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**CHINESE MIDDLE CONSTRUCTIONS:  
A CASE OF DISPOSITION ASCRIPTION**

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**Ph.D**

**The Hong Kong**

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**Chinese Middle Constructions:  
A Case of Disposition Ascription**

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A thesis submitted in partial fulfilment of the  
requirements for the degree of Doctor of Philosophy

August 2010

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## Abstract

For Chinese, ‘the middle construction’ is not a structurally well-defined category comparing to active (or neutral) and passive sentences. In view of the characterization of cross-linguistic middles in the literature, this study redefines Chinese middle constructions as *Nan-yi* middles and *Neng-ke* middles. What unites these two types of middles is the common pattern of syntax-semantics mapping, which relies on the notion of ‘disposition ascription’.

Disposition ascriptions are generic sentences that ascribe a dispositional property to the referent of the subject. Chinese middles instantiate disposition ascriptions, ascribing a dispositional property to the patient. Thus the essential properties of Chinese middles follow: (a) the occurrence of the patient in the subject position; (b) the genericity and stativity of an otherwise eventive predicate; and (c) the non-occurrence of the agent and its generic interpretation.

In the syntax-semantics mapping of dispositionals, *Nan-yi* and *Neng-ke* modals play a crucial role, serving as overt markers for the dispositionality. Specifically, they select on the one hand the target of disposition ascription as the subject, and on the other hand a property denoting predicate as the complement. Or, to put it in another way, such modals encode the semantic relation between the target of disposition

ascription and a property denoting predicate.

Such a semantic relation can be further interpreted as a proper sense of CAUSE: cause + facilitate. Therefore, the modals are assumed to embody the light verb CAUSE<sub>f</sub>, with the subscript *f* representing *facilitate*. Furthermore, given that the modals have adjectival counterparts, it is suggested that such modals are obtained by certain adjectives incorporating to the light verb CAUSE<sub>f</sub> in the lexicon (L-syntax). Thus the specifier of the modals, namely the patient-subject, is assigned the theta role Causer<sub>f</sub>.

The complement of the modals is assumed to be a non-finite IP, containing a PRO representing the agent of the embedded verb. Since this PRO is unantecedent, the agent receives a generic interpretation. Moreover, it is proposed that this non-finite clause involves null operator movement, which establishes the co-reference of the empty patient-object and the Causer<sub>f</sub>-subject.

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## **List of Abbreviations**

CL: classifier

DOC: double object construction

EC: empty category

ECM: exceptional case marking

EXPE: experiential

MC: middle construction

P.C.: personal conversation

PERF: perfective

PROG: progressive

rpt: reprinted

SFP: sentence final particle

TC: tough construction

# Chapter 1

## Introduction

This thesis explores the syntax and semantics of Chinese middle constructions. Middle constructions are generally viewed as a pattern of structure paralleling active, passive and ergative. The commonly accepted characterization of middles involves a cluster of syntactic and semantic properties: (a) the patient<sup>1</sup> surfaces as the subject<sup>2</sup>; (b) the agent is suppressed but is still perceivable with a generic reading; (c) the main verb does not bear passive morphology; (d) the otherwise eventive verb is turned into a stative one; (e) the sentence describes a property of the referent of the subject; and (f) the referent of the subject is responsible for carrying out the action denoted by the verb in the manner depicted by the adverbials. An English middle construction like (1) below manifests all of these properties:

---

1 According to Haegeman (2006, p192), ‘patient’ refers to the entity undergoing the action. The patient undergoes a change in its internal state, rather than in terms of location or possession, both of which would be external states. On the other hand, ‘theme’ in its canonical sense refers to the entity undergoing a change of state (location, possession) (henceforth ‘theme1’). Sometimes ‘patient’ and ‘theme1’ are grouped into a single role ‘theme2’. Likewise, ‘patient’ in the present defining properties actually covers both ‘patient’ and ‘theme1’, denoting the entity affected by the action or the understood object.

2 In the present thesis, ‘subject’ is a syntactic concept. It can be defined in terms of X’ theory. There are basically two alternatives: (i) the subject of a predicative expression XP of category X is in [Spec, X]; (ii) there is a functional category F such that the predicative expression XP is the complement of F and its subject is in [Spec, F].

(1) The car drives fast

Chinese also exhibits constructions similar to (1), for example, pseudo-passives, *V-qilai* constructions, *Nan-yi* constructions and [*ke+V<sub>t</sub>*] constructions<sup>3</sup>:

(2) a. che kai-zou le (pseudo-passive)

car drive-away PERF

‘The car has been driven away.’

b. zhe liang che kai qilai hen kuai (*V-qilai* construction)

this CL car drive QILAI very fast

‘This car drives very fast.’

c. xiao che rongyi ting (*Nan-yi* construction)

small car easy park

‘Small cars park easily.’

d. ziran zaihai hen ke-pa (*[ke+V<sub>t</sub>]* construction)

natural disaster very can-afraid

‘Natural disasters are terrifying.’

Constructions as such have been labeled ‘Chinese middles’ in the last few decades.

The precise scope of Chinese middles, however, remains the subject of debate and

<sup>3</sup> Since whether these constructions should be treated as middles is not yet decided at this stage, the neutral term ‘construction’ rather than ‘middles’ is used. However, it should be noted that only a subpart of *V-qilai* constructions and *Nan-yi* constructions, which appear to feature a patient-subject, bear on the notion of ‘middles’.

investigation. This is largely because of the lack of a generally accepted rigorous definition of the middle construction.

In the present study, a middle construction is defined as a sentence showing the following properties, which are generally used to characterize middles:

- i. The patient is realized as the subject.
- ii. The agent does not appear in syntax but remains perceivable.
- iii. The main verb does not carry passive morphology.
- vi. The sentence represents a generic statement that ascribes an inherent property to the referent of the subject.

According to such a definition, *Nan-yi* constructions and *Neng-ke* constructions<sup>4</sup> should be treated as middles. Pseudo-passives and *V-qilai* constructions, however, do not qualify as middles because (a) the verb in *V-qilai* constructions is part of an adverbial rather than the core predicate<sup>5</sup>, and (b) pseudo-passives are eventive, rather than generic, statements.

The defining properties of middles as listed above are shared by Chinese middles and middles in other languages. It is interesting, however, to note that Chinese middles somewhat differ from typical middles in European languages in that they overtly express the genericity and modality by means of modals, which are subject-oriented and have scope over VP.

The analysis of Chinese middles should be capable of deriving the properties of those constructions, in particular, the function of the modals. As will be detailed in

---

4 For simplicity, [*ke*+Vt] constructions which qualify as middles are subsumed under the category *Neng-ke* constructions.

5 It will be shown in chapter 3 that in *V-qilai* constructions, *V-qilai* serves as an adverbial modifying the core predicate AP.

Chapter 2 and Chapter 4, the mainstream approaches to middle constructions can be divided into the syntactic approach and the lexical approach. Under the syntactic approach, middles are derived in a fashion similar to passives in that both involve case-driven movement. A consequence of such an approach is that the subject position in middles is non-thematic. On the other hand, according to the lexical approach, the agent is saturated in the lexicon by a generic interpretation and the patient is base-generated in the subject position due to some construction-specific lexical rules. These two types of approaches derive the properties of middles at the cost of overlooking crucial semantic properties of the construction (e.g., the semantic relationship between the subject and the predicate), and proposing *ad hoc* stipulations, respectively.

Another approach has emerged in recent literature. This novel approach analyzes middles from the perspective of syntax-semantics mapping. This perspective capitalizes on the notion of ‘disposition ascription’. A disposition ascription is a generic sentence that ascribes an intrinsic property to the referent of the subject. Middles are disposition ascriptions that ascribe the disposition to the patient. Hence the patient is realized as the subject in middles. To formalize these ideas, a null semantic operator Gen is devised. Gen behaves like dynamic modals as analyzed in Brennan (1993), which are subject-oriented VP-operators. In particular, Gen selects the target of disposition ascription to be the subject of the dispositional. Such a mechanism also works for the middle construction, a case of dispositionals. The peculiarity of middles lies only in that Gen selects the patient but not the agent of the

verb to be the subject. This line of analysis provides a unified account for the syntax and semantics of middles.

The present study on Chinese middles is conducted on the basis of a modified version of the syntax-semantics mapping approach presented above. Given that *Nan-yi* and *Neng-ke* modals encode the dispositionality found in middles, it is suggested that these modals, but not a null semantic operator as proposed in Lekakou (2005), mediate the syntax-semantics mapping of dispositionals. Moreover, given that *Nan-yi* modals have identical phonetic forms and root semantics with their adjectival counterparts, it is claimed that the modals involve light verb raising in the lexicon. Semantically, this light verb embodies the dispositionality. Inspired by McConnell-Ginet (1994), it is further suggested that the semantic content of this light verb is  $CAUSE_f$ , with the subscript  $f$  representing ‘facilitate’.

From a syntactic viewpoint, the modals involving  $CAUSE_f$  function like VP operators as in Brennan (1993) in that the modals select the target of disposition ascription to be the subject and have scope over VP. These properties of the modals can also be captured by treating them as control verbs, which are two-place predicates, subcategorizing an argument as its specifier and a non-finite clause as its complement. The essence of ideas as such is extended to the present analysis of modals in Chinese middles.

It is argued that the subject in middles acquires a theta role  $Causer_f$  from the modal and hence is base-generated in its surface position. On the other hand, the modal takes a non-finite clause as its complement. This non-finite clause contains a



a sentence should reflect the interpretation of that sentence (Haegeman 2006, rpt2008, among others).

This thesis is organized as follows. Chapter 2, which primarily concerns English middles, provides the background for the current study: it reviews the essential properties of middle constructions and explanations for these properties; it introduces both the notion of ‘disposition ascription’ and previous studies treating middles as disposition ascriptions. Chapter 3 defines the scope of Chinese middle constructions: it proposes a definition of middles on the basis of the discussion in chapter 2; with this definition in mind, it examines the constructions termed ‘Chinese middles’ in the literature; and it suggests that *Nan-yi* constructions and *Neng-ke* constructions should be considered Chinese middles. Chapter 4 describes the syntactic and semantic properties of Chinese middles and explores the derivational mechanism that may capture these properties. The central ideas of this chapter are that Chinese middles instantiate dispositionals and that the properties of Chinese middles are derivable from the syntax-semantics mapping associated with dispositionals. Chapter 5 summarizes the main findings in this study.

## Chapter 2

### Background

#### 2.1 Introduction

The term ‘middle’ originally refers to a category of verbal voice in some European languages, which is intermediate between active and passive. The concept of ‘middle construction’ develops from ‘middle voice’ and may also be perceived as between active constructions and passive constructions.

Since the middle construction involves the complex correlation among syntax, morphology, the lexicon and semantics, it provides rich resource for linguistic research and serves as the testing ground for theories.

Sentences like (1) seem to be the most prominent instances of middle constructions:

- (1) a. These shirts wash in cold water only.
- b. The door opens easily.

- c. This book sells/reads easily.
- d. The soup that eats like a meal (advertising slogan)

Middles as instantiated above are usually considered the intransitive variant of the transitivity alternation. That is to say, a middle verb is the intransitive use of its corresponding transitive verb. Such transitivity alternation resembles the transitivity alternation inchoatives and passives in that the agent does not surface in syntax and the patient appears in the subject position. It should be noted, however, the middle construction differs from passives and inchoatives with respect to several crucial properties. For instance, the morphology of a middle verb is different from its passive counterpart. Also, an underlying agent is perceivable in middles, but not inchoatives. Additionally, middles are generic sentences, ascribing some inherent instead of transient property to the referent of the subject.

The above descriptions of middles can be seen as consensus. The derivation of this particular construction, however, has aroused much debate. A number of approaches have been proposed for middle formation. These approaches can be divided into three types: the syntactic approach, the lexical approach and the semantic approach.

The approach this thesis will adopt is primarily of the semantic nature. The gist of this approach is to derive the middle construction from its semantics as disposition ascription. To put it simply, a disposition ascription ascribes to the referent of the subject some intrinsic property, which is crucial for the proposition to be true.

The next section will briefly review previous studies on middles. Section 3 will introduce the notion ‘disposition ascription’ and its correlation with middles. The focus of discussion will be on English, though other languages will also be considered for comparative purposes.

## **2.2 The Middle Construction**

A number of generalizations emerge in studies of the middle construction. Transitivity alternation, underlying agentivity, genericity, modality and stativity, etc., are generally viewed as the most crucial properties of middles, some of which may distinguish middles from similar structures like passives and inchoatives. Also of particular interest are restrictions on verbs that qualify to undergo middle formation. Conditions involving affectedness, agentivity and responsibility are wellknown in this regard. On the basis of the abovementioned observations, various mechanisms have been devised for the derivation of middles. This section will provide a sketch of previous studies on the above issues.

### **2.2.1 The key properties of middles**

Although the middle construction as a cross-linguistic phenomenon triggers much interest in the literature, so far no rigorous definition of this construction is

generally accepted. However, a set of properties have been frequently cited for a description of this construction.

### **2.2.1.1 Transitivity alternation**

The main verbs in middles are originally transitive verbs. However, they seem to undergo valence reduction, resulting in the non-occurrence of the agent. Moreover, the patient, which generally occupies the object position, surfaces as the subject. For example, in (1) *wash* is a transitive verb, which should assign an agent and a patient  $\theta$ -role. While its patient role is borne by the subject DP *these shirts*, its agent role is not overtly realized.

### **2.2.1.2 Implicit agent**

Although the agent does not surface in syntax, as shown in (1), it seems to exist in semantics (Ackema & Schoorlemmer 1994, 1995; Condoravdi 1989; Fagan 1992, rpt2009; Zribi-Hertz 1993). Presented below is the evidence in favor of its existence. One piece of evidence comes from the incompatibility between middles and the non-agentive expression *all by itself/themselves* (Keyser & Reoper 1984, Fagan 1992, Iwata 1999).

- (2) a. \*This wood carves easily all by itself  
b. \*The book reads easily all by itself

As pointed out by Keyser & Roeper (1984), *all by itself* means ‘totally without external aid’. The incompatibility between *all by itself* and the middle construction is argued to be due to the semantic mismatch between *all by itself* and the implicit agentivity of the middle verb.

Another piece of evidence involves instrumental phrases, which are argued to require the overt or covert agent (Reinhart & Siloni 2003).

- (3) a. This wood carves easily with a knife  
b. The book reads easily with a pair of glasses

Syntacticians like Stroik (1992) and Hoekstra & Roberts (1993) go even further along this line in arguing that the implied agent can be syntactically realized. They treat the *for*-phrase as in (4) as the syntactic representation for the implicit agent, like the *by*-phrase in passives.

- (4) a. Bureaucrats bribe easily for managers  
b. Latin books translate easily for Jason

Moreover, Stroik uses anaphoric phrases in the middle construction to argue for the existence of an agent in syntax.

- (5) a. Books about oneself never read poorly  
b. Letters to oneself compose quickly

According to the binding theory, each anaphor need be bound locally (Chomsky 1981). Thus *oneself* in the sentences in (5) must be co-indexed with a covert element c-commanding it. In the sentences discussed, the only candidate for this covert element is the agent of the verb.

Technically, Stroik and Hoekstra & Roberts propose that the agent role of the middle verb is assigned to empty categories (PRO in Stroik (1992) and pro in Hoekstra & Roberts (1993)).

### 2.2.1.3 Genericity

Another generally accepted property of the middle construction is genericity (Keyser & Roeper 1984; Condoravdi 1989; Fagan 1992; Steinbach 2002; Lekakou 2004, 2005; among others). The notion of ‘genericity’ in middles, however, is interpreted quite differently among linguists.

Condoravdi argues that middles involve generic quantification over events, just like habituals.

- (6) Bureaucrats bribe easily

The semantics of (6), according to Condoravdi (1989), is ‘all events of bribing a bureaucrat will be easy events’.

Fagan (1992) opposes Condoravdi’s view by distinguishing middles and habituais. The contrast between (7a) and (7b) on the one hand and (7c) on the other hand is used as supporting evidence.

- (7) a. This car goes 200 kph (Fagan 1992, rpt2009, p151)  
b. Kim reads German  
c. The book reads easily

(7a) and (7b) are ambiguous between a habitual reading and a capacity reading. In the habitual reading, (7a) and (7b) mean that this car regularly goes 200 kph, and Kim habitually reads German. In the capacity reading, though, they mean that the car is capable of going 200 kph, and that Kim is capable of reading German. In contrast, middles like (7c) disallow the habitual reading. Rather, it forces a capacity reading. In particular, it is unnecessary for the event of reading to happen to make the proposition in (7c) true. Knowing the well-writtenness of the book is sufficient for one to state that the book reads easily. Therefore, it is untenable to relate the generic quantification to events. Instead, it seems plausible to relate the generic quantification to covert agents. As a result of generic quantification, the covert agents may be interpreted as ‘people in general’ or ‘anyone’, as the paraphrasal relationship between (a) and (b) in each pair below suggests:

- (8) a. The cloth washes well
  - b. Everyone can wash this cloth well
- (9) a. Government officials bribe easily
  - b. It is easy for people in general to bribe government officials

Fagan's opinion is endorsed by Lyons (1995), who proposes to reduce the genericity of middles, which he refers to as 'the aspect constraint', to a feature of arbitrary arguments: "an arbitrary agent requires a generic context, but the converse is not the case" (Lyons 1995, p102).

These two types of views seem to have been combined in Steinbach (2002). The generic operator, as an unselective binder, is argued to bind the variable contributed by the implicit argument as well as the event variable.

The genericity of middles is closely related to some other wellknown characteristics, such as modality and stativity and the property reading. These properties will be elaborated in turn subsequently.

#### **2.2.1.4 Modality**

As mentioned in last subsection, middles have a capability reading. The capability reading, as a matter of fact, reflects a type of modality.

Such modality has two essential properties. One is that it expresses some potentiality or possibility (Fellbaum 1985). It is not generalizations over events that

have already taken place. The other is that the modality in question is subject-oriented. For example, (10a) does not simply describe the possibility that this car will be driven fast, in contrast to (10b). Rather, it ascribes some intrinsic property to the referent of the subject, which results in the wellknown property reading of middles (cf. Lakoff 1977, van Oosten 1977 and Hale & Keyser 1986).

- (10) a. This car drives fast  
b. Possibly this car will be driven fast

As Han (2007) points out, such modality is root, but not epistemic, modality. This particular modality is viewed as the defining property of middle constructions in Massam (1992).

#### **2.2.1.5 Stativity**

The genericity and modality of middles is accompanied by stativity. Middles have been argued to be always stative (see Fagan 1992, Keyser & Roeper 1984, among others). This can be seen in the restrictions on tense, aspect and time adverbials which middles are subject to.

Canonical English middles, for example, appear in simple present tense. Middles in Romance languages like Greek and French employ imperfective tense. As pointed out by Keyser & Roeper (1984), middles are unacceptable in the past tense with

modifiers specifying definite past moments, as sentences below instantiate:

- (11) a. \*Yesterday, the mayor bribed easily, according to the newspaper  
 b. \*At yesterday's house party, the kitchen wall painted easily

The unacceptability of the sentences in (11) is due to a mismatch in semantics: on the one hand, middles do not report specific events; on the other hand, specific time reference forces an eventive reading. In this respect, middles pattern with stative verbs. For example, neither middles nor stative verbs can occur in imperative or progressive constructions (Keyser & Roeper, 1984), as shown below:

- (12) a. \*Bribe easily, bureaucrats!  
 b. \*Know the answer, John!
- (13) a. \*Bureaucrats are bribing easily  
 b. \*John is knowing the answer

The stativity observed in middles may be derived from the genericity and modality of this construction. Generic sentences are always stative. It is not surprising that middles, as a subset of generic sentences, are stative. The tense and aspect employed in middles may also be viewed as encoding genericity. For instance, generic sentences always appear in simple present tense in English and imperfective tense in Romance languages like Greek and French.

With respect to the relation between modality and stativity in middles, Roberts (1987) and Massam (1992) argue that the modal element (overt or null) in middles can stativize the otherwise eventive predicate.

### **2.2.1.6 Adverbial effect**

An important observation on middles is that it seems to require an adverbial that modifies the predicate. Most middles are unacceptable without such an adverbial:

- (14) a. \*The book reads  
b. \*The car drives

This phenomenon is termed the ‘Adverbial Effect’ (Iwata 1999, p529).

Two types of explanations are available for this effect. One is given in terms of theta-theory, arguing that the adverbials are selected by the middle verb (Hoekstra & Roberts 1993, den Dikken 1997).

The other is from the perspective of semantics and pragmatics. For example, Fagan (1988) argues that middles like (14) are unacceptable because there is no activity pertinent to the use of books, for example, that is conducted by reading a book rather than by doing something else to it.

Fagan (1992) also discusses some middles without adverbial modification and concludes that although middles typically require some sort of adverbial

modification, pragmatic considerations allow middles to express the meaning typically carried by the adverbial in other ways. It has been pointed out by Roberts (1987), Condoravdi (1989), Ackema & Schoorlemmer (1995) and Iwata (1999), among others, that negation, emphatic stress on the verb and the emphatic *do* are capable of rescuing an adverbless middle construction. Instances follow:

(15) a. \*This meat cuts

b. This meat doesn't cut

(16) a. ?? This car drives

b. I thought we were out of gas, but the car DRIVES!

(17) These red sports models *do* sell, don't they?

On the basis of considerations similar to Fagan (1992), Iwata (1999) argues that the obligatory presence of adverbials is 'not so much a matter of syntactic subcategorization requirements as one of informativeness' (Iwata 1999, p528) (cf. Ackema & Schoorlemmer 1994, 1995; Steinbach 2002). Such intuition has been formulated in semantics by McConnell-Ginet (1994). She suggests that adverbials provide the scope in the ternary semantic structure of a proposition, which includes operator, restrictor and scope.

Another point worth noting is that the adverbials in middles are strongly restricted with respect to their semantics and positioning.

The adverbial paradigm is strongly restricted with respect to their semantics.

Whereas manner adverbials constitute the most common type of adverbials in middles, agent-oriented (those that may attribute a property to the agent) manner adverbs are unacceptable in middles:

- (18) a. \*The novel sells proudly  
b. \*Silk cleans carefully

Moreover, it has been long noticed that the adverb in middles obligatorily appears in the post-verbal position, as the ungrammaticality of the following sentences indicate:

- (19) a. \*The book easily read  
b. \*The bureaucrats easily bribe  
c. \*The novels well sell

By contrast, other sentence patterns are not subject to such a restriction. The manner adverbials may appear either pre-verbally or post-verbally:

- (20) a. She can easily read this book  
b. She can read this book easily  
(21) a. This material can be washed easily  
b. This material can be easily washed

This restriction has not received a convincing account so far. One tentative explanation put forward by Massam (1992) is that the sentence-final adverb raises to INFL to join the modal at LF, and can do this only from a position adjoined to VP.

### **2.2.2 Contrasts between middles and similar constructions**

Middles, passives and inchoatives exhibit similar transitivity alternation. Verbs in the three constructions all have the patient in the subject position and do not introduce the agent in A-positions. Here, however, the similarity ends. Middles differ from the other two constructions in several important respects, as presented in what follows.

#### **2.2.2.1 Middles vs. passives**

There are at least three distinctions between middles and passives. One concerns the morphology of the predicates. Middle verbs do not carry passive morphology, in contrast to passive verbs. The other is the status of the agent. Unlike passives, middles do not allow the agent to appear in a *by*-phrase:

- (22) a. The book reads easily  
b. \*The book reads easily by John.

- (23) a. The book is read easily  
b. The book is read by John easily

Moreover, different from passives, middles do not allow the occurrence of agentive adverbs and purpose clauses:

- (24) a. The bureaucrat was bribed on purpose  
b. The bureaucrat was bribed to let him help Bill
- (25) a. \*Bureaucrats bribe easily on purpose  
b. \*Bureaucrats bribe best to let him help Bill

Such differences suggest that the agent in passives, though not a syntactically overt argument, is much more “active” than its counterpart in middles (Manzini 1983, Keyser & Roeper 1984, Roberts 1987, Roeper 1987).

Finally, middles and passives contrast in terms of semantics. Whereas middles obligatorily convey genericity, passives do so optionally. The passive as instantiated in (26a) is eventive. Insertion of a modal like *can* may shift (26a) into a generic sentence as (26b).

- (26) a. The blouse was washed easily  
b. The blouse can be washed easily  
c. The blouse washes easily

It should be noted, however, the genericity in passives like (26b) is not identical to that in middles like (26c). The subtle difference resides in that the latter is subject-oriented (Han 2007). The subject-oriented genericity found in middles will be elaborated in section 2.3.

### 2.2.2.2 Middles vs. inchoatives

As mentioned previously, the middle construction is incompatible with *all by itself*. This may be ascribed to the semantic contradiction between *all by itself* and the presence of an agent. In contrast, inchoatives may tolerate the presence of *all by itself*. This behavior seems to be due to the compatibility between the semantics of *all by itself* and the absence of an agent at any level. (27) and (28) instantiate such a contrast.

- (27) a. \*This book sells well all by itself  
       b. \*This blouse washes in cold water only all by itself
- (28) a. This kind of glass broke all by itself  
       b. Milk chocolate melts smoothly all by itself

Further, unlike middles, inchoatives are incompatible with instrumental phrases and *for*-PP (when the object in *for*-PP is interpreted as the agent rather than the point-of-view experiencer):

(29) a.\*This kind of glass breaks quickly with a stone

b.\*This kind of glass breaks quickly for John

As mentioned previously, the presence of an instrumental phrase and *for*-PP forces an agentive reading. Therefore the incompatibility between inchoatives and such expressions suggests the absence of an agent at the level of semantics.

These facts indicate that while middle constructions always imply an agent, inchoatives involve no agent at any level.

Inchoatives also differ from middles with respect to semantics. While middles express an inherent property of the subject referent, inchoatives depict a resultative state. In other words, middles, but not inchoatives, involve genericity.

On the basis of the above analysis, the comparison of middles, passives, and inchoatives can be illustrated in the following table<sup>7</sup>:

(30)

	Non-passive morphology	Passive morphology	Patient-subject	Oblique agent	Implicit agent	Genericity
passive		√	√	√		(√) <sup>8</sup>
inchoative	√		√			
middle	√		√		√	√

<sup>7</sup> (30) is not an exhaustive table for the distinction between middles and the other two constructions. Some key properties of middles as discussed in 2.1.1, like genericity, modality and the adverbial effect, are not shared by passives and inchoatives. The comparison in the present subsection is restricted to issues relevant to argument structure and verbal morphology.

<sup>8</sup> ( ) represents optionality of passives.

### **2.2.3 Restrictions on middle formation**

Middle formation applies to transitive verbs. However, it is not the case that any transitive verb may undergo middle formation. To explain the distribution of middle verbs, numerous rules have been proposed. Those concerning English middles will be briefly reviewed in what follows.

#### **2.2.3.1 Affectedness**

A number of linguists suggest that verbs in English middles are subject to the affectedness condition. The affectedness condition requires the action expressed by the verb to give rise to a change of state for the patient-subject (Roberts 1987).

The affectedness condition was firstly proposed by Anderson (1979) in arguing that only affected objects can be preposed. Jaeggli (1986) reinterprets this in terms of external theta-role elimination: “If a complement of X is unaffected, it is impossible to eliminate the external theta-role of X” (Jaeggli 1986, p607). Levin & Rappaport-Hovav (1995) also claim that middle-alternation is found with verbs whose meaning involves a change of state (in the object). The affectedness condition captures the contrast between (31a, b) and (31c, d).

(31) a. This fabric launders nicely

- b. This wood splits easily
- c. \*This essay understands easily
- d. \*The Eiffel Tower sees easily

The actions denoted by *lauder* and *split* affect the patient-subjects *the fabric* and *this wood* respectively. Therefore they form acceptable middles. If the patient-subject is not affected by the action denoted by the verb, middles involving such a verb will be problematic. In (31c, d), *this essay* and *the Eiffel Tower*, which do not undergo a change of state, are not affected by the action denoted by *understand* or *see*. Such verbs thus cannot occur in English middles.

It should be noted, however, there exist exceptions to the affectedness condition. Verbs like *read* and *photograph*, which do not denote actions that may affect the patient-subject, form perfectly acceptable middles, as the sentences in (32) indicate. It is difficult to envisage a scenario that the book undergoes a change of state due to someone's reading or that a person undergoes a change of state due to others' photographing him or her.

- (32) a. The book reads easily
- b. She photographs well

### 2.2.3.2 Aspectual restriction

Fagan (1992) states that aspectual properties of a verb are crucial in determining whether it can perform as a middle verb. Vendler (1967) classifies verbs into four types: activities, accomplishments, achievements and states. From Fagan's point of view, only transitive activities and accomplishments are potential middle verbs in English. This captures the contrast between (33a, b) and (33c, d) in terms of grammaticality.

- (33) a. Ross-style pictures paint easily  
b. The book sells well  
c. \*The answer knows easily  
d. \*Eiffel tower sees easily

### 2.2.3.3 Responsibility

Although Fagan's (1992) aspectual restriction manages to account for the contrast in (33), it fails to predict the ungrammaticality of (34a), where the verb is obviously activity. More interestingly, if the verb *buy* in (34a) is replaced by *sell*, which is also activity and closely related to *buy* in terms of semantics, the resulting middle construction will be perfectly acceptable, as (34b) indicates:

- (34) a. \*This book/car/garment buys well  
b. This book/car/garment sells well

To account for such a contrast, Fagan suggests an additional constraint, which is known as the responsibility condition. This condition stipulates that the referent of the patient-subject must have properties such that it can be held responsible for the action that the predicate denotes (see also Van Oosten 1977, 1986). Regarding the *sell-buy* contrast, a book may own properties making it responsible for being sold easily: it is well-written, or has an attractive cover, etc. On the other hand, although it can be difficult to buy a book due to the economic status of the buyers or the location of the bookstore that sells this book, these factors are not inherent to the book itself.

In addition, this condition is argued to be able to ban ditransitive verbs from undergoing middle formation. It has been observed that middle constructions are incompatible with double-object constructions (henceforth DOC). For example, *sell* can optionally take a goal in DOC. In the presence of the goal in DOC, the otherwise acceptable middle construction will be bad, as the contrast between (35a) and (35b) suggests. Realizing the goal instead of the patient in the subject position also leads to unacceptability, as (35c) illustrates:

- (35) a. The books sell well  
      b. \*The books sell the students well  
      c. \*The students sell the books well

To account for this restriction, Fagan argues that a middle construction is used to depict a property of the subject referent, the focus of the sentence. In a middle

construction formed from DOC, a second entity is brought into view. This is at odds with the purpose of the middle construction since mentioning this second entity shifts the focus away from the patient-subject: this second entity renders the patient-subject unlikely to be the only responsible party for the action denoted by the verb.

#### 2.2.3.4 Agentivity

Another wellknown restriction on verbs that can enter middle formation is the one concerning agentivity. According to Hale & Keyser (1987), middles are always agentive. The term ‘agentive’ here can be understood as having the agent  $\theta$ -role. To determine whether an argument is an agent, two tests have been used in the literature. One is using agent-oriented adverbials like *intentionally* or *on purpose*. The other is putting the argument in the “what XP did to YP” frame (Jackendoff 1990).

The agentivity constraint accounts for the contrast between (36a) and (36b).

- (36) a. The book reads easily  
b. \*The Eifel tower sees easily

While *read* is agentive, *see* is not, since one never intentionally see anything.

Nonetheless, this constraint is challenged by Fagan (1992) by presenting ungrammatical middles with verbs that are attested to have the agent  $\theta$ -role. (37) offers the instances.

- (37) a. \*The finish line reaches easily  
b. \*This wall hits easily

Ackema & Schoorlemmer (1994) argue that such examples do not constitute counterevidence to the agentivity condition. In fact, they are independently ruled out by another condition, i.e., the responsibility condition, which requires the patient-subject to possess properties crucial for the action depicted by the predicate. With respect to (37a), the patient-subject *the finish line* fails to observe this restriction, since it is highly unlikely that a finish line has properties that make reaching it easy. Hence the unacceptability.

The agentivity condition, in fact, overlaps with Fagan's (1992) aspectual condition. Recall that Fagan's aspectual condition permits only activity and accomplishment verbs to participate in middle formation. According to Roberts (1987), only activities and accomplishments have external  $\theta$ -roles. If this is correct, arguing that only activities and accomplishments may undergo middle formation as in Fagan (1992) amounts to saying that only agentive verbs, namely verbs that can assign external  $\theta$ -roles, are potential middle verbs, as in Hale & Keyser (1987) and Ackema & Schoorlemmer (1994). Therefore, for the sake of simplicity, when the agentivity condition or the aspectual condition is henceforth needed, only the latter will be referred to.

### 2.2.3.5 The constraint on verbs with effected patient

Another existing constraint on middle verbs is proposed by Zwart (1997). It requires that middle verbs should not go with effected patients. The concept of ‘effected’ should not be confused with ‘affected’ discussed above. An effected patient comes into being through the action expressed by the verb. For instance, verbs like *build*, *write*, *paint* and *knit* take an effected patient, as shown below:

- (38) a. John built a new house  
b. John wrote a historical novel  
c. John painted a picture  
d. John knitted a red sweater

These verbs belong to the class ‘accomplishment’ in Vendler’s (1967) framework. Given Fagan’s (1992) aspectual condition, they should be able to undergo middle formation. However, this prediction is challenged by the following examples:

- (39) a. \*This house builds easily  
b. \*This historical novel writes easily

In view of this state of affairs, verbs with effected patients should be singled out from activity verbs as far as middle formation is concerned.

### **2.2.4 Derivation of the middle construction**

This section is devoted to a brief review of existing analyses for the derivation of middles. In the literature, these analyses are usually divided into two groups, according to the general approaches they adopt. One is the syntactic approach, which derives middles by Move- $\alpha$  in syntax. The mechanism devised in the syntactic approach resembles what standard Government and Binding theory assumes for passivization. The other is the lexical approach, which proposes a lexical operation prior to lexical insertion at the level of syntax. Such a lexical operation has the effect of base-generating the patient in the subject position. It should be noted, however, that in addition to the above two approaches, there seems to exist another type of analyses, which receives little attention in the literature. This approach features deriving the syntax of middles from their semantics. Although this approach focuses on the syntax-semantics mapping, it also integrates technical devices used in the syntactic and lexical approaches. For the convenience of distinguishing this approach from the syntactic and lexical ones, it will be referred to as the semantic approach, which may not be perfectly appropriate.

#### **2.2.4.1 The syntactic approach**

The syntactic approach has been advocated by Keyser & Roeper (1984), Stroik

(1992, 1995, 1999, 2006) and Hoekstra & Roberts (1993). In such an approach, the derivation involves the suppression or demotion of agent and the syntactic movement of patient to the subject position.

### **Keyser & Roeper (1984)**

The transitivity alternation observed in middles has two features. One is that the patient occurs in the subject position. The other is that the agent, although implied, does not appear in audible syntax. Regarding these two features, middles are quite akin to passives. Therefore, it is no surprise that similar analyses have been suggested for the derivation of both constructions.

The well established view for passive formation is that they are derived in syntax via A-movement. Keyser & Roeper (1984) extended such an analysis to middle formation. Under their analysis, middles are derived from their transitive variant by means of a lexical rule that absorbs accusative Case and the agent theta-role. As a result, the surface subject, which originates in the object position, has to move to the subject position to acquire Case.

Keyser & Roeper's approach, although quite similar to that for passivization, distinguishes itself by one point: whereas English passives use the special morphology on the verb, *-en*, to absorb the agent role and the accusative Case, English middles do not overtly express such morphology. On the observational level, a middle verb and an active verb both take active morphology. According to Keyser & Roeper (1984), English has a null clitic, which is capable of absorbing the accusative Case and the agent theta-role. This null clitic is claimed to have an overt

counterpart in Italian middles, namely, *si*, as exemplified in (40)<sup>9</sup>:

- (40) Le mele *si* mangiano  
 the apples *si* eat  
 ‘The apples are eatable.’

In Italian middles, it is *si* that absorbs the accusative Case and carries the thematic role of Agent.

### **Stroik (1992, 1995, 1999, 2006)**

Like Keyser & Roeper (1984), Stroik (1992, 1995, 1999, 2006) attempts to derive middles via A-movement. What is special in his proposal is that the agent role is not absorbed as proposed in Keyser & Roeper (1984), but is assigned to PRO and demoted to a VP-adjunct position. The sentence in (41a) is assigned (41b) as its S-structure.

- (41) a. Bureaucrats bribe easily  
 b. [<sub>IP</sub> bureaucrats <sub>i</sub> [<sub>I'</sub> [<sub>VP</sub> [<sub>VP</sub> [<sub>V'</sub> bribe *t* <sub>i</sub> easily]]] PRO]]]

Stroik uses the *for*-phrase in (42) as evidence for the existence of the agent PRO in syntax.

<sup>9</sup> The status and function of the reflexive clitic in middles like *si* in Italian, *se* in French and *sich* in German are matters of controversy. With respect to their status, there is a debate on whether they are arguments or non-arguments. As for their function, while linguists like Keyser & Roeper (1984) argue that *si* absorbs accusative Case and the external theta role, Steinbach (2001) proposes that *sich* carries the patient theta role and accusative Case like a plain object argument, and consequently the non-thematic subject as the antecedent of *sich* obtains the reference and theta role of *sich*.

- (42) a. Bureaucrats bribe easily for Bill  
 b. That book read quickly for Mary

According to Stoik (1992, 1995, 1999, 2006), the demoted agent can occur overtly in the *for*-phrase since it can be Case-marked by the preposition *for*.

### Hoekstra & Roberts (1993)

Hoekstra & Roberts's (1993) proposal shares with Stoik (1992, 1995, 1999, 2006) the syntactic projection of the implied agent linked to a middle verb. The difference between them is that a *pro* but not a *PRO* is assumed in the former as the realization of the implied agent.

Such a *pro* is claimed to occupy the VP-internal subject position. The patient role is regularly assigned to the object, which is moved to the subject position by Move- $\alpha$ . The S-structure representation for (43a) is then as in (43b).

- (43) a. Bureaucrats bribe easily  
 b. [<sub>IP</sub> *bureaucrats* <sub>i</sub> [<sub>I'</sub> [<sub>VP</sub> *pro* [<sub>V'</sub> *bribe* *t<sub>i</sub>* *easily*]]]]]

Hoekstra & Roberts, like Stoik, appeal to *for*-phrase to confirm the existence of the empty category. In particular, they propose that prepositional objects like those in (42) get an experiencer thematic role from the adverb and the experiencer's content licenses the *pro* in [Spec, VP].

### 2.2.4.2 The lexical approach

From the viewpoint of Fagan (1992) and Ackema & Schoorlemmer (1994), middle verbs are derived via a pre-syntactic operation on otherwise transitive verbs. This pre-syntactic operation is capable of suppressing the agent and projecting the patient externally. That is to say, when middle verbs are inserted in syntax, they are already intransitive. Such a fashion of derivation eliminates the need to stipulate any movement for middle formation.

#### **Fagan (1992)**

Fagan (1992) argues against Keyser & Roeper's (1984) proposal. In particular, she refutes the idea that middles are derived in syntax via A-movement, just like what happens in passive formation. In her view, the transitivity alternation involved in middles and passives, although apparently analogous, are not derived in the same way.

The supporting evidence for her argument comes from facts involving preposition stranding. Wasow (1977) uses the fact that passives allow preposition stranding to demonstrate that passive formation involves A-movement. If middles are derived via A-movement, just like passives, then middles should allow preposition stranding as well. However, the fact is that middles disallow preposition stranding:

- (44) a. John was laughed at  
b. \*John laughs at easily

Fagan’s explanation for the ungrammaticality of (44b) is that the subject of middles are base generated but not moved there, therefore middles cannot pass tests for A-movement such as preposition stranding.

Fagan provided an alternative analysis based on two lexical rules. One serves the function of suppressing the agent, and the other enables externalizing the patient. Details of these two rules are presented below.

As shown previously, standard middles are generic statements. In particular, the implicit agent in middles is interpreted generically, which can be understood as “people, in general” (Levin 1982). Thus the middle construction in (45a) can be roughly paraphrased as (45b):

- (45) a. The book reads easily  
b. People, in general, can read this book easily

Fagan parallels middles like (45a) with the generic statement in (46b), which also involves a generic implied argument. In tackling examples like (46b), Rizzi (1986, p508) reexplains the notion of “saturation” of  $\theta$ -roles: “Intuitively, a  $\theta$ -role is saturated when it is associated with some referential content— that is, when we can understand ‘who does what’ in the situation referred to.”

- (46) a. This sign cautions people against avalanches  
b. This sign cautions against avalanches

According to Rizzi (1986), theta role saturation, which is typically done in the syntax via the Projection Principle and the  $\theta$ -criterion, may also take place in the lexicon. To ensure that the theta role of the implicit argument in sentences like (46b) is properly saturated, rule (47) is brought forward.

(47) Assign *arb* to the direct  $\theta$ -role. (Rizzi 1986, p509)

The concept *arb* in (47) can be decomposed into two basic features: [+human] and [+generic]; the ‘direct  $\theta$ -role’ is the  $\theta$ -role assigned directly by the verb. Rule (47) applies in the lexicon, saturating the patient  $\theta$ -role. If saturated in the lexicon, a  $\theta$ -role will never be projected in syntax. It will be understood even though it has no overt form, since it remains in the lexical semantics of an item.

On the basis of the parallelism between middles like (45a) and active generic sentences like (46b), Fagan extends Rizzi’s notion of ‘saturation in the lexicon’ to the analysis of middles in English, German and French. She proposes a rule like (48):

(48) Assign *arb* to the external  $\theta$ -role. (Fagan 1992, rpt2009, p162)

Such a rule not only captures the generic reading of the agent in middles, but also ensures that the agent is saturated in the lexicon and hence does not surface in syntax.

The other rule is stipulated to guarantee that the patient role of a verb is realized

externally in middle formation:

(49) Externalize the direct  $\theta$ -role (Fagan 1992, rpt2009, p164)

Such a rule is consistent with the claim that middle formation does not involve movement.

### **Ackema & Schoorlemmer (1994)**

Ackema & Schoorlemmer (1994) also oppose the view that middles are derived in syntax via A-movement. They argue that, despite the apparent similarity, middles and passives are not derived in the same fashion. Their argument is based on the fact that the agent in passives is syntactically much more active than its counterpart in middles (see Keyser & Roeper 1984 and Roberts 1987).

In addition, they put forward their own analysis, which derives middles presyntactically by suppressing the agent and base-generating the patient in the subject position. Thus the S-structure representation they assign to (50a) is (50b).

(50) a. Walls paint easily

b.  $[_{IP} \text{ walls } i [_{I'} I [_{VP} t_i [_{V'} \text{ paint easily}]]]]$

To suppress the agent in the lexicon, they follow Fagan's (1992) solution by arguing that the agent of middles is semantically present at Lexical Conceptual Structure (henceforth LCS) (see Jackendoff 1990 for LCS), but is not projected in

syntax, which is allowed since the agent has arbitrary reference.

Moreover, in order to base generate the patient argument externally, they propose a principle without further evidence. Their principle states that a verb can never lose its capability to assign an external theta role. That is to say, the external argument position has to be filled by a (thematic) argument. Such a principle is further combined with ideas on thematic hierarchy (cf. Grimshaw 1990) to constrain middle formation. Following such rules, since the agent, which is highest in the thematic hierarchy, is not projected in syntax, and the next highest argument, the patient, will project externally.

#### **2.2.4.3 The semantic approach**

##### **Massam (1992)**

The core of Massam's (1992) treatment of middles consists of three claims. The first claim is that the linking of the agent variable is optional (cf. Hale & Keyser 1986, 1987). In such a view, the agent is only present in the Lexical Conceptual Structure (Hale & Keyser 1986, 1987, among others), which is prior to D-structure in the derivation.

Another claim is that the key feature of middles (and Tough constructions) is the presence of a modality element of possibility. According to Massam (1992), the appearance of a patient in the subject position and the presence of an implicit agent is not the defining property of semantic middles (henceforth S-middles), but rather an

effect licensed by the S-middle construction. Such a view is in sharp contrast to those under the syntactic approach. What defines an S-middle construction, in Massam's view, is structurally a null or overt  $X^0$  modal which heads an inflectional phrase, occurring in the normal position for modals in English. The particular modal element is termed 'tough-AD'<sup>10</sup> (Massam 1992, p108).

The last claim is that the patient-subject is base-generated in a non-thematic position and binds a null reflexive in the object position, which acquires the patient theta role in situ. By its co-indexation with the null reflexive in the object position, the reference of the subject is fixed. To motivate assuming such a null reflexive object, Massam recurses to sentences like (51) and the like in Romance languages, which contain reflexive clitics.

- (51) a. This floor practically washes itself  
 b. His novels are so good, they almost read themselves. (Massam 1992, p110)

The D-structure for a middle construction like (52a) can be represented as (52b):

- (52) a. The book reads easily.  
 b.  $IP [NP_i I' [I \text{ (tough-AD)} VP [V ER_i]]]$  (ER stands for Empty Reflexive)

<sup>10</sup> According to Massam, tough AD can be realized as modals in Infl or a tough-adverb.

The chain linking the nonthematic subject and the null reflexive as shown in (52b) is argued to be licensed by the presence of the tough-AD.

### **Steinbach (2002)**

Steinbach's (2002) work mainly explores the syntax and semantics of German middles. Although this chapter focuses on studies of English middles, Steinbach's work as a recent monograph on middles, which is theory-oriented, is also worth mentioning.

With respect to the syntax of middles, Steinbach's analysis is reminiscent of Massam's (1992). His proposal also involves a chain formed by a non-thematic subject and a reflexive object, which receives the patient  $\theta$ -role of the verb. Given that the subject is the only [+R] (referential) element in the chain, it is the subject that will end up being interpreted as the patient of the verb. Here it should be noted that the reflexive in German middles is overt, whereas the one in Massam's work is null.

However, Steinbach (2002) departs from Massam (1992) regarding the treatment of the underlying agent. The former resorts to the notion of argument saturation (Chierchia 1989, Reinhart 1997), as is akin to the lexical approach as represented by Fagan (1992) and Ackema & Schoorlemmer (1994). Here saturation can be understood as introducing a semantic operator that binds the free argument variable. In the case of middle formation, a generic operator binds the free argument variable, namely the agent. Thus the agent is properly saturated, enabling the non-occurrence of the agent argument in syntax.

Concerning semantics, Steinbach views genericity as the essential property of

middles. He assumes a generic operator Gen in middles, which can be interpreted as “usually”. Following Krifka et al. (1995), among others, he treats Gen as a dyadic operator. Thereby he arrives at the formula in (53b) as the semantics of the middle construction in (53a).

(53) a. Krieg und Frieden liest sich leicht.

War and Peace reads RP easily

b. GEN-S, X, Y [y=war-and-peace] [read(s, x, y) & easy(s)]

The dyadic generic operator Gen relates two parts: the restrictor and the nuclear scope. Steinbach assumes that the subject of a middle construction, e.g., *War and Peace*, is generally mapped into the restrictor. The restrictor can be understood as the simple open formula stating that *y* has a particular value. The rest of the sentence constitutes the nuclear scope, which can be conceived as another and more complicated open formula. Following such an analysis, a paraphrase for (53b) might be provided as below:

‘It usually holds that if *y* is *War and Peace* then a situation *s* in which some *x* reads *y* is an easy situation’.

Such mapping, according to Steinbach (2002), takes place at the post-syntactic level. That is to say, “if the syntactic realization of the predicate and its arguments is such and such, then their semantics should be such and such”. In contrast, the presyntactic accounts typically say that “if the semantics of the predicate and its

arguments are such and such, then the syntactic realization of these elements should be such and such.” It can be seen in the above comparison that the main distinction boils down to one of directionality: from semantics to syntax, or from syntax to semantics. As pointed out by Ackema & Schoorlemmer (2003), this is merely a terminological, rather than substantial issue.

### **Lekakou (2005)**

Lekakou (2005) endorses Candoravdi’s (1989) and Massam’s (1992) idea that middles across languages share no uniform syntactic structure but a uniform semantic pattern. In such a view, the middle construction (in the generally accepted sense) is only one of different constructions bearing the same pattern of semantics, which for Candoravdi (1989) is genericity and for Massam (1992) is a type of modality. Lekakou views the unified semantics of middles as disposition ascription, which can be subsumed under genericity. The relation between disposition ascription and genericity will be discussed at length subsequently.

On the basis of such semantics, Lekakou postulates a bipartite semantic operator Gen for middles. This assumption is to some extent reminiscent of that in Steinbach (2002). However, it differs from the latter in that Gen in Lekakou (2005) behaves like a subject-oriented dynamic modal (like *can* in the sense of ability) (See Palmer 2001 for dynamic modals). Saying that Gen is subject-oriented means that it attributes some inherent property to the referent of the subject. With respect to middles, Gen has the effect of semantically selecting the patient of the verb, which is the target of disposition ascription, as the subject of the sentence. This type of

syntax-semantics mapping for middles is viewed as holding across languages.

This unified syntax-semantics mapping pattern, however, does not ensure unified syntactic patterns. In this regard, Greek and French contrast drastically with English, German and Dutch. According to Lekakou (2005), middles of the former group have two properties in terms of syntax. One is that the covert agent manifests syntactic activity like that in passives. The other is that the inactive voice in middles is also found in passives. In view of these properties, Lekakou concludes that Greek and French middles are parasitic on passives. In contrast, middles of the latter group feature active morphology and syntactically inactive agent. Lekakou therefore argues that middles in these languages pattern with unergatives, rather than passives.

Lekakou ascribes such syntactic variation of middles to cross-linguistic morpho-syntactic distinctions with respect to the presence vs. absence of imperfective tense, which is argued to overtly realize Gen at the level of syntax. For example, Greek and French exhibit imperfective tense, which can realize Gen in syntax. As a consequence, Greek and French middles are derived via A-movement at the level of syntax, as is on a par with the standard GB analysis for passivization. On the other hand, English, Dutch and German, in the absence of imperfective tense, realize Gen at the level of lexicon. As a result, the covert agent is licensed by Gen presyntactically, thus does not surface in syntax.

#### **2.2.4.4 Interim summary**

The key properties of the existing proposals for middle formation can be

summarized in the following table:

(54)

Features		Patient-subject	Patient -object	Underlying agent	Basic assumptions
Previous studies					
K&R, Stroik and H&R		A-movement [- $\theta$ , +Case]	NP-trace [+ $\theta$ , -Case]	K&R: absorbed by a null clitic	Case-driven movement
				Stroik: RPO	
				H&R: pro	
Fagan and A&S		Base-generated [+ $\theta$ , +Case]		Saturated in the lexicon by arb	Saturating by the <i>arb</i> reading of agent and externalizing the patient
Massam		Base-generated [- $\theta$ , +Case]	Reflexive [+ $\theta$ , +Case]	Exists in LCS (linking of the agent argument is optional)	Associating Tough-AD and the relevant chain formation
Steinbach				Saturated by arb	Mapping of the tripartite structure of generic sentences to syntax
Lekakou	English, German &Dutch	Base-generated [? $\theta$ , +Case]	—————	Licensed by Gen in the lexicon.	A semantic operator Gen semantically selecting the patient as subject
	Greek& French	A-movement [? $\theta$ , +Case]	NP-trace [+ $\theta$ , -Case]	Absorbed by the inactive morpheme	

### 2.3 Disposition Ascriptions and Generic Sentences

The most uncontroversial property of standard middles lies in its genericity. The particular type of genericity found in middles, however, is not common to all

generics. As pointed out in Krifka et al. (1995), the semantics of generic sentences is not uniform.

In the first place, NP-level genericity should be distinguished from sentence-level genericity. Instances of generic NPs are as follows:

- (55) a. A lion has a bushy tail  
b. Potatoes were introduced into Ireland by the end of the 17th century

In these examples, the single indefinite *a lion* and the bare plural *potatoes* are generic NPs. What middles involve is not NP-level genericity, but sentence-level genericity. Sentences manifesting the latter type of genericity can be further divided into habituais and disposition-ascriptions in the same vein as in Laca (1990), where habituais are called ‘iterated events’ and disposition-ascriptions ‘genuine generics’ (Laca 1990, p43). These two types of generics differ at least in two respects.

The first distinction has to do with the basis of the generalization. Habituais are in-view-of generalizations, as the basis for the generalization can be introduced by phrases like ‘in view of certain facts that are known (in a world)’. (56) serves as an example. It generalizes over instances of John actually engaging in smoking (Krifka et al. 1995).

- (56) John smokes

In contrast, disposition ascriptions are in-virtue-of generalizations since the proposition is true ‘in virtue of’ some property of the subject referent (see Greenberg (2002, 2003) for the distinction between ‘in virtue of’ and ‘in view of’ generalizations). Consider (57) for example:

(57) Salt is soluble in water

(57) has a dispositional reading, on which the truth of the sentence depends on properties inherent to the subject referent (the chemical structure of salt).

The other distinction is between actuality and potentiality. Habituals assert the existence of a type of regularly recurring events. The truth of a habitual depends on the occurrence of prior events depicted by the verb. On the other hand, dispositionals can be true even without any prior event of the type denoted by the verb. The following pair illustrates this difference:

(58) a. This machine crushes oranges. (Krifka et al., 1995)

b. John goes to school on foot.

The truth of (58a) does not hinge on whether or not there have been orange-crushing events in the past; the generalization is true in virtue of the intrinsic properties of the machine. By contrast, the habitual in (58b) will be false if there have been no prior events of John walking to school. This observation is made already in Dahl (1975) in

discussing the dispositional predicate ‘soluble in water’. Dahl comments: “A classical example of a dispositional property is ‘soluble in water’. Such a property shows itself only under certain conditions: to test whether something is soluble in water, we must put it in water. Still, we want to be able to call a thing soluble in water, even if it has never been in contact with this liquid and will perhaps never be” (Dahl 1975, p102)<sup>11</sup>.

Middles seem to fall into the category ‘dispositionals’. This is not only because intuitively they ascribe intrinsic properties to the referent of the subject, but also because the truth of middles is independent of prior events of the type denoted by the verb, as pointed out by Fagan (1992).

What follows will elaborate on issues pertaining to disposition ascription and its interaction with middle constructions.

### 2.3.1 Disposition ascription

The concept of disposition ascription originates in the domain of language philosophy. A disposition ascription expresses some intrinsic property of the referent

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<sup>11</sup> Some generics are ambiguous between habituals and dispositionals, as illustrated by ① and ②:

- ① John speaks French
  - a. John can speak French
  - b. John usually speaks French
- ② Boys do not cry
  - a. Boys usually do not cry
  - b. Boys have the property of being tough, thus they do not cry

of the subject. For instance, (59) is a disposition ascription, in which *Fragile* denotes an intrinsic property of the subject *the vase*.

(59) The vase is fragile

Regarding the property denoting semantics, (59) seems to pattern with (60), since both express some properties of the subject.

(60) The vase is red

The properties denoted by these two sentences, however, are in fact quite different. The semantics of a disposition ascription like (59) consists of two basic components: one is the causal base, namely, some intrinsic property of the vase, such as the molecular structure of its material. The other is the manifestation of the causal base, say, if dropped on the floor, the vase would smash easily. In brief, a disposition ascription involves some probability or possibility that depends on some intrinsic properties of the referent of the subject. By contrast, such partition does not apply to (60), which is a statement about some categorial property of the subject in the real world.

### 2.3.1.1 The relation between the disposition possessor and the rest of the sentence

It has been suggested by Shoemaker (1981) and Mumford (1998) that the intrinsic property of the subject is the cause of the proposition. For example, (61a) can be interpreted as (61b).

- (61) a. This apple is eatable
- b. Some intrinsic property of the apple causes people in general to be able to eat it

Such an idea faces challenges from the standard view on CAUSE. According to the standard view, CAUSE can be decomposed into two points: one is that there is an event serving as the initiating stimulus. The other is that there is change, which results from the initiating stimulus. The possession of a disposition is obviously a property. It is hence a state rather than an event. Moreover, no change obtains in a dispositional. Following the standard view, the possession of a disposition can, therefore, cause nothing.

To defend his proposal, Mumford argues that an acceptable sense of ‘cause’ can apply to dispositionals, since what can be said to constitute a cause may encompass many different types of ontological items. Those who reject viewing properties as causes are limiting to ‘initiating cause’ or Aristotle’s ‘efficient cause’. It is not claimed that the cause in dispositionals is equivalent to an efficient cause. Some

other type of causal role can be attributed to a property.

Fara (2001) takes a stand beyond the debate presented above, interpreting the relation between the dispositional property and its manifestation as ‘in virtue of’. (62a) is used to instantiate this point. In the first place, (62b) is provided as the interpretation of (62a). (62c) is further suggested to demonstrate the truth condition of (62a) and (62b).

- (62) a. Sugar is dissolvable
- b. Sugar is disposed to dissolve when put in water.
- c. An object is disposed to M when C iff it has an intrinsic property in virtue of which it Ms when C. (Fara 2001, p36)

‘In virtue of’, according to Fara (2001), is a primitive and thus cannot be decomposed into other notions. However, some other approximate notions are employed by Fara to describe this claimed primitive: “The best that can be said about it, I think, is this: a proposition is true in virtue of a property if citing an object’s possession of the property would constitute a good partial explanation of the truth of the proposition; and for the most part such an explanation will be a causal explanation” (Fara 2001, p38).

### **2.3.2 The dispositional modality**

A prominent characteristic of dispositionals, as indicated at the beginning of this section, is that they express some possibility or probability that depends on properties inherent to the referent of the subject. This intuition reflects a particular type of modality. What follows will elaborate on issues concerning this type of modality.

#### **2.3.2.1 Ascribing to Gen a modal semantics**

In general, generics differ from episodics in that the latter reports a specific event, whereas the former generalizes over events with a lawlike, non-accidental flavour. Thus generics but not episodics enable people to draw inferences and make predictions. For instance, dispositional generics like (63a) can be generally reduced to lawlike sentences like (63b).

- (63) a. Salt is soluble in water  
b. If salt is put into water, it will dissolve

Lawlike sentences are usually in turn analyzed as modalized sentences. Therefore, in the analysis of generic sentences, a number of semanticists adopt the modal approach (Dahl 1975; Nunberg & Pan 1975; Heim 1982; Delgrande 1987, 1988), which uses

possible-world semantics.

Specifically, the modal analyses of generics assume an intensional operator Gen. One of the advantages of assuming a modal operator in generics is that the law-likeness of generics can be captured in a formal way (For the details of the modal analysis of generics, refer to Krifka et al. 1995 and Lekakou 2005).

To explore the modality in dispositional generics, a sketch of possible-world semantics will be helpful.

### **2.3.2.2 A brief review on modals and modality**

Issues concerning modals and modality are notoriously delicate and complex. A full-fledged analysis of modals and modality is beyond what can be done in the present thesis. For simplicity, only the possible-world semantics developed by Kratzer (1977, 1981, 1991) is reviewed here.

According to Kratzer (1977, 1981, 1991), modal statements consist of three basic ingredients: the modal force, the modal base and the ordering source. The modal force determines whether the modal encodes a universal or an existential quantification over worlds and consequently whether the sentence expresses necessity as in (64) or possibility as in (65).

(64) a. John must still be alive

b. I must have this gold ring!

- (65) a. John may still be alive  
b. I cannot play the trombone (Kratzer 1981, p54)

The other two parameters for a modal statement, the modal base and the ordering source, are both context-dependent. To put it simply, the modal base refers to some assumption depending on which the sentence is considered.<sup>12</sup> For example, as the two most widely accepted categories of modals, epistemic modals are related to empirical evidence or knowledge of the speaker, while deontic modals are related to obligation or permission imposed on somebody according to some regulation or social norm (Lyons 1977). Examples follow:

- (66) a. He must be in the office now, since he works overtime every day  
(an epistemic modal)  
b. You should go home now, otherwise your parents will worry about  
you (a deontic modal)

According to Kratzer (1991), the modal base for the modality in (66a) and (66b) are introduced by *in view of*.

In addition to epistemic and deontic modals, von Wright (1951) advances ‘dynamic’ as a kind of modality involving ‘ability and disposition’, the modal base of which is introduced by *in virtue of* (Kratzer 1991).

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<sup>12</sup> The modal base in Kratzer (1981) is referred to as accessibility relation in Brennan (1993), and conversational background in Chierchia & McConnell-Ginet (2000).

The ordering source provides the third dimension of the interpretation of modal statements. The ordering source specifies an ‘ideal’ world, and orders the worlds restricted by the modal base on the basis of their closeness to that ideal. Thereby, the ordering source further restricts the worlds over which the modal word quantifies. The basic advantage of introducing an ordering source lies in that it enables an accurate account of gradient modality (Kratzer, 1991). For example, the contrast in the following pair can be captured by the ordering source:

- (67) a. You must wash the dishes now (#but you don’t have to)  
b. You should wash the dishes now (but you don’t have to)

A strong modal like *must* requires that the worlds being considered are all those that are very similar to the ideal that the ordering source specifies. *Should*, by contrast, allows one to consider worlds which are less similar to the ideal world of the ordering source.

Among the above three ingredients of a middle statement, it is the modal base that should be highlighted, since it has immediate ramification in syntax, as will be shown later. Therefore, issues concerning the modal base will be discussed in more detail subsequently.

**Palmer (1986, 2001):**

As mentioned above, epistemic and deontic modality are the most widely accepted classes in terms of the modal bases. Palmer (1986) adds ‘dynamic’ to those

two types in establishing his wellknown three-fold modality system. His dynamic modality includes subject-oriented dynamic modality, which involves internal conditioning factors as the modal base, expressing the ability or volition of the subject of the sentence, as shown by (68):

(68) John can speak German. (Palmer 1986, p12)

Modals like *can* in (68) are referred to as subject-oriented dynamic modals. The intuition that modals like *can* are subject-oriented can be confirmed by two pieces of evidence. The first piece of evidence depends on the interaction between the modals in question and subject-object inversion in sentences containing symmetric verbs. For example, *marry* is a symmetric verb. Saying that it is a symmetric verb is due to the fact that subject-object inversion in sentences containing such verbs will not affect the truth condition of the proposition, as (69) illustrates. In the presence of an epistemic modal, the same situation obtains, as (70) instantiates.

(69) a. John married Lydia last year=

b. Lydia married John last year

(70) a. John might have married Lydia last year=

b. Lydia might have married John last year

In contrast, when the epistemic modal in (70) is replaced with a subject-oriented

dynamic modal, the subject-object inversion results in a substantial change with respect to truth condition. Consider the following instances:

(71) a. John can marry Lydia  $\neq$  b. Lydia can marry John

The asymmetry between (71a) and (71b), as a matter of fact, results from the subject-oriented semantics of *can*. While (71a) states that John has the ability to marry Lydia, it does not entail that Lydia has the ability to marry John.

Another piece of evidence comes from the fact that active sentences with these modals do not have corresponding passive constructions. Instances follow:

(72) a. John can lift that big stone (adapted from Palmer 2001)  
b. \*That big stone can be lifted by John

Maybe someone will challenge Palmer's intuition on (72b). Even if the sentence is acceptable, one can still perceive the obvious semantic distinction between (72a) and (72b). While (72a) expresses John's ability, (72b) asserts some objective possibility on John's lifting that stone. This distinction (on either the acceptability or the change of meaning) can be attributed to the subject-orientedness of the modal.

The subject-oriented dynamic modals in Palmer's framework correspond to VP operators in Brennan (1993).

**Brennan (1993)**

Brennan (1993) also views the conversational background for some dynamic modals (i.e. ability *can* and dispositional *will*) as some property of individuals. He analyses such dynamic modals not as S(entence)-operators but as VP-operators. In this view, a dynamic modal combines with a VP, resulting in a modal property ascribed to the subject; “VP-operator modals relate properties and individuals” (Brennan 1993, p43).

Further, he suggests that dynamic (readings of) modals are subject-oriented (cf. Barbiers (1995)), in the sense that “in uttering a root modal sentence, the speaker typically relies on information about the syntactic subject” (Brennan 1993, p66). This is supported by the fact that overt *in virtue of* adverbials are obligatorily subject-controlled only when combined with dynamic modals (Brennan 1993, p48-52):

- (73) a. Joan can sing arias in virtue of his natural ability  
 b. In virtue of his patience, Joan will listen to anything  
 c. \* In virtue of being a graduate student, Joan may be intelligent  
 d. \* In virtue of winning a Guggenheim, Joan must be intelligent  
 e. ?? In virtue of the rock being lightweight, Mary can lift it  
 f. ?? Mary will agree to anything in virtue of the loose atmosphere in  
 the office

In the examples above, only (73a) and (73b) are well-formed, because only they link

the modalized properties, the ability to sing arias and the disposition to listen to anything, to properties of the syntactic subject. (73c) and (73d) indicate that epistemic modals are incompatible with subject-oriented ‘in virtue of’. Concerning (73e) and (73f), restricting dynamic modals by properties of (the referents of) non-subject arguments results in ill-formedness.

The subject-orientation and VP-scope of dynamic modals is not purely notional, as suggested by the syntactic analyses presented below.

There is a tradition to treat root modals as control verbs and epistemic modals as raising verbs (van Kemenade 1987, Abraham 1990). Such a treatment is adopted by Huang (1991), Tsao (1990) and Lin & Tang (1995) in the analysis of Chinese modals. Substantial evidence based on Chinese data has been provided for the distinction between root and epistemic modals. One piece of such evidence comes from the syntactic distribution of modals. While dynamic modals like *neng* ‘can’ cannot occur in the sentence-initial or sentence-final position, epistemic modals like *keneng* ‘might’ can occupy the sentence-initial position and deontic modals like *yinggai* ‘should’ can appear in the sentence-final position, as indicated below:

- (74) a. \**neng wo shuo yingwen*  
           can I speak English  
       b. \**wo shuo yingwen neng*  
           I speak English can

- (75) *keneng ta hui yingwen*

might he know English

‘He might know English.’

(76) ni zheyang zuo bu yinggai

you this way behave not should

‘You should not behave this way.’

The placement of a modal in either the sentence initial or final position is deemed as evidence for its sentential scope.

Similarly, Tsao treats dynamic modals like *neng* ‘can’ as two place predicates, which subcategorize an individual and a property. By contrast, epistemic modals like *keneng* ‘might’ are treated as one place predicates, subcategorizing a proposition.

Li (1990) and Huang et al. (2009) argue that modals like *neng* ‘can’ assign theta roles to the subject. As a result, the subject of *neng* ‘can’ should be treated as being base generated, rather than being moved from the position [Spec, VP]. Thus (77a) can be assigned (77b) as its S-structure.

(77) a. ta neng shuo yingwen

he can speak English

‘He can speak English.’

b.  $\text{Mod}_{\text{conP}}[\text{DP}_i \text{Mod}_{\text{conP}}'[\text{Mod}_{\text{con}} \text{IP}[\text{PRO}_i \text{I}'[\text{I VP}]]]]$

Such a view is in the same vein with Vikner (1988). According to Vikner (1988),

deontic modals, but not epistemic modals, in Danish assign a thematic role to their subject.

To sum up, dynamic modals and epistemic modals behave quite differently regarding semantics and syntax, as table (78) illustrates.

In these two classes of modals, what are of relevance to dispositionals is dynamic modals. Obviously, dispositionals may employ dynamic modals like *can* and *may* to express the particular modality.

(78)

Epistemic modals	In-view-of generalization	Dynamic modals	In-virtue-of generalization
	Sentence scope		VP scope
	One place predicate		Two place predicate
	Not subject-oriented (do not assign theta role to the subject)		Subject-oriented (assign a theta role to the subject)
	Behave like a raising verb		Behave like a control verb

### 2.3.2.3 Diesing's (1992) mapping hypothesis

Diesing's (1992) work is based on the distinction between individual level

(henceforth i-level) and stage level (henceforth s-level) predicates. Although the distinction made in her work is not strictly equivalent to the one between dynamic and epistemic modals, the spirit is almost the same. To have a proper understanding of Diesing's work, it is necessary to begin with the distinction between i- and s-level predicates.

I-level predicates attribute permanent or tendentially stable properties to individuals. S-level predicates, though, express episodic or transient properties of individuals. There are a set of tests for distinguishing these two classes of predicates (Kratzer 1989). One is that i-level but not s-level predicates resist time and locative modification, as suggested by the contrast between a and b in (79) and (80):

- (79) a. \*Mary is a blonde today  
       b. Mary walked to school today
- (80) a. \*Mary is a blonde in the beach  
       b. Mary walked in the beach

Another test relies on different interpretations of bare noun subjects. Carlson (1977) made the observation that i-level predicates select the universal reading of bare plurals, in contrast to s-level predicates:

- (81) a. Dogs hate cats.  
       b. Firemen are available

The bare plural subject in (81a) must be interpreted universally (or generically), whereas the bare plural in (81b) is naturally interpreted existentially. The possibility that the bare plural in (81b) has a universal reading also arguably exists. However, the relevant point is that the bare plurals in (81a) disallow an existential reading.

The third test involves adverbs of quantification. It has been noticed by Krifka et al. (1995) that i-level predicates are generally incompatible with Q(antificational)-adverbs. In contrast, s-level predicates are quite natural in the presence of Q-adverbs. Such a contrast is observable in the following paradigm:

- (82) a. John usually smokes after dinner  
b. \*This book is usually readable

Dispositionals express inherent rather than transient properties. Intuitively they should be i-level statements. Given that middles fall in the category of dispositionals, middle predicates should be treated as i-level predicates as in Ackema & Schoorlemmer (1994).

The intuition presented above can be confirmed by the fact that middles pass the tests for i-level predicates. It can be seen in (83) that middles are incompatible with time and locative modifiers. Moreover, the existential interpretation of *small cars* in (84) is impossible. Likewise, inserting the Q-adverb *usually* renders (85) unacceptable.

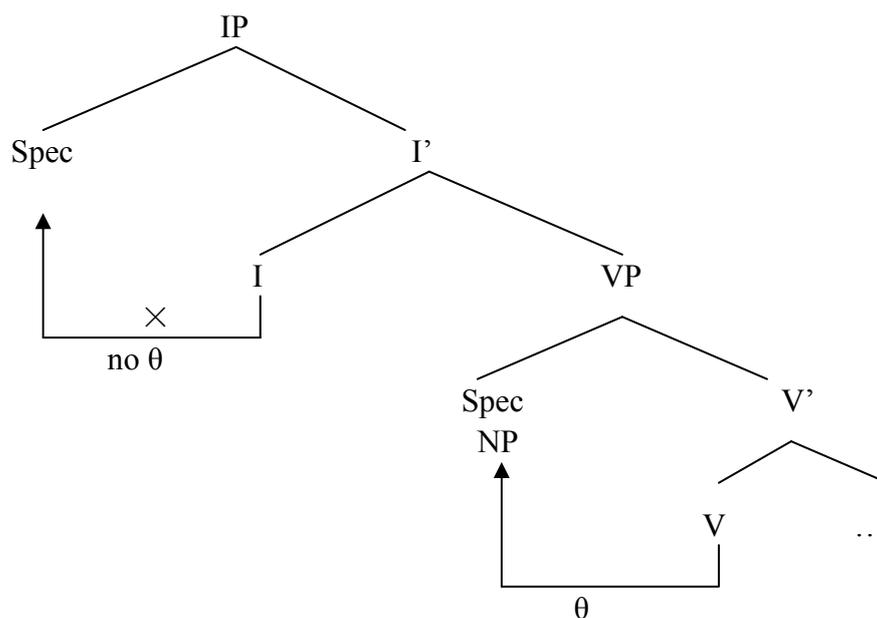
- (83) ? The book reads easily after dinner in this room
- (84) Small cars park easily
- (85) \*This book usually reads easily

The behavior presented above suggests that dispositionals are i-level statements.

Diesing proposes distinct syntactic structures for individual level and stage level predicates on the semantic basis.

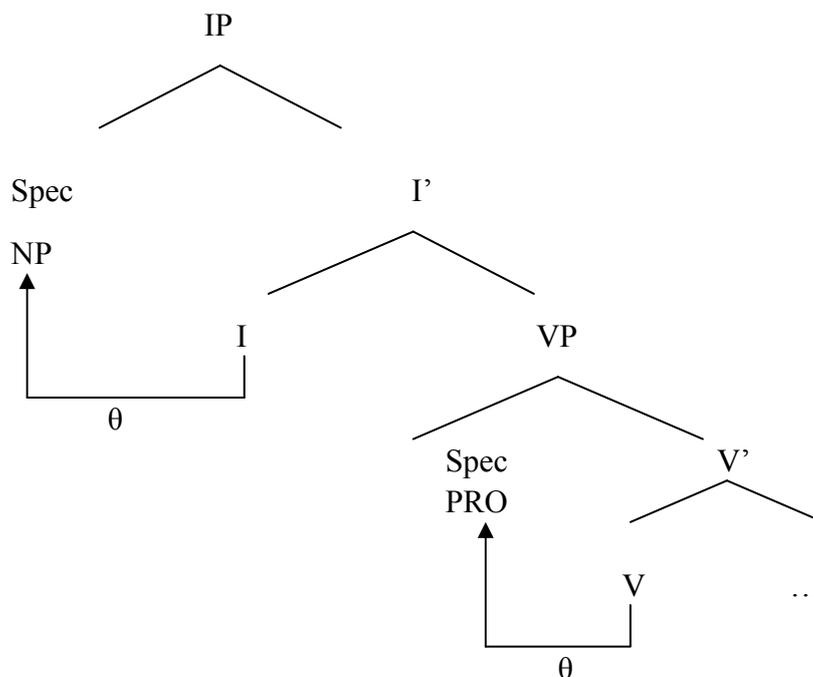
As to s-level predicates, Diesing claims that the Infl resembles a raising verb. It does not assign a theta role to [Spec, IP]. The subject gets its theta role from V, and hence is base-generated in [Spec, VP], which is, however, not a Case position. To acquire Case, the VP-internal subject raises to [Spec, IP], leaving a trace in [Spec, VP]. The syntax of the s-level predicate is schematized by (86):

- (86) Stage-level predicate (Diesing 1992, p24)



On the other hand, individual level predicates feature an Infl that resembles a control verb. It assigns a theta role to [Spec, IP]. This role roughly bears the meaning ‘has the property  $x$ ’, with  $x$  being the property denoted by the predicate. As a consequence, the subject of an i-level predicate is base-generated in [Spec, IP]. The subject in [Spec, IP], according to Diesing (1992), controls a PRO in [Spec, VP], which gets a theta role from V.

(87) Individual-level predicate (Diesing 1992, p26)



If Diesing’s treatment for i-level predicates is on the right track, it should then be plausible to assume a functional element (being Infl or not) similar to a control verb in dispositionals (also middles), which are i-level statements.

### 2.3.2.4 Spell-out of the dispositional modality in English

As far as English is concerned, dynamic modals like *can* and *will* appear to be the most transparent device to express dispositional modality. For example, the prominent interpretation of (88) is that Pavarotti has the ability that makes his singing possible. In such a case, the dynamic modal *can* is employed to mediate the relation between the intrinsic property possessor *Pavarotti* and his singing in possible worlds (Chierchia & McConnell-Ginet, 2000).

(88) Pavarotti can sing

Some suffixes also encode dispositional modality. For example, *approachable*, *soluble*, *washable* and *fragile* (see Dahl (1975), Chierchia and McConnell-Ginet (2000) and Krifka et al. (1995) for the claim that *-able/-ible* adjectives are used in dispositional generics).

In addition, the simple present tense is also closely related to disposition ascription, as illustrated by the fact that (89a) and (89b) are essentially synonymous.

(89) a. John runs 50 miles without ever stopping

(Chierchia & McConnell-Ginet 2000, p294)

b. John can run 50 miles without ever stopping

Although (89a) does not employ the dynamic modal *can*, its modality of dispositionals equals that in (89b). This modality also seems to be subject-oriented in ascribing some intrinsic property to the referent of the subject. In view of the parallelism between (89a) and (89b), it is plausible to assume a null modal encoding dispositional modality in (89a). Similar methods have already been employed in analyzing English middles. For example, Massam (1992, p108) argues that the modality in middles is encoded by a null  $X^0$  modal similar to *can*.

#### **2.3.2.5 Interim summary**

In summary, a disposition ascription involves an element encoding dispositional modality either overtly or covertly. This element has the following properties:

- i. It is subject oriented (in the sense that it has a thematic relation with the subject).
- ii. It requires the subject to be the target of disposition ascription.
- iii. It has scope over VP.

#### **2.3.3 Middles as disposition ascriptions**

Lekakou (2005) proposes that middles are disposition ascriptions. Actually, this claim is not totally brand-new. Rather, it is developed from a set of well-documented

generalizations of middles.

### **2.3.3.1 Van Oosten (1977)**

The best-known generalization similar to the notion ‘dispositionals’ is van Oosten’s (1977, p464) Responsibility Condition:

(90) *Responsibility condition*

The subject of a middle (the logical object) must have properties such that it can be understood to be responsible for the action expressed by the predicate.

In spite of its vagueness, (90) has been assumed by a number of scholars as a means of explaining some impossible middles. For example, Fagan (1992) suggests that *The book buys well* is ungrammatical because the properties of a book are unlikely to be responsible for the action expressed by the predicate *buy*.

### **2.3.3.2 Fellbaum (1986)**

Something similar to the Responsibility Condition is discussed in Fellbaum (1986). “Middles implicitly state something about the qualities of the patient that

enable any potential agent to perform the action in question, with the result or in the manner indicated by the adverb” (Fellbaum 1986, p12).

### 2.3.3.3 Massam (1992)

Massam (1992) attempts to define middles in terms of semantics. Contra the canonical view on middles, which is of a syntactic nature, she contends that the appearance of a patient in the subject position is not the defining property of middles, but rather, it is a possible effect licensed by the middle construction defined in terms of semantics. Here the semantically defined middle refers to a sentence that contains a particular tense or modality which encodes the generic meaning of middles. This particular modality is substantiated by the contrast between (91) and (92).

(91) This blouse washes like a dream

(92) a. The blouse was washed easily

b. Mary washed the blouse easily

With respect to (91), *this blouse* is considered to have a certain characteristic that makes it easy to wash. This property reading is either impossible or optional for the non-middle counterparts in (92).

On the basis of the modality reading discussed above, Massam assumes a functional head in middles, which may be either overt or null, along the line of

Roberts (1987). She ascribes three semantic functions to this element:

- i. Stativize the predicate (cf. Roberts 1987)
- ii. Comment on the possibility/ability/likelihood of the event denoted by the predicate (cf. Fellbaum 1985)
- iii. Attribute a property reading to the subject (cf. Lakoff 1977, van Voosten 1977, and Hale & Keyser 1988) (Massam 1992, p102)

In view of the fact that these three characteristics also hold for the modal *can* in English, Massam suggests that the functional head in question may be treated on a par with *can*.

#### **2.3.3.4 Brennan (1993)**

Brennan (1993) hints at a suggestion about the dispositional modality related to middles and sentences with *-able* adjectives, on the basis of the systematic absence of epistemic modal readings in these structures (Brennan 1993, p42–43). She concludes that as far as middles are concerned, “the modal word/affix relates a property-denoting expression and an individual-denoting expression” (Brennan 1993, p42–43).

### 2.3.3.5 Dowty (2001)

Dowty (2001) suggests that the only factors that determine the truth value of a middle construction are properties inherent in the patient-subject. He uses contrasts shown in the following sentences to uphold such a view:

(93) The clothes wash with no trouble because... (van Oosten 1977)

a. ... they're machine-washable.

b. \* ... I have lots of time.

(94) This car drives well... (Dowty 2001, p11-12)

a. ... because the suspension is engineered well.

b. ?? ... because we're driving on smooth pavement.

(95) It's no trouble to wash the clothes because... (Van Oosten 1977)

a. ... they're machine-washable.

b. ... I have lots of time.

It has been suggested by Brennan (1993) that the phrase introduced by *in virtue of* is obligatorily subject-oriented if it co-occurs with a disposition ascription. This is because the *in virtue of* phrase manifests the intrinsic property which is essential for the disposition ascription to be true, and the intrinsic property is owned by the subject of the disposition ascription. The clause introduced by *because* patterns with the *in virtue of* phrase in identifying the owner of some disposition: co-occurring with a disposition ascription, the clause introduced by *because* is

obligatorily related to the subject of the disposition ascription. With this in mind, consider the behavior of clauses introduced by *because* that co-occurs with middles. Middles like (93) and (94) are compatible only with ‘because’ clauses related to the patient-subject, but not with the ones related to the underlying agent. On the other hand, non-middle sentences like (95), which seem semantically identical to (93) at the first glance, is not subject to such a restriction. This contrast indicates that middles, but not their non-middle counterparts, are disposition ascriptions.

#### **2.3.4 Deriving the middle construction from dispositionals**

It can be seen thus far that intuitions approximate to the notion ‘disposition ascription’ receives considerable attention in previous studies on middles, which have already hinted about the syntax-semantics mapping for dispositionals. Such intuitions are formalized in McConnell-Ginet (1994) and Lekakou (2005) to derive middles from its dispositionality.

##### **2.3.4.1 McConnell-Ginet (1994)**

McConnell-Ginet (1994) made an attempt to formalize the intuition expressed by the Responsibility Condition. For an example like (96), she argues that what is communicated is that small cars, in virtue precisely of being small, are easy to park.

Such an intuition leads her to designate the syntactic subject as the Causer in the formulation for (96), as presented below:

- (96) a. Small cars park easily  
 b.  $\lambda x \lambda e$  [easy (parking ( $y_i^*$ )) (e) &  $x = \text{Causer}(e)$  &  $x = y_i^*$ ] ( $y_i^*$  stands for a null reflexive that she assumes exists in English middles)

Such formulation is paraphrased as follows: ‘some property of small cars is such that (the STATE of) their having that property is what CAUSES parking them to be generally easy’ (McConnell-Ginet 1994, p241).

#### 2.3.4.2 Lekakou (2005)

Lekakou’s (2005) analysis of middles capitalizes on their dispositionality as a type of genericity. She claims that middles are disposition ascriptions, which involve a dispositional generic operator Gen. Following Brennan’s (1993) proposal for dispositional *will*, she provides the subsequent profile of Gen:

- i. Gen is a VP-level generic operator.
- ii. They express ‘in virtue of’ generalizations.
- iii. They are subject oriented.

This semantic operator requires the target of disposition ascription to occur in the subject position.

According to Lekakou (2005), the middle construction can be reduced to a reflex of Gen's effect. Since the patient is ascribed a disposition, it is selected as the subject by Gen. On the other hand, the agent, which is canonically projected to the subject position, as a result, is demoted.

## Chapter 3

### Define Chinese Middles

#### 3.1 Introduction

Although the discussion on middles in European languages (especially English) dominates the literature, middles in other languages have attracted more attention over the last few decades. For example, there is a continuing debate on whether several Chinese constructions should be regarded as middles.

This chapter sets out to define Chinese middles. In section 3.2, a definition of the middle construction will be proposed on the basis of the discussion in section 2.1 in chapter 2. In section 3.3, constructions considered Chinese middles in the literature will be examined, and a novel middle construction in Chinese will be proposed. Detailed discussion of these constructions will reveal that only *Nan-yi* and *Neng-ke* constructions should be categorized as ‘Chinese middles’. Section 3.4 summarizes the chapter.

### 3.2 The Definition of the Middle Construction

To define the middle construction is a notoriously difficult enterprise, since this construction has a clear central core, like those in English, but has very fuzzy boundaries. As pointed out by Kemmer (1993), the phenomena to which the term middle has been applied are of a disparate nature.

The current study defines the middle construction as a type of construction that possesses the following properties:

- i. The patient of a transitive verb surfaces as the subject;
- ii. The transitive verb does not bear passive morphology;
- iii. The agent of the transitive verb is not overtly realized but remains perceivable with a generic reading;
- iv. The sentence is a generic statement, expressing an inherent property of the referent of the subject.

This definition can be justified by two considerations. For one thing, the defining properties listed above are generally used to characterize middles, as has been shown in section 2.1 in chapter 2. Moreover, this definition suffices to distinguish middles from neutral (active) sentences, passives and unaccusatives: (a) middles differ from neutral (active) sentences in that their patient is realized as the subject; (b) whereas passives bear the passive morphology, middles does not; and (c) a middle construction implies an agent and is a generic statement, properties that do not hold for unaccusatives.

### 3.3 Review of Chinese Middles in the Literature

#### 3.3.1 Chinese middles in the literature

Constructions considered Chinese middles in previous studies include pseudo-passives, certain *V-qilai* constructions, *Nan-yi* constructions and [*ke* ‘can’ + *V<sub>t</sub>*] constructions<sup>13</sup>.

13 Chao (1968) proposed a class of middle voice verbs, such as *fu* ‘help sb. up’ in ① and *kai* ‘open’ in ②.

① ni fu zhe wo  
you help...up PROG I  
‘You help me up.’ or ‘I help you up.’

② men kai le  
door open LE  
‘The door has opened.’ or ‘The door has been opened.’

Chao views these verbs as middles because they enable the ambiguity between ‘agentive use’ and ‘non-agentive use’. Such sentences can be disambiguated by the following context:

③ ni xiaoxin shuai-dao, ni fu zhe wo ba  
you cautious fall over, you lean on ZHE me BA  
‘Be careful! You lean on me, otherwise you will fall over.’

④ wo zhan bu wen le, ni fu zhe wo ba  
I stand not stable PERF, you help ZHE me BA  
‘I cannot stand stably anymore. You help me up.’

⑤ A: men kai le  
door open PERF  
‘The door has been opened.’

B: shui zheme zao jiu kai men?  
who so early JIU open door  
‘Who opened the door so early?’

⑥ A: men zenme kai le?  
door how come open PERF  
‘How come the door has opened?’

B: ziji kai de  
itself open DE  
‘It opened all by itself.’

Obviously, some ‘middle voice verbs’ as *kai* ‘open’ correspond to the inchoative, rather than middle verbs, in today’s mainstream theories. Others like *fu* ‘help sb. up’ has nothing to do with transitivity alternation, hence is beyond the scope of this thesis.

Pseudo-passives (also unmarked passives, derived ergatives, patient-subject sentences), such as in example (1) below, are treated as middle constructions (Cheng 1989; Cheng & Huang 1994; Ting 2003, 2006; Shen 2010).

- (1) shu mai-lai le  
 book buy-come PERF  
 ‘The book has been bought.’

A type of *V-qilai* sentence such as (2) can be formalized as [DP<sub>patient</sub> V-*qilai* AP] (henceforth, VQA). Discussions on VQA dominate previous works on Chinese middles (Sung 1994, 1997; Ji 1995; Cao 2004, 2005; Han 2007; among others).

- (2) zhe liang che kai qilai hen kuai  
 this CL car drive QILAI very quick  
 ‘This car drives fast.’

Sentence (3) below is a typical case of *Nan-yi* constructions treated as middles in the literature (Cheng 1989, Kurukawa 2005)<sup>14</sup>:

14 As pointed out by Huang (1997) and Gu (p.c. in Huang 1997), *Nan-yi* constructions are heterogeneous. Specifically, whereas some verbs following *Nan-yi* words are transitive, others may be unaccusative, as shown in ⑦:

⑦ jinyu rongyi si  
 goldfish easy die

‘The possibility of a goldfish dying is large.’

*Nan-yi* constructions containing transitive verbs further split into two classes with respect to the (non)occurrence of the agent, as illustrated below:

(3) zhe ben shu rongyi du

this CL book easy read

‘This book is easy to read.’ or ‘This book reads easily.’

[*Ke* ‘can’+*V<sub>t</sub>*] constructions, such as example (4) below, are regarded as middles by Kurukawa (2005).

(4) zhe-ge haizi hen ke'ai

this-CL kid very can-love

‘This kid is very lovable.’

These claimed middle constructions, as presented above, will now be examined in turn.

### 3.3.2 Pseudo-passives examined

Pseudo-passives parallel middles in three respects: (a) the patient of the verb

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⊗ a. zheyang de tiaojian women hen nan jieshou  
 such DE condition we very difficult accept  
 ‘It is very difficult for us to accept such conditions.’

b. maoyi (\*wo) hen nan-xi  
 sweater (\*I) very difficult-wash  
 ‘Sweaters are very difficult to wash.’ or ‘Sweaters wash with difficulty.’

Only sentences such as ⊗b have bearing on the discussion of middles.

occupies the subject position<sup>15</sup>; (b) the verb does not carry a passive marker; and (c) an agent is implied.

The similarity between pseudo-passives and middles does not go any further, though. While canonical middles express inherent properties of the subject, pseudo-passives describe resultative states of the subject. Moreover, the implied agent in canonical middles is interpreted generically, whereas its counterpart in pseudo-passives receives a specific reading. These two differences reflect a more general contrast between middles and pseudo-passives: canonical middles are generic, whereas pseudo-passives are eventive.

Since genericity is generally accepted as an essential property of middles, as shown in Chapter 2, it seems plausible to exclude pseudo-passives from middle.

### **3.3.3 VQA examined**

VQA appears to share the following properties with middles: (a) the patient appears in the subject position; (b) the verb does not carry a passive marker; (c) the agent does not surface in the sentence but remains perceivable; and (d) VQAs are generic sentences, describing an inherent property of the subject. These properties lead Sung (1994, 1997) to identify VQAs as middles. It should be noted, however, these properties are insufficient to support the view that VQAs are middles.

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<sup>15</sup> This property has aroused heated debate in the literature. Interested readers are referred to Shi (2003, 2005) and the reference therein.

According to the definition of the middle construction postulated in the present thesis, the transitivity alternation in a middle construction should be related to the main verb.<sup>16</sup> Therefore, VQAs should be identified as middles only when *V-qilai* functions as the main verb. The syntactic status of *V-qilai*, however, is a matter of controversy. Arguments for and against treating *V-qilai* as the main verb are presented below, respectively.

### 3.3.3.1 Arguments for viewing *V-qilai* as the main verb

Sung (1994, 1997) claims that *V-qilai* functions as the main verb in VQA, on the basis of the following arguments:

*Deletion.* Deleting *V-qilai* in sentences like (5) gives rise to ungrammaticality:

- (5) zhe ben shu mai-qilai hen kuai  
 this CL book sell-QILAI very quickly

This observation is expected if *V-qilai* is the main verb, since deleting the main verb generally leads to ungrammaticality. On the other hand, this observation should be rather surprising if *V-qilai* is an adverbial. The assumption underlying this line of reasoning is that deleting adverbials has no effect on the acceptability of sentences.

<sup>16</sup> 'Middle' originally referred to a category of voice in languages such as Greek. It is well established that voice is manifested by certain morphology carried by the main verb. Even though the concept of 'the middle construction' departs from that of the middle voice to some extent, it is still plausible to depend on the behavior of the main verb to determine whether a construction is a middle one.

*Preposing.* *V-qilai* in VQA cannot prepose to the sentence-initial position:

- (6) a. zhe ben shu mai qilai hen kuai  
 this CL book sell QILAI very fast  
 ‘This book sells fast.’
- b. \*mai-qilai, zhe ben shu hen kuai  
 sell-QILAI, this CL book very fast

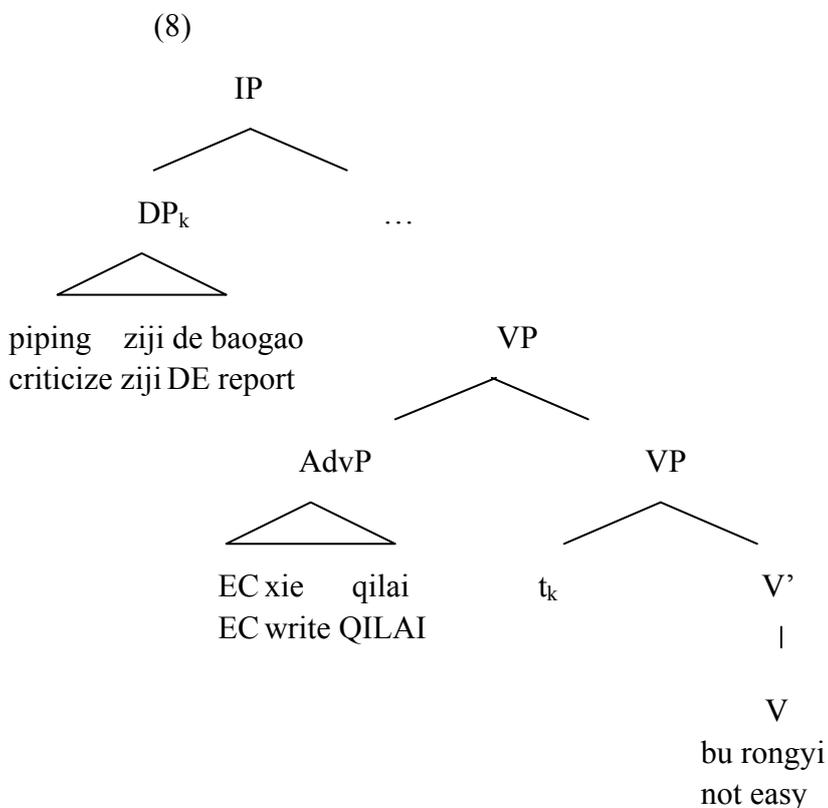
This observation discourages treating *V-qilai* as an adverbial and hence favors analyzing *V-qilai* as the main verb. The assumption underlying the above analysis is that all adverbials in Mandarin can be preposed to the sentence-initial position.

*Reflexive Binding.* The covert agent of *V-qilai* is able to bind the reflexive *ziji* in sentences such as (7):

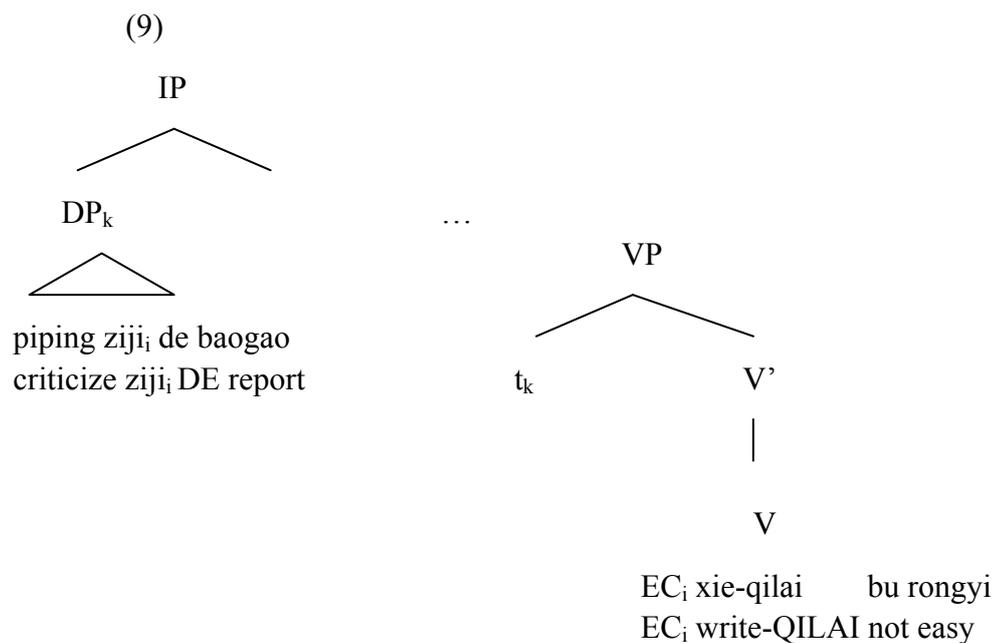
- (7) piping ziji de baogao xie-qilai bu rongyi  
 criticize self DE report write-QILAI not easy  
 ‘Reports that criticize oneself do not write easily.’

This is possible only when the implicit agent and *ziji* are within the same binding domain. It is well-established that a binding domain is the clause containing the NP (anaphor, pronoun or R-expression). If *V-qilai* functions as an adverbial, namely, an adjunct, the implicit agent of *V-qilai* is outside of the binding domain of the reflexive

*ziji*, as the tree diagram in (8) suggests.



The only alternative is to analyze *V-qilai* as the main predicate. When *V-qilai* functions as the main predicate, the implicit agent and *ziji* are within the same clause, as the tree diagram in (9) indicates.



### 3.3.3.2 Arguments against the main verb status of *V-qilai*

Cao (2004, 2005) rejects Sung's (1994, 1997) view on *V-qilai* by invalidating the assumptions underlying Sung's analysis. Cao's arguments are presented as follows. First, the sentences below challenge the assumption that deleting adverbials does not affect the acceptability of a sentence:

- (10) wo jingchang \*(he ta) wanglai  
I always (with him) communicate  
'I always communicate with him.'

- (11) women \*(wei dajia) fuwu  
we (for every one) serve  
'We serve every one.'

Most people would agree that *he ta* ‘with him’ and *wei dajia* ‘for every one’ act as adverbials in the above sentences. Following Sung’s assumption, omission of such adverbials should not induce unacceptability of the sentences. This prediction, however, is at odds with the fact in (10) and (11).

Second, sentences such as (12) pose a problem for the assumption that all adverbials may be preposed to the sentence-initial position:

- (12) a. Zhiming xiaoxin de suo le men  
 Zhiming carefully DE lock PERF door  
 ‘Zhiming carefully locked the door.’
- b. \*xiaoxin de, Zhiming suo le men  
 carefully, Zhiming lock PERF door

*Xiaoxin de* ‘Carefully’ in (12) functions as an adverbial. A prediction following from Sung’s assumption would be that this adverbial can be preposed to the sentence-initial position. This prediction conflicts with the fact in (12).

Y.-H. Audrey Li (P.C. cited in Sung 1997, p22) also denies Sung’s proposal. The following facts are used as counterevidence.

*A-not-A Formation.* A-not-A formation has generally been used to identify main verbs in Chinese (e.g., Chao 1968, Huang & Mangione 1985). When it comes to VQA, it is found that AP, but not *V-qilai*, may undergo A-not-A formation:

(13) a. \* zhe liang che kai bu kai qilai hen kuai?

this CL car drive not drive QILAI very fast

b. zhe liang che kai-qilai kuai-bu-kuai?

this CL car drive-QILAI fast-not-fast

‘Does this car drive fast?’

Thus it seems plausible to treat AP, rather than *V-qilai*, as the main predicate.

*Distribution of the Adverbial dou ‘all’*. Y.-H. Li (1997) claims that *dou* ‘all’ must precede the predicate. When *dou* ‘all’ is inserted in VQA, it is found that *dou* ‘all’ may immediately precede AP:

(14) zhexie che kai-qilai dou hen kuai

these car drive-QILAI all very fast

‘These cars all drive very fast.’

Thus AP, rather than *V-qilai*, should be treated as the head phrase of the predicate.

### 3.3.3.3 Examination of *V-qilai*

Based on the debate presented above, this subsection will further examine the syntactic status of *V-qilai*.

The first thing to consider is the binding properties of *ziji* occurring as the object

of the *V-qilai* phrase. Sung argues that the covert agent of *V-qilai* can serve as the antecedent of *ziji* and, since *ziji* always takes a subject as the antecedent, the covert agent must have the status of the matrix subject and *V-qilai* must have the status of the matrix predicate. However, it is well known that *ziji*, as a so-called long-distance anaphor, can take any c-commanding subject as its antecedent (e.g., Xu 1993) the fact that *ziji* can take the covert agent of *V-qilai* as the antecedent does not guarantee the matrix predicate status for *V-qilai*, nor does it guarantee that the covert agent and *ziji* are in the same minimal binding domain, namely, in the same minimal clause. The binding properties of such a *ziji* does not prove that *V-qilai* is the matrix predicate.

Further discussion will employ a number of tests, including the A-not-A formation test. Although this test has already been used in Li (1997), the item identified by this test, as proposed in the present study, differs from that in Li (1997).

*A-not-A formation.* A-not-A formation has generally been used as a test for the main verb in a Chinese sentence. While this view is unproblematic with sentences such as (15a), it may be challenged by sentences such as (15b):

(15) a. ta qu-bu-qu?

he go not go

‘Will he go?’

b. ta hui-bu-hui qu le?

he may-not-may go PERF

‘May he have gone?’

In (15b), the modal *hui* ‘may’ takes the A-not-A form. If A-not-A formation identifies the main verb, the modal *hui* ‘may’ would be regarded as the main verb. However, it is generally accepted that modals do not function as main verbs. In view of this state of affairs, what A-not-A formation identifies requires reconsideration.

The structural difference between the sentences below may shed light on this issue:

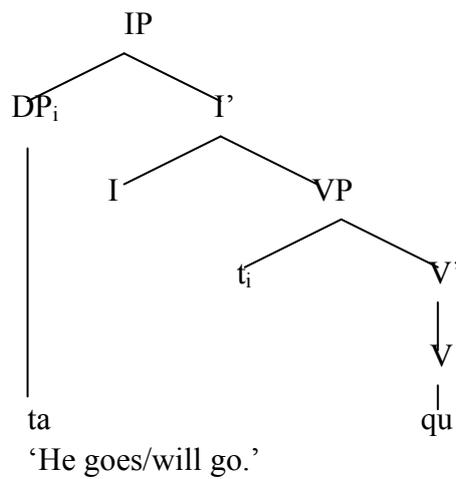
- (16) a. ta qu  
           he go  
           ‘He goes/will go.’<sup>17</sup>
- b. ta hui qu  
           he will go  
           ‘He will go.’

The structure of the above sentences can be schematized as (17a) and (17b), respectively.

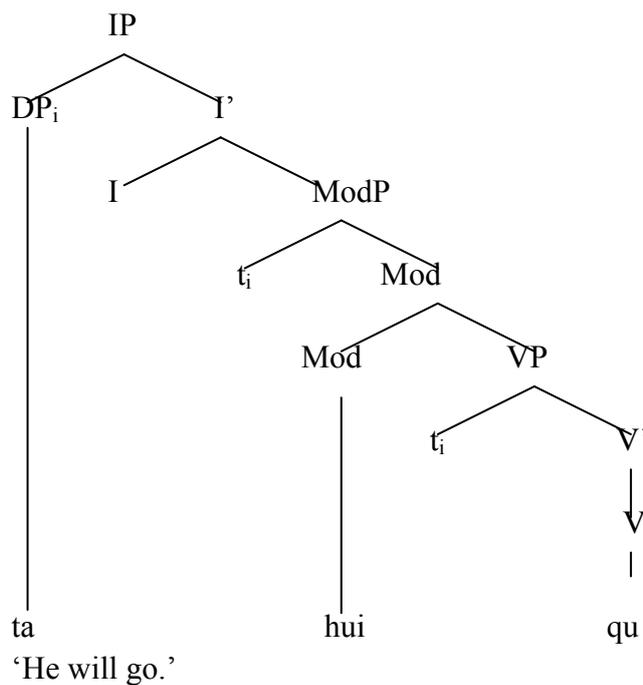
17 It should be noted that (15a) cannot stand alone. In fact, it always serves as a short answer. Accordingly, the interpretation of (15a) depends on the context with respect to its aspect. In particular, as the answer to ⑩a, (15a) denotes a future event. On the other hand, as the answer to ⑩b, (15a) instantiates a habitual sentence.

⑩ a. mingtian shui qu Xinjiapo?  
       tomorrow who go Singapore  
       ‘Who will go to Singapore tomorrow?’  
       b. mei zhou ta dou qu jiaotang ma?  
       every week he all go church SFP  
       ‘Does he go to church every week?’

(17)a.



b.



While the item that may undergo A-not-A formation in (17a) is the verb *qu* 'go', the only predicative head in the sentence, that in (17b) is the modal *hui* 'will', the highest predicative head in the sentence. As a matter of fact, the item that may undergo A-not-A formation in both cases may be considered the highest predicative head in

the sentence. To be more precise, the target of A-not-A formation is the head of the uppermost maximal projection in the predicate (henceforth HUM)<sup>18</sup>.

When VQA is put into the A-not-A formation test, as in (18) ((18) is equal to example (13), p 99), it is found that AP, but not *V-qilai*, undergoes A-not-A formation.

- (18) a. \* zhe liang che kai bu kai qilai hen kuai?  
           this CL car drive not drive QILAI very fast
- b. zhe liang che kai-qilai kuai-bu-kuai?  
           this CL car drive-QILAI fast-not-fast
- ‘Does this car drive fast?’

If the item that may undergo A-not-A formation functions as HUM in a Chinese sentence, as proposed in the present study, the facts in (18) suggest that in VQA, AP, instead of *V-qilai*, occupies the HUM position. Since *V-qilai* precedes AP, the head of the uppermost maximal projection in the predicate, it is reasonable to analyze *V-qilai* as an adjunct to the predicate. There is no compelling reason to analyze *V-qilai* in any other way.

*Distribution of the Emphatic Marker shi and Adverbs such as dique ‘indeed’.* The concept of HUM is also useful when dealing with the distribution of the emphatic

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18 A-not-A formation is assumed to be a one-way, rather than two-way, test, as Li (1990) contends. This claim can be interpreted in two respects: if a verb passes this test, it should be treated as HUM, but if a verb fails this test, it is still possible that this verb functions as HUM and its failure to pass this test may be attributed to independent factors.

marker *shi* and adverbs like *dique* ‘indee’, *yexu* ‘maybe’ and *cengjing* ‘previously’.

Consider the sentences below:

- (19) a. Zhangsan shi/ yexu/ dique/ cengjing yuanyi qu  
 Zhangsan EMP/perhaps/indeed/ previously be willing to go  
 ‘Zhangsan was always/perhaps/indeed willing to go.’
- b. yexu/ dique/ shi/ cengjing Zhangsan yuanyi qu  
 perhaps/ indeed/EMP /previously Zhangsan be willing to go  
 ‘Zhangsan is perhaps/ indeed willing to go.’  
 ‘Zhangsan was willing to go previously.’
- c. \*Zhangsan yuanyi shi/ yexu / dique/cengjing qu  
 Zhangsan be willing to EMP/ perhaps/ indeed/previously go

In the above sentences, *yuanyi* ‘will’ occupies the HUM position. Moreover, the emphatic marker *shi* and adverbs like *dique* ‘indeed’ need to occupy a position higher than *yuanyi* ‘will’, the HUM. Thus it can be seen that the elements in question need to precede HUM in a sentence.

When inserted in VQA, the elements in question may follow *V-qilai* and precede AP:

- (20) zhe liang che kai-qilai shi/ dique/ yexu/ cengjing hen  
 kuai

this CL car drive-QILAI EMP/indeed/maybe/previously very fast  
 ‘This car does/indeed drives fast.’ ‘Maybe this car drives fast’  
 ‘This car drove fast previously.’

Given that these elements need to precede HUM in a sentence, example (20) indicates that AP, but not *V-qilai*, acts as HUM. Furthermore, since *V-qilai* precedes AP, the HUM, it is plausible to treat *V-qilai* as the adverbial.

*Comparative.* Shi (2001), Lin (2009) and others suggest that Chinese predicates in general resist comparison, as illustrated below:

(21) \*zhe-zhang zhuozi (hen) kuan bi na-zhang zhuozi (hen) chang  
 this-Cl table very wide COM that-Cl table very long  
 (adapted from Lin 2009, p7)

When it comes to VQA, it is found that two *V-qilai* strings may be compared:

(22) xiaoshuo fanyi-qilai bi xie-qilai rongyi  
 novel translate-QILAI COM write-QILAI easy  
 ‘Translating novels is easier than writing them.’

If *V-qilai* were the main verb, (22) would constitute an unexplained exception to the otherwise general prohibition on comparison between predicates. An alternative is to

treat *V-qilai* as an adverbial. According to Shi (2001), adverbials can serve as the item being compared:

(23) wo zai jia      bi zai xuexiao hai    mang    (Shi 2001, p143)

I    at home than at school    even    busy

‘I am even busier at home than I am at school.’

*Lian...dou* marking. Shyu (1995) claims that head verbs cannot be focalized by the ‘*lian...dou*’ construction. Example (24) supports this generalization:

(24) \*Lisi lian    likai    dou/ye    le    youju    (Paris 1979)

Lisi LIAN [depart DOU/YE PERF post office

When *lian...dou* marking is applied to VQA, it is observed that *V-qilai* may be focalized:

(25) zhe liang che lian    tui-qilai      dou    hen    kuai

this CL    car LIAN push-QILAI DOU very    fast

‘Even when pushed, this car runs very fast.’

If Shuy’s generalization is on the right track, the fact in (25) suggests that *V-qilai* is not the head verb in the predicate.

In summary, the above considerations discourage treating *V-qilai* as the main predicate. As mentioned previously, only when *V-qilai* functions as the main verb can VQA be treated as middles. Therefore, it is plausible to exclude VQA from middles.

### 3.3.4 *Nan-yi* constructions revisited

*Nan-yi* constructions are akin to middles in terms of the following properties:

- i. The patient surfaces as the subject.
- ii. The verb does not carry a passive marker.
- iii. The agent does not appear in overt syntax but remains perceivable.
- iv. Such constructions represent generic statements, expressing an inherent property of the referent of the subject.

In view of these observations, Cheng (1989) and others regard *Nan-yi* constructions as middles. This view, however, is denied by Gu (1990) and Sung (1994), who treat *Nan-yi* constructions as equivalent to *tough* constructions (henceforth, TCs). This section is an attempt to evaluate these two competing analyses, namely middle vs. TC analysis, by examining the syntactic structure of *Nan-yi* constructions. The findings turn out to favor the middle analysis.

### 3.3.4.1 Arguments for the TC analysis

Gu (1990) treats *Nan-yi* constructions as equivalent to TCs in English. Her argument pertains to the categorial status of *Nan-yi* words in the constructions considered. Here the relation between the categorial status of *Nan-yi* words and the status of the relevant constructions, namely TCs vs. middles, needs clarification.

Generally, *Nan-yi* words precede VPs in *Nan-yi* constructions:

(26) zhe ben shu rongyi du

this CL book easy read

‘This book is easy to read.’ or ‘This book reads easily.’ ((26) is equal to example (3), p1)

Thus there are three possibilities for the status of *Nan-yi* words: (a) *Nan-yi* words are VP-adjoined adverbials; (b) *Nan-yi* words are modals; and (c) *Nan-yi* words are predicative adjectives. These possibilities will be considered in turn.

In the first place, if *Nan-yi* words function as adverbials, they are expected to fail the tests for predicates, such as A-not-A formation. This expectation, however, is the opposite of what actually happens. In example (27), the *Nan-yi* word *rongyi* ‘easy’ undergoes A-not-A formation. Thus it seems plausible to exclude the possibility that *Nan-yi* words act as adverbials.

(27) zhe ben shu rongyi bu rongyi du?

this CL book easy not easy read

‘Is this book easy to read?’ or ‘Does this book read easily?’

Now there remain two possibilities concerning the status of *Nan-yi* words. One is that they are modals (henceforth the modal analysis). The other is that they are predicative adjectives (henceforth the adjective analysis). Either possibility is compatible with the fact that *Nan-yi* words can take the A-not-A form, since both modals and predicative adjectives are predicative. These two possibilities, however, have distinct implications for the status of *Nan-yi* constructions, namely middles vs. TCs.

Under the modal analysis, the verb following *Nan-yi* words, for example, *du* ‘read’ in (26), which is related to transitivity alternation, should be analyzed as the main verb. Since the transitivity alternation in middles should be related to the main verb, the modal analysis is compatible with the middle analysis. But under the adjective analysis, there is no way around treating *Nan-yi* words as the main predicate. As a result, a verb like *du* ‘read’ in (26), which is related to transitivity alternation, should not be regarded as the main verb. Thus the adjective analysis is incompatible with the middle analysis. By contrast, the adjective analysis fits well with the TC analysis.

Gu (1990) argues for the latter proposal, in which *Nan-yi* words function as predicative adjectives and accordingly, *Nan-yi* constructions are equivalent to TCs.

She puts forward two arguments: (a) it is unnecessary to treat predicative *Nan-yi* words as modals, given that in Chinese no copula is necessary when an AP functions as the main predicate; and (b) *Nan-yi* words differ from modals in disallowing ellipsis of the following VP, as illustrated below:

- (28) a. zhe liang che rongyi kai, \*na liang che ye rongyi  
           this CL car easy drive, that CL car also easy
- b. Zhangsan yinggai qu, Lisi ye yinggai  
           Zhangsan should go, Lisi also should  
           ‘Zhangsan should go and Lisi should as well.’

The assumption necessarily underlying this line of analysis is that all Chinese modals can tolerate VP ellipsis.

Sung (1994) reaffirms the TC analysis based on interpretive considerations. He observes that the ‘modifying components’<sup>19</sup> in *Nan-yi* constructions are restricted to *tough* adjectives. This situation differs from that of English middles, which open many more possibilities to modifying elements, namely, the adverbials. For example, middles such as (29) do not have counterparts in *Nan-yi* constructions:

- (29) This car drives like a dream

19 From Sung’s point of view, *Nan-yi* words in *Nan-yi* constructions function as modifying components. Here ‘modifying component’ is not a well-defined term. It is used just for the convenience of discussion. Actually, the *tough* adjectives in TC do not modify the following VP. Rather, they are predicates.

Sung further posits that the restrictions on ‘modifying components’ found in *Nan-yi* constructions are similar to that for TCs: both types of constructions permit only *tough* adjectives to serve as modifying components. Thus Sung treats *Nan-yi* constructions as TCs rather than middles.

### 3.3.4.2 Arguments for the middle analysis

Cheng (1989) refutes the TC analysis of *Nan-yi* constructions. The contrast between (30) and (31) is used as as counterevidence for the TC analysis:

(30) yingwen hen rongyi xue

English very easy learn

‘English is easy to learn.’

(31) \*Guojing hen rongyi xihuan

Guojing very easy like

It appears from the above contrast that *Nan-yi* words seem to impose a selectional restriction on the following verb. Since it is widely known that a “selectional restriction” is local, it is reasonable to suggest that *Nan-yi* constructions are monoclausal. TCs, however, are biclausal. Thus, *Nan-yi* constructions are unlikely to correspond to TCs.

### 3.3.4.3 Examination of *Nan-yi* constructions

As mentioned previously, the status of *Nan-yi* constructions, namely middles vs. TCs, hinges to a great extent on the categorial status of *Nan-yi* words. In this subsection, the categorial status of *Nan-yi* words, i.e. predicative adjectives vs. modals, will be explored on the basis of the discussion in section 3.3.4.1.

Recall that Gu (1990) uses the obligatory presence of the VP following *Nan-yi* words to argue against the modal analysis. The assumption underlying this line of analysis is that deleting the VP following modals does not lead to ungrammaticality. This generalization, however, is too restricted. It fails to capture the fact that sentences containing modals such as *bixu* ‘must’ and *dei* ‘should’ do not permit VP ellipsis:

- (32) ta    bixu/de    ting    mama    de    hua, \*ni    ye bixu/de  
       he must/should obey his mother DE order,    you also must/should

Another challenge to the adjective analysis comes from a general word order constraint in Chinese: the configuration [AP<sub>predicative</sub> + VP] is generally prohibited in Chinese, as (32b-c) indicate. If *Nan-yi* words are predicative adjectives, as postulated by Gu (1990), then the configuration [AP<sub>predicative</sub> + VP] would be specific to *Nan-yi* constructions such as (33a) ((33a) is equal to (26), p 107).

- (33) a. zhe ben shu rongyi du  
       this CL book easy read  
       ‘This book is easy to read’ or ‘This book reads easily.’
- b. \*hudie meili kan  
       butterfly beautiful look at
- c. \*congbu tai wan xuexi  
       never too late learn

This is quite different from the situation in English, where the configuration [copula + AP<sub>predicative</sub> + VP] is not restricted to TCs:

- (34) a. The book is easy to read  
       b. This butterfly is beautiful to look at  
       c. It is never too late to learn

In view of the above considerations, treating *Nan-yi* words as predicative adjectives lacks independent motivation.

An alternative is to treat *Nan-yi* words as modals, a proposal which is hardly novel (see Lü 1980, Zhu 1982, Okuda 2000 and Cao 2005). This proposal captures the distribution of *Nan-yi* words much more naturally than the adjective analysis (and hence TC analysis), since it is well established that modals may precede VP.

Sung’s (1994) argument for the TC analysis also has its own share of problems.

Although Sung's observation is solid, it does not necessarily argue against the middle analysis. The reasons are specified below. First, as pointed out by Massam (1992), middles across languages are closely related to TCs. It is therefore no surprise that the modifying elements in middles and those in TCs overlap in terms of lexical semantics. Thus constructions with 'modifying elements' which are semantically similar to tough adjectives do not necessarily correspond to TCs — such constructions may also correspond to middles. Moreover, if the modifying components in *Nan-yi* constructions, namely *Nan-yi* words, function as modals, it is expected that such modifying components are much more restricted than those in English middles, which are adverbials. The reason is that modals rather than adverbials form a closed class. Thus the distinction between *Nan-yi* constructions and English middles, as observed by Sung, actually reflects the difference between modals in Chinese middles and adverbials in English middles. This difference, however, does not affect treating *Nan-yi* constructions as middles. As argued previously, the modal analysis for *Nan-yi* words might align with the middle analysis for *Nan-yi* constructions. In summary, the above discussion favors treating *Nan-yi* constructions as middles.

#### **3.4.4 [Ke+V<sub>t</sub>] compounds**

Another type of constructions that have been regarded as middles are sentences

with [*ke*+*V<sub>t</sub>*] compounds as the main predicate. Such sentences parallel middles with respect to the following properties: (a) the verb does not carry the passive marker; (b) the patient occupies the subject position; (c) the agent is suppressed but is implied; and (d) sentences with [*ke*+*V<sub>t</sub>*] compounds are generic statements. It is worth noting, however, that [*ke*+*V<sub>t</sub>*] compounds seem heterogeneous in terms of categorial status. Two groups of [*ke*+*V<sub>t</sub>*] compounds can be distinguished with degree adverb modification. Compounds with *V<sub>t</sub>* as cognitive verbs, for example, *ke-xiao* ‘ridiculous’, can be modified by degree adverbs. In contrast, those with *V<sub>t</sub>* as activity verbs, for example, *ke-chaixie* ‘detachable’, are generally incompatible with degree adverbs. The sentences in (35) instantiate this difference:

- (35) a. *hen ke-xiao*  
           very can laugh  
           ‘very ridiculous’
- b. \**zhe ge jizhuangxiang hen ke-chaixie*  
           this CL container very can-detach

Given degree modification as a generally accepted test for adjectives in Chinese<sup>20</sup>, it is reasonable to suggest that compounds such as *ke-xiao* ‘ridiculous’ have shifted from a verb to an adjective. For the convenience of discussion, the former group,

<sup>20</sup> This test is a one-way, but not a two-way, test. It is not the case that all adjectives in Chinese are gradable. However, if a lexical item can be modified by degree adverbs such as *hen* ‘very’, it should be treated as an adjective. An exception to this generalization is cognitive verbs like *xihuan* ‘like’, *taoyan* ‘dislike’, *yuanyi* ‘be willing to’. Obviously, [*ke*+*V<sub>t</sub>*] sequences are different from such mental verbs. Therefore, this exception has no bearing on deciding the categorial status of [*ke*+*V<sub>t</sub>*] sequences.

whose members involve categorial shift, is henceforth termed type I [*ke* +*V<sub>t</sub>*] compounds. More examples of type I [*ke* +*V<sub>t</sub>*] compounds are provided below:

- |               |           |              |
|---------------|-----------|--------------|
| (36) a. ke-ai | b. ke-hen | c. ke-yi     |
| can love      | can hate  | can suspect  |
| ‘lovable’     | ‘hateful’ | ‘suspicious’ |

The other group of [*ke* +*V<sub>t</sub>*] compounds, which has not undergone categorial shift, is henceforth termed type II [*ke* +*V<sub>t</sub>*] compounds. Some further examples of this group are given below:

- |                    |                       |                  |
|--------------------|-----------------------|------------------|
| (37) a. bu-ke-yuce | b. ke-chongfu-shiyong | c. bu-ke-gaibian |
| not-can-predict    | can-repeatedly-use    | not-can-change   |
| ‘predictable’      | ‘recyclable’          | ‘unchangeable’   |

While treating sentences with type II (verbal) compounds as middles seems indisputable, the status of sentences with type I (adjectival) compounds may invite debate. Potentially there exist two proposals concerning the status of sentences with type I (adjectival) compounds. One is that such sentences instantiate middles and the other is that such sentences do not. Both views seem to have some appeal.

On the one hand, type I (adjectival) compounds differ from middle predicates in

that they are deverbalized<sup>21</sup>. By definition, a verb that has undergone middle formation should remain verbal.

On the other hand, predicative adjectives and middle predicates have some characteristics in common: (a) middle predicates and typical predicative adjectives are stative in terms of aspect; (b) both types of predicates are one-place predicates; and (c) both types of predicates attribute properties to the subject. These common properties seem to blur the boundary between middle verbs and predicative adjectives.

Given that the present study is conducted within the framework of generative, rather than functionalist, grammar, a clear definition is necessary. By definition, a middle predicate as an output of middle formation should remain ‘verbal’. Therefore, it is plausible to exclude sentences with type I (adjectival) [*ke* +*V*<sub>t</sub>] compounds from middle constructions.

In summary, sentences with type II (verbal), but not type I (adjectival), [*ke* +*V*<sub>t</sub>] compounds should be categorized as middles. Having examined the constructions identified as Chinese middles in previous studies, a novel middle construction in Chinese will now be proposed.

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21 This distinction is akin to the one between middle predicates such as *reads easily* and adjectives such as *readable*, as instantiated below:

- ① a. \*The book very reads easily  
 b. The book is very readable

### 3.4 *Neng-ke* middles

Sentences such as (38) can be formalized as  $[DP_{\text{patient}} + \textit{neng/keyi}$  ‘can’  $+V_t]$  (henceforth *Neng-ke* sentences):

- (38) qincai yezi neng/keyi chi  
 celery leaf can/may eat  
 ‘Celery leaves are edible.’

Such sentences parallel middles with respect to the following properties:

- i. The patient of  $V_t$  surfaces as the subject of the sentence.
- ii. The agent of  $V_t$  is not overtly realized but is implied.
- iii.  $V_t$  does not bear passive morphology.
- iv. Such sentences are generic statements, ascribing some inherent property to the referent of the subject.

While properties iii and iv seem uncontroversial, properties i and ii may face challenges. For example, one may argue that the string-initial patient in (38) is the object-topic rather than the subject. If this is indeed the case, sentences such as (38) are simply obtained by deletion of the agent-subject in topicalized sentences such as (39). This situation should not be surprising given that Chinese is a pro-drop language.

- (39) qincai yezi, renmen neng chi  
 celery leaf, people can eat  
 ‘Celery leaves, people can eat.’

In fact, sentences such as (38) can be distinguished from those such as (39) by a number of distinctive properties.

*Semantic Shift.* The sequence *neng chi* ‘eatable’ in (38) differs from its counterpart in (39) in terms of semantics. While *neng chi* ‘can eat’ in (39) denotes some ability of the agent *women* ‘we’, its counterpart in (38) ascribes to the patient *qincai yezi* ‘celery leaves’ some intrinsic properties, which can be roughly interpreted as ‘safe, nutritious and digestible’. Such an interpretation, unlike the meaning conveyed by (39), is not literal<sup>22</sup>.

*Embedding under Causative Verbs.* As pointed out by Jiang (1991), *zaocheng* ‘cause’ subcategorizes ‘unsaturated sentences’, i.e., embedded clauses without a derived topic. Sentences below provide supporting evidence for this claim:

- (40) a. zhe jian shi zaocheng [Zhangsan bu xihuan Lisi]  
 this CL event cause [Zhangsan not like Lisi]  
 ‘This event causes Zhangsan to dislike Lisi.’  
 b. \*zhe jian shi zaocheng [Lisi, Zhangsan bu xihuan]

<sup>22</sup> This is quite similar to the semantic shift associated with [Vt+able] compounds in English, [Vt+bar] compounds in German and the like in French, Finnish, Italian, and so on. (Interested readers are referred to Booij 2005, rpt2007, p61-63 for the semantic shift related to [Vt+able] and [Vt+bar] compounds.)

this CL event cause [Lisi, Zhangsan not like]

If Jiang's generalization is correct, being embedded under *zaocheng* 'cause' can be used as a test for sentences without derived topics. When this test is applied to *Neng-ke* sentences, it is observed that while *Neng-ke* constructions such as (41a) pass this test, object-topic sentences such as (41b) fail this test:

(41) a. zheli de shui bu neng he le

here DE water not can drink SFP

'The water here is not suitable for drinking.'

b. zheli de shui, women bu neng he le

here DE water, we not can drink SFP

'The water here, we can not drink anymore.'

(42) a. wuran zaocheng [zheli de shui dou bu neng he le]

pollution cause here DE water already not can drink SFP

'Pollution has caused the water here to be unsuitable for drinking.'

b. \*wuran zaocheng [zheli de shui women dou bu neng he le]

pollution cause hereDE water we already not can drink SFP

A plausible account for (42) is that the sentence-initial patient in (41a) is the subject, whereas that in (41b) is a topicalized object.

*Emphatic Marker shi.* It has long been noticed that the emphatic marker *shi* can immediately precede the subject, but not the topic (Teng 1979; Huang 1991; Shi 1994, 2000; Xu 1998). This generalization correctly predicts the ungrammaticality of (43a), where the emphatic marker *shi* immediately precedes the topic *qincai yezi* ‘celery leaves’:

- (43) a. \**shi qincai yezi, women neng chi*  
 EMP celery leaf, we can eat
- b. *shi qincai yezi neng chi*  
 EMP celery leaf can eat  
 ‘Celery leaves are eatable.’

Along this line of thinking, if ‘celery leaves’ in (43b) also occupies the topic position, then (43b) should be ruled out for the same reason as (43a) is ruled out. This prediction, however, fails to match the fact in (43b). Therefore, it seems reasonable to treat the preverbal patient in (43b) (also in (38)) as the subject, instead of the object-topic.

*Wh-word replacement.* According to Tan (1991), a *wh*-word may replace the subject, but not the topic<sup>23</sup>. This claim is evidenced by the following minimal pair:

- (44) a. *shenme bei Lisi che le?* (Tan 1991, p54)

<sup>23</sup> According to Shi Dingxu (P.C.), this rule is confined to the formation of non-echo questions. For example, if conceived as an echo question, (44b) is well-formed. The present discussion is limited to non-echo questions.

what BEI Lisi tear PERF

‘What is torn by Lisi?’

b. \*shenme, Lisi che le?

what, Lisi tear PERF

While *shenme* ‘what’ may replace the initial patient in (44a), which is the subject of a passive sentence, it cannot replace the initial patient in (44b), which is a topicalized object.

Applying *wh*-word replacement to (38) and (39), it is found that the initial patient in (38), but not (39), can be replaced by a *wh*-word:

(45) a. shenme neng chi?

what can eat

‘What is edible?’

b. \*shenme, renmen neng chi?

what people can eat

Given that a *wh*-word may replace the subject, but not the topic, facts in (45) favor treating the sentence-initial patient in (38) as the subject rather than the topic.

*He...yiyang* ‘Similar to’ Comparison. It can be seen in the following paradigm that the *he...yiyang* ‘similar to’ comparison only targets the subject:

- (46) a. *he ta yiyang, wo ye xihuan mao*  
 with he the same, I also like cat  
 ‘Like him, I also like cats.’
- b. \**he gou yiyang, mao, wo ye xihuan*  
 with dog the same, cat, I also like
- c. \**he gou yiyang, mao, pro ye xihuan*  
 with dog the same, cat, pro also like
- d. \**he gou yiyang, wo, mao ye xihuan*  
 with dog the same, I, cat also like

While in (46a) the comparison targets the subject *ta* ‘he’, in (46b-d) the comparison targets the object-topic *gou* ‘dog’. As to (46b-d), it is worth noting that no matter how *gou* ‘dog’ is topicalized, it remains the object. Interestingly, among the sentences in (46), only (46a) is grammatical. Thus a generalization emerges: comparison with the phrase *he...yiyang* ‘similar to’ can target only the subject.

This generalization, however, does not seem to be the only possible account for the above facts. Another possibility is that the comparison can only apply to bearers of the agent  $\theta$ -role. In other words, the constraint is sensitive to thematic roles rather than syntactic positions. Apparently, this assumption may also capture the contrast between (46a) and (46b-d): in the grammatical (46a), the agent *ta* ‘he’ is compared; in the ungrammatical (46b-d), though, the patient *gou* ‘dog’ is compared. The following sentence, however, presents a problem for this proposal:

- (47) he gou yiyang, mao ye bei dajia suo xihuan  
 with dog the same, cat also BEI people SUO like  
 ‘Like dogs, cats are also liked by people.’

In (47), the item being compared is the subject *mao* ‘cat’. The subject of a passive sentence usually bears the  $\theta$ -role patient (Shi 1997) and the one in (47) is no exception. Thus it seems reasonable to posit that the constraint does not hinge on thematic roles.

When this type of comparison is applied to *Neng-ke* constructions, it is found that the sentence-initial patient in (38) may serve as the item being compared, as shown in (48a). This is quite different from the behavior of the object, as (48b-c) indicate.

- (48) a. he qincai gan yiyang, qincai yezi ye neng chi  
 with celery stem the same, celery leaf also can eat  
 ‘Like celery stem, celery leaves are eatable.’  
 b. \*he qincai gan yiyang, qincai yezi, women ye neng chi  
 with celery stem the same, celery leaf, we also can eat  
 c. \*he qincai gan yiyang, women ye neng chi qincai yezi  
 with celery stem the same, we also can eat celery leaf

A reasonable explanation for the above facts would be that the initial patient in (48a) (also (38)) is the subject, but its counterparts in (48b-c) are the object-topic.

In summary, the above discussion suggests that *Nan-yi* constructions such as (38) are not simply obtained by agent deletion in sentences with topicalized objects such as (39). Therefore, *Neng-ke* constructions such as (38) should be regarded as middles. Since the middles identified in the previous subsection, namely middles with [*ke* ‘can’ +V<sub>t</sub>] compounds, and those in the present subsection contain similar modals and convey similar semantics, they are henceforth unified by the label ‘*Neng-ke* middles’.

### 3.5 Summary

This chapter defined the scope of Chinese middle constructions. On the basis of the generally accepted features of middles discussed in Chapter 2, the middle construction is defined as sentences showing the following properties:

- i. The patient of a transitive verb surfaces as the subject.
- ii. The transitive verb does not bear passive morphology.
- iii. The agent of the transitive verb is not overtly expressed in syntax but is implied in semantics.
- iv. It is a generic statement, expressing an inherent property of the subject.

With this definition in mind, constructions previously labeled ‘Chinese middles’, including pseudo-passives, VQA constructions, *Nan-yi* constructions and sentences with [*ke* ‘can’ +V<sub>t</sub>] compounds, have been examined. A number of diagnostics were employed in the examination, revealing that *Nan-yi* constructions and sentences with

unadjectivized [*ke* ‘can’ +V<sub>t</sub>] compounds conform to the proposed definition and, hence, should be categorized as middles. In addition, *Neng-ke* constructions also exhibit the defining properties of middles and hence are considered middles as well. Derivation of these middle constructions forms the topic of the following chapter.

## Chapter 4

### The Analysis

#### 4.1 Introduction

Chapter 3 shows that two types of patient-subject structures with modals should be analyzed as middle constructions. One is the *Nan-yi* middle construction and the other is the *Neng-ke* middle construction. This chapter is concerned about the properties of these two types of middles, restrictions they observe and the mechanism of their derivation.

It is argued that the most crucial property of these middles is dispositionality. Other wellknown properties of middles, such as the responsibility reading, the property reading, stativity and modality, are derivable from the dispositionality.

Furthermore, a constraint on verbs that may undergo middle formation will be proposed, stating that activity verbs which imply expected results are allowed in the middles in question.

Integrating the observations shown above, section 4.4 will present a uniform

semantic account of the middles discussed here, which capitalizes on dispositionality. This semantics will in turn be shown to be capable of deriving the syntax of these middles in the following way. It is suggested that the syntax-semantics mapping of a disposition ascription is mediated by a light verb CAUSE<sub>f</sub>, which in middles selects the patient of the verb as its external argument, thus giving rise to the suppression of the agent. The suppressed agent is argued to be a PRO interpreted generically.

## 4.2 Analysis of *Nan-yi* Middles

### 4.2.1 Syntactic properties

As a case of middle constructions, syntactically the *Nan-yi* construction possesses the following properties:

- i. The main verb is transitive and takes active form.
- ii. The patient surfaces as the subject.
- iii. The agent is not overtly expressed.

Witness these properties in the following examples:

- (1) a. youyong bu rongyi/ hao/ nan xue  
 swimming not easy/ easy/ difficult learn  
 ‘Swimming is not easy/difficult to learn.’

b. \*youyong bu rongyi/hao/nan bei xue

swimming not easy/easy/difficult BEI learn

c. \*women bu rongyi/hao/nan xue youyong

we not easy/easy/difficult learn swimming

Such properties of *Nan-yi* middles are somewhat self-evident and therefore do not require further elaboration. What follows will concentrate on their semantic properties.

#### 4.2.2 Semantic properties

The properties of *Nan-yi* middles are consistent with those of English middles in terms of semantics. The well established properties of middles, such as genericity, modality and stativity, can also be observed from *Nan-yi* middles. These properties, as a matter of fact, all follow from the fact that *Nan-yi* middles are disposition ascriptions.

##### 4.2.2.1 Genericity

*Nan-yi* middles are generic statements, as can be seen in two respects. On the one hand, they do not make reference to specific events, as suggested by the

unacceptability of (2), which involves specific time.

(2) \*zhe jian shangyi zuotian rongyi xi

this CL blouse yesterday easy wash

On the other, the implicit agent receives a generic interpretation. For example, the understanding of (1a) involves a generic agent, which can be paraphrased as ‘people in general’.

#### 4.2.2.2 Modality

*Nan-yi* middles involve potential or capability reading. In this sense, the truth of *Nan-yi* middles does not rely on truly taking place of the event denoted by the verb. For example, the truth of (3) does not depend on preceding washing of this blouse. The proposition represented by (3) may be stated merely on the basis of knowing some properties inherent to this blouse, such as ‘its fabric is thin’.

(3) zhe jian shangyi rongyi xi

this CL blouse easy wash

‘This blouse washes easily.’

### 4.2.2.3 Stativity

The progressive aspect marker *zhe* may not appear in *Nan-yi* middles, as the ungrammatical (4) indicates:

- (4) \*zhe ben shu rongyi du zhe  
 this CL book easy read PROG

The same can be said about the perfective aspect marker *le*, despite apparent counterexamples such as (5). *Le* in (5) should not be interpreted as a perfective aspect marker. Semantically *le* in (5) has scope over the entire sentence, and it marks the emergence of a new situation, which is depicted by the entire sentence. For example, *le* in (5) marks the emergence of the situation in which the book has the new property of being reader-friendly. Sentence (5) thus implies that the book did not have that property before (Shi 2006). Such a scopal property of *le* in (5) is quite different from that of aspect markers. It is widely accepted that aspect markers such as the perfective *le* have scope over VP and mark the aspect of the event denoted by VP. Thus it can be seen that *le* in (5) should not be regarded as an aspect marker. A reasonable alternative is to treat *le* in (5) as a sentence final particle.

- (5) zhe ben shu rongyi du le  
 this CL book easy read SFP



because fabric very thick, this type clothes very difficult wash

‘Because of the thick fabric, this type of blouses is difficult to wash’

The subject of the causative subordinate clause is obligatorily related to the subject of the main clause ‘the blouse’.

According to Brennan (1993) and Dowty (2001), the subject of a causative subordinate clause must be co-referential with the subject in the main clause only when the main clause is a disposition ascription, which ascribes some intrinsic property to the referent of the subject.

If this generalization is on the right track, the main clause in (6a) and (6b) should be analyzed as a disposition ascription, which ascribes some intrinsic property to the subject ‘the blouse’.

On the basis of the above discussion, it is suggested that a *Nan-yi* middle construction is best characterized as a disposition ascription as in Lekakou (2004, 2005). This characterization is capable of deriving a broad range of properties of *Nan-yi* middles. As shown in chapter 2, dispositionals belong to the category of generic sentences. A dispositional generic sentence differs from a habitual generic sentence with respect to the subject-oriented modality. Moreover, since dispositionals are used to describe inherent properties, they are stative. Thus it can be seen that the notion of ‘disposition ascription’ may derive all the essential semantic properties of *Nan-yi* middles.

### 4.2.3 Constraints on verbs in *Nan-yi* middles

Like English middles, *Nan-yi* middles also appear to impose some restrictions on verbs that may undergo middle formation. Since issues concerning such restrictions are not strictly syntactic, they will be addressed in detail in the Appendix. Here what deserves mentioning is that verbs involved in *Nan-yi* middles are required to imply some expected result. For example, *du* ‘read’ in (7) implies the result *dong* ‘understand’, which may be overtly realized in a V-V resultative compound.

(7) zhe ben shu rongyi du (dong)

this CL book easy read (understand)

‘This book reads easily.’

Semantically, *Nan-yi* modals seem to comment on the ease or toughness of carrying out the event denoted by the verb, which is measured out by the expected result.

### 4.2.4 Properties of *Nan-yi* modals

Recall that *Nan-yi* words should be treated as modals, as shown in chapter 3. This section is concerned with two important properties of *Nan-yi* modals. One is that they are subject-oriented and have scope over VP. The other is that they encode

dispositionality. These two properties will be demonstrated subsequently.

#### 4.2.4.1 Subject-orientation and VP scope

The truth condition of (8a) is equivalent to that of (8b)<sup>24</sup>. Quite similarly, (9a) and (9b), an active-passive pair, share the same truth condition<sup>25</sup>.

(8) a. Bajie *qu*      *le*      Xiaohua

Bajie marry PERF Xiaohua

‘Bajie has married Xiaohua.’

b. Xiaohua *jia*      *gei*      *le*      Bajie

Xiaohua marry GEI PERF Bajie

‘Xiaohua has married Bajie.’

(9) a. Bajie *qu* *le* Xiaohua

Bajie marry PERF Xiaohua

‘Bajie has married Xiaohua.’

b. Xiaohua *bei* Bajie *qu* *le*

Xiaohua BEI Bajie marry PERF

‘Xiaohua has been married by Bajie.’

<sup>24</sup> To ascertain the scope of a modal, sentences with verbs like *marry* are always used as tests. It is wellknown that no matter which of the two arguments of *marry* occurs in the subject position, the truth condition remains the same. Using the sentence pair involving *jia* ‘(a woman) marry (a man)’ and *qu* ‘(a man) marry (a woman)’ is inspired by tests involving verbs such as *marry* in the literature.

<sup>25</sup> Passivization is also used to test whether a modal is subject-oriented, since this operation by itself is generally supposed to not affect the truth condition of the sentence.

Such equivalence remains when raising modals like *keneng* ‘might’ are involved, as (10) and (11) indicate:

(10) a. Bajie keneng qu Xiaohua

Bajie might marry Xiaohua

‘Bajie might marry Xiaohua.’

b. Xiaohua keneng jia Bajie

Xiaohua might marry Bajie

‘Xiaohua might marry Bajie.’

(11) a. Bajie keneng qu Xiaohua ((11a) is the same as (10a))

Bajie might marry Xiaohua

‘Bajie might marry Xiaohua.’

b. Xiaohua keneng bei Bajie qu

Xiaohua might BEI Bajie marry

‘Xiaohua might be married by Bajie.’

Note, however, when *Nan-yi* modals are inserted, such equivalence no longer exists, as the following pairs indicate:

(12) a. fuweng bijiao rongyi qu dao meinü

rich man relatively easy marry arrive beauty

‘A rich man marries a beauty relatively easily.’

- b. meinü bijiao rongyi jia gei fuweng  
 beauty relatively easy marry GEI rich man  
 ‘A beauty marries a rich man relatively easily.’
- (13) a. fuweng bijiao rongyi qu dao meinü  
 rich man relatively easy marry arrive beauty  
 ‘A rich man marries a beauty relatively easily.’
- b. ? meinü bijiao rongyi bei fuweng qu  
 beauty relatively easy BEI rich man marry  
 ‘A beauty is married by a rich man relatively easily.’

The truth conditions of (12a) and those of (12b) are distinct. This is so because while (12a) ascribes the disposition ‘marry a beauty easily’ to the subject ‘a rich’, (12b) ascribes the disposition ‘marry a rich easily’ to the subject ‘a beauty’. The same holds for (13a) and (13b). Such a change in truth condition suggests that unlike raising modals, *Nan-yi* modals are subject-oriented.

This claim can be further confirmed by the fact that *Nan-yi* words may be predicated directly on the subject, as (14a) and (14b) illustrate:

- (14) a. zhe ben shu hen rongyi/nan  
 this CL book very easy/difficult  
 ‘This book is very easy/difficult.’
- b. zhe dao ti hen rongyi/nan

this CL question very easy/difficult

‘This question is very easy/difficult.’

One may allude to ellipsis to account for such cases, but will have to face the mystery of why raising constructions never allow such ellipsis, as (15) indicates<sup>26</sup>:

(15) Zhangsan hen keneng \*(mingtian dao)

Zhangsan very might \*(tomorrow arrive)

The contrast shown above may be ascribed to the existence vs. nonexistence of thematic relation between the subject and the modal. It appears that *Nan-yi* modals, but not epistemic raising modals, are thematically related to the subject.

Another piece of supporting evidence comes from the different distribution of *Nan-yi* modals and epistemic modals. Unlike epistemic modals like *keneng* ‘might’ and *yinggai* ‘should’, *Nan-yi* modals do not occur in the sentence-initial position, as illustrated below:

(16) a. \*hen rongyi women du zhe ben shu

very easy we read this CL book

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26 Using (14) to argue for *Nan-yi* modals assigning a theta role to the subject is intrigued by Williams (1983), where contrasts between ① and ② are employed as evidence that tough predicates assign a theta role to the subject.

① a. John is easy (Williams 1983, p443)

b. This book is important

② a. \*John seems

b. \*John is certain (in the relevant sense)

- b. keneng ta du guo zhe ben shu  
 might he read EXPE this CL book  
 ‘It is possible that he read this book.’
- c. yinggai ni qu wen-wen  
 should you go ask-ask  
 ‘You should go to ask.’

From the perspective of Li (1985) and Tsao (1990, 1996), however, the ungrammaticality of sentences like (16a) is not due to that *Nan-yi* words are not raising verbs. Rather, it is due to the nonexistence of expletives in Chinese. The (non)existence of expletives in Chinese is inconclusive. Despite the controversy, treating *Nan-yi* modals on a par with raising verbs leaves unexplained the contrast between (16a) on the one hand and (16b) and (16c) on the other. Thus it seems more reasonable to distinguish *Nan-yi* modals and raising verbs.

The above discussion presents three pieces of evidence for the VP-scope and subject-orientation of *Nan-yi* modals. It should be noted however, that, there exists one potential counterargument for this claim. According to Hou (1979) and Li (1985, 1990), (17a) is generated with the same D-structure as (17b) is. Apparently, (17b) contains a sentential subject, on which *rongyi* ‘easy’ is predicated. In accordance, *Nan-yi* modals should semantically have scope over the sentence instead of VP. Thus they suggest raising analyses for the derivation of (17a)<sup>27</sup>.

<sup>27</sup> Hou’s work is carried out in the framework of earlier generative transformational grammar while Li’s in the Government-Binding theory. The essential assumption, however, remains the same.

(17) a. zhe ben shu hen rongyi du

this CL book very easy read

‘This book reads easily.’

b. ta du zhe ben shu hen rongyi

he read this CL book very easy

‘It is very easy for him to read this book.’

Their argumentation sounds reasonable. The issue is that, however, the one-to-one relationship between the two sentences in (17) is not always available (Shi 1990). This can be seen from two perspectives. For one thing, the grammaticality of (17b) seems questionable. To ascertain the intuition about (17b), ten native speakers of Mandarin have been investigated. While two of them view (17b) as unacceptable, the rest judges this sentence marginal. For the other, some sentences with a sentential subject, for example, (18a), do not have counterparts with a patient-subject, as the ungrammaticality of (18b) and (18c) suggests (Shi 1990).

(18) a. neng wancheng jihua bu rongyi

can accomplish plan not easy

‘It is not easy to be able to accomplish the plan.’

b. \*jihua neng bu rongyi wancheng

plan can not easy accomplish

c. \*jihua bu rongyi neng wancheng

plan not easy can accomplish

In view of this state of affairs, it is not necessarily the case that (17a) corresponds to (17b). As a consequence, (17b) does not offer evidence for the sentential scope of *Nan-yi* modals and hence the raising analysis of (17a).

#### 4.2.4.2 Disposition ascription

As mentioned previously, *Nan-yi* middles are disposition ascriptions, which target the referent of the subject. Given that *Nan-yi* modals are subject-oriented and have scope over VP, it makes sense to assume that *Nan-yi* middles employ modals to convey the dispositionality. This claim can be further validated by the empirical data presented below.

In Chinese, dispositionality can be encoded by dynamic modals, as shown in (19):

- (19) ta neng ju qi sanbai bang  
 he can lift up three hundred pound  
 ‘He can lift three hundred pounds’

Some adjectives in Mandarin also ascribe dispositions to the subjects:

- (20) a. zhe diban hen nai-mo  
 this floor board very resist wear  
 ‘This floor board is wear-resistant.’
- b. zhe zhong cailiao hen kang-ya  
 this type material very resist pressure  
 ‘This type of material can resist pressure.’

In such sentences, morphemes like *nai* ‘endure’ and *kang* ‘resist’ may also be regarded as markers for dispositionality.

Chinese dispositionals seem to require the presence of certain overt markers, in contrast to English dispositionals. For instance, an English dispositional like (21), which lacks an overt marker, does not have a literal counterpart in Mandarin, as the unacceptability of (22) suggests.

- (21) This machine crushes oranges
- (22) \*zhe tai jiqi ya chengzhi<sup>28</sup>  
 this CL machine roll-make orange juice

To salvage (22), modals are required:

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28 English simple present tense in general may encode habituality and dispositionality. The apparent Chinese counterparts to sentences like ③, however, only permit the habitual reading, as illustrated below:

- ③ a. Cats eat mice.  
 b. mao chi laoshu  
 ‘Cats eat mice.’

(23) a. zhe tai jiqi neng ya chengzhi

this CL machine can roll-make orange juice

‘This machine makes orange juice.’

b. zhe tai jiqi ya de liao chengzhi

this CL machine roll-make DE LIAO orange juice

‘This machine makes orange juice.’

The above discussion suggests two methods for a verb to participate in a dispositional in Chinese: one is to co-occur with overt modals; the other is to be turned into an adjective by combining with certain morphemes, as exemplified by (20). Sentences containing *Nan-yi* modals seem to fall within the former category.

Further support for such a claim comes from the fact that sentences containing *Nan-yi* modals, which are not confined to middle constructions, are all disposition ascriptions, as shown below:

(24) a. bandiangou rongyi shengbing<sup>29</sup>

dalmatian easy fall sick

‘Dalmatians are apt to fall sick.’

b. haizi hen nan lijie zhe-ge gushi

<sup>29</sup> When used with an unaccusative verb that lacks a causative alternate, *rongyi* ‘easy’ modifies the ‘probability’ that the event will occur, rather than the ‘doability’ of the activity for an agent. This is also the case for English, as noted by Fellbaum (1989: 125):

④ This bread molds easily/ This bread easily molds.

kid    very difficult understand this-CL story

‘It is difficult for kids to understand this story.’

While the verb in (24a) is unaccusative, the verb in (24b) is transitive. Despite such a distinction, both of them are generic sentences that ascribe a disposition to the referent of the subject. In the absence of *Nan-yi* modals, however, these sentences are not dispositionals anymore. For example, in the absence of *Nan-yi* modals, the sentence in (25) is no longer a dispositional, nor is it a generic sentence.

(25) haizi    lijie        zhe ge    gushi

kid    understand this CL    story

‘The kid has understood this story.’

Thus one can see that the dispositionality in sentences in question depends on *Nan-yi* modals, but not certain syntactic constructions.

On the basis of the above discussion, it is reasonable to claim that *Nan-yi* modals encode dispositionality<sup>30</sup> independently of the middle construction. The subject-orientation and VP-scope of these modals may be derived from the dispositionality straightforwardly. As already shown in Chapter 2, in dispositionals, the target of disposition ascription obligatorily occupies the subject position. As overt markers of dispositionality, *Nan-yi* modals are therefore subject-oriented and have

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<sup>30</sup> Dispositionals form a subcategory of generics. Since *Nan-yi* modals are used to encode dispositionality, it is needless to say that they encode genericity.

scope over VP. These characteristics are crucial for the derivation of *Nan-yi* middles, as will be demonstrated in section 4.2.6.

#### **4.2.5 Existing approaches**

Numerous approaches have been proposed for the derivation of middles in English and some other European languages. A brief review on these proposals has already been given in chapter 2. In the past few decades, Chinese middles have received more and more attention. What follows will present some important proposals on middle formation in Chinese. These proposals (for middles in Chinese and other languages) will be reexamined on the basis of the observations made in the preceding section. It will be shown that the existing approaches are inadequate to provide a satisfactory account for the properties of *Nan-yi* middles.

##### **4.2.5.1 Review of the existing approaches for deriving Chinese middles**

###### **Cheng (1989)**

Cheng's (1989) treatment for *Nan-yi* middles seems to integrate both the syntactic (A-movement) approach and the lexical approach. On the one hand, she argues that the *Nan-yi* modal and the following verb forms a compound, attributing a

property to the referent of the subject. On the other, she argues that since the agent plays no role in attributing the property, it is not within the theta-grid of the compound. Consequently, the external theta role is not assigned. Following Burzio's generalization, the verb is unable to assign accusative case, as long as it does not assign the external theta role. As a result, the argument bearing the internal theta role (patient) moves to the subject position to fulfill Case-Filter. This movement, according to Cheng (1989), takes place at the level of lexicon, as is in the spirit of Hale & Keyser's (1990) L-syntax.

### **Han (2007)**

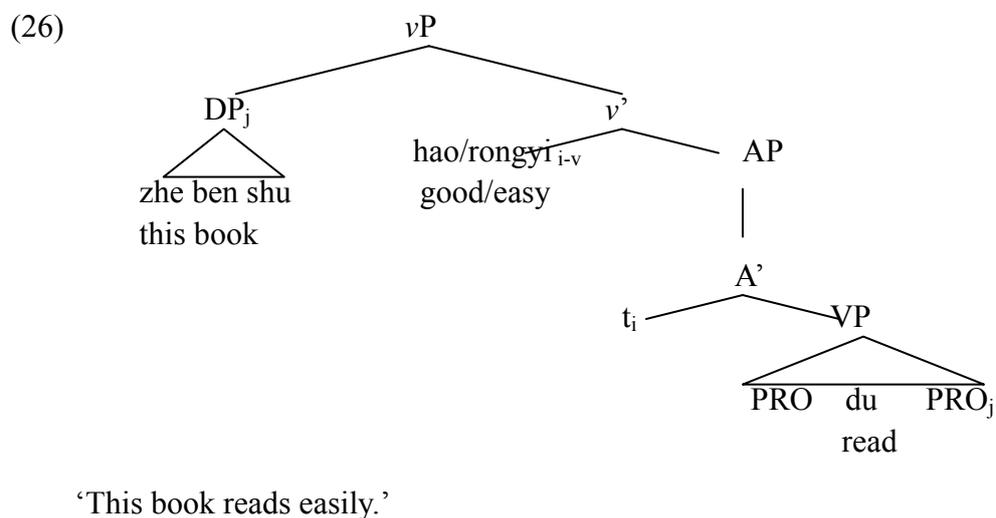
Han's (2007) derivation for middles capitalizes on the notion of 'stativization', which links the stativity of middle verbs and the transitivity alternation resulting from A-movement.

On the basis of the observation that middles are stative in terms of aspect, Han assumes that a null suffix is attached to the verb, and the resulting verb becomes stative. Moreover, this null suffix serves the same function as that of the passive affix *-en*: it can on the one hand dethematize the subject and on the other hand absorb the accusative Case. Attaching this null suffix to the transitive verb has two consequences: one is that the argument structure of a middle verb contains one fewer argument than that of its transitive variant. The other is that the internal theta role is promoted to the subject position to acquire Case.

### **He (2010)**

He (2010) treats *Nan-yi* words as adjectives and [*Nan-yi* words +  $V_t$ ] as complex

adjectival predicates. He assigns (26) as the representation of the structure of *Nan-yi* middles.



This structure involves two PROs in VP. While the preverbal one represents the agent, the postverbal one is controlled by the subject ‘the book’.

#### 4.2.5.2 Critiques for the existing approaches

##### Syntactic approaches

If Keyser & Roeper’s (1984) and Stroik’s (1992) analysis for English middles are extended to *Nan-yi* middles, the following operation is likely to be proposed: *Nan-yi* modals or some null morphemes function like the passive marker in absorbing the external  $\theta$ -role and accusative case of the verb. As a result, the patient is preposed to

the subject position to fulfill Case filter. Obviously, this operation is similar to passivization.

Given such similarity, middle formation is expected to conform to constraints similar to those for passivization. This prediction, however, does not match the fact. Recall the responsibility condition and intuitions the like, which state that the referent of the subject in middles is responsible for carrying out of the action in a certain manner. This characteristic, however, is not shared by passives. Moreover, it has been observed that English ECM verbs may undergo passivization but not middle formation, as shown below:

- (27) a. \* John believes to be a fool easily.  
       b. John was believed to be a fool. (Ackema & Schoorlemmer 1994)
- (28) a. John was seen singing. (Roberts 1987)  
       b. \* John sees singing easily.

Such a contrast suggests that, on the one hand, passivization is able to raise arguments that bear no thematic relation to the verb (as Roberts 1987 points out), and on the other hand, middle verbs impose selectional restriction on the subject, which is called ‘thematic constancy’ by Roberts (1987) (in the spirit of Williams (1981)). Although it is not clear whether the apparent counterparts in Chinese like (29) involve ECM, the spirit shown in the contrast in (29) will remain the same as that in (27)–(28).

(29) a. tamen de hunyin bei renwei shi ge cuowu

they DE marriage BEI think be CL mistake

‘Their marriage is considered a mistake.’

b. \*tamen de hunyin hen rongyi renwei shi ge cuowu

they DE marriage very easy consider be CL mistake

One may ascribe the ungrammaticality of (29b) to other properties of middles, e.g. the restrictions on the input to the process. The issue is that, however, no other known instance of A-movement is subject to such restrictions.

In short, analyses recouring to the A-movement strategy inevitably leave the distinctions between middles and passives unaccounted for.

### **Cheng (1989)**

Cheng’s (1989) proposal captures the thematic relation between the subject and the predicate. This is an improvement comparing to the pure A-movement analysis. However, her argument that the agent does not exist in the theta grid of the [*Nan-yi* V] compound seems to run into difficulty, in view of the fact that the agent is still perceivable in semantics, which receives generic reading. One way out may be to assume that the agent exists at some level prior to D-structure and devise some mechanism to derive the generic interpretation of the covert agent. These issues, however, has not been touched on in Cheng’s analysis.

Moreover, the assumptions similar to those for passivization seem to be superfluous, given that the sequence [*Nan-yi* words + V<sub>i</sub>] has already been treated as

a compound attributing a property to the patient-subject. The compound strategy used in Cheng (1989) is to some extent reminiscent to reanalysis in Chomsky's (1981) treatment for tough constructions, which reanalyzes [tough adjective +  $V_t$ ] as a derived adjective. If reanalysis has taken place, it is unnecessary to further stipulate the passivization-like derivation. The reason is that reanalysis suffices to derive transitivity alternation. As pointed out by Heycock (1994), however, reanalysis is too powerful a mechanism, which damages the fundamental principles, such as the projection principle, the Thematic theory and the control theory.

### **Han (2007)**

The strength of Han's (2007) proposal lies in that it derives not only the surface word order in middles but also an important semantic property, stativity. However, Han (2007) also has some problems. The first problem concerns the function of stativization, which is embodied by an assumed null stativization suffix. According to Han (2007), stativization on a transitive verb leads to valence reduction.

To examine this rule, consider (30a) and (31a), where the verbs are stative. These verbs are not inherently stative, given that they can also be used to denote actions, as in (30b) and (31b). Therefore it is plausible to assume that verbs in (30a) and (31a) have undergone stativization.

(30) a. zhe zhong yao (neng) zhi xinzhāng bìng

this type medicine can cure heart disease

'This type of medicine can be used to cure heart disease.'

- b. zhe ge daifu zhi guo ta fuqin  
 this CL doctor cure EXPE his father  
 ‘The doctor treated his farther previously.’
- (31) a. yanlei bu jieju wenti  
 tear not resolve problem  
 ‘Tears do not solve problems.’
- b. tamen yijing jieju le zhe ge wenti  
 they already solve PERF this CL problem  
 ‘They have already solved this problem.’

If stativization leads to valence reduction, as Han postulates, the stativized ‘cure’ and ‘resolve’ are expected to be intransitive. This prediction, however, contradicts the data, as (30a) and (31a) indicate.

Han (2007) may defend his argument by saying that the verbs in question have not undergone stativization, which is embodied by a phonetically empty suffix; therefore, the verbs remain transitive. The issue is then what conditions the application of stativization in the sense of Han (2007).

In a word, stativization of a transitive verb does not necessarily give rise to transitivity alternation. If Han (2007) confines the application of stativization as a valence reduction mechanism to middle formation (also ergativization, which Han called decausativization), such a mechanism will only serve the specific purpose of deriving certain constructions, losing its independent motivation.

Another problem has to do with the other properties of middles than stativity. Han attempts to derive the property (responsibility) and modality reading from stativization. As a matter of fact, although the property and modality reading is related to stativity, stativity is not necessarily accompanied with property (responsibility) and modality reading. For example, unaccusatives also show stativity, however, they do not ascribe any intrinsic property to the subject, nor do they involve modality.

### **He (2010)**

One of the prominent features of He's (2010) work is that *Nan-yi* words as adjectives take VP as complements. Such a structural relation between the adjective and VP is an anomaly at least in Chinese, since no such relation can be observed elsewhere in this language.

### **The lexical approaches**

The lexical approaches represented by Fagan (1992) and Ackema & Schoorlemmer (1994, 1995) treat middle formation as an operation on argument structure, one that takes place prior to syntax proper. Under this approach, the patient, namely the internal  $\theta$ -role, is directly projected to the external argument, giving rise to a violation of UTAH. Although UTAH is only a hypothesis, it is generally accepted. Violating UTAH, therefore, is not a welcome result.

It is not surprising that to justify the base-generation of the patient-subject, which is a violation of UTAH, requires much effort. Rules like (32) are advanced to satisfy this need.

(32) Externalize the direct  $\theta$ -role (Fagan 1992, rpt2009, p164)

Likewise, Ackema & Schoorlemmer stipulate the requirement that the external theta position has to be filled. This requirement, together with other relevant conditions, derives the base-generation of the patient-subject, as has been reviewed in chapter 2.

These rules play a crucial role for the derivation of middles under the lexical approach. However, neither Fagan (1992) nor Ackema & Schoorlemmer (1994, 1995) presents any independent motivation for such rules, rendering these rules to boil down to construction specific stipulations.

Moreover, it should be noted that the basic assumption for lexical approaches is that middles are derived in the lexicon. *Nan-yi* middles and *Neng-ke* middles, however, are considerably productive. In light of this fact, deriving them in syntax seems more plausible.

### **The semantic approach**

#### **Massam (1992)**

Massam (1992) defines middles by its modality. This claim is upheld by the observations made in the present thesis. The derivation proposed in Massam (1992), however, is not without problems.

In the first place, Massam argues that the subject in middles is base-generated in a non-thematic case position. It seems that only one possibility is open to a base-generated non-thematic subject: an expletive, which lacks lexical content. The subject in middles, however, carries lexical content. Massam argues that this very

type of subject is licensed by the particular modality in middles. This type of licensing seems rather puzzling.

Another problem is created by the null-reflexive<sup>31</sup> that Massam assumes to bear the patient  $\theta$ -role and co-index with the subject. Massam uses reflexive middles in English like (33a) and those in Romance languages to motivate assuming such an EC in middles.

(33) a. This floor practically washes itself (Massam 1992, p110)

b. \*This floor practically washes itself easily

However, it is highly debatable that English middles without overt reflexives (henceforth plain middles) should be treated on a par with those containing overt reflexives (henceforth reflexive middles). Whereas reflexive middles require the presence of adverbs like *practically* and *virtually*, plain middles are not subject to this restriction. Note also that reflexive middles resist modification by *easily*, *well*, so on so forth, as shown in (33b), which plain middles cannot do without<sup>32</sup> (Stephens 2006). In view of these contrasts, it seems implausible to simply treat plain middles on a par with reflexive middles.

Extending Massam's approach to *Nan-yi* middles requires assuming a null reflexive in the object position. Since *Nan-yi* middles never allow the occurrence of

31 This EC is beyond the Chomskian EC system. Issues concerning the existence vs. nonexistence of this EC is beyond the scope of the present thesis.

32 In this respect, reflexive middles in English are also quite different from French middles, which exhibit overt reflexives (in a reduced form, namely clitic), and freely allow adverbs such as *easily* despite the reflexive morphology.

the reflexive *ziji* ‘self’ in the post-verbal position, as (34) instantiates, it is even more difficult to motivate assuming a phonetically empty reflexive in *Nan-yi* middles than to do this in English middles.

- (34) \*zhe ben shu rongyi du ziji  
 this CL book easy read itself

### **Steinbach (2002)**

Steinbach (2002) endorses the syntactic analysis proposed by Massam (1992). His analysis capitalizes on the overt reflexives in German middles, which is not directly relevant to the present purpose. Therefore the syntactic derivation in Steinbach (2002) will not be commented on.

What is of interest is the syntax-semantics mapping proposed in Steinbach (2002), which establishes a relation between the tripartite structure of generic sentences and the syntax of middles. Steinbach correlates the restrictor of generics and the subject position. The issue is that, as pointed out by Krifka et al. (1995), a restrictor can contain semantic material from different parts of the sentence. For example, (35) is ambiguous due to two possible partitions of the sentence:

- (35) Typhoons arise in this part of the Pacific
- a. Typhoons in general have a common origin in this part of the Pacific.

For typhoons it holds: They arise in this part of the Pacific.

b. There arise typhoons in this part of the Pacific.

For this part of the Pacific it holds: There arise typhoons.

In interpretation a, the subject *typhoons* is mapped to the restrictor. In contrast, in interpretation b, the locative *in this part of the Pacific* is mapped to the restrictor.

The above discussion suggests that the restrictor of a generic sentence is not necessarily linked to the subject position.

Steinbach also intends to derive the responsibility reading of the subject from the tripartite structure of generics. He argues that the restrictor in generics is generally understood as the responsible party. Given this generalization, since syntactically the restrictor is realized as the subject, the subject has the responsibility reading. Although the general idea makes intuitive sense, the details are less than crystal clear. In particular, it is not clear that the placement of the subject in the restrictor is specific enough to capture the responsibility reading of the subject referent. As pointed out by Maling (2006, p434), “we are not aware of any straightforward tests for this property in the literature.”

As a matter of fact, Steinbach excludes the responsibility reading found in middles by ascribing the semantics ‘usually’ to the generic operator Gen (Maling, 2006). Consider habitual generics like (36), where the generic operator Gen can be simply paraphrased as ‘usually’.

(36) John smokes after dinner

(36) can also be partitioned into two parts by Gen: *John* is mapped into the restrictor and *smokes after dinner* into the nuclear scope. With this in mind, (36) can be roughly paraphrased as ‘for John, it is generally true in different situations that he smokes after dinner’. If the restrictor corresponds to the responsible party, as Steinbach claims, *John*, the restrictor, should be responsible for his regularly smoking after dinner. Such a prediction, however, seems at odds with the intuition.

#### **Lekakou (2005)**

Like Steinbach (2002), Lekakou (2005) proposes a syntax-semantics mapping mediated by a semantic operator. As can be seen in the preceding subsection, simply treating middles as generics as in Steinbach (2002) is inadequate to capture the syntax and semantics of this construction. In view of such limitations, Lekakou singles dispositionals out of generics, and assumes a dispositional generic operator Gen rather than a pure generic operator. Building on Brennan (1993), Lekakou argues that Gen has the effect of mapping the target of disposition ascription to the subject position. Since the target of disposition ascription is the patient of the verb in middles, it is the patient but not the agent that is projected to the subject position. Thus the problems of simply treating middles as generics as in Steinbach (2002) disappear in Lekakou (2005).

It may also avoid problems with the null reflexive assumption for middles. Since Gen has the effect of obligatorily projecting the target of a disposition ascription,

which is meanwhile the patient of the verb, to the subject position, there is no need to assume an empty reflexive in the object position.

Lekakou's proposal explains the syntax and semantics of middles more elegantly than other existing approaches. The syntax-semantics mapping proposed in Lekakou (2005) is also confirmed by *Nan-yi* middles, since *Nan-yi* modals share with Gen at least the following properties:

- i. They are subject oriented.
- ii. They have scope over VP.
- iii. They give rise to generic reading.

Therefore, it is desirable to directly generalize Lekakou's proposal to the derivation of *Nan-yi* middles. However, two important observations for *Nan-yi* middles should be noted. First, the *tough* elements in *Nan-yi* middles perform as modals, while their counterparts are realized as adverbials in middles discussed in Lekakou (2005). More interestingly, the modals in question, although exhibiting distribution distinct from their adjectival counterparts, have identical semantics and phonetic forms with their adjectival counterparts. Second, the dispositionality found in *Nan-yi* middles is conveyed by *Nan-yi* modals, whereas it is phonetically empty in middles discussed in Lekakou (2005). These observations strongly suggest on the one hand that a derivational relation exists between the adjectives and the corresponding modals, and on the other hand that modals rather than a null semantic operator mediate the syntax-semantics mapping of middles (also dispositionals). These properties do not follow from the null semantic operator analysis as in Lekakou (2005).

#### 4.2.6 An alternative analysis

The analysis proposed here mainly takes the insights from Lekakou (2005). To account for the properties of *Nan-yi* modals as presented above, some modification is made. Different from Lekakou (2005), it is proposed that the dispositionality found in *Nan-yi* middles is embodied by a light verb. By raising to this light verb, *Nan-yi* adjectives are de-adjectivized and turned into *Nan-yi* modals. This process takes place at L-syntax, namely, in the lexicon (see Hale & Keyser 1993 for L-syntax). The resulting *Nan-yi* modals, at the level of syntax, perform like dynamic modals and hence like control verbs with respect to subcategorization frame. They select, on the one hand, the target of disposition ascription as their specifier, and on the other hand, a property denoting non-finite IP as their complement. Since the target of disposition ascription happens to be the patient in *Nan-yi* middles, the patient surfaces as the subject in this structure.

##### 4.2.6.1 The light verb CAUSE<sub>f</sub>

Given the correlation between *Nan-yi* adjectives and *Nan-yi* modals, a light verb is assumed to derive *Nan-yi* modals from *Nan-yi* adjectives. In the spirit of Brennan (1993), Diesing (1991)<sup>33</sup> and Lekakou (2005), it is further proposed that this light

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<sup>33</sup> Diesing proposes that Infl in i-level sentences assigns a theta role to the subject. Although the light verb proposed here does

verb mediates the syntax-semantics mapping of dispositionals. In particular, it selects the target of disposition ascription as the external argument, as shown in (37):

- (37) a. yinwei neirong tongshu, suoyi zhe ben shu hen rongyi du  
 because content common, SUOYI this CL book very easy read  
 ‘In virtue of its common content, this book reads easily.’
- b. #yinwei ta hen congming, suoyi zhe ben shu hen rongyi du  
 because he very smart, SUOYI this CL book very easy read

The above assumption is independently motivated, as can be seen below.

Cross-linguistically, there seem to be overt counterparts for the light verb assumed here. In this respect, dynamic modals are the most prominent. As discussed in chapter 2, dynamic modals like *can* and *neng* ‘can’ are used to mediate the syntax-semantics interface of dispositionals. For example, English middles as dispositionals may employ this type of modals (Massam, 1992):

- (38) a. This bread sure can/will cut!
- b. Some bolts just won’t unscrew. (Massam 1992, p104)

It is wellknown that dynamic modals are thematically related to the subject. This property is consistent with the selectional relation assumed for the light verb and its

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not belong to Infl, the spirit remains the same: one functional head governing VP may select an argument as its specifier.

specifier.

The modal *lassen* in German *let* middles provides another piece of evidence (Fagan 1992). According to Fagan (1992), *lassen* is itself used in a causative sense, meaning ‘have (done)’ or ‘cause (to do)’. When used in middle constructions, this auxiliary bears the modal meaning of ability or possibility. An instance follows:

- (39) Ich habe mir        einen    Kostenvoranschlag machen lassen.  
 I    have me-DAT    an        estimate                    make    have  
 ‘I had (someone) make me an estimate.’

More interestingly, a type of middles in Taiwanese, which is dispositional, features a verbal element *u*. Whereas this verb originally means ‘have’, its semantics is highly impoverished in middles like (40):

- (40) tsit niã sã ia    u    tʰing<sup>34</sup>  
 this CL cloth have wear  
 ‘This blouse is durable.’

Finally, *Nan-yi* middles can be easily paraphrased as sentences consisting of verbs like *rang* ‘make’ and *shi* ‘make’, which carries the causative meaning. For example, a paraphrasal relation holds between (41a) and (41b).

<sup>34</sup> This example is provided by Prof. Su, Jinzhi, a native speaker of Southern Min.

(41) a. zhe ben shu rongyi du

this CL book easy read

‘This book reads easily.’

b. zhe ben shu rang/shi ren du qi (zhe ben shu) lai juede

hen rongyi

this CL book make/make people read QI (this CL book) LAI feel

very easy

‘This book makes people feel that it is easy.’

It should be noted that middle constructions vary as to whether or not they employ an overt lexical item to realize the dispositionality. As pointed out by Fagan (1892), in addition to *let* middles, German also exhibit ‘plain middles’, which go without modals like *lassen*. Plain middles seem more usual in comparison to *let* middles. These two types of middles share the dispositional interpretation. Likewise, the more usual cases of English middles employ simple present tense but not overt modals to encode genericity<sup>35</sup>. In the absence of overt modals, the modality remains the same in middles.

In light of these facts, it is reasonable to assume the existence of a light verb in middles no matter whether it is visible or not. It is argued that the light verb in question has the following properties on the basis of the observations in section

<sup>35</sup> As mentioned previously, generics can be further divided into habituals and dispositionals. In English, these two types of generics are both encoded by simple present tense. Therefore simple present tense in English middles is responsible for genericity but not dispositionality.

## 4.2.4:

- i. It is subject-oriented in the sense of ascribing an inherent property to the referent of the subject.
- ii. It has scope over VP.
- iii. It gives rise to generic reading.

It is worth noting that these properties are shared by the dynamic modals discussed in Brennan (1993) and the VP-level semantic operator Gen in Lekakou (2005)<sup>36</sup>. On the basis of such similarity, it is reasonable to analyze the light verb in question on a par with dynamic modals.

So far, the essential properties of the assumed light verb have been presented. However, there is still one problem that requires clarification: what is the exact semantics of this light verb? According to McConnell-Ginet (1994), *small cars* in (42) should be treated as Causer. In the spirit of McConnell-Ginet (1994), it is argued that the light verb in question is approximate to CAUSE.

(42) Small cars park easily

Saying that the light verb here is CAUSE seems to pose a problem for frameworks in Dowty (1979), Reinhart (2000), etc. The reason is that *small cars* in (42) is the Patient but not the Causer of the action denoted by the verb, and it seems as if no change of state obtains, which is crucial for a causative configuration. Recall that

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<sup>36</sup> Lekakou's proposal is essentially an extension of Brennan's idea to middles, as pointed out herself.

treating middles as dispositionals means precisely that there is some property inherent to the subject in virtue of which the action denoted by the verb is facilitated (Lekakou 2005, among others). The extent to which the ‘in virtue of’ relation involves causation boils down to a philosophical issue, as has been discussed in chapter 2. Following Mumford (1998), it is suggested that an appropriate sense of *cause* is applicable to dispositionals, which is not identical to the canonical sense of CAUSE in events. According to Fawcett (1980) and Kemmer (1993), middles are always associated with facilitative sense. That is to say, the referent of the subject may facilitate the action denoted by the verb.

In light of the above considerations, the Cause in McConnell-Ginet’s work may be slightly modified by adding a subscript *f*, which stands for *facilitate*, to mark its distinction from the canonical Cause.

Another potential counterargument is related to the fact that dispositionals (also middles) express a state. From the perspective of Davidsonian semantics, a state should not be divided into subparts. Therefore assuming a light verb, which is a device to decompose events, is not suitable for dispositionals (also middles). From the viewpoint of Neo-Davidsonian semantics, this is, however, not necessarily true. According to Neo-Davidsonian semantics, a state is not a primitive. Rather, it can be further divided into subparts (Partee, 1984; Hinrichs, 1985; Parsons, 1990, 2000; Pustejovsky, 1991; Pylkkanen, 2000). This thesis follows Neo-Davidsonian semantics regarding division of a state.

By incorporating to this light verb in L-syntax, *Nan-yi* adjectives gain all the

properties of this light verb. Hence *Nan-yi* modals are observed to have scope over VP, be subject-oriented, and be associated with genericity.

#### 4.2.6.2 Subcategorization of *Nan-yi* modals and base-generation of the subject

*Nan-yi* modals gain all the properties of CAUSE<sub>f</sub> via incorporation. As mentioned above, CAUSE<sub>f</sub> functions like dynamic modals in the sense of Brennan (1994) and the VP level semantic operator Gen in Lekakou (2005). Syntactically dynamic modals are always considered control verbs (Huang 1990, Lin & Tang 1995, among others), which subcategorize an argument and a predicate. Therefore, it is reasonable to treat *Nan-yi* modals as control verbs, which semantically select, on the one hand the intrinsic determinant owner in dispositionals, namely, Causer<sub>f</sub>, as the external argument, and on the other hand a property denoting predicate as the complement. For example, in middles like (43), the subject *xiao che* ‘small car’ is base-generated and receives its theta role Causer<sub>f</sub> in situ.

- (43) *xiao che rongyi ting*  
 small car easy park  
 ‘Small cars park easily.’

What is special about this base-generated subject is merely that it is meanwhile

understood as the patient of the embedded verb *ting* ‘park’.

Moreover, *ting* ‘park’ serves as the complement of *rongyi* ‘easy’, combining with *rongyi* ‘easy’ to describe a property of *xiao che* ‘small car’.

#### 4.2.6.3 Complement of *Nan-yi* modals and suppression of the underlying agent

While the external argument of *Nan-yi* modals is doubtlessly a DP, the status of their complement is an open question. Although it appears to be a VP, there still exists another possibility: it is a clause containing empty categories.

Given that although the agent in *Nan-yi* middles does not appear in A-positions, it is still implied, it is argued that the agent is related to an EC (in the spirit of Stroik 1992 and Hoekstra & Roberts 1993). This EC has two essential properties. One is that it is obligatorily null. The other is that it is not anteceded. Considering the first property, this EC should not be a pro, which may be replaced by overt forms. The latter property excludes the possibility that it is a trace, which requires an antecedent. Thus the only remaining possibility is that it is a PRO, which is obligatorily null and does not require an antecedent (Huang 1989, Haegeman 1994).

It is well established that a PRO occurs in the subject position of a non-finite clause. Therefore, assuming a PRO presupposes a non-finite clause in *Nan-yi* middles. It is wellknown that whether Chinese manifests finite-nonfinite distinction with respect to clauses is a matter of controversy. A review on the huge body of literature is beyond the scope of this thesis. Here Li (1985), Huang (1992) and Tang

(2000) are followed in assuming the existence of non-finite clauses in Chinese. Presented below is some empirical evidence in favor of treating the string following *Nan-yi* modals as a non-finite clause. As already demonstrated in section 4.2.2.3 in this chapter, *Nan-yi* middles are incompatible with aspect markers such as *zhe* and *le*. This phenomenon can be regarded as symptomatic of non-finite clauses (Li 1985, Huang 1992, Tang 2000).

The above considerations are in line with the approach that treats dynamic modals as control verbs, as in Lin & Tang (1995). Thus this approach is extended to *Nan-yi* modals. This treatment is also supported by the similarity between *Nan-yi* modals and dynamic modals: both types of modals are subject-oriented and have scope over VP.

Under the control analysis, *Nan-yi* modals take as complement a non-finite clause containing a PRO. It is suggested that the PRO in the embedded nonfinite clause represents the agent of the embedded verb. It should be noted, however, this PRO differs from ordinary PROs in being unantecedented. Existence of such a PRO may find supporting evidence from the following discussion.

According to Huang (1989) and Haegeman (1994), an uncontrolled PRO receives arbitrary or generic reading, as shown in the following examples:

- (44) a. [<sub>CP</sub> [<sub>IP</sub> Just PRO to sit there]] should be forbidden  
 b. It is not always easy [<sub>CP</sub> [<sub>IP</sub> PRO to control oneself in public]]  
 c. [PRO xiyan] you hai Huang (1989, p193)

smoke have harm

‘Smoking is harmful.’

Such uncontrolled PROs, like canonical PROs, are associated with the feature [+animate]. In addition, since their reference is arbitrary, they have another feature: [+arb]. The generic interpretation of such PROs embodies these two features, as can be seen in the paraphrase of such PROs: ‘people in general’.

With these considerations in mind, treating the agent in *Nan-yi* middles as an uncontrolled PRO predicts that the agent is interpreted generically<sup>37</sup>. This prediction is borne out. In sentences like (43), the agent is understood as ‘people in general’ rather than any specific person<sup>38</sup>.

Another piece of evidence has to do with the overt counterpart of such PROs. As mentioned in chapter 2, Stroik (1992, 2006) analyzes the *for*- phrase as overt realization of the agent PRO in English middles. Along this line, the PP *dui...laishuo* ‘for...’ may also be viewed as introducing an overt controller for the PRO, as shown below:

(45) *dui chengnian gongmin laishuo, [PRO xuanju] shi jiben quanli*  
       for adult citizen LAISHUO, vote be basic right

37 The idea of arbitrary PRO is inspired to a great extent by Rizzi’s proposal on arbitrarily interpreted arguments that are saturated in the lexicon.

38 Another way is to treat the PRO as variables bound by a generic operator Gen. Chierchia (1995) argues that Gen is inherent to the lexical semantics of certain lexical items. Following such a stance, it is suggested that Gen is inherent to the lexical semantics of dispositional modals like *Nan-yi* modals. Lexical insertion of *Nan-yi* modals thus provides a Gen, which binds the agent variable.

‘For adult citizens, [PRO voting] is a basic right.’

If there is a PRO representing the agent in *Nan-yi* middles, the PP *dui...laishuo* ‘for...’ may also provide an overt controller for the agent PRO. This prediction is fulfilled, as (46) indicates:

- (46) *dui xiaohai laishuo, zhe ben shu hen nan* [PRO *du*]  
 for kid LAISHUO, this CL book very difficult read  
 ‘For a kid, this book reads difficultly’

#### 4.2.6.4 Co-indexation of the subject (Causer<sub>f</sub>) and the patient

Recall that the subject in *Nan-yi* middles acquires its theta role Causer<sub>f</sub> in situ. Note also that the subject is understood as the patient of the verb. In light of Theta Criterion, which requires an argument to bear no more than one theta role, an argument other than the subject is needed to bear the patient role.

The status of this patient argument needs to be ascertained. In view of the fact that the patient argument is invisible, it should be assumed as an empty category. Four possibilities emerge concerning the status of this EC: a null reflexive, a PRO, a pro or a trace.

It can be seen in the previous discussion that treating the EC as a null reflexive is untenable for Chinese middles. On the other hand, since the object position of a transitive verb is a governed position, an EC in that position is unlikely to be a PRO.

Assuming the pro status of the EC also meets challenges. It is at least controversial that pro can appear postverbally. Even if this is possible, it is still mysterious why the object can never be realized by lexical material since it is well established that an element being overtly realized or being a pro is optional.

These considerations favor treating the patient-object as a trace. That is to say, formation of *Nan-yi* middles is likely to involve movement. As the preceding section suggests, however, A-movement analysis fails to account for a series of crucial properties of *Nan-yi* middles. The fundamental reason for this will be discussed subsequently.

It is well established that an A chain bears only one theta role, which is assigned to the trace. Given this principle, if *Nan-yi* middles involve a chain formed by A-movement, the chain should consist of only one theta role, i.e. the patient role assigned to the trace in the object position. This role is expected to be inherited by the subject in *Nan-yi* middles. That is to say, the subject in *Nan-yi* middles can only carry the patient role. However, it has been shown that the subject in *Nan-yi* middles bears the theta role  $\text{Causer}_f$  independently of the patient. Thus it can be seen that A-movement analysis fails to accommodate the thematic relation between the subject and *Nan-yi* modals.

In effect, the thematic relation between the subject and *Nan-yi* modals is the underlying source for the properties of middles such as the responsibility reading of the subject. Since the A-movement analysis does not allow for the thematic relation between the subject and the modals, it is no surprise that such an analysis fails to

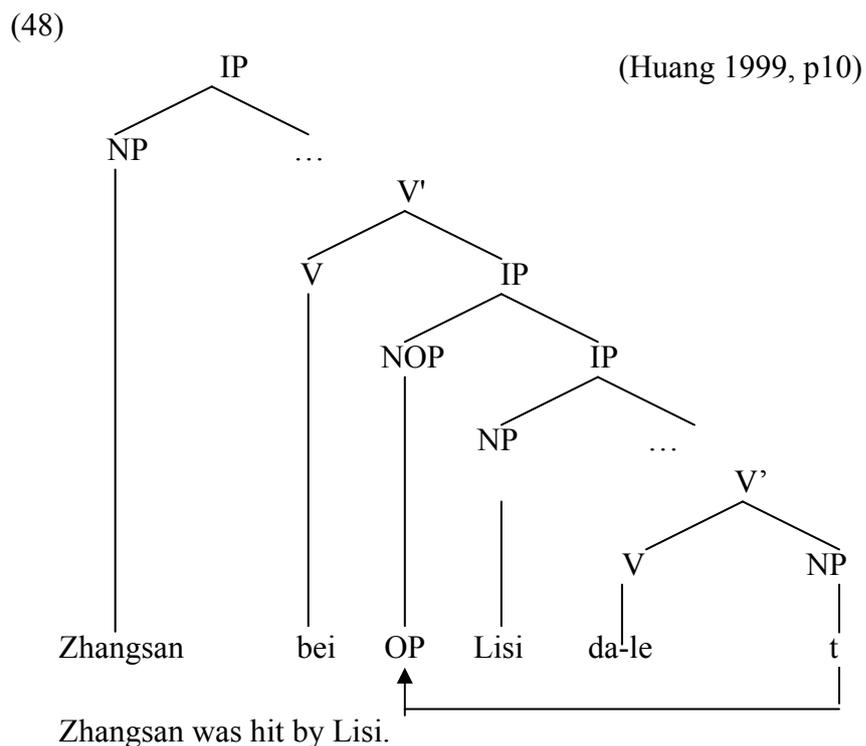
derive the properties related to such a thematic relation, such as the responsibility reading of the subject.

An alternative is to assume a chain linking two separate theta roles: Causer<sub>f</sub> and patient. While the former is realized by an overt argument in the subject position, the latter is carried by a trace in the object position.

This analysis, however, seems to face a dilemma. On the one hand, the subject is base-generated and acquires a theta role in situ. On the other hand, the patient-object is a trace, which necessitates a movement analysis. The chain formation is required to reconcile base-generation of the subject with movement of the object.

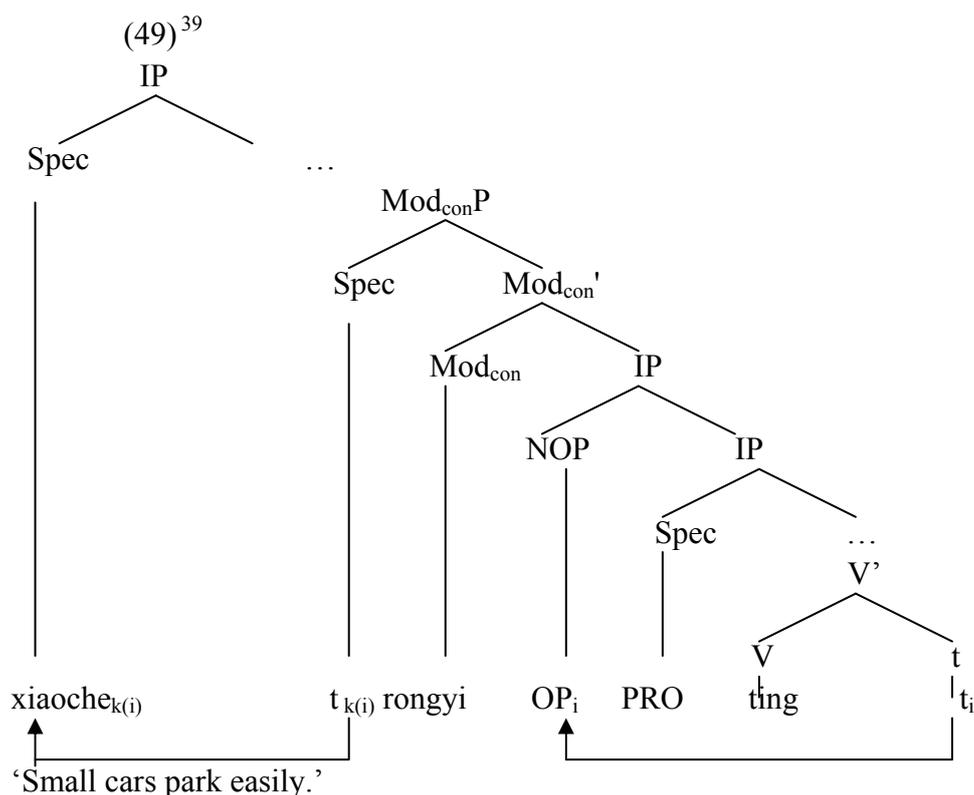
The null operator movement provides a way out of such a dilemma. This type of operation has been proposed in Chomsky's (1981) analysis for the Tough construction in English and Feng (1995), Huang (1999) and Tang's (2008) treatment for long passives in Mandarin. The essential spirit of these proposals is that the complement of *tough* or *bei* is analyzed as involving null operator (henceforth NOP) movement and predication:

- (47) This problem<sub>i</sub> is easy [<sub>CP</sub> NOP<sub>i</sub> for you to solve t<sub>i</sub>].  
       |\_\_\_ predication \_\_\_| |\_\_\_ movement \_\_\_|



In terms of derivation, the object of the embedded clause is a null category that moves to the position adjoined to the embedded IP, from where it is then predicated on the matrix subject. It should be noted that such a derivation instantiates A'-movement, which crucially differs from the A-movement reviewed previously. Moreover, the co-indexation between the subject and the object is established indirectly via a complex chain, unlike what happens in the case of A-movement, where the subject binds the trace in the object position directly. Under the NOP analysis, the null object is first IP-adjoined and then gets bound by the matrix subject under predication.

It is proposed that this approach is applicable to the derivation of *Nan-yi* middles, with (49) representing the structure.



An immediate argument for such an analysis is that it manages to reconcile base-generation of the subject and movement of the object. As a matter of fact, it is a combination of base-generation of the subject and movement of the object. On the one hand, the subject is base generated. This may accommodate the thematic relation between the subject and *Nan-yi* modals. Moreover, the trace status of the patient-object follows straightforwardly from the movement of the patient-object.

Doubts may arise concerning whether the NOP analysis is a syntactic trick to obtain the facts mentioned above. It will be shown that this analysis is also motivated on semantic grounds.

39 The subscript ‘con’ stands for ‘control verb’. In the present study, the modals in question are treated on a par with control verbs. In addition, it should be noted that there are two chains in the representation: one with the subscript ‘i’ and the other with the subscript ‘k (i)’. While the former chain is formed by null operator movement, the latter is formed by raising. ‘k (i)’ means that the two chains are co-indexed. This co-indexation is established by predication.

According to Huang (1999, p433), “an NOP structure is a *predicate* denoting a property, whereas a normal clausal complement is an *argument* denoting an entity (an event, proposition, etc.)” With respect to *Nan-yi* middles, *Nan-yi* modals select as complement a predicate rather than an argument. The predicative complement of *Nan-yi* modals involves an NOP structure. Thus two predicates exist in *Nan-yi* middles, the primary predicate *Nan-yi* modals, and the *secondary* predicate realized by the NOP structure. The secondary predication is enabled by coindexing the NOP with the matrix subject.

The NOP movement actually turns a proposition (IP) into a predicate. It is generally assumed that NOP movement correlates to lambda-abstraction. A lambda-abstracted expression containing exactly one free variable is equivalent to an intransitive predicate, where exactly one argument position is unsaturated. Any individual that may properly saturate the argument position is said to be the (semantic) subject of this predicate. A proposition thus can be turned into a predicate denoting the property of one of its arguments by replacing the argument with a variable bound by the lambda operator<sup>40</sup>. Taking *Nan-yi* middles into consideration, while the IP ‘people in general park small cars’ is a proposition, the NOP clause ‘<sub>IP</sub> [NOP<sub>i</sub> people in general park t<sub>i</sub>]’ expresses “the *property* of being an x such that people in general park x”.

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40 Predication here is a semantic notion. However, it has syntactic correlate, which can be generally interpreted as co-indexation (Williams 1995, Bowers 1993, Huang 1999). For instance, relative clause, topic sentences, and Chinese long passive are derived by co-indexation of a variable and a DP.

This NOP clause further serves as the complement of *Nan-yi* modals. Recall that *Nan-yi* modals in general mean “causing<sub>f</sub> ... easy or difficult”. The semantics of the matrix clause in (49) then can be interpreted as: “small cars are x, and x has the property of being x causing<sub>f</sub> people in general to park x easily”.

It can be seen from the above discussion that the NOP analysis for *Nan-yi* middles is justifiable on both syntactic and semantic grounds.

It should be noted, however, that apparently there exists one piece of counterevidence to the NOP analysis. It is generally assumed that NOP structures may employ resumptive pronouns to fill the gap in the object position. For example, sentences like (50) are used as evidence to support the NOP analysis for long passives:

(50) Zhangsan bei Lisi da-le ta yi-xia.

Zhangsan BEI Lisi hit-PERF him once.

Zhangsan was hit once by Lisi.

In this respect, *Nan-yi* middles seem to contrast with passives like (50), as sentences in (51) indicate:

(51) a. xiaochē hěn róngyì tīng (\*tāmen)

small cars very easy park (\*them)

‘Small cars park easily.’

b. zhe-ge laotou feichang rongyi pian (\*ta)

this-CL old man very easy cheat (\*him)

‘This old man is easy to cheat.’

The unacceptability of sentences in (51) seems due to independent factors.

As to the unacceptability of (51a), the most likely account is that the Chinese third person resumptive pronoun for nonhuman entities tends to have phonetically null representation, as suggested by Shi (2000) with (52) as the evidence. This condition is developed from Li & Thompson’s (1981) generalization on Chinese third person pronouns.

(52) ?? zhexie shi<sub>k</sub> wo juede [<sub>CP</sub> ta shuo tamen<sub>k</sub>] bu heshi (Shi 2000, P 399)

these thing I think he say they not proper

‘These things, I think it is not proper for him to talk about them.’

In contrast to (51a), (51b), the subject of which is human, is actually not bad in the presence of the postverbal pronoun *ta* ‘he’. It should be noted, however, the postverbal *ta* ‘he’ is forced to be interpreted as a man different from the referent of the subject. That is to say, the presence of the intended postverbal resumptive *ta* ‘he’ obligatorily turns a *Nan-yi* middle construction into a canonical SVO sentence with the subject interpreted as the agent and the object interpreted as the patient. It seems as if the SVO interpretation is too strong in the presence of the intended resumptive

pronoun, such that the middle interpretation in which the subject is co-indexed with the patient is totally unavailable. It appears that only by using the gap strategy for the patient object can the middle interpretation be maintained.

In a word, *Nan-yi* middles with resumptive pronouns in the object position are ruled out by independent conditions. Therefore the non-occurrence of resumptive pronouns in *Nan-yi* middles does not constitute a counterargument for the NOP analysis.

#### 4.2.6.5 Summary

The proposal presented above is two-folded. On the one hand, a light verb  $\text{CAUSE}_f$  is assumed to mediate the syntax-semantics mapping of a disposition ascription. This light verb selects the target of the disposition ascription, namely,  $\text{Causer}_f$ , as the subject. *Nan-yi* adjectives incorporate to this light verb at the level of lexicon, and hence obtain all its properties. On the other hand, a mechanism is devised to link the  $\text{Causer}_f$ -subject to the patient-object. This mechanism features a null operator, which is an intermediate element between the subject and the object. The null operator movement creates a complex A' chain, which establishes the co-reference of the  $\text{Causer}_f$ -subject and the patient-object.

Such a proposal has the merit of being capable of explaining the following observations:

- i. The de-adjectivization of *Nan-yi* words

- ii. The thematic relation between the subject and the predicate
- iii. The obligatory non-occurrence of the patient in the object position

### 4.3 Analysis of *Neng-ke* Middles

*Neng-ke* middles display properties quite similar to those of *Nan-yi* middles. Semantically, both types of middles are disposition ascriptions. Syntactically, the dispositionality involved in both types of constructions is realized by subject-oriented modals, which requires the disposition to be ascribed to the subject. In view of such similarities, it is reasonable to extend the syntax-semantics mapping developed for *Nan-yi* middles to the analysis of *Neng-ke* middles.

#### 4.3.1 Properties of *Neng-ke* Middles

Leaving aside the defining properties of middles, the prominent feature of *Neng-ke* middles is its status as disposition ascription. The contrast between (53a) and (53b) can be used as evidence for this claim.

- (53) a. yinwei jingguo teshu chuli, suoyi zhe zhong zhi neng xi  
 because undergo special treatment, SUOYI this type paper can wash  
 ‘In virtue of having undergone special treatment, this type of paper

is washable.’

b.\*yinwei mama xi de hen xiaoxin, suoyi zhe zhong zhi neng xi  
 because mother wash DE very careful, SUOYI this type paper can  
 wash

It can be observed in (53) that the subject of the causative subordinate clause must be co-referential with the subject of the main clause, namely the *Neng-ke* middle construction. This observation suggests that the subject of *Neng-ke* middles owns some intrinsic determinant that is crucial for the truth value of the sentence. Therefore, a *Neng-ke* middle construction should be treated as a disposition ascription, which ascribes some intrinsic property to the referent of the subject.

In addition, *Neng-ke* middles manifest properties such as responsibility reading (of the subject), stativity, modality and genericity, as illustrated by (54):

(54) zhe liang zixingche hai neng qi  
 this CL bicycle still can ride  
 ‘This bicycle is still rideable.’

It is the bike that is responsible for its rideability. Such rideability has to do with some ability-like modality. Sentences expressing ability are necessarily stative and generic. With respect to the genericity, it appears that a generic operator binds variables of situation as well as variables of underlying agents in *Neng-ke* middles. For instance,

in (54), the reference of the rider is unspecified. It must be interpreted as ‘people in general’ instead of ‘some specific person’.

The above four properties, as a matter of fact, follow from the notion of ‘disposition ascription’. The issue as how to derive these properties from dispositionals has already been addressed in section 4.2.2.4 in this Chapter.

### 4.3.2 Properties of *Neng-ke* modals

It has long been noticed that *Neng-ke* modals behave differently from raising verbs, in that they are subject-oriented and have scope over VP. Thus they are generally considered control verbs rather than raising verbs. This subsection will provide some additional evidence for this point. It will be shown that this property is closely related to the dispositionality encoded by *Neng-ke* modals.<sup>41</sup>

#### 4.3.2.1 Subject-orientation and VP-scope

Two major properties of modals like *neng* ‘can’ and *keyi* ‘can’, subject orientation and VP scope, have been presented in Chapter 2 with basic supporting evidence. These properties can be further confirmed by additional evidence as

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41 It seems that the semantics of *neng* ‘be able to’, *ke* ‘be able to’ and *keyi* ‘be able to’ is changed into ‘enable’ in middles. Specifically, in the vast majority of cases, the subjects of these modals are agentive, which is compatible with the ability reading of these modals. On the other hand, the subjects in *Neng-ke* middles are patients, which permits only the ‘enable’ reading.

presented below.

In the first place, sentences in (57) can be used to argue for the subject-orientation of the modals. The truth conditions for (55a) and (55b) are equal. Such equivalence is not affected by insertion of raising modals like *keneng* ‘might’ in each sentence, as (56a) and (56b) illustrate.

(55) a. Bajie qu le Xiaohua (the same as (9a), p134)

Bajie marry PERF Xiaohua

‘Bajie has married Xiaohua.’

b. Xiaohua jia gei le Bajie (the same as (9b), p134)

Xiaohua marry GEI PERF Bajie

‘Xiaohua has married Bajie.’

(56) a. Bajie keneng qu Xiaohua

Bajie might marry Xiaohua

‘Bajie might marry Xiaohua.’

b. Xiaohua keneng jia gei Bajie

Xiaohua might marry GEI Bajie

‘Xiaohua might marry Bajie.’

By contrast, insertion of *neng* ‘can’ changes such equivalence: the truth conditions for (57a) and (57b) are distinct. This change suggests that *neng* ‘can’ has close semantic relation to the subject. Put it in another way, *neng* ‘can’ is

subject-oriented.

(57) a. Bajie neng qu Xiaohua (the same as (9a), p 134 and (55a), p179)

Bajie is able to marry Xiaohua

‘Bajie is able to marry Xiaohua.’

b. Xiaohua neng jiagei Bajie (the same as (9b), p134 and (55b), p179)

Xiaohua is able to marry Bajie

‘Xiaohua is able to marry Bajie.’

Moreover, it is interesting to observe the contrast between (58a) and (58b):

(58) a. ta neng yikouqi pao wu gongli, wo ye neng

ta can once run five kilometer I also can

‘He can once run five kilometer, I can as well.’

b. \*Zhangsan keneng yijing zou le, Lisi ye keneng

Zhangsan might already go PERF, Lisi also might

While VP ellipsis is perfectly acceptable in (58a), it is not allowed in (58b).

According to Li (2005), only elements selected by the head can be elided. Given such a rule, the contrast shown above suggests that the dynamic modal *neng* ‘be able to’, but not the epistemic modal *keneng* ‘might’, takes VP as complement. This amounts to saying that *neng* ‘be able to’ has scope over VP.

For more evidence in favor of the claim that *Neng-ke* modals have scope over VP, readers are referred to Lin & Tang (1995).

#### 4.3.2.2 Disposition ascription

As discussed in chapter 2, dynamic modals serve as overt markers for dispositionality. Consider (59) and (60), for example:

(59) ta \*(neng) shuo san men waiyu

he can speak three CL foreign language

‘He \*(can) speak three foreign languages.’

(60) a. Bajie neng yi dun chi wu wan fan

Bajie can one CL eat five bowl rice

‘Bajie can eat up five bowls of rice once.’

b. Bajie yi dun chi wu wan fan

Bajie one CL eat five bowl rice

‘Bajie eats five bowls of rice once.’ (Only the habitual reading is available)

As to (59), omission of the dynamic modal *neng* ‘be able to’ deprives the sentence of the dispositionality and hence induces unacceptability. Different from (59), the sentence in (60b) still stands in the absence of *neng* ‘be able to’. The meaning of the

sentence, however, does not remain the same. Without *neng* ‘be able to’, (60b) is turned into a habitual sentence, simply stating a habit of the referent of the subject.

The above discussion suggests that *neng* ‘be able to’ and *keyi* ‘be able to’ encode the dispositionality in *Neng-ke* middles. Such a function is closely related to the subject-orientation and VP-scope properties of these modals. It has been shown in Chapter 2 that dispositionals require the disposition to be ascribed to the referent of the subject. Thus a dispositional is generally composed of two parts: the target of disposition ascription and the disposition. In terms of syntax, these two parts corresponds to the subject and the VP, respectively. As shown above, such syntax-semantics mapping can be mediated by *Neng-ke* modals as well as by *Nan-yi* modals. As a consequence, *Neng-ke* modals are subject-oriented and have scope over VP.

These properties play an important role in the derivation of *Neng-ke* middles.

### 4.3.3 Constraints on verbs in *Neng-ke* middles

Verbs that may participate in the formation of *Neng-ke* middles are subject to compositional restrictions, which will be detailed in the Appendix. Among them the most prominent one is that verbs in this construction are in general required to imply some expected result. For instance, (61) implies at least the result ‘safe’.

- (61) tudou neng chi  
 potatoes can eat  
 ‘Potatoes are edible.’

This resembles *Nan-yi* middles. It should be noted, however, the result implied by *Neng-ke* middles is not strictly equivalent to that in *Nan-yi* middles. See the appendix for relevant discussion<sup>42</sup>.

#### 4.3.4 Derivation of *Neng-ke* middles

*Neng-ke* middles share every crucial property with *Nan-yi* middles: responsibility reading related to the referent of the subject, subject-oriented modality and genericity. More importantly, the two types of middles seem to involve identical pattern of syntax-semantics mapping: *Neng-ke* modals, like *Nan-yi* modals, select the target of disposition ascription as the subject. In accordance, the derivational mechanism developed for *Nan-yi* middles will be shown to carry over to *Neng-ke* middles.

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42 A range of verbs in Chinese exhibit a strong tendency to be used in *Neng-ke* middles. These verbs are dimorphic compounds of the form [X+Vt], with X representing the adjunct. One instance follows:

⑤ maoyi neng jixi  
 sweater can machine-wash  
 ‘Sweaters are machine-washable.’

An exhaustive list of such compound verbs will be presented in the Appendix.

#### 4.3.4.1 The light verb CAUSE<sub>F</sub>

Given the similarity between *Neng-ke* middles and *Nan-yi* middles, it makes sense to assume the existence of the light verb CAUSE<sub>F</sub> in *Neng-ke* middles as well as in *Nan-yi* middles<sup>43</sup>.

Recall the assumption that *Nan-yi* adjectives incorporate to the light verb CAUSE<sub>F</sub>, yielding *Nan-yi* modals. The case for *Neng-ke* modals, in contrast, is much less straightforward. For the incorporation to take place, some root of *neng* ‘enable’, *ke* ‘enable’ and *keyi* ‘enable’ must be assumed. At the first sight this assumption is difficult to motivate, given that *Neng-ke* modals do not seem to have adjectival counterparts in Mandarin Chinese. It should be noted, however, that in colloquial Mandarin, *neng* ‘can’ and *keyi* ‘can’ can be used as adjectives, as evidenced by modification of degree adverbs:

- (62) a. ta hen neng  
           he very able  
           ‘He is very able.’
- b. ni tai keyi le  
           you too able SFP  
           ‘You go too far.’

43 There is a tradition to treat modals as semantic operators. Dynamic modals like *can* are generally analyzed as VP operators. To unify the account of *Nan-yi* middles and *Neng-ke* middles, the light verb CAUSE<sub>F</sub> instead of a semantic operator is assumed in *Neng-ke* middles.

Furthermore, *neng* ‘can’ can be used attributively in compound nouns, as shown in (63). This behavior also suggests that *neng* ‘can’ has an adjectival counterpart.

- (63) a. *neng-ren*      b. *neng-shou*      c. *neng-gong-qiao-jiang*  
       able person      able person      able worker skillful craft  
       ‘able person’    ‘good hand’      ‘skilled craftsman’

One may doubt whether the attributive use as such is necessarily attributed to the adjective status of the components in question, in light of the fact that elements in a range of categories can be used attributively in Mandarin. The problem, however, is that there seems to be no other convincing analysis for the elements in question, given that putative modals in Mandarin cannot modify nouns.

More interestingly, Ma (1898) offers some support for the existence of the light verb CAUSE<sub>f</sub> related to the modal *neng* ‘can’. According to Ma (1898), ‘*neng* overtly means to cause/make...so’ (‘能’字明有使然之意) (Ma1898, rpt1983, p184]).

In light of the above discussion, it seems reasonable to suggest that the light verb CAUSE<sub>f</sub> is encoded in the lexical semantics of *Neng-ke* modals. It is further proposed that the incorporation of this light verb takes place in L-syntax (For L-syntax, see Hale & Keyser 1993), given that the relevant adjective-verb alternation is highly unproductive in Mandarin.

#### 4.3.4.2 Subcategorization of *Neng-ke* modals

It is argued that *Neng-ke* modals are control verbs and may assign a theta role to the subject (Li 1990, Lin & Tang 1995, Huang et al. 2009). In light of this view and observations concerning the dispositionality of the modals in question, these modals are assigned the subcategorization frame as below:

Specifier:  $\text{Causer}_{\text{f}}$ , a DP

Complement: an expression denoting a disposition, a non-finite IP

As far as *Neng-ke* middles are concerned, it should be noted that the  $\text{Causer}_{\text{f}}$ -subject is simultaneously the patient of the embedded verb.

#### 4.3.4.3 Suppression of the agent role

Like *Nan-yi* middles, *Neng-ke* middles do not express agents overtly, which are, however, implied. Recall that the agents in *Nan-yi* middles are treated as PRO. This treatment is carried over to the agent in *Neng-ke* middles.

Following Lin & Tang (1995), it is assumed that dynamic modals like *neng* ‘can’, *ke* ‘can’ and *keyi* ‘can’ take a non-finite clause as complement. PRO occupies the subject position of this non-finite clause.

This PRO, like the one in *Nan-yi* middles, is free in the sense that it is not controlled by any antecedent. Like other unantecedented PROs, it receives a generic

interpretation.<sup>44</sup>

It should be noted, however, this type of PRO can be controlled by an antecedent in the PP *dui...laishuo* ‘for...’, hence receive a specific interpretation. Example (64) demonstrates this point:

- (64) *dui qiongren laishuo, penghu qu ye neng zhu*  
 for the poor PRT, slums also can live  
 ‘For the poor, slums are also livable.’

#### 4.3.4.4 Co-indexation of the subject and the patient

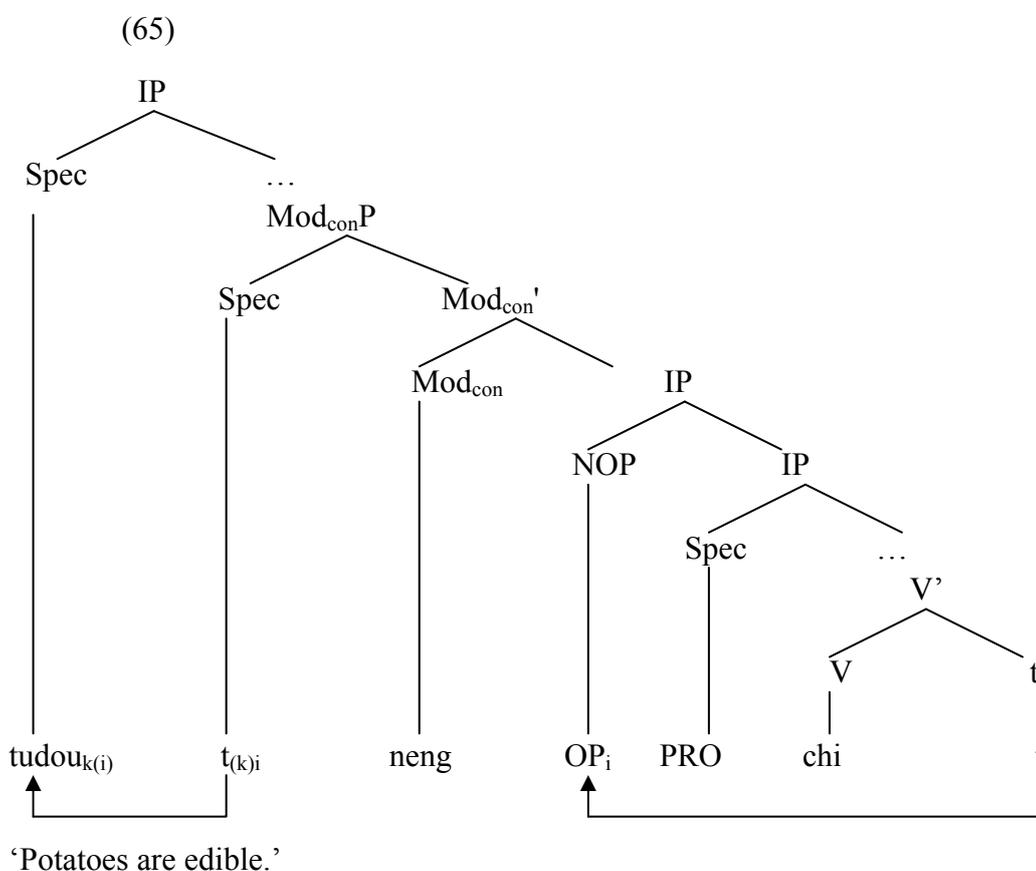
As mentioned above, the subject of *Neng-ke* middles is assigned the theta role  $\text{Causer}_f$  by *Neng-ke* modals. On the other hand, the subject is also interpreted as the patient of the embedded verb.

Recall the argumentation for the existence of the complex A’ chain in *Nan-yi* middles, which establishes the co-indexation of the embedded patient-object and the matrix subject. Since the subcategorization frame of *Neng-ke* middles is identical to that of *Nan-yi* middles, the null operator movement analysis for *Nan-yi* middles is extended to *Neng-ke* middles. Under such an analysis, it is suggested that the patient-object of the embedded verb is moved to the NOP position adjoined to the

<sup>44</sup> Here PRO can be analyzed as a variable bound by a generic operator. This generic operator, like the one in *Nan-yi* middles, is assumed to be provided by the dispositional modals.

embedded non-finite IP. This null operator is then co-indexed with the matrix subject under predication. Via this complex A' chain, co-indexation of the patient-object and the matrix subject is established in *Neng-ke* middles.

The following schema represents the structure of *Neng-ke* middles as elaborated above:



#### 4.4 A General Configuration

Thus far, a general configuration emerges regarding the syntax and semantics of the Chinese middles discussed. *Nan-yi* middles and *Neng-ke* middles can both be

subsumed under the category disposition ascriptions, which belong to generics. The most prominent feature of disposition ascriptions is that they ascribe some disposition to the referent of the subject. Such semantics renders the subject to bear some thematic relation with the predicate, which is labeled CAUSE in McConnell-Ginet (1994). In view of the difference between the thematic relation in question and the canonical sense of CAUSE, CAUSE<sub>f</sub>, which is slightly different from McConnell-Ginet (1994), is proposed in the present study.

The interpretation of *Nan-yi* middles and *Neng-ke* middles can thus be summed up as follows:

$$\lambda x \lambda e [y (\text{PRO doing}(t)) (e) \ \& \ x = \text{Causer}_f(e) \ \& \ x = t]$$

(*y* stands for ‘easy’ or ‘tough’ in *Nan-yi* middles and ‘possible’ in *Neng-ke* middles. *t* stands for the variable as the complement of *do*. The action denoted by *doing* is carried out to the extent that the expected result is achieved.)

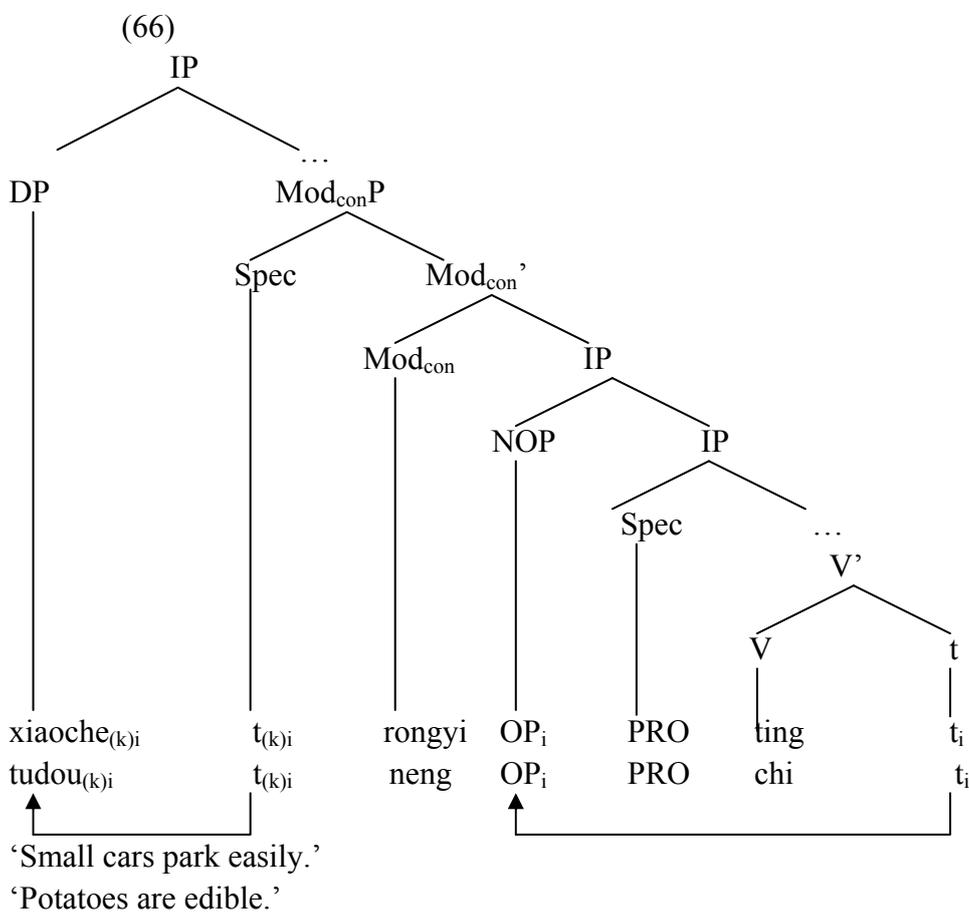
This interpretation corresponds to the syntactic structure in (66). In (66), the semantics of the matrix subject can be interpreted from the tree: ‘small cars’ as well as ‘potatoes’ are assigned the theta role Causer<sub>f</sub> by the Mod<sub>con</sub>. Meanwhile, Mod<sub>con</sub> takes as its complement a non-finite IP, which involves two gaps.

The gap preceding the embedded verb, namely, the subject of a non-finite clause, is treated as a PRO, since that position is ungoverned. This PRO is interpreted as the agent of the embedded verb. Since this PRO is unantecedent and within the scope of the generic operator provided by the modal, it is interpreted generically.

The other gap, namely the complement of the embedded verb, is in fact a

variable, which is co-indexed with the matrix subject  $\text{Causer}_f$  via a complex  $A'$  chain mediated by an IP-adjoined null operator. This chain formation enables the embedded IP to serve as a secondary predicate, which combines with the primary predicate  $\text{Mod}_{\text{con}}$  to denote a property of the matrix subject  $\text{Causer}_f$ .

The syntactic structure (66) can be viewed as the input to the interpretative mechanism that maps linguistic forms into the corresponding interpretations.



## Chapter 5

### Concluding Remarks

This study has explored the syntax-semantics interface involved in Chinese middle constructions.

Chapter 2 introduced the background for the current analysis, which is two-fold. First, the properties of middles and the proposals for middle formation were reviewed briefly. Concerning the properties of middles, there is consensus that middles involve genericity, stativity and modality. With respect to the proposals for middle formation, three general approaches are available: (a) the syntactic approach, which treats middle formation on a par with passivization and relies on move- $\alpha$ ; (b) the lexical approach, which derives middles at the pre-syntactic level based on lexical rules; and (c) the semantic approach, which explores the syntax-semantics mapping involved in middles.

Second, this chapter introduced the notion of ‘disposition ascription’ and its pertinence to middles. Disposition ascription falls into the category of generics, but it differs from habitual generics in that it ascribes a disposition to the referent of the

subject. This intuition can be formalized by extending Brennan's (1993) analysis of dynamic modals to that of dispositionals (e.g. Lekakou 2005). Along this line of analysis, the syntax-semantics mapping for a dispositional is mediated by a dispositional generic operator, which has scope over VP and ascribes a property to the subject. Lekakou (2005), among others, claims that middles belong to dispositionals. In accordance, Lekakou assumes a semantic operator Gen in middles, which is subject-oriented and has scope over VP. A similar idea can be found in McConnell-Ginet (1994), which assumes a light verb CAUSE to encode the semantic relation between the subject and VP in middles.

Chapter 3 focused on the scope of middles in Chinese. The middle construction was defined on the basis of the generally accepted properties of middles. With this definition as a guideline, constructions previously considered 'Chinese middles' were examined. As a result, certain *Nan-yi* and *Neng-ke* constructions were identified as Chinese middles.

Chapter 4 explored the syntax and semantics of *Nan-yi* and *Neng-ke* middles, which instantiate dispositionals. A light verb CAUSE<sub>f</sub> was assumed to mediate the syntax-semantics mapping of dispositionals. It was further proposed that *Nan-yi* and *Neng-ke* modals embody this light verb. For example, *Nan-yi* modals result from incorporation of *Nan-yi* adjectives to CAUSE<sub>f</sub>, which applies in the lexicon but not syntax. Consequently, the modals discussed may assign the  $\theta$ -role Causer<sub>f</sub> to the subject, which is coreferential with the patient of the verb. Coreference of the Causer<sub>f</sub> subject and the patient is established by NOP (Null Operator) movement. In addition,

the middles in question impose certain constraints on the verbs in these constructions. Such constraints are explored in the Appendix. Crucially, the eligible verbs in the middles considered are associated with some expected result. This condition complements the syntax-semantics mapping of middles on the basis of dispositionality: the subject<sub>i</sub> CAUSE<sub>f</sub> [[people in general V<sub>i</sub>ing the patient<sub>i</sub> to achieve the expected result] easy/difficult/possible]<sup>45</sup>. This mapping pattern captures the essential syntactic and semantic properties of middles: genericity (at the sentential level), stativity, modality, the patient-subject and the generic reading of the implied agent.

This thesis presented a unified and principled account of the syntax and semantics of Chinese middles from the perspective of dispositionality. This perspective allows a novel understanding of middles: ‘the middle construction’ as a syntactic entity on a par with passives does not exist. In fact, the argument structure of middles is derivable from the syntax-semantics mapping of dispositionals. Middles differ from ordinary dispositionals only in that the former ascribe a disposition to the patient, whereas the latter do so to the agent.

The views presented above are somewhat in line with Condoravdi (1989), Massam (1992) and Lekakou (2005), which suggest that the universality of middles lies in middle semantics<sup>46</sup>. This study also lends support to Diesing’s (1992) mapping hypothesis, in which s- and i-level sentences differ with respect to the base position

<sup>45</sup> It has been argued that the light verb incorporation related to CAUSE<sub>f</sub> and adjectives like ‘easy’, ‘difficult’ and ‘possible’ applies at the level of lexicon. As a consequence, the representation here is not a syntactic one.

<sup>46</sup> To be more accurate, ‘middle semantics’ here should be interpreted as the syntax-semantics mapping of dispositionals.

of the subject. Whereas the subject of the former originates VP-internally, that of the latter is base generated at the specifier position of a functional projection above VP (in terms of Diesing (1992), the functional projection is IP). As i-level sentences, Chinese middles contain a modal which is located above VP and assigns a theta role to the subject independently of the following verb. In other words, subjects in Chinese middles originate in [Spec, Mod<sub>con</sub>P], rather than [Spec, VP], the base position for subjects of s-level sentences.

Finally, from a macroscopic perspective, this study confirms the general hypothesis that syntactic structure reflects the semantic relationship of the sentence (Haegeman 2006, among others).

## Appendix

### A1 Constraints on Verbs that May Undergo Middle Formation

As has been shown in chapter 2, the issue of delimiting the bounds of the class of eligible verbs for middle formation is notoriously difficult. The proposals that have been put forward concerning English middles can be reduced to five conditions: (a) the affectedness condition: only verbs denoting actions that affect the patient can undergo middle formation; (b) the aspectual restriction: only activity and achievement verbs may perform as middle verbs; (c) the responsibility condition: the patient of the middle verb should be responsible for the carrying out of the action depicted by the predicate; (d) verbs associated with effected themes can not undergo middle formation: and (e) ditransitive verbs (with goal) can not form middles.

The abovementioned constraints will be examined by instances of *Nan-yi* middles and *Neng-ke* middles respectively. It will be shown that these constraints are inadequate to determine the scope of middle verbs under consideration. Empirical data suggest that one more constraint is needed, which requires middle verbs to

imply an expected result. Such expectation can be viewed as representation of a type of telicity, which, however, differs from telicity concerning middles discussed in the literature.

As pointed out by Lekakou (2005), among others, none of the existing restrictions for English middles is without exceptions. As a consequence, it is not so clear that a single constraint can be isolated as the ‘correct’ one. From the viewpoint of Fagan (1992) and Achema & Schoorlemmer (2002), the conclusion is that more than one constraint might be necessary.

The similar situation obtains as far as Chinese middles are concerned, as will be shown in the subsequent discussion. In view of such complexity, this appendix does not aim to provide a constraint that exhaustively determines whether or not one verb may undergo middle formation. Rather, it will be shown that the combination of some of the existing constraints and the one proposed here as ‘expected result’ is operative for Chinese middles.

Discussion in this appendix is mainly of a descriptive nature, aiming at achieving descriptive adequacy of the constructions. Mostly the constraints revealed will not be further explained in terms of syntax or semantics. The reason is that, as mentioned previously, this matter is not strictly syntactic.

It should be noted, however, the constraints under investigation are not totally isolated from the syntax and semantics of the constructions. The condition as ‘expected result’, for example, is closely related to the overall semantics of middles. As suggested in section 4.23 in chapter 4, middles are employed to depict the ease,

difficulty or possibility for people in general to carry out some actions to achieve expected results.

### **A1.1 Constraints on verbs in *Nan-yi* Middles**

*Nan-yi* middles are considerably productive. However, not all transitive verbs can undergo *Nan-yi* middle formation in Chinese, like what happens in English.

A number of constraints have been proposed for verbs in English middles. Now what is of interest is whether these constraints can be transplanted to deal with *Nan-yi* middles. In what follows, these constraints will be examined with data of *Nan-yi* middles.

#### **A1.1.1 Affectedness**

The affectedness restriction manages to rule out sentences like (1) and (2), where the action denoted by the verb obviously has no effect on the patient-subject.

(1) \*Tian'anMen hen rongyi kan

Tian'an Men very easily see

(2) \*zhe zhong xiaoxi hen nan tingshuo

this type information very difficult hear

On the other hand, this restriction can be violated in Chinese as well as in English, as the following examples indicate:

(3) zhe ben shu    hen rongyi du

this    Cl book very easy read

‘This book reads easily.’

(4) yejing            hen nan            zhao

night scene very difficult photograph

‘Night scene photographs difficultly.’

(5) Qinghua                    bu    rongyi            kao

Tsinghua university    not    easy            take an entrance examination

‘Tsinghua university is not easy to enter.’

(6) zuqiu    hen    nan    ti

football very difficult kick

‘It is difficult to play football.’

The verbs in the above grammatical middles express actions that do not cause a change of state for the patient-subject. Specifically, ‘Tsinghua university’ in (5) is highly unlikely to undergo any change of state as a result of the action denoted by ‘examine’. In (6), since the subject ‘football’ is non-referential, it is even more unlikely that it is affected by the event denoted by ‘kick’.

### A1.1.2 Aspect

Another existing constraint is Fagan's (1992) aspectual restriction, which requires the middle verb to be either activity or accomplishment.

According to Huang (2005), Mandarin Chinese does not possess accomplishment verbs. Following Huang's position, now what should be examined is the behavior of activity, state and achievement. Needless to say, since achievement is always intransitive, it is impossible to serve as a middle verb. Some state verbs, like cognitive verbs, are transitive. They cannot undergo middle formation, either, as the following examples indicate:

(7) a. \*zhe ben shu hen rongyi xihuan/taoyan

this CL book very easy like/dislike

b. \*zhe ge da'an hen rongyi/nan zhidao

this CL answer very easy/difficult know

Middle verbs are always activity verbs. Thus far, the distribution of verbs in *Nan-yi* middles conforms to Fagan's (1992) restriction. It should be noted that, however, not all activity verbs are acceptable in *Nan-yi* middles:

(8) a. \*zhe ge xuesheng bu rongyi kao

this CL student not easy examine

b. \*zhe shan men rongyi ti

this door easy kick

The verbs involved in the above sentences are both activity verbs. However, they fail to form acceptable middles.

### **A1.1.3 Responsibility**

The third constraint relies on the notion of Responsibility, which is proposed by Fagan (1992) to supplement the aspectual restriction mentioned above. This restriction also applies to Chinese. It is worth noting that, however, this condition can be derived from the notion of ‘disposition ascription’. If a sentence is a disposition ascription, the subject must have some intrinsic property responsible for carrying out some event in a certain manner. Therefore it turns out to be a property of but not a restriction on *Nan-yi* middles.

### **A1.1.4 Effected patient**

Zwart (1997) proposes to ban verbs with effected patient from middle formation. It is not straightforward to ascertain whether this constraint applies to *Nan-yi* middles since verbs with effected patients do not behave in a unified manner. While in some

cases certain verbs in this class are not allowed in middle formation, in some other cases they are fine with middle formation, as can be seen in (9) and (10).

- (9) a. ??zhe ben lishi xiaoshuo hen nan xie  
           this CL history novel very difficult write  
       b. lishi xiaoshuo hen nan xie  
           history novel very difficult write  
           ‘Historical novels are difficult to write.’

- (10) a. ??zhe tiao maotan hen rongyi zhi  
           this CL blanket very easy weave  
       b. zhe zhong maotan hen rongyi zhi  
           this type blanket very easy weave  
           ‘This type of blankets are easy to weave.’

The grammaticality vs. ungrammaticality of the above sentences seems to hinge on the genericity vs. specificity of the patient-subject. While specific effected patients lead to ungrammaticality, generic ones do not.

A possible account for the unacceptability of (9a) and (10a) is that the action denoted by the verb with a specific effected patient can take place only once. For example, writing a particular historical novel will be completed once the novel is published. In other words, it is impossible for people in general to write one particular book again and again. Therefore, there is no variable of either the implicit

agent or situation for the generic operator to bind. Assuming that genericity is crucial for *Nan-yi* middles, non-existence of variables that can be bound by the generic operator leads to unacceptability of sentences like (9a) and (10a).

Along the same line, the well-formedness of sentences like (9b) and (10b) may also be captured, which involve generic effected patients. Since the effected patients are generic, actions depicted by the verb and the effected patient may be carried out by different people in different situations. For example, although weaving a specific blanket is done while the blanket comes into being, weaving a type of blankets can be repeated by different agents. Therefore, the generic effected patient provides agent and situation variables for the generic operator to bind.

#### A1.1.5 Ditransitive verbs

The last constraint to examine is the one on ditransitive verbs (Fagan 1992). *Nan-yi* middles behave like English middles in being incompatible with double object constructions, as shown in (11a). *Nan-yi* middles disallow preposing the goal as well, as instantiated by (11b).

- (11) a. \*zhe ben shu rongyi song gei haizi  
           this CL book easy give GEI child
- b. \*haizi rongyi song liwu  
           child easy give gift

Even when the patient rather than the goal appears in the subject position, the middle is still questionable. An instance follows:

(12) ?zhe zhong liwu    hen rongyi/nan    song<sup>47</sup>

this type    present very easy/difficult give

In summary, the above discussion suggests that verbs in *Nan-yi* middles are subject to three existing restrictions: (a) the aspectual restriction proposed by Fagan (1992); (b) the restriction on verbs with effected patients in Zwart (1997); and (c) the ban on verbs with ditransitive verbs (Fagan 1992). However, these constraints can not adequately capture the distribution of verbs in *Nan-yi* middles. In particular, exceptions like (3), (4), (5), (6) and (8) require an account.

#### A1.1.6 Expected result

Recall that the verb *kao* ‘examine’ (henceforth *kao*<sub>1</sub>) forms grammatical middles like (13), as can be seen as a violation of the affectedness condition. Note, however, the other entry of the polysemous verb *kao* ‘examine’ (henceforth *kao*<sub>2</sub>) does not constitute a well-formed middle, as (14) demonstrates.

<sup>47</sup> SHI Dingxu (P.C.) points out that (12) can be improved by replacing the subject DP with certain bare NP, as instantiated below:

① hongbao        hen rongyi/nan    song

red envelope    very easy/difficult    give

‘Red envelopes are easy/difficult to give.’

In light of the acceptability of sentences like ①, the reason for the questionability of (12) might be rather complex.

(13) Qinghua bu rongyi kao

Tsinghua university not easy take an entrance examination

‘It is difficult to be admitted by Tsinghua university.’

(14) \*zhe ge xuesheng bu rongyi kao<sup>48</sup>

this CL student not easy estimate

The activities associated with each of the two meanings are identical (eg. some agent takes an examination). In accordance, the aspectual status of *kao* ‘examine’ in both cases is Activity. Thus the contrast exemplified above can not be explained by the aspectual restrictions. Moreover, the referents of the subject in both (13) and (14) are unlikely to be affected by the actions denoted by *kao* ‘examine’. Therefore, the affectedness condition is neutral to (13) and (14).

It should be noted, however, the argument structure accompanying each meaning differ. The one for *kao* in (13) (*kao*<sub>1</sub>) is [agent+ V+ purpose], whereas the one for *kao* in (14) (*kao*<sub>2</sub>) is [agent+ V+ patient].

Intuitively, there is an expected result implied by *kao*<sub>1</sub> but not *kao*<sub>2</sub><sup>49</sup>. This is not surprising given that the second argument for *kao*<sub>1</sub> is Purpose.

Given the above discussion, it seems that *Nan-yi* middles require verbs to imply some expected result. Such a constraint can be further confirmed by the contrast

48 SHI Dingxu (PC.) suggested an acceptable middle construction containing *kao*<sub>2</sub>:

② Hanhan bu rongyi kao (Hanhan was a very unordinary student in China, whose talents ‘It is not easy to estimate Hanhan’s ability by examination.’ are difficult to evaluate by means of examinations)

49 By virtue of strong contextualization, *kao*<sub>2</sub> may also imply some expected result, as exemplified in ②.

between (15a) and (15b).

(15) a. zuqiu    hen nan    ti  
           football very difficult kick (well)

‘It is not easy to play football.’

b. \*zhe shan men hen rongyi ti  
           this CL door very easy kick well

While *ti zuqiu* ‘play football’ involves an expected result, which can be overtly realized by a resultative particle *hao* ‘well’<sup>50</sup>, *ti men* ‘kick the door’ does not. If an expected result is required for a verb to enter *Nan-yi* middles, as proposed in the present study, the distinction between (15a) and (15b) concerning acceptability is expected. Note, however, (15b) may be rescued by appropriate contextualization, as shown below:

(16) A: zhe men da bu kai le,    women ba ta ti kai  
           this door do not open PERF, we    BA it kick open

‘Since this door can not be opened now, let us kick it.’

B: zhe shan men hen rongyi ti  
           this CL door very easy kick

‘This door is easy to kick open.’

<sup>50</sup> Postverbal *hao* ‘good’, *xia* ‘down’, *diao* ‘drop’ and *dao* ‘arrive’ pattern with *shang* ‘up’ with respect to the function under discussion.

This observation in fact does not constitute a counterexample to the constraint proposed above. Rather, it lends additional support to the constraint in that the otherwise atelic verb *ti* ‘kick’ in (16B) is turned into a telic one (with an expected result) by the context<sup>51</sup>.

As mentioned above, semantically bleached resultative particles may represent the expected result implied by the verb. This is, however, a one-way, rather than two-way, test. Verbs like *du* ‘read’ in VP *du shu* ‘read a book’ can not co-occur with the semantically bleached resultative particles mentioned above. Nonetheless, implication concerning an expected result, which may be interpreted as ‘understand’, is involved in the VP *du shu* ‘read a book’ in (3). This implied result can be realized by the second verb of a VV resultative compound. Adding this verb to the original *Nan-yi* middle construction will not substantially change the semantics<sup>52</sup>, as (17) illustrates:

(17) *zhe ben shu rongyi du (dong)*

51 The acceptability of (16B) lends support to Borer’s (2005) claim that aktionsart is syntactically represented (can be considered as context-dependent), and shows sensitivity to syntactic structures. For example, whether or not an object is present largely affects the resulting aktionsart (Rosen 1999). As Rosen further points out, internal properties of the object DP are implicated as well. Thus mass nouns and bare plurals block a telic interpretation:

- ③ a. Kim built the houses (in three months)  
b. Kim built houses (\*in three months)

52 The constraint proposed here is somewhat reminiscent to Tenny’s (1994) ‘measure out’ condition in accounting for the grammatical (17), which is an obvious violation for the affectedness condition. In (17), the action denoted by *read* can be measured out by the object entity *the book*, which brings an end point to the reading event. The same holds for sentences below:

- ④ She photographs well  
⑤ This Sonata plays well

Tenny’s proposal may capture the contrast between (13) and (14), since it seems plausible to argue that ‘Tsinghua university’ rather than the student may measure out the event denoted by ‘examine’. However, it is not so clear that it may predict the contrast between (15a) and (15b), with the subject in the former nonreferential. It is difficult to say that in (15a) the subject ‘football’ measures out the event denoted by ‘play’.

this CL book easy read (understand)

‘This book reads easily.’

## A1.2 Restrictions on verbs in *Neng-ke* Middles

This subsection aims at determining the bound of the class of eligible verbs in *Neng-ke* middles. To start with, several existing conditions will be examined. It will further be shown that an additional constraint is also operative.

### A1.2.1 Affectedness

The affectedness condition may successfully rule out examples like (18), where the verb depicts a state not affecting the patient referent:

(18) \*zhe jian liwu neng xihuan

this CL gift can like

On the other hand, it faces exceptions like sentences in (19), where verbs do not cause a change of state for the patient-subject:

(19) a. weilai bu ke yuce

future not can predict

‘The future is unpredictable.’

b. zhe zhong shiqing bu ke xiangxiang

this-kind things not can imagine

‘This kind of things are unimaginable.’

c. na ge tubiao qingxi ke-bian

that CL icon clear can distinguish

‘That icon is clear and distinguishable.’

### A1.2.2 Aspect

Another constraint is the Aspectual restriction as suggested in Fagan (1992). This constraint predicts that transitive state verbs are unable to undergo middle formation. This prediction is confirmed by the ungrammaticality of middles like (20), which contain state verbs.

(20) a. \*zhe dao ti de da'an neng/keyi zhidao

this CL question DE answer can know

b. \*zhe jian liwu neng/keyi xihuan<sup>53</sup>

this CL present can like

<sup>53</sup> Sequences like *Ke-ai* ‘lovable’ and *ke-yi* ‘suspectable’ seem to constitute counterexamples for the generalization here. It should be noted that constituents like *ke-ai* ‘lovable’ are highly lexicalized, unlike [*neng/keyi* + *xihuan* ‘like’]. The discussion here only concerns [*neng/keyi*+Vt] that are generated in syntax rather than lexicon.

Another prediction following this constraint is that activity verbs constitute acceptable *Neng-ke* middles. This prediction is supported by empirical evidence, given that the sentences instantiating *Neng-ke* middles so far mostly contain activity verbs. Note, however, only a limited set of activity verbs constitute fine *Neng-ke* middles. Even more interestingly, some unacceptable *Neng-ke* middles have acceptable counterparts in *Nan-yi* middles, as demonstrated below:

(21) a. \*hanyu neng xue

Chinese can learn

b. hanyu nan xue

Chinese difficult learn

‘Chinese is difficult to learn.’

### A1.2.3 Responsibility

As argued in section A1.3, the responsibility reading is derived from the semantics of middles as ‘disposition ascription’. Therefore, the responsibility condition should not be used as an independent restriction on verbs that enter into middle formation.

#### A1.2.4 Effected patient

Recall the constraint proposed by Zwart (1997) that the effected patient cannot surface as the subject in middles. This restriction dose not apply to *Neng-ke* middles, as the grammaticality of (22a) and (22b) suggests.

- (22) a. zhe zhong fangzi neng gai  
           this kind house can build  
           ‘This kind of houses are impossible to build.’
- b. zheyang de maoyi bu neng zhi  
           such DE sweater not can knit  
           ‘Such sweaters are impossible to knit.’

#### A1.2.5 Ditransitive verbs

The last constraint to examine is the one on ditransitive verbs (Fagan 1992). In contrast to English middles and *Nan-yi* middles, *Neng-ke* middles seem to be compatible with double object constructions. Instances follow:

- (23) a. zhe ben shu neng/keyi song haizi  
           this CL book can give children

‘This book is suitable for children.’

b. zhe zhong shu neng/keyi fang koudai li

this kind book can put pocket inside

‘This kind of books can be put in the pocket.’

More interestingly, *Neng-ke* middles even allow the goal to surface as the subject:

(24) koudai li neng/keyi fang san ben shu<sup>54</sup>

pocket inside can put three CL book

‘The pocket can hold three books.’

### A1.2.6 Expected result

The last restriction to be considered involves the notion of ‘expected result’, as proposed in the previous subsection. It seems at the first glance that *Neng-ke* middles involve some expected result, just like *Nan-yi* middles.

The situation for *Neng-ke* middles, in fact, to some extent differs from that of *Nan-yi* middles. While the expected result in *Nan-yi* middles can be realized by some overt resultative elements, this is generally impossible for *Neng-ke* middles. For

<sup>54</sup> Observe the sentence in ⑥.

⑥ haizi neng/keyi song liwu

kids can give present

‘Kids can give presents.’

It appears that it is difficult to interpret ‘kids’ in the subject position as Goal rather than Agent.

example, the implicit meaning of *nengchi* ‘eatable’ consists of ‘provide nutrition’, ‘digestible’, ‘can be eaten safely’, etc. Such meanings can not be expressed in the form of either resultative compound or resultative expression.

Interpretation of the implicit expectation seems to depend on the context and world knowledge to some degree. For instance, while (25a) implies that one can eat Guanyin mud safely, (25b) means that potatoes can provide nutrition as well as can be eaten safely.

- (25) a. Guanyin tu neng chi  
       Guanyin mud can eat  
       ‘Guanyin mud is edible.’
- b. tudou neng chi  
       potato can eat  
       ‘Potato is edible.’

Interpretation of the implicit semantics also varies among different [*Neng-ke* modal + *V<sub>t</sub>*] sequences. For example, *neng xi* ‘washable’ means that the referent of the subject will not be damaged by washing, having nothing to do with ‘safely’, in contrast to *neng chi* ‘eatable’. This situation is akin to the one for the *-able* adjectives in English. It is suggested that every *-able* adjective shares some core semantics specific to this morpho-syntactic format, but also conveys its own additional meaning (Booj 2005). As a matter of fact, it is dispositionality that constitutes the semantic core of this

format. It has been shown that dispositionality is a type of modality. Variation of the interpretation of the expectation can be related to the ordering source of this modality. In the case of *neng chi* ‘eatable’, the ideal world is a world where the food can provide nutrition, can be eaten safely and is digestible, so on so forth. The degree of approximation to such an ideal world varies. Concerning the contrast between (25a) and (25b), (25b) involves possible worlds closer to the ones involved in (25a).

To sum up, it can be seen that the combination of three restrictions: aspectual restriction, the restriction on verbs with effected patient and the one on expected result, may correctly constrain verbs in *Neng-ke* middle formation.

## A2 [X+V<sub>t</sub>] Compound Verbs

Chinese possesses a number of dimorphemic compound verbs that tend to be used in *Neng-ke* middle constructions. Such verbs are of the form [X+V<sub>t</sub>], with X standing for the adjunct modifying V<sub>t</sub>. X varies with respect to categorial status. It may be a noun, an adjective, an adverb or a verb. Presented below is a provisionally exhaustive list of such compounds:

- |                     |                  |                     |
|---------------------|------------------|---------------------|
| 1) ji-xi            | 2) shou-xi       | 3) shui-xi          |
| machine wash        | hand wash        | water wash          |
| ‘wash...by machine’ | ‘wash...by hand’ | ‘wash...with water’ |
| 4) sha-xi           | 5) shui-zhu      | 6) shui-yang        |

sand wash	water boil	water grow
‘wash...with sand’	‘boil...with water’	‘grow...in water’
7) shui-pei	8) tu-zai	9) sha-zai
water grow	soil grow	sand grow
‘grow...in water’	‘grow...in soil’	‘grow...in sand’
10) pen-zai	11) juan-yang	13) jia-yang
pot grow	pen rear	home rear
‘grow...in pot’	‘rear...in pens’	‘rear...at home’
14) long-yang	15) ping-yang	16) shuang-jian-bei
cage rear	lawn rear	double shoulder carry
‘rear...in cage’	‘rear...in lawn’	‘carry on both sides of the shoulder’
17) dan-jian-bei		18) shou-ling
single shoulder carry		hand carry
‘carry... on one side of the shoulder’		‘carry...by hand’
19) liang-mian-chuan		
double side wear		
‘can be worn with either side as the outside’		
20) lü-piao	21) yang-piao	22) yan-zi
chlorine bleach	oxide bleach	salt soak
‘chlorine bleach’	‘oxide bleach’	‘salt’
23) kou-fu	24) nei-fu	25) wai-yong
mouth take	internally take	externally use

	‘take (medicine)’	‘take (medicine)’	‘use...externally’
26) wai-fu		27) yao-yong	28) qing-fang
	externally apply	medicine use	gently handle
	‘apply externally’	‘use...as medicine’	‘handle gently’
29) gan-xi		30) gan-chi	31) sheng-chi
	dry wash	dry eat	raw eat
	‘dry clean’	‘eat...dry’	‘eat...raw’
32) sheng-shi		33) shu-chi	34) lian-yong
	raw eat	well-done eat	jointly use
	‘eat raw’	‘eat...well-done’	‘combine’
35) gan-shao			
	dry heat		
	‘heat (a container without water inside)’		
36) tong-yong		37) dan-yong	38) du-yong
	for all purposes use	single use	single use
	‘use...for all purposes’	‘use (something) itself’	‘use (something) itself’
39) bing-yong		40) lian-du	41) lian-xie
	jointly use	continuously read	continuously write
	‘combine’	‘read continuously’	‘write continuously’
42) dan-chuan		43) yin-yong	44) shi-yong
	single wear	drink use	eat use
	‘wear (something itself)’	‘drink’	‘eat’

45) piao-xi

bleach wash

‘bleach’

46) die-chuan

overlap wear

‘wear (two pieces of clothes) with one overlapping the other’

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