(ii)       John-ni-wa   sono hon-ga      taikutu-da.
            John-to-Top that   book-Nom boring-be
            'To John, that book is boring.'

(76)   John-wa [Mary-o     kirei-to] omotta.
       John-Top Mary-Acc pretty-C considered
       'John considered Mary pretty.'

(77)   John-wa [zyookyoo-o   mizime-ni] omotta.
       John-Top situation-Acc miserable  considered
       'John considered the situation miserable.'

(78)   (*)John-wa [Mary-o    sensei-ni] omotta.              (Nominal)
          John-Top Mary-Acc teacher    considered
       'John considered Mary a teacher.'

(79)   John-wa [Mary-o     sensei-to] omotta.
       John-Top Mary-Acc teacher-C considered
       'John considered Mary a teacher.'

(80)   John-wa [Mary-o     orokamono-ni] omotta.
       John-Top Mary-Acc fool              considered
       'John considered Mary a fool.'

(81)   John-wa Mary-o     netui-no          aru sensei-ni omotta.
       John-Top Mary-Acc enthusiasm-Gen be  teacher    considered
       'John considered Mary a teacher with enthusiasm.'

(82)   *Adjectival nouns*
       a. (?) kirei 'pretty', seizitu 'honest', sinsetu 'kind', yuukan 'brave'
       b. mizime 'miserable', taikutu 'boring', sigekiteki 'exciting', manzoku
          'satisfactory', human     nsatisfactory'
       *Nouns*
       c. (?) sensei 'teacher', gakusei 'student'
       d. mikata 'supporter', orokamono 'fool', honmono 'genuine thing', nisemono
          'fake'

(83)   John-wa [Mary-o     kirei-da-to] omotta.                (ECM)
       John-Top Mary-Acc pretty-be-C considered
       'John considered Mary to be pretty.'

(84)   John-wa [Mary-o     sensei-da-to] omotta.               (ECM)
       John-Top Mary-Acc teacher-be-C considered
       'John considered Mary to be a teacher.'

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[36] In the literature, *da* is treated as a copula in Japanese. If Nakayama (1988) and Urushibara (1993) are right, the so-called copula *da* is a contracted form of *de-ar-u* in which *de* is a predicate Case particle, *ar* is the copula, and *u* is the non-past morpheme. Due to phonological reasons, *ar* may be realized as *at*.

The characteristics denoted by the nominal small clauses and the adjectival nominal small clauses in Japanese are reminiscent of the distinction between factuality and non-factuality in epistemic small clauses we have seen in Chinese small clauses and Japanese adjectival small clauses. Notice that such a contrast is gone in the *to*-small clauses. Based on the data from bare small clauses in Chinese and Japanese, it is safe to conclude that non-factuality is a requirement of bare small clauses as (85), which does not apply to not-so-bare small clauses.

(85)    *Factuality of small clauses*
        It is more felicitous if the predicate of bare epistemic small clauses conveys the speaker's opinion and attitude rather than fact.

Regardless of factuality of the small clause predicate, the generalization in Japanese seems to be that embedded small clauses are bare. Adjectival nouns and nouns may also enter the not-so-bare small clauses.

By using the tests I have used in adjectival small clauses, I argue that the grammaticality judgments of the following examples may support the claim that *ni*-small clauses are bare and *to*-small clauses are not-so-bare. The findings of the test in this section can be summarized in table (98).[37]

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[37] The grammaticality judgment of (90) seems to subject to idiosyncratic variation. To some speakers I consulted with, it is perfect. To some speakers, it is somewhat unnatural. Assuming that nominative Case assignment is associated with T, the generic property of T may affect nominative Case assignment. Thanks to Naoki Fukui, Kazuko Harada, Naomi Harada, Hidehito Hoshi, Kazue Takeda, and Akira Watanabe for useful discussion on this issue.

*(non)existence of the complementizer*
(86)  *John-wa [Mary-o    kirei-ni-to] omotta.                    (*ni*-SC)
       John-Top  Mary-Acc pretty-C     considered
       'John considered Mary pretty.'

(87)  *John-wa [Mary-o    kirei] omotta.                         (*to*-SC)
       John-Top Mary-Acc pretty considered
       'John considered Mary pretty.'

(88)  *John-wa [Mary-o    kirei-da] omotta.                      (ECM)
       John-Top Mary-Acc pretty-be considered
       'John considered Mary to be pretty.'

*nominative subject in the embedded clause*
(89)  *John-wa [Mary-ga    kirei-ni] omotta.                     (*ni*-SC)
       John-Top Mary-Nom pretty     considered
       'John considered Mary pretty.'

(90)  (?~??)John-wa [Mary-ga    kirei-to] omotta.                (*to*-SC)
          John-Top Mary-Nom pretty-C considered
          'John considered Mary pretty.'

(91)  John-wa [Mary-ga    kirei-da-to] omotta.                   (ECM)
      John-Top Mary-Nom pretty-be-C considered
      'John considered Mary to be pretty.'

*placement of epistemic adverbs*
(92)  ??John-wa [Mary-o    tabun    kirei-ni] omotta.            (*ni*-SC)
        John-Top Mary-Acc probably pretty    considered
        'John considered Mary probably pretty.'

(93)  John-wa [Mary-o    tabun    kirei-to] omotta.              (*to*-SC)
      John-Top Mary-Acc probably pretty-C considered
      'John considered Mary probably pretty.'

(94)  John-wa [Mary-o    tabun    kirei-da-to] omotta.           (ECM)
      John-Top Mary-Acc probably pretty-be-C considered
      'John considered Mary probably to be pretty.'

*predicate fronting*
(95)  ??[Kirei-ni] John-wa  Mary-o *t*  omotta.                 (*ni*-SC)
        pretty    John-Top Mary-Acc considered
        'John considered Mary pretty.'

(96)    [Kirei-to] John-wa  Mary-o *t*  omotta.                        (*to*-SC)
         pretty-C John-Top Mary-Acc considered
        'John considered Mary pretty.'


(97)    John-wa [Mary-o    tabun    kirei-da-to] omotta.              (ECM)
        John-Top Mary-Acc probably pretty-be-C considered
        'John considered Mary probably to be pretty.'


(98)    Differences among the *ni*-SC, *to*-SC, and the ECM construction

|                       | *ni*-SC | *to*-SC  | ECM |
|-----------------------|---------|----------|-----|
| complementizer        | *       | OK       | OK  |
| nominative Case marker | *      | OK/?~??  | OK  |
| epistemic adverbs     | *       | OK       | OK  |
| predicate fronting    | *       | OK       | OK  |


As the behaviors of the *ni*-small clauses are exactly the same as those of

adjectival small clauses, it is safe to conclude that *ni*-small clauses are bare lexical

projections. Regarding *to*-small clauses, their behaviors are very similar to the ECM

construction. One possibility is that *to*-small clauses are derived from the ECM

construction by deleting the copula *da* 'be' (cf. Kitagawa 1985).[38] For example, (99)

(=(76)) would be derived from (100) (=(83)) by deleting *da* 'be'.


(99)    John-wa [Mary-o    kirei-to] omotta.                         (to-SC)
        John-Top Mary-Acc pretty-C considered
        'John considered Mary pretty.'


(100)   John-wa [Mary-o    kirei-da-to] omotta.                      (ECM)
        John-Top Mary-Acc pretty-be-C considered
        'John considered Mary to be pretty.'

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[38] Kitagawa (1985) assumes that there is an empty copula in English small clauses as (i) and Japanese small clauses as (ii). He seems to suggest that the phonetically empty copula is formed by deletion.
(i)     I consider [him ~~BE~~ a genius].
(ii)    [Omae-o otoko (da) to] mikonde  tanomi-ga  aru.
         you-Acc man    be  C   regard as favor-Nom exist
        'Regarding you as a man, I have a favor to ask you.'

Are (99) and (100) synonymous? The judgment is subject to idiosyncratic variation. To some native speakers I consulted with, (99) and (100) are not synonymous but to some speakers (99) and (100) are synonymous.[39] According to the former response, (99) tends to have a generic/individual-level interpretation expressing a state of being pretty whereas (100) tends to have an episodic/stage-level interpretation sensitive to individuable events and specific instances. Such a contrast is shown in (101) and (102) in which the embedded clause is modified by a temporal phrase *sono toki* 'that time'. If deletion of the copula *da* 'be' is a phonological process, how can the semantic difference between these two sentences be reflected in LF? I assume that there is a null copula in (99) which is distinct from the overt copula *da* 'be', on a par with the null copula vs. *be* in English.

(101)  ?John-wa [sono toki-no   Mary-o   kirei-to] omotta.      (to-SC)
        John-Top that   time-Gen Mary-Acc pretty-C considered
        'John considered Mary pretty at that time.'

(102)  John-wa [sono toki-no   Mary-o   kirei-da-to] omotta.   (ECM)
        John-Top  that   time-Gen Mary-Acc pretty-be-C considered
        'John considered Mary to be pretty at that time.'

However, to those speakers who felt that (99) and (100) are synonymous, (99) is actually derived from (100) by deleting the copula at PF. The phonological operation should not affect the semantic interpretation. According to them, there should not be any null copula in the embedded clause. Notice that if (99) is formed by PF deletion, it should

be derived from a non-past tense sentence instead of a past tense sentence, as suggested

by the grammaticality judgments of (103), (104), and (105).[40]

(103)  *John-wa [Mary-o    san-nen   mae-ni kirei-to] ima omotteiru.   (*to*-SC)
         John-Top Mary-Acc three-year ago    pretty-C now consider
         'Lit.: Now John considers Mary pretty three years ago.'

(104)  *John-wa [Mary-o    san-nen   mae-ni kirei-da-to] ima omotteiru.         (ECM)
         John-Top Mary-Acc three-year ago    pretty-be-C now consider
         'Lit.: Now John considers Mary to be pretty three years ago.'

(105)  John-wa [Mary-o    san-nen   mae-ni kirei-dat-ta-to]  ima  omotteiru.
         John-Top Mary-Acc three-year ago    pretty-be-Past-C now consider
         'Now John considers Mary to have been pretty three years ago.'

In Japanese the null copula and its extended projection TP may affect the

nominative Case assignment. Recall that though the judgment of (106) (=(90)) is subject

to idiosyncratic variation (see footnote 37), the judgment of (107) is perfect to all

speakers I consulted with and the contrast between (106) and (107) is salient.

Interestingly, I notice that there is a tendency that those speakers who felt that there is a

contrast between (99) and (100) were not too comfortable with (106) while those who

believed that (99) and (100) are synonymous could tolerate and even accept (106).

(106)  (?~??)John-wa [Mary-ga     kirei-to] omotta.
             John-Top Mary-Nom pretty-C considered
         'John considered Mary pretty.'

---

(107)   John-wa [Mary-ga     kirei-da-to] omotta.
        John-Top Mary-Nom  pretty-be-C considered
        'John considered that Mary is pretty.'

The analysis of small clauses in Japanese presented here has a very interesting implication: Universal Grammar allows both bare small clauses and 'not-so-bare' small clauses. Data from Japanese indicate that these two types of small clauses may occur even in the same language.

In these two sections, I have argued that Chinese small clauses are bare, English small clauses are not-so-bare, whereas Japanese small clauses have both of them. Notice that in Japanese adjectives, adjectival nouns, and nouns may enter bare small clauses and only adjectival nouns and nouns may enter not-so-bare small clauses. The findings are summarized in table (108).

(108)   Typology of embedded epistemic small clauses

|  | bare | not-so-bare |
| --- | --- | --- |
| English embedded SC | * | OK |
| Chinese embedded SC | OK | * |
| Japanese embedded SC | OK | OK |

An implication of the findings is that Universal Grammar allows 'bare' clauses. Predication with a functional projection, for instance, TP, is not universal. Data from Chinese and Japanese small clauses support the claim by Chomsky (1981) and Stowell (1981) that the syntactic subject position is defined in category-neutral terms and the presence of T (or its equivalent) in predication in not necessary. The claim that every sentence should have a functional projection, such as TP, should be refuted.

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## 4.5  Bare small clauses and parametrization of categorial features

4.5.1  Parametric theory of categorial features

I have shown that small clauses could be 'bare' in natural languages. To account for the typological differences with respect to the structure of small clauses, I propose that the combination of categorial features is subject to parametric variation. Before proceeding, let me summarize the theory of features advocated in this study.

I have been assuming in this work that features are syntactic primitive. Categories are in fact derivative. There are two primitive categorial features in the lexicon: [N] and [V]. The former is substantive whereas the latter is predicative. Universal Grammar allows only four possible options, as listed in (109). The first feature of the ordered pair is the primary categorial feature and the second feature is the secondary categorial feature.

(109)  (i)      <N>            (ii)    <N, V>
       (iii)    <V>            (iv)    <V, N>

I assume that categories or 'parts of speech' of natural languages are characterized by a variable set of categorial features. Suppose that categories in natural languages can be informally divided into two major types: nominal categories and verbal categories. The necessary features that determine a nominal category and a verbal category are [N] and [V], respectively. Along these lines, in (109) <N> and <N, V> are grouped under nominal categories and <V> and <V, N> are grouped under verbal categories.

Based on the parametric theory of categorial features proposed here, let us examine how the differences among Chinese, English, and Japanese with respect to the structure of small clauses are accounted for in the next subsection.

4.5.2 Parametrization of categorial features in Chinese, English, and Japanese

Given that the primary categorial feature of nouns must be [N], only the secondary categorial feature [V] of nouns is subject to parametric variation. I assume that Chinese nouns have the secondary categorial feature [V] and English nouns don't.

Chinese (intransitive) verbs (such as *pao* 'run') and adjectives (such as *pang* 'fat') share many similarities. For example, they can be negated by *bu* 'not' (=110), can be modified by a resultative clause (=111), and can be followed by the perfective aspect marker *le* (=112).

(110)  a.  Ta bu  pao.
           he not run
           'He does not run.'

       b.  Ta bu pang.
           he not fat
           'He is not fat.'

(111)  a.  Ta pao-de    hen  lei.
           he run-Result very tired
           'He ran and became very tired.'

       b.  Ta pang-de   bu  neng dong.
           he fat-Result not can  move
           'He is so fat that he cannot move.'

(112)  a.  Ta pao-le.
           he run-Perf
           'He ran away.'

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      b.      Ta pang-le.
              he fat-Perf
              'He got fat.'


In the literature, Chinese grammarians classify Chinese verbs and adjectives as 'predicative' (Zhu 1982). Some grammarians even claim that there are no adjectives in Chinese and so-called adjectives are subsumed under verbs (Chao 1968, Li and Thompson 1981).

I assume that the distinctions between verbs and adjectives in natural languages are mainly due to semantics (Wang 1985). According to Wang (1985:17), adjectives denote 'properties of an object' while verbs denote 'actions or events'. The semantic differences between verbs and adjectives could be reflected by syntax. For example, in Chinese (intransitive) verbs can be modified by a temporal/aspectual adverb *zhengzai* 'now, progressive' as (113) and adjectives can be modified by a degree adverb *hen* 'very' as (114) (He 1996).


(113)   Ta zhengzai pao.
        he now     run
        'He is running.'

(114)   Ta hen  pang.
        he very fat
        'He is very fat.'


Regarding nouns and adjectives in English, they always go hand in hand. For example, Chomsky (1970), Abney (1987), Déchaine (1993), among others classify English nouns and adjectives as 'nominal' and Jackendoff (1977) groups nouns and

adjectives under [-Object]. For example, in English both nouns and adjectives can be modified by articles and demonstratives (e.g. *the boy*, *the old*; *that book*, *that long*) and can have suffixes *-ify* (*classify*, *intensify*), *-ize* (*symbolize*, *specialize*), *-ism* (*despotism*, *modernism*), *-ist* (*methodist*, *formalist*), *-ish* (*boyish*, *blueish*), and *-ly* (*ghostly*, *deadly*). Nouns and adjectives in English differ only in semantics. Nouns are associated with 'kinds' and adjectives are associated with 'qualities' (Chierchia 1984).

Following the intuition held in the literature, I assume that the primary categorial feature of adjectives is [V] in Chinese and is [N] in English. The values of nouns and adjectives in Chinese and English can be stated in (115) and (116).

(115)  *Chinese*
       Nouns:          <N, V>
       Adjectives:     <V>

(116)  *English*
       Nouns:          <N>
       Adjectives:     <N>

According to (115) and (116), both nouns and adjectives in English are substantive whereas nouns and adjectives in Chinese are predicative. As far as the combination of categorial features is concerned, nouns and adjectives are identical in English. The distinctions between these two categories in English are basically semantic. They have different semantic features. For example, nouns have ϕ-features whereas adjectives have degrees.

Given that the categorial feature of English nouns and adjectives is [N], they are not predicative. As the so-called 'predicate nominal' in English, i.e. DP in (117), is not

predicative, a predicative head V and its extended projections are needed. The structure of the embedded nominal small clause in English is represented in (117), in which 'p' stands for 'predicative' and '¬p' stands for non-predicative.

(117)
```
          SC
        2
   Gen     TP
          2
     Subj     T'  <V> ⇐ p
            2
        V-T     vP
              2
           t_Subj    v'  <V> ⇐ p
                   2
              v      VP  <V> ⇐ p
                   2
               t_v     DP  <N> ⇐ ¬p
                     2
                  D     NP  <N> ⇐ ¬p
```

I have argued that the structure of embedded small clauses in Chinese is different. They are bare lexical projections. Since nouns and adjectives are predicative in Chinese, i.e. having the categorial feature [V], the predicate nominal and the predicate adjectival can be predicated of the external argument directly without any predicative head. (118a) is the structure of a nominal small clause in Chinese, in which N' is regarded as predicative. Structure (118b) is the structure for adjectival small clauses in Chinese.[41]

(118) a.
```
          NP (=SC)              b.          AP (=SC)
        2                                  2
     Subj    N'  <N, V> ⇐ p          Subj    A'  <V> ⇐ p
          5                                5
```

Recall that Japanese adjectival, adjectival nominal, and nominal small clauses can be bare. From a diachronic point of view, Ôno (1988) points out that in Japanese both adjectival nouns and adjectives were derived from nouns historically. The major difference between adjectival nouns and adjectives is their origins. As noted by Nishiyama (1998:102) (cf. Urushibara 1993), adjectival nouns are loan words (e.g. *benri* 'convenient' from Chinese, *riaru* 'real' from English) or bimorphemic (e.g. *sizuka* 'quiet') while adjectives are native and monomorphemic (e.g. *taka* 'high'). I would suggest that the primary categorial feature of Japanese nouns, adjectival nouns, and adjectives is [N]. having a secondary categorial feature [V], as stated in (119). The secondary categorial feature [V] of these categories can be observable. I assume the secondary categorial feature is overtly realized as the suffix *-ni* in nouns and adjectival nouns. The omission of *-ni* implies that the secondary categorial feature [V] of nouns and adjectival nouns is missing.

(119)    *Japanese* (to be revised)
     Nouns, adjectival nouns:    \<N\>       (without *-ni*)
                                    \<N, V\>    (with *-ni*)
     Adjectives:                    \<N, V\>

If my analysis is correct, Japanese nouns (with *-ni*), adjectival nouns (with *-ni*), and adjectives are similar to Chinese nouns but different from English nouns and adjectives. Nouns (with *-ni*), adjectival nouns (with *-ni*), and adjectives are predicative in

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[41] The operator Gen is irrelevant in the discussion here, which is omitted in the structure.

Japanese and thus they may enter bare small clauses. The analysis of Chinese embedded small clauses holds for Japanese as well.

(120) is ungrammatical because nouns without -*ni* are not predicative and the subject cannot be merged with predicate nominal directly (cf. (80)), as represented in (121). To solve the problem, a null copula V is introduced in the derivation and it further extends to *v*P, TP, and CP in the structure. The representation of *to*-small clauses in Japanese will be very similar to (117) in English.

(120)   *John-wa  [Mary-o    orokamono] omotta.
         John-Top Mary-Acc fool          considered
         'John considered Mary a fool.'

(121)      *NP (=SC)
           2
         Subj    N'  <N>  ⇐  ¬p
               5

A question arises: Why can't Japanese adjectives enter the not-so-bare small clauses, i.e. *to*-small clauses, as shown in (122)? To have the complementizer *to*, the tense morpheme *i* must show up, as (123), which is known as the ECM construction. Notice that (123) is no longer generic. It has an episodic interpretation.

(122)   *John-wa  [Mary-o    kasikoku-to] omotta.
         John-Top Mary-Acc intelligent-C  considered
         'John considered Mary intelligent.'                    (=(64))

(123)   John-wa  [Mary-o    kasiko-i-to]           omotta.
         John-Top  Mary-Acc intelligent-Present-C considered
         'John considered Mary to be intelligent.'              (=(63))

Given that the combination of categorial features is subject to parametric variation, I conjecture that the primary categorial feature of Japanese adjectives in generic sentences is [V] instead of [N]. Regarding Japanese adjectives, the choice of the primary categorial feature is detectable by morphology. Urushibara (1993) argues that -*k* is a derivational morpheme, contra Kubo (1992).[42] According to Urushibara, -*k* is a category-changing suffix that changes a noun to an adjective. Nishiyama (1998) proposes that -*k* is a predicative copula which is analyzed as an overt realization of a functional predicative head. Based on their observation, I assume that the function of -*k* is dual: semantically it changes a noun to a predicate (adjective) and introduces a secondary categorial feature [V];[43] syntactically it marks [N] as the primary categorial feature of the adjective, on a par with another so-called adverbial form suffix -*ni*. If an adjective is not marked by -*k*, its primary categorial feature becomes [V].[44] The classification of nouns, adjectival nouns, and adjectives in Japanese can be revised as in (124) (cf. (119)).

(124)   *Japanese*
        Nouns and adjectival nouns:   <N>          (without -*ni*)
                                      <N, V>       (with -*ni*)
        Adjectives:                   <V>          (without -*k*)
                                      <N, V>       (with -*k*)

If an adjective is marked with -*k*, it has the categorial features <N, V>. As it is already predicative, the small clause subject can merge with the predicate directly without the help of the null copula V, as (125a). Adjectives with -*k* cannot extend to TP

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[42] The suffix -*k* is treated as the suffix of 'adverbial form' (*renyoo-kei*). For phonological reasons, -*k* becomes -*ku*.
[43] I assume that the categorial change from nouns to adjectives is a historical process.
[44] See Miyagawa 1987 for a proposal that adjectives are [+V] in Japanese.

and CP because the primary categorial feature of adjectives with *-k* is [N]. (125b) is an

ungrammatical representation. In any event, adjectives with *-k* cannot enter *to*-small

clauses in Japanese.

(125)   a.          AP (=SC)                    b.          *CP (=SC)
                   /\                                        /\
              Subj    A'  <N, V>                      C      TP  <V>
                      /\                                     /\
                                                        T      AP  <N, V>
                                                               /\

If an adjective is not marked with *-k*, its primary categorial feature is [V]. It can

extend to TP without the help of the copula. The embedded clause in (123) would have

the structure in (126).

(126)      CP  <V>
          /\
        C     TP  <V>
              /\
            T     AP  <V>
                  /\

Now let me summarize the feature composition of nouns and adjectives in

Chinese, English, and Japanese in table (127).

(127) Parametric values of categorial features of nouns and adjectives

|  | Chinese | English | Japanese[45] |
|---|---|---|---|
| Nouns | <N, V> | <N> | <N>, <N, V> (-*ni*) |
| Adjectives | <V> | <N> | <V>, <N, V> (-*k*) |

4.5.3  Typology of copula and parametrization of categorial features

4.5.3.1  Data from Chinese, English, and Japanese

The claim that the combination of categorial features is subject to parametric variation may shed some light on the typology of copula in Chinese, English, and Japanese. My focus in this subsection is on the relation between the parametric variation of categorial features and the existence of copula in episodic sentences in these languages.

In episodic sentences in Chinese, adjectives and verbs do not need a copula, as (128) and (129).[46] In episodic sentences, predicate nominals need a copula *shi* 'be', as (130). In generic sentences, *shi* 'be' is missing in nominal clauses, as (131). See the appendix in this chapter for discussion of 'verbless' sentences in Chinese.

(128)  Ta (*shi) hen  gao.                               (adjective)
       he    be   very tall
       'He is very tall.'

(129)  Ta (*shi) xie-wan      lunwen le.              (verb)
       he    be   write-finish thesis    Part
       'He has finished his thesis.'

(130)  (Qu nian), ta  shi yi-ge   xuesheng.          (noun)
        last year  he be one-Cl student
       'He was a student (last year).'

---

[45] 'Nouns' in table (127) include adjectival nouns in Japanese.
[46] It is grammatical to have *shi* 'be' if it is interpreted as a focus marker.

(131)  Zhangsan shagua.
       Zhangsan idiot
       'Zhangsan is an idiot.'

In episodic sentences in English, predicate nominals and predicate adjectivals must have a copula *be*, which carries tense morphology, as in (132) and (133). Only verbs can bear the tense morpheme without any copula, as in (134). However, in some 'marked' contexts, a noun can be predicated of the subject directly without any copula, as in (135), which is known as the *you idiot* expression. As the *you idiot* expressions are not episodic, they will not be discussed here. For details, see the appendix of this chapter.

(132)  John was a linguist.

(133)  John is smart.

(134)  John (*was) read a book.

(135)  You idiot!

The situation in episodic sentences in Japanese is slightly complicated. Nominals and adjectival nominals must have a copula *-ar-* to realize tense, as in (136) and (137). Predicate adjectivals can realize the tense morpheme without a copula only when the sentence is non-past, as shown by the contrast between (138) and (139).[47] Verbal predicates can bear tense morphemes directly without any copula, as in (140).

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[47] Nakayama (1988) assumes that there is an 'empty copula' in adjectival copulative sentences in the present tense. However, under his analysis, it is not clear why the copula has to be overt in the past tense.

(136) John-wa   gakusei-d-at-ta.                                      (noun)
     John-Top student-Case-be-Past
     'John was a student.'

(137) John-wa   hogaraka-d-at-ta.                              (adjectival noun)
     John-Top cheerful-Case-be-Past
     'John was cheerful.'

(138) John-wa   kasikok-at-ta.                                    (adjective)
     John-Top intelligent-be-Past
     'John was intelligent.'

(139) John-wa   kasiko-i.
     John-Top intelligent-Non.past
     'John is intelligent.'

(140) John-wa onigiri-o    tabe-ta.                                 (verb)
     John-Top riceball-Acc eat-Past
     'John ate rice balls.'

The distribution of copula in episodic sentences in these three languages can be summarized in table (141). 'Nouns' includes nouns and adjectival nouns in Japanese. past' stands for the non-past tense.

(141)   Distribution of copula in episodic sentences in Chinese, English, and Japanese

|  | Chinese | English | Japanese |
|---|---|---|---|
| verbs | * | * | * |
| nouns | OK | OK | OK |
| adjectives | * | OK | OK(past)/* (¬past) |

## 4.5.3.2 Projection of T

To account for the typological differences in (141), let us assume that T must project in episodic sentences.

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(142)   *Projection of T*
        T must project in episodic sentences.


        Data from Hebrew may support (142). As noted by Doron (1986), the copula

*h.y.y.* 'be' must show up in past (=(143)) and future sentences (=(144)) in Modern

Hebrew. The present tense conjugation of *h.y.y.* 'be' simply does not exist in Modern

Hebrew. In present tense copulative sentences, the predicate nominal may be predicated

of the subject directly without any copula (=(145)) or a third person pronominal element

is used (=(146)).


(143)   Dani <u>haya</u> ha-more    le-matematika.
        Dani was  the-teacher to-math
        'Dani was the math teacher.'

(144)   Dani <u>yihye</u>  more    ba-universita.
        Dani will-be teacher in-the-university
        'Dani will be a teacher at the university.'

(145)   Dani more.
        Dani teacher
        'Dani is a teacher.'

(146)   Dani <u>hu</u> more.
        Dani he teacher
        'Dani is a teacher.'


        Doron (1986) and Rapoport (1987) argue that the pronominal element *hu* 'he' in

(146) is not a copula, which is only a phonetic realization of the number and gender

features in T. Assuming that the copula *h.y.y.* 'be' is in T, the generalization of the above

data is that T must project in the past tense and future tense sentences. In present tense

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sentences, T may project and is realized as a pronominal element just for the purpose of agreement, rather than tense. What is interesting is that T may be omitted in the present tense sentences. According to Rapoport (1987), the copula-less present tense sentences in Modern Hebrew, such as (145), are bare small clauses.

Why is the present tense so different in Modern Hebrew? Rapoport (1987:51) suggests that the tense system in Modern Hebrew only has past and nonpast distinction and the so-called present tense is outside the tense system. In my classification, the past tense and the future tense are episodic while the present tense is generic. Hebrew supports the claim that T may be omitted in generic sentences.

The episodic-generic distinction seems to share some universal properties. Comrie (1985) notes that some languages have a tense that distinguishes the past from the nonpast, such as English, and some languages have a tense that distinguishes the future from the nonfuture, such as Hua spoken in New Guinea. There are no languages with a tense that has a present and nonpresent distinction. As English finite verbs inflect for tense only in the present tense, Enç (1996) further argues that the present could be eliminated from the tense system (in English). The so-called present tense does not count as episodic.

Notice that projecting TP is mainly for tense not for predication. As embedded epistemic small clauses are generic, the existence of TP in small clauses is not necessary. Data from Chinese and Japanese small clauses are not counterexamples to (141).

4.5.3.3 Parametrization of categorial features and copulas

The intuition is that there is a correlation between the necessity of having a copula and the primary categorial feature of the 'predicate' in these languages. Recall that T must project in episodic sentences. The primary categorial feature [V] of verbs may extend to TP without any copula. Verbs do not need a copula universally.

Given that the primary categorial feature of Chinese nouns, English nouns and adjectives, and Japanese nouns, adjectival nouns, and adjectives with -*k* is [N], the partial structure of a copulative sentence can be shown in (147), in which X stands for a noun, an adjective, or an adjectival noun. Some irrelevant details are omitted.[48] The primary categorial feature [N] of those categories cannot extend to TP given that the primary categorial feature of T is [V], as shown in (148). To solve the problem, a copula V is introduced and extends its projections.


(147)        TP  <V>
          2
        T        VP  <V>
              2
            V        XP   <N> or <N, V>

(148)     *TP  <V>
        2
        T        XP   <N>


---
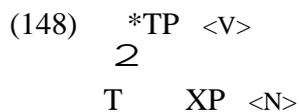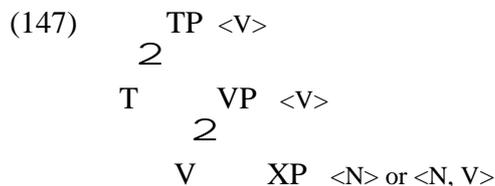
[48] In English, V should move to T. As argued by Stowell (1978) (see also Ross 1969 for a similar idea), *be* in English is a raising verb. I assume that the original position of the subject in copulative sentences is in the specifier of *v*P. See a similar structure in (117).

How do adjectives differ from nouns in Chinese? The primary categorial feature [V] of adjectives can extend to TP, as in (149). Hence, a copula is not necessary in adjectival copulative sentences in Chinese.

(149)　　TP　<V>
　　　2
　　　T　　AP　<V>

I have shown that Japanese adjectives do not need a copula only when the sentence is non-past. Interestingly, the suffix -k is missing in the non past tense and its occurrence is obligatory in the past tense. Recall that adjectives with -k are <N, V> and those without -k are <V> in Japanese. The primary categorial feature [V] of the adjectives without -k may extend to TP without any copula. However, the primary categorial feature [N] of the adjectives with -k cannot extend to TP. The copula is introduced and its primary categorial feature [V] may extend to TP. The dichotomy between the past and the non-past in regard to the existence of the copula in Japanese is thus explained.

Why is the past vs. non-past distinction relevant to the combination of categorial features? Kratzer (1989) points out that the past tense is an 'effective tool' for turning individual-level predicates into stage-level predicates. Urushibara (1993) tries to relate the distinction between the non-past tense and the past tense to the asymmetry between predicative NPs, such as *a student* in *John is a student*, and referential NPs, such as *every student* in *Every student came*, in terms of the generalized quantifier theory. She concludes that the non-past is kind of 'predicative' and the past tense is more

'referential'. Along these lines, I suspect that the categorial change in Japanese may be due to the 'predicative' nature of the non-past tense and the 'referential' nature of the past tense. By virtue of the 'predicative' nature of the non-past tense, the categorial feature [V] is chosen as the primary categorial feature of adjectives.

An implication of my analysis is that a copula is not merely an overt realization of tense and agreement. For example, the copula *shi* 'be' in Chinese carries neither tense nor agreement inflections. A copula contains its own categorial features and may extend its projections in the syntactic structure. Categorial features of a copula should be present in the numeration.[49] The major function of copulas is to extend to TP if the existence of T is required.

## 4.6 A remaining issue: learnability

Since the combination of categorial features is parametrized under the OPH, an implication of the OPH is that lexical categories are subject to parametric variation. Compared with functional categories, lexical categories seem to be 'open-class categories' (Fukui 1986, Abney 1987). Would the OPH have a problem of learnability?

First of all, though the number of lexical words is an open-class, the kind of lexical categories is quite restricted. Basically, lexical categories include only nouns, verbs, and adjectives. Secondly, under the present framework, only the combination of categorial features is parametrized. The existence of the categorial features [N] and [V] should be universal. What a kid has to do is to acquire the primary categorial feature and the secondary categorial feature, if any, of each category. Furthermore, the primary

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[49] See Ross 1969 for arguments for the independent status of copulas.

categorial feature of some categories already has a 'default' value determined by Universal Grammar. For example, the primary categorial feature of nouns and verbs must be [N] and [V], respectively. Only some categories, such as adjectives, could be nspecified' in the initial stage. Suppose a language has three lexical categories: nouns, verbs, and adjectives. A kid has only two choices to determine the categorial status of a noun: <N> or <N, V>, two choices to determine the categorial status of a verb: <V> or <V, N>, and four choices to determine the categorial status of an adjective: <N>, <N, V>, <V>, or <V, N>.

In the present framework, functional categories are derivative and are not present in the lexicon. How categorial features of extended projections (=functional categories) are combined and how extended projections are projected would be largely determined by the combination of categorial features of the extended head (=lexical categories). Along these lines, children seem to start off by acquiring the primitive categorial features [N] and [V] of the extended head and the combination of these features.[50]

Morphology could be a useful clue in some languages to determine the combination of categorial features. For example, the (non)existence of *-k* in Japanese adjectives indicates how categorial features are combined in Japanese adjectives. Of course, semantic and structural clues are important. See Grimshaw 1981, Pinker 1984 for the approach of semantic bootstrapping and Gleiman 1990 and subsequent work for the

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[50] According to Radford (1990), (i) is analyzed as a bare small clause. He argues that functional categories are missing in the earliest stage in children's development of a categorial system. If he is right, nouns are predicative in child English. An implication is that nouns are <N, V> in child English, on a par with Chinese nouns. The parameter setting in the initial stage could be a default value provided by Universal Grammar.

(i)       That doggy.      (Daniel 20.1= 20 months and 1 week)
          'That is a doggy.'

approach of syntactic bootstrapping.[51] A detailed study of language acquisition is beyond

the scope of this work, which I leave open here.


## 4.7  Conclusion

In this chapter, I have examined the characteristics of embedded epistemic small clauses

in Chinese, English, and Japanese and matrix small clauses in Chinese and English in

detail. Based on the data presented here, I have argued that two types of small clauses,

namely bare small clauses and not-so-bare small clauses exist in natural languages.

Under the OPH, I have proposed that the combination of categorial features of

nouns and adjectives is subject to parametric variation to account for the two types of

small clauses. Chinese nouns and adjectives are <N, V> and <V>, respectively. Both

English nouns and adjectives are <N>. In Japanese, nouns and adjectival nouns are <N>

(without *-ni*) and <N, V> (with *-ni*) and adjectives are <V> (without *-k*) and <N, V>

(with *-k*). Typological differences of the distribution of copula in Chinese, English, and

Japanese may further support the classification of categorial features in these languages.

In addition, this chapter has two new observations. First of all, I discover that it is

more felicitous if the predicate of bare epistemic small clauses conveys the speaker's

opinion and attitude rather than fact. Bare small clauses in Chinese and Japanese follow

this generalization. In appendix 2, I will show that the generalization also holds in the

*you idiot* expressions in English. Furthermore, I also observe that T must project in

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[51] Borer (1998) argues that aspectual properties of verbs are determined by syntactic structure. See also
Harada 1998 for a top-down approach coupled with the idea of underspecification of lexical items, which
departs from the approach I am pursuing here.

episodic sentences. If a sentence is not episodic, for instance, generic, T may be omitted.[52]


## 4.8 Appendix 1: empty verb sentences in Chinese

4.8.1 Matrix epistemic small clauses in Chinese

In a subset of Chinese copulative sentences in which the predicate is a nominal element denoting properties and attributes, the copula could be omitted. For example, (150) ascribes the property of being a fool to Zhangsan. Consider the examples from (150) to (156).[53] Notice that some predicational 'verbless' sentences need a particular context, such as an emphatic context.


(150)   Zhangsan [shagua].                                    (Character and quality)
        Zhangsan  fool
        'Zhangsan is a fool.'

(151)   Zhege ren    [jixingzi].
        this    person impetuous
        'This person is impetuous.'

(152)   Zhege haizi [da yanjing].
        this    kid    big eye
        'This kid has big eyes.'

(153)   Qu nian [huang  nian], jin  nian [feng     nian].
        last year  famine year   this year  bumper year
        'Last year was a famine year and this year a bumper year.'

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[52] A prediction of my analysis is that a copula is obligatory in episodic sentences if the primary categorial feature of the so-called predicate is [N]. As pointed out to me by Akira Watanabe (personal communication), there appears to be a tendency to have a copula in the past tense cross-linguistically. Further investigations would be very fruitful along these lines, which I leave open in this work.
[53] Some of the data are from Chao 1968, Lü 1980, Zhu 1982, and T.-C. Tang 1988.

(154)   Wo [Zhangsan].                                    (Identity)
        I    Zhangsan
        'I am Zhangsan.'

(155)   Wo [Zhongguoren].
        I    Chinese
        'I am Chinese.'

(156)   Ta [Jiazhou    Daxue    jiaoshou].
        he  California University professor
        'He is a professor of University of California.'


The predicate nominal could denote character (=(150) and (151)), proper names

(=(154)), nationality (=(155)), and professional identity (=(156)).

Yue-Hashimoto (1969) assumes that copula-less copulative sentences in Chinese

are derived by deleting the copula *shi* 'be'. However, in (157) the predicate nominal

*Zhongguoren* 'Chinese' must be a bare noun. Adding a classifier is ungrammatical. If

there is a copula *shi* 'be', the occurrence of the numeral-classifier is grammatical. If all

the copula-less sentences are formed by deleting *shi* 'be', how can the contrast between

(157) and (158) be accounted for?


(157)   Wo (*yi-ge)  Zhongguoren.
        I      one-Cl Chinese
         'I am Chinese.'

(158)   Wo shi yi-ge  Zhongguoren.
        I   be  one-Cl Chinese
        'I am a Chinese.'

Another difference between the overt copula copulative sentences and the copula-less copulative sentences is that the copula-less copulative sentences do not allow sentential adverbs and focus adverbs. The contrast can be shown in (159) and (160).

(159)  a.      *Ta yexu    Zhangsan.
                he perhaps Zhangsan
                'Perhaps he is Zhangsan.'

       b.      *Ta zhi  xiaohaizi.
                he only kid
                'He is only a kid.'

(160)  a.      Ta yexu     shi Zhangsan.
               he  perhaps be  Zhangsan
               'Perhaps he is Zhangsan.'

       b.      Ta zhi    shi xiaohaizi.
               he  only be  kid
               'He is only a kid.'

The occurrence of the sentence final particles shows that the copula-less copulative sentences should differ from the overt copula copulative sentences. The sentence final particle *laizhe* that indicates past tense cannot occur in the copula-less copulative sentences, as exemplified by (161). Though (162) may sound a little bit awkward, there is still a sharp contrast between (161) and (162). If (161) is formed by deleting the copula *shi* 'be', it is not clear why (162) is grammatical.

(161)  *Ta qiong-guang-dan laizhe
         he poor-bare-egg    Part
        'He was just a pauper.'

(162)  (?)Ta shi qiong-guang-dan laizhe.
          he be  poor-bare-egg    Part

'He was just a pauper.'

Note further that the copula-less sentence in (163) could describe a present situation. It never refers to a past situation. However, with the presence of the copula *shi* 'be', as in (164), the sentence may refer to a past situation.

(163)   *Qu nian, ta qiong-guang-dan.
         last year he poor-bare-egg
        'He was a pauper last year.'

(164)   Qu nian, ta shi qiong-guang-dan.
        last year he be  poor-bare-egg
        'He was a pauper last year.'

In the contrastive context, (165) offers a judgment that implies that 'I'm Chinese, but you're not. You're American, but I'm not.' The interpretation of the judgment seems to be a categorical judgment, in the sense of Kuroda (1992), which involves the cognitive act of apprehending something as substance and attributing to it a certain property perceived in a situation, performing the act of asserting. It seems that (165) has a selective and contrastive implication. However, (166), in which the predicate nominal has a classifier and it is preceded by the copula *shi* 'be', does not express the categorical judgment.

(165)   Wo Zhongguoren. Ni   Meiguoren.
        I   Chinese        you American
        'I'm Chinese. You're American.'

(166)   #Wo shi yi-ge   Zhongguoren. Ni  shi yi-ge  Meiguoren.
         I   be  one-Cl Chinese        you be one-Cl American

To account for the bareness of the predicate nominal in the copula-less copulative sentences, I assume that they are bare small clauses. The bare noun is the predicate nominal which is predicated of the subject directly without the functional predicative, as shown in the representation in (167). The predicate nominal is θ-bound by the generic operator Gen.

(167)   [$_{SC}$ Gen$_i$ [$_{NP}$ Subj N$_i$]]

My analysis can immediately explain why the predicate nominals in the copulative sentences cannot have a classifier.

(168)   *Gen Subj [Cl$_i$ N$_i$]

In (168) Gen becomes vacuous if the bare noun is already θ-bound by the classifier. There are no referential elements left for Gen, which remains vacuous. Thus, (168) is ruled out by FI. Classifiers of the predicate nominal are not allowed. In other words, the copula-less sentences are treated on a par with small clauses in Chinese, which are analyzed as bare lexical projections.

In addition to accounting for the bareness of the predicate nominal in the copula-less copulative sentences, my analysis provides a plausible explanation for the distribution of sentential adverbs and focus adverbs, and the occurrence of the sentence final particles. Assuming that the sentential adverb *yexu* 'perhaps' and the focus adverbs

*zhi* 'only' are licensed by functional categories, the copula-less copulative sentences do

not allow these adverbs because they are bare lexical projections which lack functional

projections. In chapter 3, I have argued that the sentence-final particle *laizhe* is an overt

realization of T. If the copula-less copulative sentences are bare lexical projections, the

ungrammaticality of the existence of *laizhe* is expected.

4.8.2  Empty verb sentences in Chinese

Predicational 'verbless' sentences are bare small clauses in which the predicate is

predicated of the subject directly without any copula. There are some 'verbless'

sentences in Chinese which do not belong to the predicational 'verbless' sentences. With

respect to the interpretation, they can be classified as transitive 'verbless' sentences and

locative 'verbless' sentences. Notice that the transitive 'verbless' sentences need some

particular context.

Transitive 'verbless' sentences

*Quantity*
(169)   Wo [liang-bu diannao].
        I    two-Cl   computer
        'I have some relation with two computers.'

(170)   Women [yi-ge   erzi], [yi-ge   nüer].
        we        one-Cl son    one-Cl daughter
        'We have one son and one daughter.'

(171)   Wo [wu nian], ta [liu nian].
        I    five year   he six year
        'I have/use five years and he has/uses six years.'

*Proper names and common nouns*

(172)    Nimen xuan-le    shei  a? wo [Chen xiansheng], ta [Li xiansheng].
         you    elect-Perf who Q  I    Chen mister      he Li mister
         'Who did you vote for? I voted for Mr. Chen, and he Mr. Li.'

(173)    Wo [haixian  mian], ta [niurou mian].
         I    seafood noodle he beef    noodle
         'I am the one with the seafood noodles, and he is the one with the beef noodles.'

(174)    Renjia [huang  nian], women [feng    nian].
         people  famine year   we       bumper year
         'Other people have a famine year and we have a bumper year.'

(175)    Wo [zhe ba  yusan],  ni  [na    ba yusan].
         I     this Cl umbrella you that Cl  umbrella
         'I (use) this umbrella and you that umbrella.'

Locative 'verbless' sentences

(176)    Men-wai      [yi-pian        qihei].
         door-exterior one-measure black
         'There is a pall of darkness outside.'

(177)    Wu-li        [xuduo wenzi].
         House-inside many  mosquito
         'There are many mosquitoes in the house.'

The interpretation of the relation between the two nominals depends on the context. For example, (169) could mean that 'I have two computers', 'I bought two computers', or 'I sold two computers'. The first clause in (173) could mean that 'I ordered seafood noodles', 'I ate seafood noodles', or 'I like seafood noodles'. In the transitive 'verbless' sentences, the two nominals may have a possessive relation in (170), a vague Agent-Theme relation in (169) if the action is interpreted as buying, or a vague Experiencer-Theme relation in (169) if the action is interpreted as seeing. The subject of

the locative 'verbless' sentences indicates a location. The interpretation of those

sentences could be treated as existential sentences.[54]

The characteristic that these 'verbless' sentences share is that the copula *shi* 'be'

could be inserted between the two nominal expressions, as indicated in (178), and

(179).[55]

(178)   Wo shi haixian  mian.
        I    be seafood noodle
        'I am the one with the seafood noodles.'

(179)   Men-wai      shi yi-pian      qihei.
        door-exterior be  one-measure black
        'There is a pall of darkness outside.'

The verb *you* 'have' could be inserted between the two nominal expressions in

some sentences, for example, (180) and (181) (cf. (169) and (177)).[56] Not all the

examples can have the verb *you* 'have', for example (182).

(180)   Wo you  liang-bu diannao.
        I    have two-Cl   computer
        'I have two computers.'

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[54] As suggested by Jim Huang (personal communication), the locative 'verbless' sentences are more likely 'presentational'.
[55] However, to some speakers the copula *shi* 'be' may not enter the locative 'verbless' sentences. See Song 1982.
[56] The verb *you* 'have' in some transitive 'verbless' sentences does not necessarily mean 'possession/ownership'. In (i) *you* 'have' has a meaning of experiencing, just like *have* in English. Strictly speaking, the subjects in (174) and (i) are Experiencers in terms of thematic roles.
(i)       Renjia you  yi-ge   huang nian, women you  yi-ge   feng    nian.
          people have one-Cl famine year  we      have one-Cl bumper year
          'Other people have a famine year and we have a bumper year.'          (Cf. (174))

(181)  Wu-li          you   xuduo wenzi.
       House-inside have many  mosquito
       'There are many mosquitoes in the house.'

(182)  *Men-wai       you yi-pian        qihei.
        door-exterior have one-measure black
       'There is a pall of darkness outside.'


       Though the second nominal expression allows numeral-classifiers, the second

nominal expression in the locative 'verbless' sentences must be indefinite, for instance,

(183). As noted by Song (1982), if the second nominal is a mass noun, the number in the

numeral-classifier phrase is restricted to *yi* 'one'. However, count nouns do not have such

a restriction. Compare (184) and (185).


(183)  Men-wai      [yi-pian/*zhe pian qihei].
       door-exterior one-Cl/   this Cl   black
       'There is a pall of darkness outside.'

(184)  *Men-wai      [san-pian qihei].
        door-exterior three-Cl black

(185)  Chuang-qian  [liang-zhang mu-zhuo].
       Window-front two-Cl       wood-table
       'In the front of the window are two tables.'


       Notice that the second nominal expression in the transitive 'verbless' sentences is

either a numeral phrase (e.g. *liang-bu diannao* 'two computers' in (169)), a proper name

(e.g. *Chen xiansheng* 'Mr. Chen' in (172)), a generic common noun (e.g. *haixian mian*

'seafood noodles' in (173)), or a definite common noun (e.g. *na ba yusan* 'that umbrella'

in (175)). The numeral phrase in the locative 'verbless' sentences must denote quantity

instead of individuals. (186) shows that the numeral phrases cannot have an

indefinite/existential interpretation. The ungrammaticality of (187) shows that the second

nominal expression in the transitive 'verbless' sentences cannot be indefinite. The

property that the numeral phrases, proper names, generic common nouns, and definite

common nouns share is definiteness.[57]


(186)   Ta [yi-fu    hua].
        he   one-Cl picture
        (i) *'He has a picture.'
        (ii) 'He has one picture.'

(187)   *Ta [xuduo mian].
         he   many  noodles
        'He has many noodles.'


        Based on the above discussion, the properties of these two types of 'verbless'

sentences can be summarized below.


(188)   Differences between the transitive and locative 'verbless' sentences

|  | *shi* 'be' | *you* 'have' | indefinite Cl | definite Cl |
|---|---|---|---|---|
| transitive | OK | OK/* | * | OK |
| locative | OK | OK/* | OK | * |

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[57] Thanks to Jim Huang (personal communication) for drawing my attention to the definiteness of the
nominals. The numeral phrases that denote quantity could be treated as definite (Li 1996). Assuming that
there is a close relation between genericity and definiteness (Diesing 1992), generic nouns are treated as
definite. The definiteness of the nominal in the transitive 'verbless' sentences can also be shown by the fact
that they cannot enter the existential sentences in Chinese, as discussed in Huang 1987. However, it is not
clear why the nominal cannot have a quantifier or a pronoun.
(i)       *Wo [mei   bu diannao]/[daduoshu-de diannao].
           I    every Cl computer  most-Mod    computer
          'I have every computer/most computers.'
(ii)      Nimen xuan-le    shei a? *Zhangsan ni,  wo ta.
          you(pl) elect-Perf who Q   Zhangsan you I    he
          'Who did you vote for? Zhangsan voted for you and I voted for him.'

I assume that there is an empty verb $\varnothing$ in these sentences, whose interpretation is dependent on the context.[58] The empty verb is a transitive verb. The first nominal XP is the subject of the sentence and the second nominal YP is the object of the empty verb sitting in the complement position, as exemplified by (189).[59]


(189)   XP [$_{VP}$ [$_V \varnothing$] YP]


I have shown that the verb *you* 'have' can enter these 'verbless' sentences. The empty verb in these two groups is closely correlated to *you* 'have'. The verb *you* 'have' in Chinese has several meanings. It could indicate a possessive relation, such as (180),[60] or an existential relation, such as (181). The empty verb in the transitive 'verbless' sentences could be related to the possessive *you* 'have' whereas the empty verb in the locative 'verbless' sentences could be related to the existential *you* 'have'.

Notice that the empty verb sentences must be episodic. If the empty verb is a stage-level predicate, the subject is interpreted as existential or specific. The judgment of (190a) is deviant because the bare noun *yuyanxuejia* 'linguist(s)' would have an existential reading and it is a well-known fact that indefinite subject is prohibited in Chinese. The same generalization holds when the empty verb is spelt out in (190b). If the subject is definite, as *ta* 'he' in (191a) and (191b), the unnaturalness is gone.

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[58] See also Tang 1997b for the empty verb in the transitive 'verbless' sentences and Fan 1963 and Gu 1997 for the empty verb in the locative 'verbless' sentences. J. Xu (1993) assumes that T exists in all 'verbless' sentences in Chinese.

[59] Whether the empty verb extends projection is not clear. The position of the subject is irrelevant in the discussion. Jim Huang (personal communication) suggests an alternative analysis that the two nominals in the 'verbless' sentences may have a topic-comment relation (see also T.-C. Tang 1988 for a similar suggestion). Under this analysis, the first nominal XP is interpreted as a topic having an interpretation: 'As for XP, it is YP.'

(190)  a.  *Yuyanxuejia ∅ liang-bu diannao.
　　　　　linguist　　　 two-Cl　computer
　　　　　'Linguists have two computers.'

　　　b.  *Yuyanxuejia you  liang-bu diannao.
　　　　　linguist　　　 have two-Cl　computer

(191)  a.  Ta ∅ liang-bu diannao.
　　　　　he　two-Cl　computer
　　　　　'He has two computers.'

　　　b.  Ta you liang-bu diannao.
　　　　　he has  two-Cl　computer


As noted by Freeze (1992), expressions of possession and existence appear very similar in many languages. He argues that the possessive construction is the existential construction with an animate location in the subject position being the possessor. Under Freeze's generalization, to treat these two types of 'verbless' sentences on a par should be on the right track.

Notice that the empty verb in these 'verbless' sentences is not necessarily realized as *you* 'have'. As I have mentioned, the verb in the transitive 'verbless' sentences could be lexicalized by a range of verbs that indicate a possessive relationship or an Agent-Theme relationship, such as *chi* 'eat', *mai* 'buy', and *xuan* 'vote for', depending on the context. As noted by Gu (1997), the empty verb in the locative 'verbless' sentences could be lexicalized by intrinsic existential verbs *chuxian* 'appear' and *chengxian* 'appear', or derived existential verbs *liuxia* 'leave' and *caichu* 'tread'. Gu (1997) further points out that in some locative 'verbless' sentences the empty verb cannot be realized as *you* 'have'

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[60] *You* 'have' may also have a meaning of experiencing. See footnote 56.

because *you* 'have' requires a concrete nominal expression as its complement; an abstract nominal expression, such as *yi-pian qihei* 'a pall of darkness', is disqualified for complementhood of *you* 'have'.

Suppose that these two types of empty verb sentences are treated as the same underlyingly. Beside animateness of the objects, these sentences are different with respect to definiteness of the object. The empty verb in the transitive 'verbless' sentences requires that the complement be definite whereas the empty verb in the locative 'verbless' sentences requires that the complement be indefinite, exhibiting the Definiteness Effect. To derive the definiteness requirement of the empty verb in the transitive 'verbless' sentences, one possibility is to assume that the empty verb functions as a focus verb which introduces a focalized nominal, on a par with the focus marker *shi* 'be'.[61] The definiteness requirement of the empty verb could be attributed to the theory of focus that focalization needs a presupposition (Rooth 1985). For example, the nominal expression that follows the focus marker *shi* 'be' must be definite, as shown by (192).

(192)   Shi zhexie xuesheng/*xuduo xuesheng canjia-le        huiyi.
        be  these  student/    many   student participate-Perf conference
        'THESE STUDENTS/*MANY STUDENTS participated in the conference.'

In addition, I have pointed out that it is unnatural to utter the sentences in the transitive 'verbless' sentences in an out-of-the-blue context. A contrastive context is needed. If the empty verb in the transitive 'verbless' sentences is analyzed as a focus verb, the contrastive interpretation could be derived from the semantics of focus.

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**4.9 Appendix 2: *you idiot* expressions**

4.9.1 Properties of the *you idiot* expressions

(193) is a canonical copulative sentence in English, in which *an idiot* is the predicate nominal predicated of the subject *you*.


(193)  You are an idiot.


In a subset of copulative sentences, the predicate nominal can be predicated of the subject directly without any copula. For example, in (194) the predicate nominal *idiot* can be predicated of the subject *you* directly without any copula. I call such kind of sentences 'Y*ou idiot* expressions'.


(194)  a.      You idiot!

        b.      You wonderful person!


The usage of the *you idiot* expressions is quite restricted. They are mainly used in exclamations involving a strong value judgment and an opinion. Only the nominals that have an 'evaluative meaning' may felicitously enter the *you idiot* expressions. For example, (194a) is mainly used to insult people. (194b) is natural to express a feeling of exclamation and adoration. (195) is quite unacceptable because *student* conveys a fact and no value judgment is expressed, which seems subject to the generalization of

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[61] Huang (1988) argues that the focus marker *shi* 'be' is an auxiliary verb. For the details of the focus

factuality we have seen so far. The judgment of (195) is deviant unless *student* is used to refer to bad quality.

(195)   #You student!

In addition to the exclamatory usage, the *you idiot* expressions may be used as vocatives, as noted by Jackendoff (1977:106).

(196)   Come here, you bastard!

As the mood of the *you idiot* expressions is exclamatory, the ungrammaticality of the interrogative use of those sentences in (197) is not surprising. (197c) is supposed to be an intonation yes/no question.

(197)   a.      *Who idiot?

        b.      *Why you idiot?

        c.      *You idiot?

Notice that the subject of the *you idiot* expressions must be a second person pronoun, as exemplified in (198). Notice that the subject pronoun cannot be first person or third person. Proper names and common nouns, and *wh*-words are precluded in the subject position of the *you idiot* expressions.

marker *shi* 'be', see Huang 1988 and the references cited therein.

(198)  a.        *I/He/She idiot!

       b.        *We/They idiots!

       c.        *John/The student idiot!


In copulative sentences in English, the article of singular count predicate nominals cannot be missing. For example, it is ungrammatical if the article *an* of the predicate nominal *idiot* in (199) is missing. On the contrary, the article of predicate nominals must be omitted in the *you idiot* expressions. As shown in (200), the article *an* cannot occur.


(199)  *You are idiot.

(200)  *You an idiot!


In what follows, I will explain why the article of the predicate nominal must be omitted in the *you idiot* expressions in English.


4.9.2  What are the *you idiot* expressions?

One may query whether the *you idiot* expressions are clauses. A possibility is to treat (194) on a par with those nominals in (201), which I call the 'Y*ou guys* expressions' for the ease of presentation.


(201)  a.        you guys


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b.        we linguists


Postal (1969) argues that the two nominal elements, such as *you* and *guys* in (201a), form a nominal and the pronoun in fact is an article. In terms of the DP analysis, the pronoun *you* is the overt realization of D and *guys* is the complement of D (Noguchi 1997, cf. Jackendoff 1977), as represented in (202).


(202)   [$_{DP}$ [$_D$ you][$_{NP}$ guys]]


In what follows, I will show that the *you idiot* expressions and the *you guys* expressions should not be identical.

First of all, the *you guys* expressions can be used in the subject position (=(203a)) and in the object position (=(203b)). However, the *you idiot* expressions can never be used as arguments, as shown in (204).


(203)   a.        You guys will come.

        b.        I saw you guys.

(204)   a.        *You idiot will come.

        b.        *I saw you idiot.


Secondly, Postal (1969:219) shows that the *you guys* expressions can cooccur with restrictive relatives, as in (205). On the contrary, the occurrence of the *you idiot* expressions with the restrictive relatives is ungrammatical, as in (206).

(205)   you men who wish to escape

(206)   *you idiot who wish to escape


Thirdly, Pesetsky (1978) notices that the quantifier *all* may precede the *you guys* expressions, as in (207). On the contrary, *all* cannot precede the *you idiot* expressions, as in (208).


(207)   all us linguists

(208)   *all you idiots


Fourthly, the *you idiot* expressions and the *you guys* expressions differ with respect to the usage of *y'all* 'You-all'. In some dialects of English, *y'all* 'You-all' is the plural form of the second person pronoun. (209) and (210) show that there is a contrast between these two types of expressions.[62]


(209)   *y'all guys

(210)   Y'all idiots!


Last but not least, Postal (1969:217) observes that the pronoun in the *you guys* expressions cannot be singular pronoun (=(211)). As shown by (212), this constraint does

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[62] The judgments are due to Caley O'Dwyer (personal communication).

not hold in the *you idiot* expressions. The pronoun *you* in the *you idiot* expressions can either be plural or singular.

(211)   you guy*(s)

(212)   you idiot(s)

The above discussion can be summarized as the following table.

(213)   Differences between the *you idiot* expressions and the *you guys* expressions

|  | *you idiot* expressions | *you guys* expressions |
|---|---|---|
| subject/object | * | OK |
| restrictive relatives | * | OK |
| modified by *all* | * | OK |
| *y'all* | OK | * |
| singular | OK | * |

Based on these differences, the *you idiot* expressions should not be analyzed as the *you guys* expressions. Given that the two nominal elements in the *you idiot* expressions have a predication relation, I claim that they are clauses.

If my claim is correct, the fact that the *you idiot* expressions are sensitive to the root/subordinate asymmetry is not surprising. The grammaticality judgment suggests that the *you idiot* expressions must occur in the root contexts and they cannot be embedded. Hence, unlike the *you guys* expressions, the *you idiot* expressions are never used as arguments.

If the *you idiot* expressions are analyzed as clauses, the predicate nominal cannot be modified by restrictive clauses because it is a predicate.

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As noted by Pesetsky (1978), the quantifier *all* cannot immediately precede a pronoun. Since the *you guys* expressions are treated as nominals, the quantifier *all* actually has a scope over the nominal. On the other hand, *all* is incompatible with the *you idiot* expressions because *all* has a scope over the subject pronoun, which should be precluded.

If the second person plural pronoun *y'all* occurs only in the argument position, the data from *y'all* strongly support the claim that the *you idiot* expressions are clauses because *you* in *You idiot* is the subject.

Unlike the *you guys* expressions, the *you idiot* expressions do not exhibit the singular/plural asymmetry because *you* in *You idiot* is not D. The plurality requirement of D in the *you guys* expressions could be related to the unspecified reference of plural pronouns, as suggested by Ken Hale (cited in Pesetsky 1978:352).

4.9.3 Bareness of the predicate nominal: a small clause analysis

I have argued that the *you idiot* expressions should not be treated on a par with the *you guys* expressions. I assume that the *you idiot* expressions are small clauses. Particularly, they are bare small clause. The syntactic representation of (214) (=(194a)) should be (215).

(214)  You idiot!

(215)  $[_{SC}$ Gen$_i$ $[_{NP}$ you idiot$_i$]]]

The predicate nominal *idiot* is the head of the bare lexical projection and *you* is the subject of the small clause. In (215), there is only one referential element, namely *idiot*, which is θ-bound by the generic operator Gen. On the other hand, if the predicate nominal has D, the predicate nominal will be θ-bound by D, as represented in (216). Therefore, the operator Gen becomes vacuous, which should be precluded by FI.

(216)   *Gen [Subj [D$_i$ N$_i$]]

(217)   *You an idiot!

The test of sentential adverbs supports my claim that the *you idiot* expressions are bare small clauses. Sentential adverbs, which are assumed to be licensed by a functional projection, are not allowed to enter the *you idiot* expressions.

(218)   a.      *You probably idiot!

        b.      *Probably you idiot!

Recall that the *you idiot* expressions may be used as vocatives. I assume that the vocative use of bare nouns is derived from dropping the subject in the bare small clause. The representation of (219) should be (220) in which the small clause subject is an empty pronominal.

(219)   Idiot!

(220)   [$_{SC}$ Gen$_i$ [$_{NP}$ *pro* [$_{N'}$ idiot$_i$]]]

One piece of evidence to support my claim that there is a *pro* in (219) comes from the fact that it is felicitous to use (219) to refer to second person. It sounds unnatural if (219) is used to refer to first person or third person.[63] The empty pronominal subject behaves exactly the same as the overt pronominal subject in the *you idiot* expressions (cf. (198)).

If my observation of the vocatives is correct, the ungrammaticality of adding D to the vocatives can be accounted for. Longobardi (1994:626) notes that the vocatives in Italian cannot have D. (221b) shows that the definite article *il* 'the' in the vocatives is precluded.[64] He stipulates that vocative/predicative nominals are bare NPs instead of DPs. My analysis may account for his stipulation.

(221)  a.      Mio caro Gianni, vieni qui!
               my  dear  Gianni  come here

       b.      *Il   Gianni, vieni  qui!
                the Gianni   come here

In sum, I have argued that the *you idiot* expressions are bare lexical projections. The ungrammaticality of the occurrence of D of the predicate nominal in the *you idiot* expressions is attributed to the violation of FI, coupled with θ-binding.

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[63] The vocative use of bare nouns in (219) and (i) seem to be in complementary distribution with respect to the addressees. As pointed out by Carson Schütze (personal communication), (i) refers only to third person.
(i)        What an idiot!
[64] However, it is not clear why the vocatives can have an article in French, as noted by Longobardi (1994:fn20).
(i)        Les enfants, venez      ici!
           the  kids     come(Imp) here

A question arises: Why can the subject merge with the predicate nominal directly, assuming that nouns are <N> in English? Though English nouns are substantive, the substantive nature could be overridden by discourse in some particular registers, such as in the *you idiot* expressions. I assume that in 'marked' contexts a secondary categorial feature [V] may be assigned to English nouns optionally when they enter the numeration and they could become predicative. For example, only a subset of nouns that have an 'evaluative meaning', such as *idiot*, *bastard*, *jerk*, and *pretty young lady*, can be the predicate nominal of the *you idiot* expressions.

# CHAPTER 5

## AN EPILOGUE

What can be parametrized in syntax? In this study, I have proposed a restrictive theory of parameters of Universal Grammar in terms of the principles-and-parameters approach, which I call the 'Overt Parametrization Hypothesis' (OPH), as repeated below.

(1)     *Overt Parametrization Hypothesis*
        Features that play a role only in the covert component are invariant across languages; features that may play a role in the derivation from N to $\pi$ are subject to cross-linguistic variation.

There are four types of features in the present framework: semantic features, phonetic features, categorial features, and affix features. Among all these features, semantic features should be universal and their existence has to be assured in the lexicon of every language. According to the OPH, phonetic features, categorial features, and affix features are the only source that determines language-specific variations.

Given that phonetic features, categorial features, and affix features are the features that can be parametrized, I have also proposed how they can be parametrized.

(2)     *Possible parameters permitted by Universal Grammar*
        a.   where features are assigned (affix features)
        b.   the presence or absence of features (phonetic features and affix features)
        c.   the combination of features (categorial features)

Affix features that are semantically-oriented are called 'inflectional affix features' and those that are purely phonological are called 'phonological affix features'. Affix features could be associated with a word when it enters the numeration N or in the derivation. In chapter 2, I have argued that if an inflectional affix feature is assigned to a word as it is selected for N, the word has 'rich' morphology when it is introduced into the derivation, and must undergo movement in the phonological component. If an inflectional affix feature is combined with a word in the derivation, the word is morphologically 'impoverished' when it is introduced into the derivation, and must move to check off the inflectional affix feature before Spell-Out. Movement is largely determined by morphology: movement in the overt component can be signaled by 'impoverished' morphology; movement of morphologically 'rich' elements takes place in the phonological component. Under this approach, a variety of syntactic differences such as V movement in English, French, and Japanese, and T-to-C movement and TP movement in Chinese (Cantonese and Mandarin), English, and Japanese, can be accounted for.

I have also suggested that the Case particle system is a 'last resort' strategy offered by Universal Grammar to mark the thematic relation of the derivation at Spell-Out. The implication is that if there is V movement triggered by inflectional affix features in a language, the particle system for accusative Case should not be available. In sum, typological differences with respect to movement and Case assignment should lie in where inflectional affix features are associated with the verb.

Based on the idea of parametrization of affix features, in chapter 3, I claim that T

has an affix feature [-V] in English but such an affix feature is missing in Chinese.

Consequently, there is no V-to-T movement in Chinese. The path of V movement in

Chinese is shorter than the path of V movement in English: V moves out of *v*P in English

but not in Chinese. A number of apparently disparate differences between these two

languages, including postverbal *no*-phrases, the distribution of focus elements, binominal

*each*, the 'SOV' focalization construction, scopal ambiguity of quantifiers, definiteness

of preverbal numeral phrases, gapping, and heavy NP shift, receive a unified explanation.

The data presented as evidence for the claim that categorial features are subject to

parametric variation are primarily based on small clauses in Chinese, English, and

Japanese. It is argued that Chinese small clauses are bare, English small clauses are not-

so-bare, and Japanese small clauses have both. The major typological differences among

these languages regarding the structure of small clauses are derived from a parameter

related to the combination of categorial features of nouns and adjectives. I have argued

that Chinese nouns and adjectives are <N, V> and <V>, respectively. Both English nouns

and adjectives are <N>. In Japanese, nouns and adjectival nouns are <N> (without *-ni*)

and <N, V> (with *-ni*) and adjectives are <V> (without *-k*) and <N, V> (with *-k*). My

analysis not only accounts for the different structure of small clauses but also has a

correct prediction of the (non)existence of copula in Chinese, English, and Japanese. The

findings lend support to the OPH.

The rationale for the OPH is that overt properties may differ across languages.

The OPH is compatible with a fundamental assumption in the Minimalist Program that

variation must be determined by visible and detectable properties. An implication is that

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phonological properties are 'extraneous' to the computational system inducing

parametric variation and departures from 'perfection' in human languages. Language is a

perfect system.

# REFERENCES

Abney, Steven Paul. 1987. The English noun phrase in its sentential aspect. Doctoral dissertation, MIT.

Agbayani, Brian, and Sze-Wing Tang. 1997. A theory of category movement and its applications: some notes on the architecture of small clauses in Chinese and English. Handout of talk given at Workshop on Theoretical East Asian Linguistics, May 17, University of California, Irvine.

Aoun, Joseph, and Yen-hui Audrey Li. 1989. Scope and constituency. *Linguistic Inquiry* 20: 141-172.

Aoun, Joseph, and Yen-hui Audrey Li. 1993. *Wh*-elements in situ: syntax or LF? *Linguistic Inquiry* 24: 199-238.

Aoyagi, Hiroshi. 1997. On the nature of particles in Japanese and its theoretical implications. Doctoral dissertation, University of Southern California.

Baker, C. L. 1970. Notes on the description of English questions: the role of an abstract question morpheme. *Foundations of Language* 6: 197-219.

Baker, Mark C. 1997. Thematic roles and syntactic structure. In Liliane Haegeman ed., *Elements of grammar: handbook in generative syntax*, 73-137. Dordrecht: Kluwer Academic Publishers.

Bayer, Josef. 1996. *Directionality and logical form: on the scope of focusing particles and wh-in-situ*. Dordrecht: Kluwer Academic Publishers.

Bhatt, Rakesh, and James Yoon. 1992. On the composition of Comp and parameters of V2. In Dawn Bates ed., *The Proceedings of the Tenth West Coast Conference on Formal Linguistics*, 41-52. Stanford: CSLI.

Bobaljik, Jonathan David. 1995. Morphosyntax: the syntax of verbal inflection. Doctoral dissertation, MIT.

Borer, Hagit. 1984. *Parametric syntax: Case studies in Semitic and Romance languages*. Dordrecht: Foris Publications.

Borer, Hagit. 1998. The grammar machine: a view of acquisition from the top. Talk given at the Syntax of Semitic Languages, University of Southern California.

Bowers, John. 1993. The syntax of predication. *Linguistic Inquiry* 24: 591-656.

Bresnan, Joan W. 1970. On complementizers: toward a syntactic theory of complement types. *Foundations of Language* 6: 297-321.

Bresnan, Joan W. 1973. Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4: 275-343.

Carlson, Gregory N. 1977. Reference to kinds in English. Doctoral dissertation, University of Massachusetts, Amherst.

Carlson, Gregory N. 1995. Truth conditions of generic sentences: two contrasting views. In Gregory N. Carlson and Francis Jeffry Pelletier, eds., *The generic book*, 224-237. Chicago and London: The University of Chicago Press.

Chan, Marjorie K. M. 1996. Gender-marked speech in Cantonese: the case of sentence-final particles *je* and *jek. Studies in the Linguistic Sciences* 26(1/2): 1-38.

Chang, Shu-Min, and Ting-Chi Tang. 1995. Hanyu kongzhi dongci buyu ziju de jiegou fenxi (The structure analysis of complement clauses of control verbs in Chinese). In Tsai-Fa Cheng, Yafei Li, and Hongming Zhang, eds., *Proceedings of 7th North American Conference on Chinese Linguistics and 5th International Conference on Chinese Linguistics Volume 1*, 19-35. Los Angeles: GSIL, University of Southern California.

Chao, Yuen-Ren. 1968. *A grammar of spoken Chinese*. Berkeley and Los Angeles: University of California Press.

Chen, Matthew Y. 1987. The syntax of Xiamen tone sandhi. *Phonology Yearbook* 4: 109-149.

Cheng, Lisa Lai-Shen. 1989. Aspectual licensing of pro in Mandarin Chinese. Ms., MIT.

Cheng, Lisa Lai-Shen. 1991. On the typology of *wh*-questions. Doctoral dissertation, MIT.

Cheng, Lisa Lai-Shen. 1994. *Wh*-words as polarity items. In Paul Jen-Kuei Li, Chu-Ren Huang, and C.-C. Jane Tang, eds., *Chinese Languages and Linguistics 2*, 615-640. Taipei: Academia Sinica.

Cheng, Lisa L.-S. 1997. On possession in Cantonese, Mandarin and Taiwanese. Handout of talk given at the Sixth International Conference on Chinese Linguistics, Leiden University.

Cheng, Lisa L.-S., C.-T. James Huang, Y.-H. Audrey Li, and C.-C. Jane Tang. 1996. *Hoo, hoo, hoo*: syntax of the causative, dative, and passive constructions in Taiwanese. Ms., University of California, Irvine, University of Southern California, and Academia Sinica.

Cheng, Lisa L.-S., and Rint Sybesma. 1997a. *Yi-wan tang, yi-ge Tang*: classifiers and massifiers. To appear in *Tsing Hua Journal of Chinese Studies*.

Cheng, Lisa L.-S., and Rint Sybesma. 1997b. Bare and not-so-bare nouns and the structure of NP. Ms., University of California, Irvine, and HIL/Leiden University.

Cheung, Samuel Hung-nin. 1972. *Xianggang Yueyu yufa de yanjiu* (Cantonese as spoken in Hong Kong). Hong Kong: The Chinese University of Hong Kong.

Chierchia, Gennaro. 1984. Topics in the syntax and semantics of infinitives and gerunds. Doctoral dissertation, University of Massachusetts, Amherst.

Chierchia, Gennaro. 1995. Individual-level predicates as inherent generics. In Gregory N. Carlson and Francis Jeffry Pelletier, eds., *The generic book*, 176-223. Chicago and London: The University of Chicago Press.

Chiu, Bonnie Hui-Chun. 1993. The inflectional structure of Mandarin Chinese. Doctoral dissertation, University of California, Los Angeles.

Choe, Jae-Woong. 1987. Anti-quantifiers and a theory of distributivity. Doctoral dissertation, University of Massachusetts, Amherst.

Chomsky, Noam. 1957. *Syntactic structures*. The Hague: Mouton.

Chomsky, Noam. 1970. Remarks on nominalization. In R. Jacobs and P. Rosenbaum, eds., *Readings in English transformational grammar*. Waltham, Mass.: Ginn.

Chomsky, Noam. 1973. Conditions on transformation. In A. Anderson and P. Kiparsky, eds., *A festschrift for Morris Halle*. Stanford: Stanford Linguistics Association.

Chomsky, Noam. 1977. On *wh*-movement. In P. Culicover, T. Wasow, and A. Akmajian, eds., *Formal syntax*. New York: Academic Press.

Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris
        Publications.
Chomsky, Noam. 1986a. *Knowledge of language: Its nature, origin, and use*. New York:
        Praeger.
Chomsky, Noam. 1986b. *Barriers*. Cambridge, Mass.: The MIT Press.
Chomsky, Noam. 1991. Some notes on economy of derivation and representation. In
        Robert Freidin, ed., *Principles and parameters in comparative grammar*, 417-
        454. Cambridge, Mass.: The MIT Press.
Chomsky, Noam. 1993. A minimalist program for linguistic theory. In Kenneth Hale and
        Samuel Jay Keyser, eds., *The view from Building 20: essays in linguistics in
        honor of Sylvain Bromberger*, 1-52. Cambridge, Mass.: The MIT Press.
Chomsky, Noam. 1994. Bare phrase structure. *MIT Occasional Papers in Linguistics 5*.
        Cambridge, Mass.: MIT Working Papers in Linguistics.
Chomsky, Noam. 1995. Categories and transformation. In *The Minimalist Program*. 219-
        394. Cambridge, Mass.: The MIT Press.
Chomsky, Noam. 1996. Some observations on economy in generative grammar. Ms.,
        MIT.
Christensen, K. K. 1986. Norwegian *ingen*: a case of post-syntactic lexicalization. In O.
        Dahl and A. Holmberg, eds., *Scandinavian syntax*, 21-35. Stockholm: Institute of
        Linguistics, University of Stockholm.
Cinque, Guglielmo. 1996. Adverbs and the universal hierarchy of functional projections.
        Ms.
Cole, Peter. 1976. An apparent asymmetry in the formation of relative clauses in Modern
        Hebrew. In Peter Cole ed., *Studies in Modern Hebrew syntax and semantics: the
        transformational-generative approach*, 231-247. Amsterdam: North-Holland
        Publishing Company.
Cole, Peter, Gabriella Hermon, and Li-May Sung. 1990. Principle and parameters of
        long-distance reflexives. *Linguistic Inquiry* 21: 1-22.
Collins, Chris. 1997. *Local economy*. Cambridge, Mass.: The MIT Press.
Comrie, Bernard. 1985. *Tense*. Cambridge: Cambridge University Press.
Contreras, Heles. 1995. Small clauses and complex predicates. In Anna Cardinaletti and
        Maria Teresa Guasti, eds., *Syntax and semantics 28*, 135-152. San Diego:
        Academic Press.
Corver, Norbert. 1991. Evidence for DegP. In Tim Sherer, ed., *Proceedings of the North
        Eastern Linguistics Society 21*, 33-47. Amherst, Mass.: GSLA.
Corver, Norbert. 1997. *Much*-support as a last resort. *Linguistic Inquiry* 28: 119-164.
Costa, João. 1991. Scrambling in European Portuguese. In Benjamin Bruening, ed., *MIT
        Working Papers in Linguistics 31: Proceedings of the Eighth Student Conference
        in Linguistics*, 95-114. Cambridge, Mass.: MITWPL.
Déchaine, Rose-Marie. 1993. Predicates across categories. Doctoral dissertation,
        University of Massachusetts, Amherst.
Diesing, Molly. 1992. *Indefinites*. Cambridge, Mass.: The MIT Press.
Diesing, Molly. 1997. Yiddish VP order and the typology of object movement in
        Germanic. *Natural Language and Linguistic Theory* 15: 369-427.
Doron, Edit. 1986. The pronominal 'copula' as agreement clitic. In Hagit Borer ed.,
        *Syntax and semantics 19*, 313-332. San Diego: Academic Press, Inc.

Emonds, Joseph. 1978. The verbal complex V'-V in French. *Linguistic Inquiry* 9: 151-175.

Enç, Mürvet. 1991. The semantics of specificity. *Linguistic Inquiry* 22: 1-25.

Enç, Mürvet. 1996. Tense and modality. In Shalom Lappin ed., *The handbook of contemporary semantic theory*, 345-358. Oxford: Blackwell.

Ernst, Thomas, and Chengchi Wang. 1995. Object preposing in Mandarin Chinese. *Journal of East Asian Linguistics* 4: 235-260.

Fan, Fanglian. 1963. Cunzai ju (existential sentences). *Zhongguo Yuwen* 5: 392.

Fiengo, Robert, and James Higginbotham. 1981. Opacity in NP. *Linguistic Analysis* 7, 395-421.

Freeze, R. 1992. Existentials and other locatives. *Language* 68: 553-596.

Fukui, Naoki. 1986. A theory of category projection and its applications. Doctoral dissertation, MIT.

Fukui, Naoki. 1988. Deriving the differences between English and Japanese: a case study in parametric syntax. *English Linguistics* 5: 249-270.

Fukui, Naoki. 1995. The principles-and-parameters approach: a comparative syntax of English and Japanese. In Masayoshi Shibatani and Theodora Bynon, eds., *Approaches to language typology*, 327-372. Oxford: Clarendon Press.

Fukui, Naoki, and Margaret Speas. 1986. Specifiers and projections. In *MIT Working Papers in Linguistics* 8: 128-172. Cambridge, Mass.: MITWPL.

Fukui, Naoki, and Taisuke Nishigauchi. 1992. Head-movement and Case-marking in Japanese. *Journal of Japanese Linguistics* 14: 1-35.

Fukui, Naoki, and Yuji Takano. 1998. Symmetry in syntax: merge and demerge. *Journal of East Asian Linguistics* 7: 27-86.

Gerdts, Donna B. 1990. Relational visibility. In Katarzyna Dziwirek, Patrick Farrel, and Errapel Mejías-Bikandi, eds., *Grammatical relations: a cross-theoretical perspective*, 199-214. Stanford: CSLI.

Gleitman, Lila R. 1990. The structural sources of word meaning. *Language acquisition* 1(1): 3-55.

Glinert, Lewis. 1989. *The grammar of Modern Hebrew*. Cambridge: Cambridge University Press.

Griffith, Teresa A. 1996. Projecting transitivity and agreement. Doctoral dissertation, University of California, Irvine.

Grimshaw, Jane. 1981. Form, function, and the language acquisition device. In C. L. Baker and John McCarthy, eds., *The logical problem of language acquisition*. Cambridge, Mass.: MIT Press.

Grimshaw, Jane. 1991. Extended projection. Ms., Brandeis University.

Grimshaw, Jane. 1993. Minimal projection, heads, and Optimality. Ms., Rutgers University.

Groat, Erich, and John O'Neil. 1996. Spell-Out at the LF interface: achieving a unified syntactic computational system in the minimalist framework. In Werner Abraham, Samuel David Epstein, Höskuldur Thráinsson, and C. Jan-Wouter Zwart, eds., *Minimal ideas*, 113-139. Amsterdam: John Benjamins Publishing Company.

Gu, Yang. 1992. The syntax of resultative and causative compounds in Chinese. Doctoral dissertation. Cornell University.

Gu, Yang. 1995. Aspect licensing, verb movement and feature checking. *Cahiers de Linguistique Asie Orientale* 24(1), 49-83.

Gu, Yang. 1997. Nominals in locative existential constructions: a probe into argument structure and argument structure change. Paper presented at Interface Strategies in Chinese: Syntax and Semantics of Noun Phrases, Cornell University.

Guéron, Jacqueline, and Teun Hoekstra. 1995. The temporal interpretation of predication. In Anna Cardinaletti and Maria T. Guasti, eds., *Syntax and semantics 28*, 77-107. San Diego: Academic Press.

Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical representation of syntactic relations. In Kenneth Hale and Samuel Jay Keyser, eds., *The view from Building 20: essays in linguistics in honor of Sylvain Bromberger*, 53-109. Cambridge, Mass.: The MIT Press.

Halle, Morris, and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In Kenneth Hale and Samuel Jay Keyser, eds., *The view from Building 20: essays in linguistics in honor of Sylvain Bromberger*, 111-176. Cambridge, Mass.: The MIT Press.

Halle, Morris, and Alec Marantz. 1994. Some key features of Distributed Morphology. In Andrew Carnie and Heidi Harley, eds., *MIT Working Papers in Linguistics 21*, 275-288. Cambridge, Mass.: MITWPL.

Hankamer, Jorge. 1973. Unacceptable ambiguity. *Linguistic Inquiry* 4: 17-68.

Hankamer, Jorge. 1979. *Deletion in coordinate structures*. New York: Garland Publishing, Inc.

Harada, S.-I. 1976. Honorifics. In Masayoshi Shibatani, ed., *Syntax and semantics 5*, 499-561. New York: Academic Press.

Harada, Naomi. 1998. Interactions of functional and lexical categories: a theory of the lexicon of UG. Ms., University of California, Irvine.

He, Yang. 1996. Xingrongci yu bujiwu dongci de qufen (Distinctions between adjectives and intransitive verbs). In Mingyang Hu ed., *Cilei wenti kaocha* (Studies on issues of categories). Beijing: Beijing Yuyan Xueyuan Chubanshe.

Heim, Irene R. 1982. The semantics of definite and indefinite noun phrases. Doctoral dissertation, University of Massachusetts, Amherst.

Heycock, Caroline. 1991. Layers of predication: the non-lexical syntax of clauses. Doctoral dissertation. University of Pennsylvania.

Higginbotham, James. 1983. The logic of perceptual reports: an extensional alternative to situation semantics. *Journal of Philosophy* 80: 100-127.

Higginbotham, James. 1985. On semantics. *Linguistic Inquiry* 16: 547-593.

Higginbotham, James. 1987. Indefiniteness and predication. In Eric J. Reuland and Alice G. B. ter Meulen, eds., *The Representation of (in)definite*, 43-70. Cambridge, Mass.: The MIT Press.

Hornstein, Norbert. 1995. *Logical Form: from GB to Minimalism*. Oxford and Cambridge, Mass.: Blackwell.

Hornstein, Norbert, and David Lightfoot. 1987. Predication and PRO. *Language* 63: 23-52.

Hornstein, Norbert, and Amy Weinberg. 1981. Case theory and preposition stranding. *Linguistic Inquiry* 12: 55-91.

Horvath, Julia. 1995. Structural focus, structural Case, and the notion of feature-assignment. In Katalin É. Kiss, ed., *Discourse configurational languages*, 28-64. New York and Oxford: Oxford University Press.

Hu, Mingyang. 1981. Beijinghua de yuqi zhuci he tanci (Modal particles and interjections in the Beijing dialect). *Zhongguo Yuwen* 5: 347-350, 6: 416-423.

Huang, C.-T. James. 1982. Logical relations in Chinese and the theory of grammar. Doctoral dissertation. MIT.

Huang, C.-T. James. 1987. Existential sentences in Chinese and (in)definiteness. In Eric J. Reuland and Alice G. B. ter Meulen, eds., *The representation of (in)definiteness*, 226-253. Cambridge, Mass.: The MIT Press.

Huang, C.-T. James. 1988. Shuo 'shi' he 'you' (On 'be' and 'have' in Chinese). *The Bulletin of the Institute of History and Philology, Academia Sinica* 59.1: 43-64.

Huang, C.-T. James. 1991. Verb movement, (in)definiteness, and the thematic hierarchy. In Paul Jen-Kuei Li, Chu-Ren Huang, and Ying-Chin Lin, eds., *Proceedings of the Second International Symposium on Chinese Languages and Linguistics*, 481-498. Taipei: Academia Sinica.

Huang, C.-T. James. 1992. Complex predicates in control. In Richard K. Larson, Sabine Iatridou, Utpal Lahiri, and James Higginbotham, eds., *Control and grammar*, 109-147. Dordrecht: Kluwer Academic Publishers.

Huang, C.-T. James. 1993. Reconstruction and the structure of VP: some theoretical consequences. *Linguistic Inquiry* 24: 103-138.

Huang, C.-T. James. 1994a. Verb movement and some syntax-semantics mismatches in Chinese. In Paul Jen-Kuei Li, Chu-Ren Huang, and C.-C. Jane Tang, eds., *Chinese Languages and Linguistics 2*, 587-613. Taipei: Academia Sinica.

Huang, C.-T. James. 1994b. More on Chinese word order and parametric theory. In Barbara Lust, Margarita Suñer, and John Whitman, eds., *Syntactic theory and first language acquisition: cross-linguistic perspectives, volume 1 heads, projections, and learnability*, 15-35. Hillsdale, NJ.: Lawrence Erlbaum Associates, Publishers.

Huang, C.-T. James. 1995. Logical Form. In Gert Webelhuth ed., *Government and binding theory and the Minimalist Program: principles and parameters in syntactic theory*, 125-175. Oxford and Cambridge, Mass.: Basil Blackwell Ltd.

Huang, C.-T. James. 1997a. On lexical structure and syntactic projection. In Feng-fu Tsao and H. Samuel Wang, eds., *Chinese Languages and Linguistics 3*, 45-89. Taipei: Academia Sinica.

Huang, C.-T. James. 1997b. Japan cannot say 'No-'. Handout of talk given at Workshop on Japanese Syntax in a Comparative Context, LSA Linguistic Institute, Cornell University.

Huang, C.-T. James. 1997c. Chinese passives in comparative perspective. Ms., University of California, Irvine.

Ikawa, Hajime. 1996. Overt movement as a reflex of morphology. Doctoral dissertation, University of California, Irvine.

Ishii, Toru. 1997. An asymmetry in the computation of phrase structure and its consequences. Doctoral dissertation, University of California, Irvine.

Jackendoff, Ray S. 1972. *Semantic interpretation in generative grammar*. Cambridge, Mass.: The MIT Press.

Jackendoff, Ray. 1977. *X' syntax: A study in phrase structure*. Cambridge, Mass.: The MIT Press.

Johnson, Kyle. 1991. Object position. *Natural Language and Linguistic Theory* 9, 577-636.

Johnson, Kyle. 1994. Bridging the gap. Ms., University of Massachusetts, Amherst.

Kallulli, Dalina. 1997. NP predicates. In Ralph C. Blight and Michelle J. Moosally, eds., *Texas Linguistic Forum 38: the syntax and semantics of predication*, 173-188. Austin: Department of Linguistics, The University of Texas at Austin.

Kayne, Richard S. 1981. Unambiguous paths. In Robert May and Jan Koster, eds., *Levels of syntactic representation*, 143-183. Dordrecht: Foris Publications.

Kayne, Richard S. 1994. *The antisymmetry of syntax*. Cambridge, Mass.: The MIT Press.

Kayne, Richard S. 1998. Overt vs. covert movement. Ms., New York University.

Kikuchi, Akira, and Daiko Takahashi. 1991. Agreement and small clauses. In Heizo Nakajima and Shigeo Tonoike, eds., *Topics in small clauses: Proceedings of Tokyo Small Clause Festival*, 75-195. Tokyo: Kurosio Publishers.

Kitagawa, Yoshihisa. 1985. Small but clausal. In William H. Eilfort, Paul D. Kroeber, and Karen L. Peterson, eds., *Papers from the general session at the Twenty First Regional Meeting of Chicago Linguistics Society*, 210-220. Chicago: Chicago Linguistics Society.

Kitahara, Hisatsugu. 1996. Raising quantifiers without quantifier raising. In Werner Abraham, Samuel David Epstein, Höskuldur Thráinsson, and Jan-Wouter Zwart, eds., *Minimal ideas: syntactic studies in the minimalist framework*,189-198. Amsterdam and Philadelphia: John Benjamins Publishing Company.

Klima, Edward S. 1964. Negation in English. In J. Fodor and J. Katz, eds., *The structure of language*, 246-323. Englewood Cliffs: Prentice-Hall.

Koizumi, Masatoshi. 1995. Phrase structure in minimalist syntax. Doctoral dissertation, MIT.

Koopman, Hilda. 1984. *The syntax of verbs*. Dordrecht: Foris.

Koopman, Hilda. 1996. The Spec head configuration. In Edward Garrett and Felicia Lee, eds., *Syntax at Sunset, UCLA working papers in linguistics 1*, 37-64. Los Angeles: University of California, Los Angeles.

Kratzer, Angelika. 1989. Stage-level and individual-level predicates. In Emmon Bach, Angelika Kratzer, and Barbara Partee, eds., *Papers on quantification*, 147-221. Amherst: GLSA.

Kreps, Christian. 1994. Another look at small clauses. *UCL Working Papers in Linguistics 6*, 149-177.

Krifka, Manfred, et al. 1995. Genericity: an introduction. In Gregory N. Carlson and Francis Jeffry Pelletier, eds., *The generic book*, 1-124. Chicago and London: The University of Chicago Press.

Kubo, Miori. 1992. Japanese syntactic structure and their constructional meanings. Doctoral dissertation, MIT.

Kuno, Susumu. 1973. Constraints on internal clauses and sentential subjects. *Linguistic Inquiry* 4, 363-385.

Kuroda, S.-Y. 1992. Judgment forms and sentence forms. In *Japanese syntax and semantics: Collected papers*. 13-77. Dordrecht: Kluwer Academic Publishers.

Kuroda, S.-Y. 1988. Whether we agree or not: a comparative syntax of English and Japanese. *Linvisticae Investigationes* 12: 1-47. Reprinted in *Japanese syntax and semantics: Collected papers*. 315-357. Dordrecht: Kluwer Academic Publishers.

Kwok, Helen. 1984. *Sentence particles in Cantonese*. Hong Kong: Center of Asian Studies, University of Hong Kong.

Laka, Itziar. 1994. *On the syntax of negation*. New York and London: Garland Publishing, Inc.

Larson, Richard K. 1985. On the syntax of disjunction scope. *Natural Language and Linguistic Theory* 3: 217-264.

Larson, Richard K. 1988. On the double object construction. *Linguistic Inquiry* 19: 335-391.

Lasnik, Howard. 1995. Verbal morphology: *Syntactic Structures* meets the Minimalist Program. In Héctor Campos and Paula Kempchinsky, eds., *Evolution and revolution in linguistic theory*, 251-275. Washington, D.C.: Georgetown University Press.

Lasnik, Howard, and Mamoru Saito. 1984. On the nature of proper government. *Linguistic Inquiry* 14: 235-289.

Lasnik, Howard, and Mamoru Saito. 1992. Move α: conditions on its application and output. Cambridge, Mass.: The MIT Press.

Law, Sam-Po. 1990. The syntax and phonology of Cantonese sentence-final particles. Doctoral dissertation, Boston University.

Lee, Thomas Hun-tak. 1986. Studies on quantification in Chinese. Doctoral dissertation, University of California, Los Angeles.

Li, Charles N., and Sandra A. Thompson. 1981. *Mandarin Chinese: a functional reference grammar*. Berkeley and Los Angeles: University of California Press.

Li, Mei-Du. 1988. *Anaphoric structures of Chinese*. Taipei: Student Book Co., Ltd.

Li, Xiaoguang. 1997. Deriving distributivity in Mandarin Chinese. Doctoral dissertation, University of California, Irvine.

Li, Xinkui, et al. 1995. *Guangzhou fangyan yanjiu* (Studies on the Guangzhou dialect). Guangdong Renmin Chubanshe.

Li, Yen-hui Audrey. 1987. Duration phrases: distributions and interpretations. *Journal of the Chinese Language Teachers Association* 22(3): 27-56.

Li, Yen-hui Audrey. 1990. *Order and constituency in Mandarin Chinese*. Dordrecht: Kluwer Academic Publishers.

Li, Yen-hui Audrey. 1992. Indefinite *Wh* in Mandarin Chinese. *Journal of East Asian Linguistics* 1: 125-155.

Li, Yen-hui Audrey. 1996. A number projection. Ms., University of Southern California.

Lin, Jonah Tzong-Hong. 1997. Quantificational force parameter and the determiner *ge* in Chinese. Paper presented at Interface Strategies in Chinese: Syntax and Semantics of Noun Phrases, Cornell University.

Longobardi, Giuseppe. 1994. Reference and proper names: a theory of N-movement in syntax and Logical Form. *Linguistic Inquiry* 25: 609-665.

Lu, Hui-chuan. 1994. Preverbal NPs in Spanish and Chinese. Doctoral dissertation, University of California, Los Angeles.

Lü, Shuxiang, et al. 1980. *Xiangdai Hanyu babaici* (800 words in modern Chinese). Beijing: Commercial Press.

Lü, Shuxiang. 1982. *Zhongguo wenfa yaolue* (Essentials of Chinese grammar). Beijing: Commercial Press.

Lü, Shuxiang. 1984. *Hanyu yufa lunwenji* (Essays on Chinese grammar). Shangwu Yinshuguan.

Ma, Qingzhu. 1993. *Hanyu dongci he dongcixing jiegou* (Chinese verbs and verbal constructions). Beijing: Beijing Yuyan Xueyuan Chubanshe.

Mahajan, Anoop. 1990. The A/A-bar distinction and movement theory. Doctoral dissertation, MIT.

Mahajan, Anoop. 1992. The specificity condition and the CED. *Linguistic Inquiry* 23: 510-516.

Matthews, Stephen, and Virginia Yip. 1994. *Cantonese: a comprehensive grammar*. London and New York: Routledge.

May, Robert. 1977. The grammar of quantification. Doctoral dissertation, MIT.

May, Robert. 1985. *Logical form*. Cambridge, Mass.: The MIT Press.

Melvold, Janis. 1991. Factivity and definiteness. In Lisa L.-S. Cheng and Hamida Demirdash, eds., *MIT working papers in linguistics 15*, 97-117. Cambridge, Mass.: MITWPL.

Miyagawa, Shigeru. 1987. Lexical categories in Japanese. *Lingua* 73: 29-51.

Miyagawa, Shigeru. 1997. Against optional scrambling. *Linguistic Inquiry* 28: 1-25.

Moltmann, Friederike. 1991. On the syntax and semantics of binary distributive quantifiers. In Tim Sherer ed., *Proceedings of the North East Linguistic Society 21*, 279-292. Amherst: GLSA.

Moro, Andrea. 1995. Small clauses with predicative nominals. In Anna Cardinaletti and Maria Teresa Guasti, eds., *Syntax and semantics 28*, 109-132. San Diego: Academic Press.

Muromatsu, Keiko. 1995. The classifier as a primitive: individuation, referability, and argumenthood. In Ricardo Echepare and Viola Miglio, eds., *University of Maryland working papers in linguistics 3*, 144-180. College Park: Linguistics Department, University of Maryland.

Nakayama, Mineharu. 1988. Empty copulas. In Yukio Otsu ed., *Mita Working Papers in Psycholinguistics 1*, 121-128. Tokyo: Mita Psycholinguistics Circle, Keio University.

Nishiyama, Kunio. 1998. The morphosyntax and morphophonology of Japanese predicates. Doctoral dissertation, Cornell University.

Noguchi, Tohru. 1997. Two types of pronouns and variable binding. *Language* 73: 770-797.

Noji, Miyuki. 1997. Objective Case checking and parametric variation. *English Linguistics* 14: 129-158.

Ôno, Susumo. 1988. *Nihongo no bunpoo: kotenhen* [The grammar of Japanese: the classical]. Tokyo: Kadokawa Shoten.

Ota, Tatsuo. 1987. *Zhongguoyu lishi wenfa* (Chinese Historical Grammar). Translated by Shaoyu Jiang and Changhua Xu. Beijing: Beijing University Press.

Partee, Barbara H. 1973. Some structural analogies between tenses and pronouns in English. *The Journal of Philosophy* 70: 601-609.

Paul, Waltraud. 1996. Verb raising in Chinese. In Chin-chuan Cheng et al eds., *Proceedings of the Eighth North American Conference on Chinese Linguistics, Volume 1*, 260-276. Los Angeles: Graduate Students in Linguistics, USC.

Pesetsky, David. 1978. Category switching and so-called so-called pronouns. In Donka Farkas, Wesley M. Jacobsen, and Karol W. Todrys, eds., *Papers from the Fourteenth Regional Meeting Chicago Linguistic Society*, 350-361. Chicago: Chicago Linguistic Society.

Pesetsky, David. 1984. Extraction domains and a surprising subject/object asymmetry. *GLOW Newsletter* 12: 58-60.

Pinker, Stephen. 1984. *Language learnability and language development*. Cambridge, Mass.: Harvard University Press.

Pollock, Jean-Yves. 1989. Verb movement, Universal Grammar, and the structure of IP. *Linguistic Inquiry* 20: 365-424.

Postal, Paul M. 1969. On so-called 'pronouns' in English. In David A. Reibel and Sanford A. Schane, eds., *Modern studies in English*, 201-224. Englewood Cliffs, NJ.: Prentice-Hall, Inc.

Progovac, Ljiljana. 1994. *Negative and positive polarity: a binding approach*. Cambridge: Cambridge University Press.

Qu, Yanfeng. 1994. Object noun phrase dislocation in Mandarin Chinese. Doctoral dissertation, The University of British Columbia.

Quirk, Randolph, Sudney Greenbaum, Geoffrey Leech, and Jan Svartvik. 1972 *A grammar of contemporary English*. London: Longman.

Radford, Andrew. 1990. *Syntactic theory and the acquisition of English syntax*. Oxford: Basil Blackwell.

Rapoport, Tova Rebecca. 1987. Copular, nominal, and small clauses. Doctoral dissertation, MIT.

Rapoport, T. R. 1995. Specificity, objects, and nominal small clauses. In Anna Cardinaletti and Maria Teresa Guasti, eds., *Syntax and semantics 28*, 153-177. San Diego: Academic Press.

Raposo, Eduardo, and Juan Uriagereka. 1990. Long-distance Case assignment. *Linguistic Inquiry* 21: 505-537.

Rohrbacher, Bernhard W. 1994. The Germanic VO languages and the full paradigm: a theory of V to I raising. Doctoral dissertation, University of Massachusetts, Amherst.

Rooth, Mats Edward. 1985. Association with focus. Doctoral dissertation, University of Massachusetts, Amherst.

Ross, John R. 1967. Constraints on variables in syntax. Doctoral dissertation, MIT.

Ross, John R. 1969. Adjectives as noun phrases. In David A. Reibel and Sanford A. Schane, eds., *Modern studies in English*, 352-360. Englewood Cliffs, NJ.: Prentice-Hall, Inc.

Rothstein, Susan D. 1985. *The syntactic forms of predication*. Bloomington: Indiana University Linguistics Club.

Rothstein, Susan. 1997. Predicates and their subjects. Ms., Bar-Ilan University.

Runner, Jeffrey T. 1995. Noun phrase licensing and interpretation. Doctoral dissertation, University of Massachusetts, Amherst.

Safir, Kan, and Tim Stowell. 1988. Binominal each. In *Proceedings of the North East Linguistic Society 18*, 426-450. Amherst: GLSA.

Sag, Ivan. 1976. Deletion and logical form. Doctoral dissertation, MIT.

Saito, Mamoru. 1992. Long distance scrambling in Japanese. *Journal of East Asian Linguistics* 1: 69-118.

Sakai, Hiromu. 1996. Derivational uniformity: a study of syntactic derivation in parametric setting. Doctoral dissertation, University of California, Irvine.

Schütze, Carson T. 1997. Infl in child and adult language: agreement, Case and licensing. Doctoral dissertation, MIT.

Selkirk, Elisabeth O. 1984. *Phonology and syntax: the relation between sound and structure*. Cambridge, Mass.: The MIT Press.

Sells, Peter. 1995. Korean and Japanese morphology from a lexical perspective. *Linguistic Inquiry* 26: 277-325.

Siegel, Muffy E. A. 1987. Compositionality, Case, and the scope of auxiliaries. *Linguistics and Philosophy* 10(1):53-76.

Shi, Yuzhi, and Ping Zhang. 1995. 'Ne' de yufa yiyi ji yu yiwen daici gongxian de tiaojian (The grammatical meaning of '*ne*' and the conditions on its cooccurrence with interrogative pronouns). *Journal of the Chinese Language Teachers Association* 30: 71-83.

Shyu, Shu-ing. 1995. The syntax of focus and topic in Mandarin Chinese. Doctoral dissertation, University of Southern California.

Simpson, Andrew. 1997 On Dak and De and Dai and Duoc: potential DE in East Asian. Ms., Universitaet Frankfurk am Main.

Smith, Carlota S. 1997. *The parameter of aspect (second edition)*. Dordrecht: Kluwer Academic Publishers.

Solà, Jaume. 1996. Morphology and word order in Germanic languages. In Werner Abraham, Samuel David Epstein, Höskuldur Thráinsson, and C. Jan-Wouter Zwart, eds., *Minimal ideas*, 217-251. Amsterdam: John Benjamins Publishing Company.

Song, Yuzhu. 1982. Ding-xin weiyu cunzaiju (Existential sentences composed by attribute-head predicates). *Yuyan Jiaoxu yu Yanjiu* 3. Also in Yuzhu Song (1995) ed., *Yufa lungao* (Studies on grammar), 47-54. Beijing: Beijing Yuyan Xueyuan Press.

Speas, Margaret J. 1990. *Phrase structure in natural language*. Dordrecht: Kluwer Academic Publishers.

Speas, Margaret. 1994. Null arguments in a theory of economy of projection. In E. Benedicto and J. Runner., eds. *University of Massachusetts Occasional Papers 17*, 179-208. Amherst: GLSA.

Sportiche, Dominque. 1995. Sketch of a reductionist approach to syntactic variation and dependencies. In Héctor Campos and Paula Kempchinsky, eds., *Evolution and revolution in linguistic theory*, 356-398. Washington, D.C.: Georgetown University Press.

Stowell, Tim. 1978. What was there before there was there. In Donka Farkas, Wesley M. Jacobsen, and Karol W. Todrys, eds., *Papers from the Fourteenth Regional Meeting Chicago Linguistic Society*, 458-471. Chicago Linguistic Society.

Stowell, Timothy. 1981. Origins of phrase structure. Doctoral dissertation, MIT.

Stowell, Tim. 1983. Subjects across categories. *The Linguistic Review* 2: 285-312.

Stowell, Tim. 1989. Subjects, specifiers, and X-bar theory. In Mark R. Baltin and Anthony S. Kroch, eds., *Alternative conceptions of phrase structure*, 232-262. Chicago and London: The University of Chicago Press.

Stowell, Tim. 1991a. Small clause restructuring. In Robert Freidin, ed., *Principles and parameters in comparative grammar*, 182-218. Cambridge, Mass.: The MIT Press.

Stowell, Tim. 1991b. Determiners in NP and DP. In Katherin Leffel and Denis Bouchard, eds., *Views on phrase structure*, 37-56. Dordrecht: Kluwer Academic Publishers.

Stowell, Tim. 1995. Remarks on clause structure. In Anna Cardinaletti and Maria T. Guasti, eds., *Syntax and semantics 28*, 77-107. San Diego: Academic Press.

Stowell, Tim. 1996. The phrase structure of tense. In Johan Rooryck and Laurie Zaring, eds., *Phrase structure and the lexicon*, 271-286. Dordrecht: Kluwer Academic Publishers.

Svenonius, Peter Arne. 1994. Dependent nexus: subordinate predication structures in English and the Scandinavian languages. Doctoral dissertation, University of California, Santa Cruz.

Sybesma, Rint. 1992. *Causatives and accomplishments: the case of Chinese ba*. Dordrecht: Holland Institute of Generative Linguistics.

Sybesma, Rint. 1996. Chinese functional projections. Handout of talk given at Theoretical East Asian Linguistics Workshop, April 13, University of California, Irvine.

Szabolcsi, Anna. 1987. Functional categories in the noun phrase. In *Approaches to Hungarian 2*, 167-189. Szeged: JATE.

Szabolcsi, Anna. 1992. Subordination: articles and complementizers. In *Approaches to Hungarian 4: the structure of Hungarian*, ed. I Kenesei and Cs. Pléh, 123-137. Szeged: JATE.

Taglicht, Josef. 1984. *Message and emphasis*. London and New York: Longman.

Tai, James H.-Y. 1969. Coordination reduction. Doctoral dissertation, Indiana University.

Takano, Yuji. 1996. Movement and parametric variation in syntax. Doctoral dissertation, University of California, Irvine.

Takeda, Kazue. 1997. A note on locality of feature movement and category movement. In Luther Chen-Sheng Liu and Kazue Takeda, eds., *UCI working papers in linguistics 3*, 183-202. Irvine: Irvine Linguistics Students Association.

Takezawa, Koichi. 1987. A configurational approach to Case-marking in Japanese. Doctoral dissertation, University of Washington.

Tancredi, Christopher D. 1990. Not only *even*, but even *only*. Ms., MIT.

Tang, Chih-Chen Jane. 1990. Chinese phrase structure and the extended X'-theory. Doctoral dissertation, Cornell University.

Tang, Sze-Wing. 1996. On the 'inverted' double object construction. To appear in Stephen Matthews ed., *Studies in Cantonese linguistics*. Hong Kong: The Linguistic Society of Hong Kong.

Tang, Sze-Wing. 1997a. The parametric approach to the resultative construction in Chinese and English. In Luther C.-S. Liu and Kazue Takeda, eds., *UCI working papers in linguistics 3*, 203-226. Irvine: Irvine Linguistics Students Association.

Tang, Sze-Wing. 1997b. Prohibition on superfluous symbols: some notes on the architecture of nominal small clauses. To appear in *Proceedings of the Ninth North American Conference on Chinese Linguistics*. Los Angeles: Graduate Students in Linguistics, University of Southern California.

Tang, Sze-Wing. 1998. Bare and not-so-bare small clauses: evidence from Japanese. To appear in Hidehito Hoshi ed., *UCI Working Papers in Linguistics 4*. Irvine: Irvine Linguistics Students Association.

Tang, Ting-Chi. 1979. *Studies in Chinese syntax*. Taipei: Student Book Co., Ltd.

Tang, Ting-Chi. 1988. *Studies on Chinese morphology and syntax*. Taipei: Student Book Co., Ltd.

Tang, Ting-Chi. 1989. *Studies on Chinese morphology and syntax 2*. Taipei: Student Book Co., Ltd.

Tang, Ting-Chi. 1992. *Studies on Chinese morphology and syntax 3*. Taipei: Student Book Co., Ltd.

ter Meulen, Alice. 1995. Semantic constraints on type-shifting anaphora. In Gregory N. Carlson and Francis Jeffry Pelletier, eds., *The generic book*, 339-357. Chicago and London: The University of Chicago Press.

Ting, Jen. 1995. A non-uniform analysis of the passive construction in Mandarin Chinese. Doctoral dissertation, University of Rochester.

Travis, Lisa. 1984. Parameters and effects of word order variation. Doctoral dissertation, MIT.

Travis, Lisa. 1988. The syntax of adverbs. In *McGill working papers in linguistics: special issue on comparative Germanic syntax*.

Tsai, Wei-Tien. 1994. On economizing the theory of A-bar dependencies. Doctoral dissertation, MIT.

Tsai, Wei-Tien. 1998. Subject specificity, copy theory, and Extended Mapping Hypothesis. In Uli Sauerland and Orin Percus, eds. *MIT Working Papers in Linguistics 25: the interpretive tract*, 1-28. Cambridge, Mass.: MITWPL.

Uriagereka, Juan. 1993. Specificity and the name constraint. In Carol A. Mason, Susan M. Powers, and Cristina Schmitt, eds., *University of Maryland working papers in linguistics 1*, 121-143. College Park: Linguistics Department, University of Maryland.

Urushibara, Saeko. 1993. Syntactic categories and extended projections in Japanese. Doctoral dissertation, Brandeis University.

Wang, Li. 1980. *Hanyu shigao* (Notes on historical Chinese). Beijing: Zhonghua Shuju.

Wang, Li. 1985. *Zhongguo xiandai yufa* (Modern Chinese grammar). Beijing: Commercial Press.

Warner, A. R. 1986. Ellipsis conditions and the status of the English copula. *York Papers in Linguistics* 12: 153-172.

Wexler, Kenneth, and M. Rita Manzini. 1987. Parameters and learnability in binding theory. In Thomas Roeper and Edwin Williams, eds., *Parameter setting*, 77-89. Dordrecht: D. Reidel Publishing Company.

Whitman, John. 1991. String vacuous V to COMP. Paper presented at GLOW.

Wible, David Scott. 1990. Subjects and the clausal structure of Chinese and English. Doctoral dissertation, University of Illinois at Urbana-Champaign.

Williams, Edwin. 1977. Discourse and Logical Form. *Linguistic Inquiry* 8: 101-139.

Williams, Edwin. 1980. Predication. *Linguistic Inquiry* 11: 203-238.

Williams, Edwin. 1981. Argument structure and morphology. *The Linguistic Review* 1: 81-114.

Williams, Edwin. 1983. Against small clauses. *Linguistic Inquiry* 14: 287-308.

Xu, Ding. 1997. *Functional categories in Mandarin Chinese*. Holland Institute of Generative Linguistics.

Xu, Jie. 1993. An I-parameter and its consequences. Doctoral dissertation, University of Maryland, College Park.

Xu, Liejiong, and Thomas Hun-tak Lee. 1989. Scope ambiguity and disambiguity in Chinese. In *Papers from the 25th Annual Regional Meeting of the Chicago Linguistic Society: Part One*, 451-466. Chicago: Chicago Linguistic Society.

Yau, Shun-chiu. 1980. Sentential connotations in Cantonese. *Fangyan* 1:35-52.

Yue-Hashimoto, Anne. 1969. The verb 'to be' in modern Chinese. In John W.M. Verhaar, ed., *The verb 'be' and its synonyms 4*, 72-111. Dordrecht: D. Reidel.

Zhang, Ning. 1997. Syntactic dependencies in Mandarin Chinese. Doctoral dissertation, University of Toronto.

Zhou, Xuan. 1996. The interaction of the Mandarin aspectual particles *guo*, *le* and *zhe*. In Lise M. Dobrin, Kora Singer, and Lisa McNair, eds., *CLS 32: Papers from the Main Session*, 445-459. Chicago: Chicago Linguistic Society.

Zhu, Dexi. 1980. Yu dongci 'gei' xiangguan de jufa wenti (Syntactic properties related to the verb *gei* 'give'). In *Xiandai Hanyu yufa yanjiu* (Study on modern Chinese grammar), 151-168. Beijing: Commercial Press.

Zhu, Dexi. 1982. *Yufa jiangyi* (Lectures on grammar). Beijing: Commercial Press.