The Argument Structure of the Middle Construction and Its Derivation

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Abstract

Middle constructions are a well-studied topic in linguistics. Based on a summary of the features of middle verbs, this paper proposes that middle constructions are composed of two verbs, of which the first verb, serving as the predicate, denotes an action characteristic of conventional property or features, while the second verb, serving as a complement clause, denotes result. The combination of the two verbs denotes a complete event. Based on this, it is argued that all middle constructions must be of this nature in terms of underlying structure. Once this assumption has been accepted, many long-standing puzzles related to middle constructions are solved quite readily.

Keywords: middle construction; resultative clause; verb grammaticalization and implication; double verb structure

1. Introduction

The derivation of middle constructions has generated much recent debate with a focus on the nature of middle constructions. That is, is their derivation process of syntactic nature or lexical nature? The view on the nature of middle constructions affects our explanation of the generation mechanism. In general, the explanation of the generation mechanism is associated with such issues as the syntactic status of the logical subject of the middle verb and the movement of the whole derivation. In view of current research, there are two different approaches to the nature of the derivation process of middle constructions, i.e., lexical approach and syntactic approach. Under the lexical approach, middle constructions are derived via lexical devices. Their derivation does not undergo syntactic operations. It follows that it is a pre-syntactic operation. The logical subject of the middle verb is not involved in the syntactic operation and hence it has no syntactic status. (Roberts, 1986; Fagan, 1988, 1992; Massam, 1992; Zibri-Hertz, 1993; Ackema & Schoorlemmer, 1994, 1995; Iwata, 1999; Han, 2003; Yang, 2007) Under the syntactic approach, however, the derivation of middle constructions involves the demotion of the external argument and the promotion of the internal argument. The logical subject of the middle verb exists at the syntactic level and serves a syntactic function. (Keyser & Roeper, 1984; Carrier & Randall, 1992; Stroik, 1992, 1995, 1999; Hoekstra & Roberts, 1993; Authier & Read, 1996; He, 2010) There are, however, many problems with both the lexical approach and the syntactic approach. The lexical approach fails to provide a reasonable account of the syntactic and semantic features of middle constructions with regard to the occurrence or non-occurrence of the agent, the antithesis of middle constructions with expletives (e.g., *it* and *there*) as well as the contradiction between the claim that the middle verb has a potential agentive role and the assumption that the middle verb is intransitive. Moreover, the lexical approach fails to account for overt agentive roles and anaphora. The syntactic approach fails to account for the assignment and movement of the non-patient subject of the middle construction. Furthermore, the two approaches are mainly based on English data. Whether they are applicable to Chinese middle constructions remains unsolved, for Chinese differs from English in many aspects.

The goal of this paper is to analyze the nature of middle verbs and middle constructions in Chinese and to provide a novel account. It is organized as follows. In Section 2, I address the nature and features of middle verbs in Chinese. In Section 3, I show that middle constructions in Chinese involve a major predicate and a small clause that constitute a double verb structure. In Section 4, I demonstrate that this double verb structure is mediated by the presence of the small clause, containing empty categories. In Section 5, I demonstrate that negatives enter the syntactic structure in different positions. Section 6 is the conclusion.

2. The Features of Middle Verbs

Following Han (2003) and Yang (2007), I argue that middle verbs in Chinese have the following features.

2.1 Modality

In general, middle verbs contain such modality as possibility and they can be transformed into capability or possibility because there is an empty category I, whose feature is similar to capability. The empty constituent is usually modified by modals, negation, and depictive modifiers.

(1) a. Niurou hao qie.

    beef   well cut

   It is easy to cut beef.

 b.*Niurou bu qie.

    beef   not cut

 c.*Niurou buhui qie.

beef   not-will cut

d.*Niurou buneng qie.

beef   not-can cut

(2) a. Xiaoshuo rongyi du.

novel   easy   read

It's easy to read to a novel.

b.*Xiaoshuo bu du.

novel   not read

c.*Xiaoshuo buhui du.

novel   not-will read

d.*Xiaoshuo buneng du.

novel   not-can read

The empty feature contained by I is on a par with capability in terms of nature. As a consequence, middle verbs tend to be interpreted as "easy" or "can" rather than "difficult" or "cannot" unless they are modified by other modals or depictive modifiers.

2.2 V-clitics

Middle verbs are followed by such clitics as *qilai*, *lai*, *shangqu*, *zhe*, and *de* to give rise to V-*qilai*, V-*lai*, V-*shangqu*, V-*zhe*, and V-*de*. These clitics can be found in Chinese middle constructions, as illustrated in (3)-(5).

(3) a. Zheliang   che kaiqilai   hen kuai.

this-CL   car drive-QILAI very fast[1]

This car drives fast.

b. Zheba   dao   yong-qilai ting shunshou   de[2]

this-CL   knife   use-QILAI very convenient MOD

It is convenient to use this knife.

c. Zhe shi   shuolai   hua chang la

this matter speak-LAI word long MOD

It is a long story.

d. Zhe taozi moshangqu   ruanruande

this peach feel-SHANGQU soft

This peach feels soft.

e. Zhezhong yan   chouzhe qiangren

this-CL   cigarette smoke   choky

This kind of cigarette is choky.

(4) a. Ta   kanqilai   hen   you wenhua xiuyang

3SG look-QILAI very have culture accomplishment

He looks very culturally accomplished.

b. Kanqilai   ta   hen you   wenhua xiuyang

look-QILAI 3SG very have culture accomplishment

It seems that he is very culturally accomplished.

(5) Zhezhong dangao chiqilai   hen songruan

this-CL   cake   eat-QILAI very soft

This kind of cake gives people the feeling that it is very soft.

(6) a. Zheben shu hao mai

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[1] The abbreviations used in this article are as follows: A=state adjective, CL=classifier, FEM=feminine, MOD=modal particle, NEU=neutral, PRES=present tense, RES=resultative marker, SG=singular, Φ=null constituent, 1=first person, 3=third person.

[2] *De* occurring in the sentence-final position is a modal particle. It indicates certainty and declares the truth affirmatively (Yang, 2011a, 2013).

this-CL book well sell

This book sells well.

b. Zhejian yifu   rongyi xi

this-CL clothing easy wash

This article of clothing washes well.

The sentences in (6) seem to be counterexamples. In effect, they cannot negate the syntactic feature of V-clitics serving as middle constructions because V-clitics can also be inserted into the sentences in (6), as shown in (7). What is most important is that the sentences in (6) and (7) are identical in terms of meaning.

(7) a. Zheben shu duqilai   hen rongyi.

this-CL book read-QILAI very easy

This book reads well.

b. Zhejian yifu   xiqilai   hen rongyi.

this-CL clothing wash-QILAI very easy

This article of clothing washes well.

It is self-evident that S+V-*qilai*+AP, S+V-*shangqu*+AP, and S+AP+V are interchangeable. S+AP+V can be regarded as a condensed form of S+V-*qilai*+AP and S+V-*shangqu*+AP. In terms of S+AP+V, only such depictive modifiers as *hao* "well" and *rongyi* "easy" can serve as AP. Semantically, this structure is more general than S+V-*qilai*+AP and S+V-*shangqu*+AP. In view of S+AP+V, AP usually takes the form of *hao* "well" that is on a par with "easy" (Yang, 2007).

2.3 Depictive Modifiers[3]

Middle verbs are usually modified by such depictive modifiers as *rongyi* "easy" that serve the function of AP. In view of communication function, middle constructions state the property of the subject. The candidate constituent must be able to state the property of the subject with regard to semantics. It is not used to report an action or event. (Ji, 1995, pp. 13-14; Fagan, 1988; van Oosten, 1977; Cao, 2004) AP refers to the patient subject. Only a few depictive modifiers can refer to the agent subject, as illustrated in (9).

(8) a. Boli yi sui.

glass easy break

Glass is breakable.

b.*Boli sui.

glass break

(9) a. Zheme da de wuzi shoushiqilai hen feijin

so   big DE room tidy-QILAI very need-great-effort

It takes a lot of effort to tidy up this room.

b. Shoushi zheme da de wuzi wo gandao hen feijin.

tidy   so   big DE room 1SG feel   very need-great-effort

It takes me a lot of effort to tidy up this room.

(8b) fails to state the property that glass is breakable and hence it is unacceptable. (9a-b)'s acceptability suggests that the two sentences are semantically identical. As a result, middle verbs tend to be modified by such depictive modifiers as *rongyi* which states the property of a certain person or thing. To put it differently, depictive modifiers are vital to the grammaticality of middle constructions. Under most circumstances, they are indispensable. This testifies that Sung's (1994, p. 22) claim that the insertion or deletion of adverbials has no effect on the grammaticality of middle constructions is not in conformity with Chinese language facts.

Middle verbs need to be modified by depictive modifiers because of the double requirement of the syntactic subcategories of verbs and information. If, instead of depictive modifiers, new information is conveyed by means of sentence stress, intensifiers, or reflexive pronouns, grammatical middle constructions cannot be generated. There are differences between Chinese and English middle constructions (see examples (12)-(13)) as well as German middle constructions (see example (14)). There are, however, similarities between them. That is,

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[3] Non-eventive depictive modifiers such as *easily*, *totally*, and *completely* can occur in middle constructions while eventive depictive modifiers such as *quickly*, *slowly*, *quietly*, *frequently*, *cleverly*, *clumsily*, *deliberately*, and *intentionally* as well as clauses of intention cannot (cf. Ji, 1995; Roberts, 1986; Yang, 2007). Consider the following data.
(i) a. The ice quickly melted.
  b. The ice easily melted.
  c. John quickly knew the answer.
  d. John easily knew the answer.
  e.*This loaf of bread cuts carefully.
  f.*The book sells quickly to make money.
(ia) denotes a specific event. (ib) is a sentence with patient as its subject. (ic-f) all denote state, but (ie) and (if) are ungrammatical because of the presence of the agent-oriented eventive depictive modifiers *carefully* and *quickly*.

middle constructions can be generated by means of negation. It is noteworthy that in Chinese only *bu* "not" can serve this function. *Mei* "not have or without" or *meiyou* "not yet" cannot occur in middle constructions.

(10) a.*Rou qie.

      meat cut

    b.*Rou bu qie.

      meat not cut

(11) a. Zheben shu nian-qilai   hen ganren.

     this-CL book read-QILAI very moving

    This book is very moving.

  b.*Zheben shu nian qilai.

    this-CL book read QILAI

  c. Zheben shu nian-qilai   bu ganren.

    this-CL book read-QILAI not moving

  This book is not moving.

  d.*Zheben shu nian mei ganren.

    this-CL book read not moving

  e.*Zheben shu nian-qilai meiyou ganren.

    this-CL book read-QILAI not-have moving

(12) a.*This meat cuts.

   b. This meat doesn't cut.   (Fellbaum 1986:9)

(13) a.??This car drives.

   b. I thought we were out of gas, but the car DRIVES! (Fellbaum 1986:9)

(14) a. Das   Buch liest   sich gut.

   this-NEU book read-PRES-3SG self good

  This book reads well.

  b. *Das   Buch liest   gut.

   this-NEU book read-PRES-3SG good

  c. Das   Buch liest   sich nicht gut.

   this-NEU book read-PRES self not good

  This book doesn't read well.

2.4 Semantic Transitivity and Syntactic Intransitivity

Middle verbs have transitive property, which is obtained by means of absorbing the accusative Case and subject θ-role. Middle verbs are transitive in the lexicon, and they have internal arguments. They move to the external argument position in order to receive Case. The internal argument of middle verbs occupies the external argument position, but it is not the agent of the action or behavior made by the middle verb, which differs from un-accusatives. Middle verbs are morphologically intransitive though they are semantically transitive. As a result, their categorial features differ from those of transitives and intransitives. The external argument of middle verbs is suppressed and hence become covert. The internal argument, failing to receive Case, fills the subject position so as to be assigned nominative Case. However, it does not govern the middle verb (Dai, 2003, p. 260).

Middle verbs entail such external arguments as affectee and experiencer that occur as prepositional adjuncts.

(15) a. Dui wo eryan, zheben   shu duqilai   hen rongyi.

     to 1SG speaking this-CL book read QILAI very easy

    This book is easy for me.

  b.*Zheben shu bei wo duqilai   hen rongyi

    this-CL book BEI 1SG read-QILAI very easy

The θ-role of middle verbs (i.e., affectee and experiencer) can only occur in the form of PRO and serve as the adjunct of VP. (Stroik, 1992) To put it differently, the external argument of middle verbs is an external θ-role without phonetic realization or syntactic form. It assigns an

arbitrary reference in LF because middle verbs can neither be modified by intentional adverbs such as *carefully*, *deliberately*, and *voluntarily* nor followed by clauses or phrases of purpose (Roberts, 1986; Dai, 2003, p. 260).

Dai (2003, pp. 268-269) argues that the Chinese middle construction is composed of an adjective predicate. The middle construction bears incomplete feature T and hence the subject fails to have Case and θ-features checked. As a consequence, it raises to the position [Spec TP]. *Qilai* is a functional category. When it occurs in the sentence, the middle construction raises to the position [Spec AP] to have middle features checked. If, however, *qilai* does not occur in the sentence, the middle clause does not raise. Instead, only the patient DP raises to the position [Spec TP]. Obviously whether the middle clause raises depends on the overt or covert occurrence of *qilai*.

Semantically, the action or behavior denoted by the middle verb has a certain degree of affectedness intensity. That is, to what degree the action or behavior affects the patient or cause it to change. Nevertheless, the semantic feature of the middle verb still describes the state of the event, which is embodied by means of the use of the present tense. The present tense shows that the event is universal and constant and hence it is a generic event. It is the postverbal depictive modifier that causes the event to become stativized.

2.5 Reflexivity

Middle verbs have the features of reflexivity. Their behavior is directly related to the subject per se and hence they are closely connected with each other.

(16) Guanyu ziji de shu duqilai   bu rongyi

     about   self DE book read-QILAI not easy

    Books about oneself never read easily.

Middle verbs resemble un-accusatives and adjectival passives rather than verbal passives. Morphologically, middle verbs are similar to un-accusatives but semantically, they are like adjective passives. It follows that middle verbs are a transitional category that lies between action verbs and state verbs as well as adjectives. As a consequence, middle verbs have partial verbal property and partial property of state verbs and adjectives. Middle constructions are between active and passive constructions. How to account for the contradictory property of middle verbs is what I will deal with in the following sections.

3. The Structure of Middle Constructions: Double Verb Structure

The current research of middle constructions focuses on the non-eventiveness, transitivity, present tense, patient subject, markers, and so on. Some questions concerning middle constructions remain unsolved. What are the essential characteristics of middle constructions? What representations do they have? What are the factors that determine the representations? What is the syntactico-semantic interface of middle constructions? Why are depictive modifiers indispensable to middle constructions? How should Chinese middle constructions be analyzed? These questions are worth taking into account.

I argue that the essential characteristics of middle constructions are as follows: 1) the subject of middle constructions must not be an agentive external argument and the external argument must be checked, or rather, the semantics of the external argument is implied but it does not occur overtly; 2) there must be a syntactic marker which shows that the external argument is semantically present but syntactically absent. Given this, I argue that it is not necessary for the patient subject and the transitive verb to occur in the construction. Instead, the construction must contain a marker that introduces an agent / experiencer / affectee argument that is semantically present but syntactically absent into the structure with only an internal argument (small clause of complement). The introduced argument is on a par with external force. Along the line of Shen and Sybesma (2010), the verb structure of Chinese falls into two categories, i.e., single verb structure and double verb structure. Single verb structure contains only a verb, an agentive external argument and a governed internal argument. Double verb structure contains two verbs, V1 denoting action and V2 denoting result, as well as a resultative internal argument (i.e., small clause of complement).

Based on the above discussion, I argue that middle constructions involve a major predicate and a small clause. To be concrete, a middle construction is composed of two verbs, of which the first verb functions as the major predicate and the second verb as the secondary predicate. The first verb denotes an activity characteristic of conventional property or features where there is no range or destination, viz. the whole structure is characteristic of atelicity. The verb is followed by the complement composed of a small clause that provides a range or destination for the activity, viz. to have the telicity of the structure realized. To put it differently, the major predicate denotes an activity, and the small clause denotes final result. They, as a whole, both denote a complete event "action-result" displaying a double verb pattern structurally (cf. Yang, 2007, 2014).

The major predicate is composed of the verb and the aspect marker while the secondary predicate is composed of the state adjective and the null link verb. The subject of middle constructions can be the agent, causer, affectee or experiencer (i.e., external force) while the semantic subject of the small clause can be the object. This implies that the adverbial is not derived from the attributive but from the complement of the object. The state adjective serves the function of the complement of the object at LF. The basic semantics expressed by the whole structure is transmission, viz. the major predicate and the state adjective constitute a semantic chain and the whole structure is generated cyclically. Whether there is a patient subject or a transitive verb in the structure is not a prerequisite. In effect, it depends on the fact that by means of a marker an argument (i.e., agent, experiencer, or affectee) is introduced into the structure with only an internal argument. The introduced argument exists semantically but is suppressed syntactically. The characteristics of the double verb structure are as follows. The verb of the structure has only a resultative internal argument but no agentive external argument, and the whole structure must involve activity-denoting V1 and result-denoting V2. The logical subject of the verb of middle constructions exists semantically and projects onto the syntactic structure. Though middle constructions have only a lexical representation of the event, VP implies another event semantically. Furthermore, there is causative relation between the event expressed by specific words and the implied event that has no syntactic form. The relation can be shown as $E_1 \rightarrow E_2$. This suggests that middle constructions involve an overt conceptual system projected by the major predicate and a covert conceptual system projected by the empty predicate (i.e., small clause of complement). The covert conceptual system is triggered (i.e., caused) and established by the object NP. The link verb serves the function of the default predicate of the small clause because the complement of the small clause is the state adjective. It is the link verb that connects the state adjective with the null constituent. In Chinese the link verb can occur in the form of *ganjue* "feel", *gandao* "feel", or *juede* "feel". Since the conceptual (semantic) system allows verbs to have various numbers of arguments, and the X-bar hierarchical structure allows each head to have only one specifier

and one complement, when agentive constituents occur in a sentence, there is an empty verb position in the underlying structure in order to satisfy the symmetry between the syntactic system and the conceptual system. In the structure containing external arguments, the arrangement of the null predicate is the sole option of language satisfying the requirement of the conceptual system and the syntactic system simultaneously (cf. Cheng, 1999, pp. 239-245; Yang, 2009, 2011b, 2012, 2014).

Following Hale and Keyser (2002), Huang (1997, 2007a, 2007b), and Shen and Sybesma (2010, 2012), I argue that all verb constructions involve VP (headed by DO and CAUSE respectively) and VP. The DO system is equal to a single verb structure, or rather, a single event structure with only activity-denoting V1 and no result-denoting V2. DO introduces an agentive external argument and V1 governs the non-resultative internal argument. The CAUSE system is equal to a double verb structure, i.e., V1 and V2 represent two events. CAUSE introduces an agentive external argument while V1 is followed by a resultative small clause (i.e., V2) that serves the function of the internal argument. I suppose that the structure of middle constructions is something like the structure in (17).

(17) a. $[_{VP}[_{V'} V[_{SC} O A]]]$

    b. $[_{IP} O_i[_{I'} I [_{VP}[_{V'} V[_{SC} t_i A]]]]]$

    c. $[_{IP} O_i[_{I'} I [_{VP}[_{V'} V\text{-RES } A_j [_{SC} t_i t_j]]]]]$

The status of the constituents in the brackets in (17) as a small clause is mainly related to the fact that its NP constituent exhibits properties usually associated with subjects. Neither the I-element *to* nor the link verb *be* can occur in the small clause because it lacks I and hence its X-bar projections, as well as V and hence its X-bar projections (Ouhalla, 1999, pp. 129-130). The NP functions as the semantic subject of the predicative expression. This suggests that the NP is not an argument of the verb, but rather of the predicative expression. A consequence of the Projection Principle is that each complement of the verb is an argument of the verb. Hence, it is assumed that the NP and the predicative expression form a single constituent which functions as an argument of the verb (Hoekstra, 1988).

Take the data in (18) for example. According to the small clause analysis, the major predicate *du* "read" denotes an activity that has no internal ending. In the meanwhile, it causes the result of *zheben shu rongyi* "this book easy". Semantically, the sentence can be analyzed as follows. There is an activity *du* "read" and a resultative event *zheben shu rongyi* "this book easy". Syntactically, it can be analyzed as follows. The major predicate *du* "read" is followed by a small clause of resultative complement *zheben shu rongyi* "this book easy". The small clause contains the subject *zheben shu* "this book" and the predicate *rongyi* "easy". Since the small clause has no tense, it is not complete in terms of structure. The constituents in the small clause have to move out to be licensed syntactically. The subject of the small clause *zheben shu* "this book" needs to move to the position [Spec IP] to be assigned Case. The predicate *rongyi* "easy" needs to move to the verb position *du* "read" and merge with it to form a complex verb *duqilai* "read-QILAI" to be checked against T. Following Ding et al. (1961, pp. 67-68) and Huang (1988), I argue that the state adjective serving the function of the complement is characteristic of predication. To be concrete, the state adjective serves the function of predication (cf. Yang, 2014).

(18) a. $[_{VP}[_V duqilai[_{SC} zheben shu rongyi]]]$

    b. $[_{IP} zheben shu_i[_{I'} I [_{VP}[_{V'} duqilai[_{SC} t_i rongyi]]]]]$

    c. $[_{IP} zheben shu_i [_{I'} I [_{VP}[_{V'} duqilai rongyi_j [_{SC} t_i t_j]]]]]$

(19) a. $[_{VP}[_V qieqilai[_{SC} zheba dao shunshou]]]$

    b. $[_{IP} zheba dao_i[_{I'} I [_{VP}[_{V'} qieqilai[_{SC} t_i shunshou]]]]]$

    c. $[_{IP} zheba dao_i [_{I'} I [_{VP}[_{V'} qieqilai shunshou_j [_{SC} t_i t_j]]]]]$

Note that *zhebenshu rongyi* "this book easy" itself does not have such a feature as *rongyi* "easy", or *rongyi* is not the essential property of *zheben shu* "this book". It is *du* "read" that has or displays this feature. To put it differently, the whole activity or event displays the feature *rongyi* "easy". The person who reads the book does not feel whether it is easy or not until he has read it. Therefore, the state adjective behind the verb in middle constructions serves the function of the complement. It denotes the result of activity or state of accomplishment. In a word, in the V-NP pattern, NP always exhibits such a state as AP (adjective phrase) (cf. Yang, 2007, 2014).

It is argued that *zheben shu du qilai rongyi* "this book reads well" is due to the property of the book's being clear and easy to understand, but not the result of *du* "read" (Han, 2003). This approach, however, is ad hoc and hence is not applicable to other middle constructions. Consider the following sentence.

(20) Zheba dao   qie qilai   shunshou.

    this-CL knife cut QILAI convenient

    This knife cuts well.

In (20), *Zheba dao* "this knife" itself does not have the feature *shunshou* "convenient". Actually, the user does not find this feature unless he uses the knife. As a consequence, in both English and Chinese, the depictive modifier following the middle verb serves the function of complement. It adds more information to the event of the middle verb as the major predicate as well as the result of the event or the state of accomplishment. Given this, middle constructions may give people a false impression of having state features. Along the lines of Cao (2004) and Yang (2007), I argue that the formal structure of middle constructions is NP+VP+AP. Its general semantics is that whenever V-NP occurs, NP displays such a state as AP; as long as a construction takes the form of V-NP, it displays the state AP, and vice versa. Therefore, the sentence in (20) can be analyzed as follows.

(21) $[_{IP} Zheba dao_i [_{VP} [_V qieqilai shunshou_i[_{SC} t_i t_j]]]]$

Then, how does the implicit external argument causer / affectee / experiencer in middle constructions enter into the syntactic position? Following Chomsky (1995), I argue that external arguments fill in the Spec position of vP and move to the Spec position of IP to give rise to the surface order, as illustrated below.

(22) a. $[_{vP} Wo[_{v'}[_{VP}[_{V'} qieqilai[_{SC} zheba dao shunshou]]]]$

b. [IP Wo[I' I [vP[v'[VP zheba dao$_i$ [v' qieqilai[SC t$_i$ shunshou]]]]]]]

c. [IP Wo[I' I [vP[v' [VP zheba dao$_i$ [v' qieqilai shunshou$_j$ [SC t$_i$ t$_j$]]]]]]]]

d. [IP Wo[I' I [vP[v' qie[VP zheba dao$_i$ shunshou$_j$ [v' [SC t$_i$ t$_j$]]]]]]]]

In (22), there is an agentive argument *wo* "1SG" in the Spec position of vP that triggers the event *qie* "cut". *Wo* is in the outer layer of VP. Semantically, this sentence can be analyzed as follows. There is an event triggered by *wo* "1SG", the result of which is *zheba dao shunshou* "this-CL knife convenient". Syntactically, *zheba dao* "this-CL knife", due to the presence of vP, moves to the Spec position of VP. *Wo* "I" in the Spec position of vP moves to the subject position [Spec IP]. In the same vein, the predicate *shunshou* "convenient" in the small clause first moves to the matrix predicate position V *qieqilai* "cut-QILAI" and merges with it to yield a complex structure *qieqilai shunshou* "cut-QILAI convenient". Then the complex structure, via V-to-v movement, moves to the head position of vP as a whole (cf. Shen & Sybesma, 2012). Chomsky (1981, p. 36) argues that each argument bears one and only one θ-role, and each θ is assigned to one and only one argument. Given this assumption, I argue that there must be proper correspondence between the θ-role and the argument. Middle verbs are derived from their corresponding transitives, which undergoes a formation rule. This rule absorbs the accusative Case of the logical object and dethematizes the subject. The logical object, triggered by Case assignment, raises (Keyser & Roeper, 1984; Yang, 2007). Therefore, the LF of middle constructions with external arguments is something like the representations in (23).

(23) a. [IP PRO [I' I[vP [v' middle verb$_i$ [VP NP$_j$[SC t$_i$ t$_j$]]]]]]

b. [IP PRO (external argument) [I' I [vP [v' middle verb-middle marker-depictive modifier / A$_j$ [VP NP (internal argument)$_i$ [SC t$_i$ t$_j$]]]]]]

Middle constructions have a double verb structure. If a verb occurs overtly in the construction, then the other verb takes the overt form. The reason lies in the interplay between syntax and semantics. Middle constructions take the form of a single verb in that the verb of the small clause may have weakened, dropped and implied. It follows that in middle constructions the constituent that has weakened and dropped must be the verb of the small clause. Similarly, the implicit constituent in middle constructions must be the verb of the small clause. The major verb of middle constructions has absorbed the meaning of the verb of the small clause in the course of grammaticalization, or the major verb and the verb of the small clause have incorporated, as a consequence of which the verb of the small clause drops and occurs in the form of a single verb structure (cf. Shen & Sybesma, 2012; Yang, 2014).

(24) a. Zheben shu duqilai   rang ren   ganjue rongyi.

    this-CL book read-QILAI make person feel   easy

    This book reads well.

b. Zheba   dao qieqilai   rang ren   ganjue shunshou.

    this-CL knife cut-QILAI make person feel   convenient

    This knife cuts well.

c. Jianruizhongken de piping tingqilai   rang ren   gandao bu shufu.

    sharp-pertinent DE criticism hear-QILAI make person feel   not comfortable

    Sharp and pertinent criticism sounds uncomfortable.

d. Zhejian shi   tiqilai   shi   wo gandao tongku.

    this-CL matter mention-QILAI make 1SG feel   painful

    I feel painful when I mention this matter.

e. Zuotian de qingjing huixiangqilai rang ren   juede shifen xuhuan.

    yesterday DE sight   recall-QILAI make person feel   quite visionary

    Yesterday's sight made people feel visionary.

In the above data, the whole structure involves a semantically telic complement that can be filled up. Moreover, the implicit matrix subject can be filled up. Since there exists implicational relation between the constituents in the small clause of middle constructions, such link verbs as *juede* "feel", *ganjue* "feel", and *gandao* "feel" can be elided. On the other hand, the adjectives *rongyi* "easy", *shunshou* "convenient", *shufu* "comfortable", *tongku* "painful", and *xuhuan* "visionary", all denote a mental state of patienthood, and hence the causative verbs, such as *rang* "make/cause" and *shi* "make/cause" must be implied in the structure (Cao, 2004).

Following Xu (2002) and Yang (2007), I argue that it is universal that Chinese predicate verbs require a quantificational element that causes the predicate verb to become telic. The predicate verb is absorbed in terms of result, degree, state, time, space, and frequency so that an object can be observed as a whole entity. A whole entity implies that an event has become telic in terms of time, space, and concept. The use of depictive modifiers is one of the devices of becoming telic or telicization. Besides, negation also serves the function of confining the action within the boundary of non-occurrence. Depictive modifiers cause the predicate verb to become telic and transform the depiction of the action into the depiction of state. State which is depicted is adjoined to the action which causes state to become discrete and certain. Depictive modifiers cause the predicate verb to become telic, which guarantee the completeness and grammaticality of the sentence structure (Yang, 2014). As a consequence, telic structure works as the powerful evidence that I propose that middle constructions have a double verb structure.

4. Empty Categories and Middle Constructions

We have seen that there is good evidence for considering adjectives in middle constructions to be complements. The middle construction may be derived in the same way as the un-accusative: the NP argument starts in the object position and is raised to the subject position

through A-movement. There is an important difference though. The semantic subject of the middle verb is still implied. When an un-accusative verb describes an event involving motion or action, the depictive modifier is allowed to emphasize the happening of the event without a (detectable) external and intentional force. The implicit argument is not represented in syntax because the subject position, designated for agent in a non-passive clause, must be empty in the middle construction so as to host the raised object. A middle verb has the same number of θ-roles as its transitive counterpart but the subject θ-role is "taken care of" through lexical existential closure (Pustejovsky, 1996). As a result, the verb has no agent θ-role to be assigned in syntax, effectively paralleling a middle verb with an un-accusative in the placement of the single NP object (Huang et al., 2009, pp. 180-181). The agent is usually an arbitrary PRO. The small clause of complement bears incomplete T feature and the subject cannot have its Case feature and θ-feature checked. Therefore, it raises to the matrix Spec of TP (Dai, 2003, p. 268).

I argue that middle constructions involve a double verb structure in that the double verb structure is the essential feature of middle constructions. In terms of the external features, middle constructions have the syntactic form of a double verb structure. The sole argument of the middle construction is the internal argument. To put it differently, the argument can be the subject, but in the underlying structure there is no subject. If the sole argument occurs in the object position behind the verb, the affectee or experiencer, instead of the agent, can occur in the subject position. The two features can be found in middle constructions. Take for example *Zheben shu duqilai rongyi* "this-CL book read-QILAI easy". The basic structure of the sentence is composed of a major predicate *du* "read" and an internal argument serving the function of the complement, viz. du [zheben shu rongyi]. This satisfies the first requirement of the double verb structure. Similarly, in the sentence *Zheben shu duqilai wo juede rongyi* "this-CL book read-QILAI 1SG feel easy", the subject must be the affectee or experiencer instead of the agent. This satisfies the second requirement of the double verb structure.

(25) a. Zheben shu duqilai rongyi.

     basic form:[$_{VP}$ du [$_{SC}$ Zheben shu rongyi]]

   b. Wo du zheben shu juede rongyi

     subject: "Wo"=experiencer

In view of the internal features, middle constructions have the semantic features of the double verb structure. As a telic structure, middle constructions involve the activity and the result, or rather, they involve the activity event and the result event. (cf. Hoekstra, 2004) As far as *Zheben shu duqilai rongyi* "this-CL book read-QILAI easy" is concerned, it must be composed of a major predicate *duqilai* "read-QILAI" and a small clause of complement *Zheben shu rongyi* "this-CL book easy". As for *Wo du zheben shu juede rongyi* "1SG read this-CL book feel easy", it is a structure with the external argument *Wo* "1SG" that serves the function of making the whole semantic chain "NP experiences SC via VP" more explicit.

(26) a. Zheben shu duqilai rongyi.

     major predicate: "du"

     small clause predicate: "(Zheben shu) Φ rongyi"

   b. Wo du zheben shu juede rongyi.

     experiencer: "Wo"

     major predicate: "du"

     small clause predicate: "zheben shu rongyi"

A middle construction is composed of a major predicate and a small clause that is then composed of an NP, a null link verb and a state adjective. The NP serves the function of the subject while the null link verb and the state adjective serve the function of the secondary predicate. The NP governs the state adjective via the link verb. The link verb may take the form of *ting* (*qilai*) "sound", *xiu* (*qilai*) "repair", and *guo* (*qilai*) "live", as illustrated in (27).

(27) a. Zheshou ge tingqilai   hen mei.

     this-CL song hear-QILAI very beautiful

    This song sounds very good.

   b. Zhezhong che xiuqilai   hen fangbian.

     this-CL   car repair-QILAI very convenient

    It is convenient to repair this type of car.

   c. Zhezhong rizi guoqilai   hen tianmi.

     this-CL   life live-QILAI very sweet

    It is very sweet to live such life.

State adjectives can occur in the preveral and postverbal positions. State adjectives in the postverbal position tend to be followed by the syntactic markers *qilai*, *shangqu*, *zhe*, and *de* that are characteristic of typical complements in Chinese. In contrast, state adjectives in the preverbal position tend to be followed by no syntactic markers. However, they have identical semantic orientations.

Middle verbs project all the arguments, including itself and the external argument, into the syntactic structure. During the whole process of derivation, the argument structure of the verb remains unchanged. The external argument of middle verbs, viz. agent / affectee / experiencer, are not syntactically suppressed. Instead, they are realized as a verbal adjunct structurally. That is, they occur in the form of V-

qilai, V-*shangqu*, V-*zhe*, and V-*de*. The external thematic role may be overt or overt. If it is covert, it takes the form of PRO[4] (Stroik, 1992, 1999; Yang, 2007). It is noteworthy that *qilai* and *shangqu* have no lexical meaning. To put it differently, they do not represent action or change of location. In effect, they are a type of functional category, indicating the completion of an action or attainment of a goal. They work as middle markers, similar to *zhe* and *de*. When *qilai*, *shangqu*, *zhe*, and *de* occur in middle constructions, the small clause of complement moves to the Spec position of the matrix clause. In contrast, if they do not occur in the construction, the small clause of complement does not move. Instead, only the patient raises. Given this assumption, I argue that the structure of middle constructions is something like the structure in (28).

(28) a. middle verb-implicit verb-verb of the small clause of complement

    b. V-*qilai/zhe/de/shangqu/*+implicit verb+verb/verbal adjective of the small clause

    c. internal argument (serving as a triggerer)+middle verb (bearing the feature of triggering)+implicit causer/affectee/experiencer (serving as the real subject)+implicit verb (bearing the feature of feeling and perception)+verb/verbal adjective of the small clause (bearing the feature of state or property and denoting the state or result of triggering)

As (28) shows, the basic structure of middle constructions is that the middle verb is followed by a small clause of complement. The LF of the above structure can be shown below.

(29) a. $[_{VP}$ middle verb V $[_{SC}$ small clause (implicit verb)$]] \rightarrow$

    $[_{IP}$ small clause $[_{I'}$ I $[_{VP}$ middle verb V-implicit middle marker $[_{SC}$ t$_i$ t$_j]]]]$

    b. $[_{IP}$ external argument (causer/affectee/experiencer) $[_{I'}$ I $[_{VP}$ subject of small clause $[_{v'}$ middle verb-implicit verb/middle marker $[_{VP}[_{SC}$ t$_i$ t$_j]]]]]]$

    c. $[_{IP}$ external argument (causer/affectee/experiencer) $[_{I'}$ I $[_{VP}$ middle verb-implicit verb/middle marker $[_{v'}[_{VP}$ subject of small clause$[_{SC}$ t$_i$ t$_j]]]]]]$

As (29) shows, the small clause is base-generated in the embedded part behind the middle verb. Because of the overt presence of the middle marker, it moves to the position [Spec vP] in front of the middle verb or [Spec VP] behind the middle verb. If there is an external argument in the middle construction, then it moves from its base-generated position [Spec vP] up to the position [Spec IP].

(30) a. $[_{IP}$ Zheben shu$_i$ $[_{I'}$ I $[_{vP}$ $[_{v'}$ du$_k$qilai rongyi$_j$ $[_{VP}$ t$_k[_{SC}$ t$_i$ t$_j]]]]]]$

    b. $[_{IP}$ Wo/PRO$[_{I'}$ I $[_{vP}$ zheben shu$_i[_{v'}$ duqilai rongyi$_j$ $[_{VP}$ t$_k$ $[_{SC}$ t$_i$ t$_j]]]]]]$

    c. $[_{IP}$ Wo/PRO$[_{I'}$ I $[_{vP}$ $[_{v'}$ duqilai rongyi$_j$ $[_{VP}$ zheben shu$_i$ $[_{VP}$ t$_k[_{SC}$ t$_i$ t$_j]]]]]]$

Obviously *qilai* is not a functional category but a middle marker. Whenever it occurs in the sentence, the middle clause, for the sake of middle feature checking, raises to the position [Spec AP] of the matrix clause. If, however, it does not occur, the middle clause does not raise. Instead, only the patient DP raises to the position [Spec TP] of the matrix clause. Whether the middle clause raises depends on whether *qilai* occurs overtly or covertly. Besides, *qilai*, *shangqu* and *zhe* also have similar functions. It seems that the middle markers are strong features that, as probes, attract the small clause of complement to their Spec position. The implicit middle feature is strong enough to attract the small clause of complement to move as a whole.

(31) a. Zheliang che kaiqilai   hen kuai.

    this-CL car drive-QILAI very fast

    This car drives very fast.

    b. Zheba dao yongqilai   ting shunshou de.

    this-CL knife use-QILAI very convenient MOD

    This knife uses well.

    c. Zhe taozi moshangqu   ruanruan de.

    this peach feel-SHANGQU soft-soft MOD

    This peach feels very soft.

    d. Zhezhong yan   chou-zhe qiangren.

    this-CL   cigarette smoke-ZHE choky

    This kind of cigarette is choky.

(32) a. Niurou hao qie.

    beef well cut

    Beef cuts well.

    b. Zheba dao hao shi.

    this-CL knife well use

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[4] Stroik (1992) argues the Agent θ-role of middle verbs is assigned as a PRO argument that is structurally realized as a VP adjunct. Structural realization and demotion of the Agent θ-role as a VP adjunct necessitates a movement analysis for the externalization of the internal Theme θ-roles.

This knife uses well.

(33) a. Zheba dao qie rou fangbian.

    this-CL knife cut meat convenient

    This knife cuts meat conveniently.

    b. Zhe bi xiezi liuchang.

    this pen write smooth

    This pen writes smoothly.

In view of the generated position, the adjective functioning as the predicate is positioned in front of the middle verb that it modifies, which is in conformity with Chinese pattern adjective + modifier. The small clause of complement, modified by the adjective, may be in the middle or in the sentence-final position because of the effect of derivation. To put it differently, when derivation is completed, the adjective modifying the small clause of complement is positioned behind the small clause of complement to give rise to a predication CP+AP.

(34) a. [$_{TP}$ Zheben shu$_i$ [$_{AP}$ rongyi[$_{CP}$ t$_i$ [$_{TP}$ pro[$_{vP}$ t$_i$[$_{vP}$ du$_j$ [$_{VP}$ pro t$_j$ t$_i$]]]]]]]

    b. [$_{TP}$ Zheben shu$_i$ [$_{AP}$ [$_{CP}$ t$_i$ [$_{TP}$ pro[$_{vP}$ t$_i$[$_{vP}$ du$_j$ [$_{VP}$ pro t$_j$ t$_i$]]]]]$_k$ [$_{AP}$ qilai[$_{AP}$ rongyi [t$_k$]]]]]

As (34) shows, the middle verb bears no strong feature T, and hence *Zheben shu* "this-CL book" cannot be checked in its base-generated position. When the matrix T merges, T, as a probe, attracts *Zheben shu* "this-CL book" at the edge of the phase to raise to the position [Spec TP] to check the EPP features of T. It follows that *qilai* "QILAI" is a strong feature. Since Chinese has no overt subject, CP must raise to the position [Spec TP] to have the EPP features of T checked. Obviously, the structure DP+AP+V is generated on the basis that the middle feature is implicit, which cannot motivate the movement of the small clause of complement (cf. Dai, 2003, pp. 269-270).

The middle verb projects all the arguments into the syntactic level and the argument structure of the middle verb remains unchanged during the whole derivation. The middle verb's function transforms from representing the result or effect of action into representing state or property. After transformation takes place, the logical agentive subject is checked, as a result of which it fails to assign accusative Case to the logical object. In order to satisfy the requirement of EPP and Case feature-checking, the logical object becomes externalized and moves to the subject position to give rise to middle constructions (Yang, 2007).

Stroik (1992) argues that the derivation of middle constructions involves two interrelated syntactic processes: external θ-role demotion and Theme promotion.[5] Both the external θ-role demotion (realized structurally as an adjunct of the verb) and the Theme promotion (externalization) require a movement approach because the object that is assigned internal θ-role fills the subject position via movement. The external argument assigned by V demotes from the Spec position of TP to the adjunct position of VP.

If PRO receives government, the governor must be I or V. I can m-command PRO, but VP cannot be L-marked by I. Therefore, I cannot govern PRO. VP is a barrier that prevents I from governing any element in VP, including PRO adjunct. If V governs PRO, then it must m-command PRO. However, VP projects V but does not dominate PRO. V does not m-command PRO, and hence it cannot govern PRO. The agent, experiencer or affectee of middle constructions is introduced by prepositions. These arguments may take the form of PRO or occur overtly. Middle constructions are subject to such constraints as tense, modality, semantics, and pragmatics. Moreover, the relation between tense or modality elements and the arguments of prepositions is constrained by semantics and pragmatics. The verb with the sub-categorial feature of middle verbs must have a corresponding functional category T. Propositions that provide a formulation of general properties cannot be formulated as past events (Stroik, 1992; Dai, 2003, pp. 262-263; Yang, 2007).

5. The Position of Negatives

Where do negatives occur in Chinese middle constructions? How do they enter into the syntactic structure? What do they take scope over? These questions remain unsolved. Consider the following data.

(35) a. Zheba dao qieqilai bu shunshou.

    this-CL knife cut-QILAI not convenient

    This knife doesn't cut well.

    b.*Zheba dao bu qieqilai shunshou.

    this-CL knife not cut-QILAI convenient

(36) a. Zheshou ge tingqilai bu mei.

    this-CL song hear-QILAI not beautiful

    This song doesn't sound beautiful.

    b.*Zheshou ge bu tingqilai mei.

    this-CL song not hear-QILAI beautiful

(37) a. Zheben shu bu hao mai.

    this-CL book not well sell

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[5]Argument Demotion
If α is a [thematic] role assigned by X, then α may be assigned to an adjunct of X (Stroik, 1999).

This book doesn't sell well.

   b.*Zheben shu bu   mai hao.

      this-CL book not sell well

(38) a. Zhezhong kaiguan anqilai   bu rongyi.

        this-CL switch fix-QILAI not easy

      It is not easy to fix this switch.

   b. Zhezhong kaiguan bu rongyi an.

        this-CL switch   not easy fix

      It is not easy to fix this switch.

   C.*Zhezhong kaiguan bu anqilai   rongyi.

        this-CL   switch   not fix-QILAI easy

As (35)-(38) show, the negative *bu* "not" is adjacent to the adjective, which suggests that it serves as the modifier of the adjective. If it modifies the matrix predicate V, the sentences are ungrammatical. Obviously the negative *bu* "not" is positioned in the small clause of complement. However, it, together with the adjective, can also occur in front of the predicate V. Then there arises a question. Where does it enter the syntactic structure? I argue that it is base-generated in the small clause of complement, i.e., under SC. Following Pollock (1989), I argue that the negative *bu* "not" is a dependent category that projects its own X-bar structure NegP. Given that Neg superficially occur intervening between the subject of the small clause and the adjective, Neg is located between NP and AP in the small clause, as shown below.

(39) a. $[_{IP}$ Spec $[_{I'}$ I$[_{vP}[_{v'}$ middle marker$[_{VP}[_{v'}$ V $[_{SC}$ NP$[_{NegP}$ Neg$[_{AP}$ A$]]]]]]]]]\rightarrow$

   b. $[_{IP}$ NP$_i$ $[_{I'}$ I$[_{vP}[_{v'}$ V-middle marker-NegP$_j$ $[_{VP}[_{v'}$ t$_V$ $[_{SC}$ t$_i$ $[$t$_j]]]]]]]]$

(40) a. $[_{IP}$ Spec $[_{I'}$ I$[_{vP}[_{v'}$ qilai $[_{VP}[_{v'}$ qie$[_{SC}$ zheba dao$[_{NegP}$ bu$[_{AP}$ shunshou$]]]]]]]]]]\rightarrow$

   b. $[_{IP}$ Zheba dao$_i$ $[_{I'}$ I$[_{vP}[_{v'}$ qieqilai bu shunshou$_j$ $[_{VP}[_{v'}$ t$_V$ $[_{SC}$ t$_i$ $[$t$_j]]]]]]]]$

(41) a. $[_{IP}$ Spec $[_{I'}$ I$[_{vP}[_{v'}$ qilai $[_{VP}[_{v'}$ ting$[_{SC}$ Zheshou ge$[_{NegP}$ bu$[_{AP}$ mei$]]]]]]]]]]\rightarrow$

   b. $[_{IP}$ Zheshou ge$_i$ $[_{I'}$ I$[_{vP}[_{v'}$ tingqilai bu mei$_j$ $[_{VP}[_{v'}$ t$_V$ $[_{SC}$ t$_i$ $[$t$_j]]]]]]]$

As (39) shows, Neg which is base-generated in the small clause, merges with AP to constitute NegP. It negates the AP. After NP movement takes place, NegP raises to the position v and merges with the matrix predicate V and middle marker to give rise to a complex predicate V-middle marker-NegP. It is noteworthy that NegP always follows the matrix predicate and middle marker. In the syntactic hierarchy, its position cannot be higher than the matrix predicate and middle marker, nor does it precede the two constituents. Then, how do V movement and NegP movement take place? Which takes place first? I argue that V movement takes place prior to NegP movement because the middle marker that serves the function of a triggerer attracts V to raise to the light verb position. In this case NegP, as a complement, adjoins to the complex object V-middle marker to generate a complex predicate, as a result of which the event denoted by V becomes telicized.

It is noteworthy that the negative *bu* "not" can also occur in front of the matrix predicate, i.e., between the element I and the matrix predicate V, as illustrated below.

(42) a. Zheben shu bu rongyi du.

       this-CL book not easy read

      This book doesn't read easily.

   b. Zheliang che bu hao kai.

       this-CL car not well drive

      This car doesn't drive easily.

Given the assumption that the negative is base-generated in the small clause of complement, I argue that the preverbal NegP is the result of movement. To put it differently, NegP moves out of the small clause of complement to merge with the light verb v. However, NegP does not function as the modifier of the matrix predicate V. In effect, it still serves as the complement of the matrix predicate.

(43) a. $[_{IP}$ NP$_i$ $[_{I'}$ I$[_{vP}[_{v'}$ NegP$_j$ $[_{VP}[_{v'}$ V $[_{SC}$ t$_i$ $[$t$_j]]]]]]]]$

   b. $[_{IP}$ Zheben shu$_i$ $[_{I'}$ I$[_{vP}[_{v'}$ bu rongyi$_j$ $[_{VP}[_{v'}$ du $[_{SC}$ t$_i$ $[$t$_j]]]]]]]]$

As (43) shows, NegP moves to the light verb position and merges with v while the matrix predicate V remains in situ. Whenever NegP occurs in front of V, there is no middle marker in the construction. Because of the absence of the middle marker, which serves as the triggerer or causer, V movement does not take place. It follows that NegP moves out of the small clause of complement on condition that no middle marker occurs in the construction. Since there is no middle marker in the construction, the sequences *Zheben shu du bu rongyi* "this-CL book read not easy" and *Zheliang che kai bu hao* "this-CL car drive not well" sound strange to Chinese native speakers. In order to salvage the sentences, *bu rongyi* "not easy" and *bu hao* "not well" must be placed in front of the matrix predicate V to give rise to the surface

order *Zheben shu bu rongyi du* "this-CL book not easy read" and *Zheliang che bu hao kai* "this-CL car not well drive". In this case the adjective (AP) still denotes state because it cannot be followed by such adverbial markers as *de*[6], as illustrated below.

(44) a.*Zheben shu bu rongyi de du.

    b.*Zheliang che bu hao de kai.

Interestingly, in English middle constructions, depictive modifiers cannot precede the matrix predicate, as shown below.

(45) a. This book doesn't read easily.

    b.*This book doesn't easily read.

(46) a. The car doesn't drive nicely.

    b.*The car doesn't nicely drive.

(47) a. The baggage doesn't transfer efficiently.

    b.*The baggage doesn't efficiently transfer.

(48) a. The toys don't assemble rapidly.

    b.*The toys don't rapidly assemble.

As (45)-(48) show, though the English negative is assumed to be base-generated under the element I, the depictive modifiers *easily*, *nicely*, *efficiently*, and *rapidly* cannot skip over the intervening head category V and merge with Neg, which otherwise would give rise to ungrammatical sentences. I argue that the reason lies in that those English middle constructions lack the mechanism of the complement of result transforming into the adverbial of manner. To put it differently, English is an inflected language. State adjectives must co-occur with the link verb and serve the function of the complement. Though they modify the object semantically, they still retain the form of adjectives. They cannot occur in the form of adverbs. In fact, only the modifier of the verb can occur in the form of adverbs. It can further be inferred that as long as they modify the object, state adjectives can take only the form of adjectives in the position behind the link verb and serve the function of the complement. Though the link verb of the small clause of complement is null, it still governs the state adjective that serves the function of the complement. As a consequence, in English middle constructions state adjectives cannot move to the position preceding the major predicate and serve the function of the manner adverbial.

Based on the further observation of middle constructions, I find that Chinese state adjectives can move in that in Chinese there is a manner marker that license them in the landing site and maintain their semantic association with the object. In contrast, in English there is no such syntactic marker, as a result of which state adjectives cannot be licensed in the landing site and their semantic association with the object fails to be maintained to give rise to ungrammatical constructions. This is why state adjectives in Chinese middle constructions can move freely while those in English middle constructions cannot. It follows that the only difference between Chinese and English middle constructions is the syntactic category of the secondary predicate. In the two languages state adjectives in middle constructions are base-generated in the sentence-final position. But they have different syntactic representations, as illustrated below.

(49) a. $[_{IP} NP_i [_{I'} I [_{vP} [_{v'} AP_j [_{vP} [_{v'} V [_{SC} t_i t_j]]]]]]]$ (Chinese middle construction)

    b. $[_{IP} NP_i [_{I'} I [_{vP} [_{vP} [_{v'} V [_{SC} t_i AP]]]]]]$ (English middle construction)

Up to now, my assumption that negation in Chinese middle constructions is base-generated in the small clause of complement can provide a reasonable account of the different positions where the negative occurs. However, there remains a crucial question that has not been answered yet. What scope does the negative take? The negative always precedes and modifies the adjective (AP), as a result of which it commands the AP, as shown in (50).

(50) a. $[_{IP} NP_i [_{I'} [_{vP} [_{v'} V\text{-middle marker} [_{vP} [_{v'} [t_v [_{SC} t_i [_{NegP} Neg [_{AP} A]]]]]]]]]]]$

    b. $[_{IP} NP_i [_{I'} I [_{vP} [_{v'} NegP_j [_{vP} [_{v'} V [_{SC} t_i [t_j]]]]]]]]$

Note that NegP takes scope over the AP and negates the property of the complement. NegP is not part of the propositional content of the speech act. To put it differently, it does not take scope over the whole proposition. This fact shows that modification is a relation of c-command. As Yang (2011a, 2013) points out, c-command which is base-generated determines the relation between the modifier and the modified. Hence in middle constructions, even though NegP precedes VP, it does not modify or c-command VP since VP is base-generated in a position that is higher than NegP. Consequently, NegP does not have scope over VP.[7] It follows that the scope of the negative is its c-command domain. To put it differently, it negates AP syntactically, but it does not negate any element beyond the scope of AP.

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[6] *De* occurring in front of the verb is a manner adverbial marker.

[7] This assumption can also be testified in German data. In German middle constructions, the negative *nicht* "not" modifies and c-commands the adjective, as a consequence of which the negative has scope over the adjective only. If the negative occurs in front of the verb, the sentences are ungrammatical.

(i) a. Das   Buch liest   sich nicht gut.
    this-NEU book read-PRES self not   good
    This book doesn't read well.
  b.*Das   Buch nicht liest   sich gut.
    this-NEU book not   read-PRES self good
(ii) a. Das   Messer schneidet nicht gut.
    this-NEU knife   cut-PRES not good
    This knife doesn't cut well.
  b.*Das   Messer nicht schneidet gut.
    this-NEU knife   not cut-PRES good

Furthermore, the relation of c-command generated by merger is a fundamental syntactic relation. The order at PF is determined by remerger / movement.[8] The position of merger is also associated with the type of semantics. In terms of *bu hao shuo*, *shuo bu hao*, and *bu shuo hao*, Neg enters the structure in different positions, as illustrated below.

(51) a. [$_{NegP}$ bu [$_{VP}$ hao shuo]]

           not   well say

      hard to say / It's hard to say.

    b. [$_{vP}$ shuo$_i$ [$_{vP}$ v[$_{VP}$[$_{NegP}$ bu [$_{AP}$ hao] t$_i$]]]]

          say   not   good

      not be certain / It's not certain.

    c. [$_{TP}$[$_{CP}$[$_{NegP}$ bu shuo[$_{AP}$ hao]]]]

           not say   good

      not say good / Don't say that something is good.

In (51a), Neg merges with VP. In (51b), Neg merges with AP to form NegP which then merges with the matrix predicate V. In (51c), Neg merges with the VP in the CP. The contrast between the three sentences suggests that negatives can merge with the functional categories that have been generated in different positions. The positions of merger are determined by the scope of negation. The asymmetrical c-command relation that is formed as a result of merger determines the order of different constituents (cf. Dai 2003:94).

6. Conclusion

Middle verbs and middle constructions are well-studied topics in linguistics. It is argued that middle verbs take the form of double verb structure, and hence "major predicate + small clause" is a typical middle construction. This proposal can account for many long-standing puzzles related to Chinese middle constructions. Moreover, it can establish a double verb structure system with middle constructions as the core. The analysis and conclusion of this paper have been testified cross-linguistically and hence they are of linguistic universalism.

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[8] Dai (2003, p. 95) argues that generalized derivation consists of only two types of operations: merger and remerger (i.e., movement). Merger is a fundamental operation while remerger is a feature-checking operation.

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