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Sentences with Object-oriented Adverbials and the Syntax-Semantics Interface

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Abstract: SOOAs refer to the phenomenon that the state adjective in the adverbial position is semantically associated with the object. In this paper this fact will be accounted for by invoking the properties of a pre-syntactic level of semantic representation and its interplay with syntax proper. It will be argued that the object-oriented adverbial is not derived from the attributive; in effect, it is base-generated in the complement position. A model of projection of arguments that allows for this will be proposed. It will be shown that the other special properties of SOOAs follow from the way the verb's object and complement are represented at the pre-syntactic level. In particular, it will be shown that the underlying structure must satisfy both the requirement of the syntactic system and the requirement of the semantic system. The presence of any symbol in a representation is conditional. The theta-roles of internal arguments are assigned by the predicate, which is locally constrained, whereas the theta-roles of external arguments are assigned by the maximal projection of the predicate, viz. VP. When an external argument occurs, there is an empty predicate position in the representation, for there is an asymmetry between the conceptual system and the syntactic system. Derivation involves Move-α and Generalized Transformation. Different use of derivation methods gives rise to various forms of constructions in Chinese. Similarly, different semantic orientations result from different distributions. The state adjective is base-generated in the position behind the object because its nature is to serve the function of the complement of the object. It co-occurs with the object in the embedded VP because they are closely related to each other in terms of semantics. There is no overt predicate between the object and the state adjective. The state adjective occurs in other positions, which is the result of movement. Movement falls into two types, viz. object movement and state adjective

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movement. Object movement is prior to state adjective movement. In order to satisfy the requirement of feature checking, the object moves to the position NP. Then the state adjective moves to the major predicate and merges with it so as to maintain its semantic association with the state adjective and to serve the function of the complement. It follows that the difference between Chinese SOOAs and English as well as German SOOAs lies in the distance of movement of state adjectives. In Chinese, there are causative markers, resultative markers, and manner markers that can license the state adjective in the landing sites and help to maintain its semantic association with the object while in English and German there are no such markers. As a consequence, the object in Chinese-type SOOAs does not move while the state adjective moves out of the embedded VP to the empty verb position where the manner marker is inserted. The major predicate moves to the same position and merges with the newly-formed syntactic object ADJ-MANN. Furthermore, Chinese-type SOOAs allow the state adjective to precede the major predicate as the manner marker can license the state adjective. In contrast, in English-type SOOAs, neither the state adjective nor the object moves. Moreover, English-type SOOAs do not allow the state adjective to come before the major predicate because there is no manner marker to license it.
Keywords: SOOAs, state adjective, representation, empty verb, movement parameter

1. Introduction

Sentences with object-oriented adverbials (SOOAs) are a mismatch between syntactic structure and semantic structure. Specifically, a state adjective which is in the adverbial position is semantically associated with the object, as illustrated below.

(1) a. *yuányuánde* *páichéng* *yīgè* *quān*
round-round-MANN arrange-become one-CL circle
'arrange a circle that looks very round'

b. *yànyànde* *qī* *yīhú* *chá*
strong-strong-MANN pour one-CL tea
'pour a pot of tea that tastes very strong'

Concerning the analysis of SOOAs in Chinese, two types of analyses can roughly be distinguished. The first type accounts for the fact that the state adjective which is base-generated in the attributive position moves to the adverbial position and serves the function of the adverbial, which is hence referred to as attributive fronting approach. The second type, usually referred to as semantic orientation approach, assumes that the state adjective is semantically in association with the object though it occupies the adverbial position. It seems that the first type of analysis, attributive fronting approach, is directly perceived through the senses. It is, however, problematic. Firstly, not all the state adjectives in the attributive position can move to the adverbial position, as illustrated below.

(2) a. *Zhāng Sān zhāile yīgè hónghóngde píngguǒ.*
Zhang San pick-PST one-CL red-red apple
'Zhang San picked a very red apple.'
b.* *Zhāng Sān hónghóngde zhāile yīgè píngguǒ.*
Zhang San red-red pick-PST one-CL apple

Secondly, the semantics of the state adjective serving as the attributive differs from that of the state adjective serving as the adverbial.

(3) a. *Zhāng Sān hēihēide rǎnle tóufa.*
Zhang San black-black-MANN dye-PST hair
'Zhang San dyed her hair which looked very black.'
b. *Zhāng Sān rǎnle hēihēide tóufa.*
Zhang San dye-PST black-black hair
'Zhang San dyed her very black hair.'

(4) a. *Zhuōzishàng hòuhòude fàngzhe jǐběn shū.*
on-table thick-thick-MANN place-PROG several-CL book
'On the table there are several books that look very thick.'
b. *Zhuōzishàng fàngzhe jǐběn hòuhòude shū.*
on-table place-PROG several-CL thick-thick book
'On the table there are several very thick books.'

(5) a. *Háizi zài shātān shàng shēnshēnde wāle yīgè dòng.*
child on-beach deep-deep-MANN dig-PST one-CL hole
'The child dug a hole on the beach that looked very deep.'
b. *Háizi zài shātān shàng wāle yīgè shēnshēnde dòng.*
child on-beach dig-PST one-CL deep-deep hole
'The child dug a very deep hole on the beach.'

(6) a. *Zuǐlǐ báilìlìde páizhe yáchǐ.*
inside-mouth white-white arrange-PROG tooth
'Inside the mouth are arranged teeth that look very white.'
b. *Zuǐlǐ páizhe báilìlìde yáchǐ.*
inside-mouth arrange-PROG white-white tooth
'Inside the mouth there are very white teeth.'

In (3a), the original color of *tóufa* is unknown. In other words, *hēihēi* is not the inherent property of *tóufa*. In fact, it is the result of *ran*. In (3b), *hēihēi* represents the inherent color of *tóufa*. As for the result of *rǎn*, it is unknown. This suggests that there is no association between the state adjective in the attributive position and the state adjective in the adverbial position. (4a) differs from (4b) in terms of temporality. (5b) differs from (5b) in view of intention. As for (6a) and (6b), the former is subjective while the latter is objective. The

differences in the above data show that the object-oriented adverbial is not derived from the attributive. As a result, semantic orientation is used to represent the association between the state adjective in the adverbial position and the object (cf. Zhang Guoxian, 2005). In (7a), *yànyànde*, though being an adverbial, is semantically associated with the object *yīhú chá*. Similarly, *yuányuánde* in (7b) is also semantically associated with the object *yīgè quān* though it is an adverbial.

(7) a. *Zhāng Sān* *yànyànde* *qīle* *yīhú* *chá.*
Zhang San strong-strong-MANN pour-PST one-CL tea
'Zhang San poured a pot of tea that tasted very strong.'
b. *Zhāng Sān* *yuányuánde* *huàle* *yīgè* *quān.*
Zhang San round-round-MANN draw-PST one-CL circle
'Zhang San drew a circle that looked very round.'

The semantic orientation of the predicate is associated with the argument. In (7a), *yànyànde* and *qī* share the object *yīhú chá*. In (7b), *yuányuánde* and *huà* share the object *yīgè quān*. In terms of generative grammar, such relations can be realized by setting an empty category Pro, which would otherwise violate the Theta-criterion, because each argument bears one and only one theta-role, and each theta-role is assigned to one and only one argument (Chomsky, 1981:36). In this case, the data in (7) can be analyzed as (8).

(8) a. *Zhāng Sān* [Pro$_i$ *yànyànde*] *qīle* *yīhú* *chá*$_i$.
Zhang San strong-strong-MANN pour-PST one-CL tea
b. *Zhāng Sān* [Pro$_i$ *yuányuánde*] *huàle* *yīgè* *quān*$_i$.
Zhang San round-round-MANN draw-PST one-CL circle

(9) a. *Tā* *shēngchīguò* *hěnduō* *shūcài.*
3SG raw-eat-PST many vegetable
'He ate many vegetables that were raw.'
b.* *Tā* [Pro$_i$ *shēngzhe*] *chīguò* *hěnduō* *shūcài*$_i$.
3SG raw-MANN eat-PST many vegetable
c. *Hěnduō* *shūcài*$_i$, *tā* [Pro$_i$ *shēngzhe*] *chīguò.*
many vegetable 3SG raw-MANN eat-PST
'He ate many vegetables that were raw.'

(8) follows the Theta-criterion because of the presence of Pro. In (8a), *chá* receives a theta-role from *qī* and Pro a theta-role from *yànyànde*. In (8b), *quān* receives a theta-role from *huà* and Pro a theta-role from *yuányuánde*. It is noteworthy that (8) is grammatical though it violates the Control Theory. The antecedents *yīhúchá* and *yīgè quān* cannot c-command the argument Pro, which is in contrast to (9). The problem with (9) is that the argument of the state adjective Pro fails to be c-commanded by the antecedent. In (9a), *shēngchī* is a

compound, which is constrained by the Lexical Integrity Principle.[①] Hence *shēng* cannot project syntactically. Instead, only the whole compound can project. To put it differently, *shēng* has no Pro argument. In (9b) and (9c), *shēng* is a word which can project the argument of Pro and the antecedent is *shūcài*. Obviously, the contrast in (9) is in relation to the Control Theory. (9b) violates the Control Theory because the antecedent *shūcài* cannot c-command Pro. (9c) is in conformity with the Control Theory. The antecedent *shūcài* can c-command Pro. As for (9a), it is not related to the Control Theory (Huang et al., 2009:44-46). This suggests that how to analyze SOOAs in the framework of the Control Theory remains an outstanding problem.

In order to solve the above problem, Xiong Zhongru (2013), following Pylkkänen (2008), claims that the arguments of SOOAs are introduced by functional categories, as shown below.

(10) a. [CausP[Causer][Caus`[Cause][BecP[Experiencer][Bec`[Become][VP[Result][V]]]]]]

b. [CausP[*Zhāng Sān*][Caus`[Caus][BecP[*yīhú chá*$_i$][Bec`[Bec][VP[Pro$_i$ *yànyànde*][*qī*]]]]]]

c. [CausP[*Zhāng Sān*][Caus`[Caus][BecP[*yībēi chá*$_i$][Bec`[Pro$_i$ *rèrède*]Bec`[Bec][VP[*hē*]]]]]]

Xiong Zhongru (2013) argues that the adverbial is merged in V's complement or Bec(ome)'s adjunct position c-commanded by the object. It then moves as Bec(ome) introducing the complement realized as DE or the verb which licenses the adjunct moves. SOOAs can be transformed into *bǎ*-constructions. The descriptive adjective realized as complement indicates the causee's result while the one realized as adjunct describes the manner of the action. This explains why SOOAs bear more than a resultative feature. As Bec(ome) can be extended by Causer or Exister in SOOAs, its subject which can be Causer or Exister may not have volitional feature. He concludes that SOOAs do not violate the Control Theory.

As Yang Yongzhong (2014) argues, there are problems with Xiong Zhongru (2013)'s analysis. Firstly, it is not consistent with the instinct of Chinese native speakers as well as Chinese grammar. Whether Chinese is analyzed as an SVO or SOV language, the complement follows VP, including the verb and its object. Obviously, the representation shown in (10) lacks empirical evidence. Such representations as "[CausP [*Zhāng Sān*] [Caus` [Caus][BecP[*yīhú chá*i][Bec`[Bec][VP[Proi *yànyànde*][*qī*]]]]]" and "[CausP[*Zhāng Sān*][Caus`[Caus][BecP[*yībēi chá*i][Bec`[Proi *rèrède*]Bec`[Bec][VP[*hē*]]]]]" are quite odd, which are far from the instinct of Chinese native speakers. Secondly, the arrangement of functional categories lacks empirical evidence and hence it is arbitrary. And more problems arise. Why does Bec precede Caus in the syntactic structure? Why are the two categories sure to precede VP? It is

[①] Syntactic operations are outside the compound and are therefore blind to the multiple sources of the θ -role assigned by the compound to the NP. Put differently, the word boundary renders anything inside a word opaque to syntax (Huang et al., 2009:129).

generally acknowledged that the complement is base-generated behind VP while the adjunct is base-generated before VP. How does the complement move from the position behind VP to the position in front of VP? What is the motivation? These problems remain unsolved. Thirdly, Xiong Zhongru's analysis is ad hoc because it cannot account for SOOAs in (11)-(14).

(11) a. *Hēibǎnshàng* *wāiwāidǎodǎode* *xiězhe* *jǐháng* *zì.*
on-blackboard askew-askew-MANN write-PROG several-CL character
'On the blackboard there were several lines of characters that looked very askew.'

b. *Qiángshàng* *péngpéngde* *zhǎngzhe* *gǒuwěicǎo.*
on-wall fluffy-fluffy-MANN grow-PROG green-bristlegrass
'On the wall grows green bristlegrass that looks very fluffy.'

(12) a. *We drink it hot.*

b. *He writes his characters large.*

(13) a. *Er* *trinkt* *Kaffee* *kalt*.
3SG drink-PRES-3SG Kaffee cold
'He drinks coffee that feels cold.'

b. *Er* *isst* *das* *Obst* *roh*.
3SG eat-PRES-3SG the-ACC-NEU fruit raw
'He eats the fruit that tastes raw.'

Along the line of Xiong Zhongru (2013), the English SOOAs in (12) should be analyzed as follows.

(14) a. *[CausP[*We*][Caus`[Caus][BecP[*it*$_i$][Bec`[Bec][VP[Pro$_i$ *hot*][*drink*]]]]]]

b. *[CausP[*He*][Caus`[Caus][BecP[*the belt*$_i$][Bec`[Bec][VP[Pro$_i$ *tight*][*pulled*]]]]]]

c. *[CausP[*He*][Caus`[Caus][BecP[*his characters*$_i$][Bec`[Pro$_i$ *large*]Bec`[Bec][VP[*writes*]]]]]]

Undoubtedly, such an analysis is not convincing. Similarly, Xiong Zhongru's analysis fails to provide a reasonable explanation of the German SOOAs in (13).

Along the line of Xiong Zhongru (2013), the semantic structure of SOOAs is something like the following.

(15) [X CAUSE [Y BECOME Z]] / BY V

(15) shows that X causes Y to accomplish the state of Z by means of V, which implies a resultative meaning. SOOAs are derived from cause-accomplish constructions where the state adjective is a characteristic of resultativeness which is determined by the accomplishment category Bec. In this case, the semantics of "*We drink it hot*" is that we cause it to become hot by means of the action "*drinkin*g". This analysis, however, is far from the semantics which the sentence should have. In fact, the intended meaning of the sentence is that we drink it and feel that it is hot. This suggests that Xiong Zhongru's analysis does not reveal the semantic structure of SOOAs correctly.

Last but not least, Xiong Zhongru's analysis fails to account for the following minimal pairs in (2), (4), and (6), repeated as (16)-(18).

(16) a. *Zhāng Sān zhāile yīgè hónghóngde píngguǒ.*
Zhang San pick-PST one-CL red-red apple
'Zhang San picked a very red apple.'

b.* *Zhāng Sān hónghóngde zhāile yīgè píngguǒ.*
Zhang San red-red-MANN pick-PST one-CL apple

(17) a. *Zhuōzishàng hòuhòude fàngzhe jǐbēn shū.*
on-table thick-thick-MANN place-PROG several-CL book
'On the table there are several books that look very thick.'

b. *Zhuōzishàng fàngzhe jǐběn hòuhòude shū.*
on-table place-PROG several-CL thick-thick book
'On the table there are several very thick books.'

(18) a. *Zuǐlǐ báilìlide páizhe yáchǐ.*
inside-mouth white-white-MANN arrange-PROG tooth
'Inside the mouth are arranged teeth that look very white.'

b. *Zuǐlǐ páizhe báilìlide yáchǐ.*
inside-mouth arrange-PROG white-white tooth
'Inside the mouth there are very white teeth.'

In (16), the verb *zhāi* does not have the semantics of CAUSE or BECOME, and hence (16b) is ungrammatical. The verbs *fàng* in (17) and *pái* in (18) do not have the semantics of CAUSE or BECOME, but they are grammatical. Adopting Xiong Zhongru's analysis, the sentences in (17) and (18) will be ruled out. This suggests that it is not plausible. Obviously, the grammaticality of SOOAs is not determined by CAUSE or BECOME.

Since the analyses proposed by Huang et al. (2009) and Xiong Zhongru (2013) have turned out to be false, we will deal with SOOAs from a different perspective. In this paper, we will work out a derivation for SOOAs in Chinese and English as well as German based on the interaction between a pre-syntactic level of representation where a predicate's conceptual structure is defined and syntax proper.[①] We will show that such an analysis is

[①] Our analysis assumes that there exists a pre-syntactic level of semantics, from which the underlying structure is projected with its own rule and principles. The level is not the lexicon, which is a list mentioning all and only those the properties of the elements which are idiosyncratic (cf. Ackema & Schoorlemmer, 1994). Based on Jackendoff (1990) and Grimshaw (1990), we argue that arguments are projected to the syntactic structure from a level of representation of semantics of the sentence, i.e. lexical conceptual structure. Conceptual structures are built from semantic primitives. The primitives are semantic predicates which take arguments. Predicates and arguments form a structural relation, which maps onto the level of the sentence. Different semantic information is represented at different tiers. In addition, the argument structure is a structural level between the lexical conceptual structure and the underlying structure which projects in accordance with the argument structure and X-bar theory.

not only an empirical necessity, but can also account for some problematic properties of SOOAs without introducing too much extra machinery. Also, we will show that it can derive two particular types of SOOAs in Chinese, *bǎ*-constructions and complements, which have been argued to be problematic for accounts that are not purely syntactic.

The organization of the paper is as follows. Section 2 presents an analysis of lexical representations of SOOAs. In section 3 the derivation of SOOAs is laid out. Section 4 is the conclusion.

2. The lexical representations of SOOAs

Along the line of Chomsky (1993), language involves three systems, i.e., syntactic system, conceptual system and pragmatic competence. The conceptual system is a semantic system which regards theta-roles as its basic concepts. The syntactic system is composed of lexicon and a computational system. Lexicon is not merely a set of lexical items but also a structural object which is known as a lexical-semantic structure that is determined by the syntactic system and semantic system. The computational system arranges the structure in lexicon in accordance with the realization mechanism of the principles of universal grammar and individual grammar so as to satisfy the requirement of the syntactic system and language performance. Accordingly, our approach involves lexical representations and derivation in the computational system. To be exact, representations are those which are at the interface between lexicon and computation. Derivation can be viewed as a computational process. We argue that prior to the formation of the underlying structure, representations have been computed in lexicon and must be checked in the computational system.

The conceptual system is a semantic system with the theta-roles as its basic concepts. It stipulates that each argument of the predicate must have a theta-role that must be assigned to one argument. One of the most significant characteristics of the conceptual system is that it allows the predicate to have a variety of theta-roles. Along the lines of Williams (1981) and Grimshaw (1990), the conceptual system divides arguments into two categories, viz. internal arguments and external arguments. Internal arguments are closely associated with the predicate and receive theta-roles from the verb directly. The presence of internal arguments is obligatory though they sometimes have no phonetic forms. External arguments are loosely associated with the predicate and their theta-roles are assigned by VP instead of V. Since their connection with the predicate needs the medium of predication, their presence is conditional. To put it differently, they must be licensed by the Principle of Full Interpretation (Hale & Keyser, 1993; Chomsky, 1993). The syntactic system requires the lexical-semantic structure to be bound by the X-bar theory, as shown below.

(19) $[_{XP}$ YP$[_{X'}$ X ZP]]

As (19) shows, X is a head, and XP is its maximal projection. YP is a specifier of the

structure and ZP a complement. X-bar mode shown in (19) is an unambiguous system of structural relations. To put it differently, there is a sisterhood relation between X and ZP as well as YP and X`. Secondly, there is an asymmetrical relation at each level. Thirdly, the c-command relation is definite, viz. YP c-commands ZP (cf. Hale & Keyser, 1993). The maximal projection XP contains only one head (X), one specifier (YP), and one complement (ZP). This is in accordance with the Single Complement Hypothesis proposed in Larson (1988). To put it differently, in a maximal projection the number of complements cannot be more than one, just as the number of specifiers and heads cannot be more than one. This actually cancels the structural analysis of multiple branching and only allows the structural analysis of binary branching. It is self-evident that the Single Complement Hypothesis makes X-bar theory have binding power and hence it is more rigorous than the multiple branching analysis. Note that the structure in (19) is constrained by the following principle shown in (20).

(20) *Principle of Economy of Representations*

Minimize symbols in a representation (Chomsky, 1993).

In the light of (20), the presence of any symbol in a representation is conditional. The specifier YP and complement ZP cannot occur unless there are lexical items to be inserted or filled. The theta-roles of internal arguments are assigned by the predicate. It is noteworthy that the assignment of theta-roles is locally constrained. The predicate must assign theta-roles to internal arguments in its projection (Sportiche, 1988; Kuroda, 1988; Larson, 1988; among others). Therefore, internal arguments must occur in the maximal projection of the predicate. Usually, it occurs in the specifier position. If, however, there are two arguments, the one in the higher position of the hierarchy occupies the specifier position while the one in the lower position of the hierarchy occupies the complement position. The representation of the structure with theme is shown in (21).

(21) a. [$_{VP}$ *yīhú* *chá* *yànyànde*]
one-CL tea strong-strong

b. [$_{VP}$ *yīgè* *quān* *yuányuánde*]
one-CL circle round-round

The representations of the structure with theme and beneficiary are shown in (22).

(22) a. [$_{VP}$ *yīhú* *chá* [$_{V'}$ *qīde* *yànyànde*]]
one-CL tea pour-RES strong-strong

b. [$_{VP}$ *yīgè* *quān* [$_{V'}$ *huàde* *yuányuánde*]]
one-CL circle draw-RES round-round

It is noteworthy that the theta-roles of external arguments are assigned by the maximal projection of the predicate, viz. VP. Therefore, we argue that the external argument cannot occur within the maximal projection of the predicate. Since the X-bar theory stipulates that a

maximal projection contains only one specifier and one complement, we argue that the lexical representation of the external argument adopts the following schema.

(23) [$_{VP1}$ NP1(external argument) [$_{V'}$ V1(empty predicate)[$_{VP2}$ NP2(internal argument)[$_{V'}$ NP3 V2(major predicate)]]]]

As (23) shows, when an external argument occurs, there is an empty predicate position in the representation. The specifier position of the empty predicate is occupied by the external argument while its complement is the maximal projection of the major predicate, that is, the representation with various internal arguments. NP2 is an internal argument in a higher position while NP3 is an internal argument in a lower position. The reason why there is an empty predicate position in the representation of the structure with external arguments is that there is asymmetry between the conceptual system and the syntactic system. As mentioned above, the conceptual system allows a predicate to have various numbers of arguments while the syntactic system allows the head to have only one specifier and one complement. Consequently, when there is an external argument in the structure, the positions provided by the syntactic system cannot satisfy the requirement of the conceptual system. On the other hand, since the external argument cannot directly be assigned by the predicate, it cannot be within the maximal projection of the predicate. In this case, to set an empty predicate position in the representation in (23) and to assume that VP2 assigns theta-roles to NP1 via V1 can avoid theoretical self-contradiction. In this way both the requirement of the conceptual system and the requirement of the syntactic system can be satisfied. This is Null Predicate Hypothesis (cf. Cheng Gong, 1999:244-245; Yang Yongzhong, 2009, 2011, 2012, 2016a, 2016b). As (23) shows, the null adjective in Chinese has two functions, i.e., it functi -ons as a verb and a predicative. Thus, it is preceded by a link verb to show the features of tense and aspect. In fact, it itself entails tense and aspect features. It follows that the adjective phrase itself has the capability of functioning as the predicate.

(24) a.	[$_{VP}$ *Zhāng Sān*	[$_{V'}$ V[$_{VP}$ *yīhú*	*chá*	[$_{V'}$ *qīde*	*yànyànde*]]]]
	Zhang San	one-CL	tea	pour-RES	strong-strong
b.	[$_{VP}$ *Zhāng Sān*	[$_{V'}$ V[$_{VP}$ *yīgè*	*quān*	[$_{V'}$ *huàde*	*yuányuánde*]]]]
	Zhang San	one-CL	circle	draw-RES	round-round

Comparing (24) with (22), we find that the lexical representation of the internal argument is stable. To put it differently, it does not change with the occurrence of the external argument. Obviously, this is an important characteristic of the approach we have proposed here.

We argue that the Null Predicate Hypothesis is sound, for it can be further testified by data in Japanese. According to Cheng Gong (1999:153-157), Japanese is similar to Chinese in that expletives or word endings are used to mark tense/aspect. Hence adjectives do not need link verbs to precede them when they function as predicates.

(25) a. *Hanako-wa uthukusi-i.*
Hanako-TOP pretty-PRES
'Hanako is pretty.'
b. *Hanako-wa uthukusi-katta.*
Hanako-TOP pretty-PST
'Hanako was pretty.'
c. *Hanako-wa uthukusi-kunai-katta.*
Hanako-TOP pretty-not-PST
'Hanako was not pretty.'

3. Overt derivation of SOOAs

Derivation is a syntactic operation where the computational system, according to the principle of universal grammar and the realization mechanism of individual grammar, arranges representations into different forms so as to satisfy the requirement of the syntactic system and linguistic performance. Derivation is a meaning-preserving operation which implies that it cannot change the theta-role of NP in the lexical representations. It is subject to the Principle of Economy of Derivations which implies that derivations should be minimized. In the framework of the Minimalist Program, there are two major operations, Move-α and Generalized Transformation.

3.1 Move-α

Move-α deals with items already in the phrase marker and moves them to another position. In most of its applications, Move-α is essentially a substitution operation. It selects an item, targets a category in the phrase marker and substitutes the selected item into the Spec position of the targeted category leaving a trace behind. It is said to extend its target, basically by adding a specifier to it (Ouhalla, 1999:406). In brief, Move-α is an operation that selects an item from inside the representation and fills in the empty position via movement. There are two forms of Move-α, i.e., head movement and V`-Reanalysis. In (25), the major predicate V2 and AP raise to the empty predicate position V1 to give rise to the surface order.

(25) [$_{VP}$ *Zhāng Sān* [$_{V'}$ *yànyànde*$_j$ *qīle*$_i$ [$_{VP}$ *yīhú* *chá* [$_{V'}$ t_i t_j]]]]
Zhang San strong-strong pour-PST one-CL tea

As (25) shows, both V2 and AP move to the empty position V1. Moreover, AP precedes V2 and serves the function of manner adverbial. It follows that SVO order in Chinese, which is not base-generated but a result of verb raising. In effect, the adjective *yànyànde* sometimes follows the verb *qī* and the resultative marker *de*, as illustrated below.

(26) *Zhāng Sān qīde yànyànde yīhú chá.*
Zhang San pour-RES strong-strong one-CL tea

'Zhang San poured a cup of tea that tasted very strong.'

How shall we account for such phenomena? We argue that V`-Reanalysis can be applied to solve them. V`-Reanalysis is defined as follows:

(27) V`-*Reanalysis*

Suppose α is a phrase [V`…]*, and the phrase has only one lexical category, α can be reanalyzed as* [V…].

This condition allows any predicate with only one lexical category (NP, VP, AP, PP) to be interpreted as a X_0 category, and hence it can operate like a simple category. The V`, which has been reanalyzed, can move to the empty predicate position in the higher layer like a verb head (cf. Larson, 1988; Cheng Gong, 1999:249; Yang Yongzhong, 2009, 2012, 2016a, 2016b). Along the line of (27), the derivation of (26) is shown as (28).

(28) [$_{VP}$ *Zhāng Sān* [$_{V'}$ V [$_{VP}$ *yīhú* *chá* [$_{V'}$ *qīde* *yànyànde*]]]]
Zhang San one-CL tea pour-RES strong-strong

In (28), the most embedded V` is composed of the verb *qīde* and the AP *yànyànde*, which can be reanalyzed as a category. This is in accordance with the condition of V`-Reanalysis. In this case, *qīde yànyànde* moves to the position of the empty predicate in a higher layer as a head to give rise to the surface order. It follows that V`-Reanalysis can also account for the generation of sentences containing the particles *bǎ* and *bèi* and predict the grammaticality of such constructions. In other words, the generation of *bǎ*-constructions and *bèi*-constructions must satisfy the condition of V`-Reanalysis.

3.2 Generalized transformation

In its original form, generalized transformation (GT) performs a fairly complex operation which consists of more than one step. Here we will adopt a simpler and modified version of it, whereby it has the function of selecting items from the lexicon, assigning them X-bar structures and then merging them together into larger phrase markers (Ouhalla, 1999:405). The fillers used for GT are added to the sentence in the course of derivation. Hence there are some constraints on them. First, they must be monosyllabic and hence have only syntactic function. Second, they cannot be cliticized by any affixes. Third, they cannot answer any questions by themselves. In Chinese, there are two ways of GT, i.e., *bǎ*-insertion and verb-copying. Generally speaking, *bǎ*-insertion is often used to mark a theme in GT. Besides *bǎ*, the lexical item *jiāng* can also serve the function. The sentence *Zhāng Sān bǎ yīhú chá qīde yànyànde* is generated by means of *bǎ*-insertion.

(29) a. *Zhāng Sān* *bǎ* *yīhú* *chá* *qīde* *yànyànde.*
Zhang San BA one-CL tea pour-RES strong-strong
b. [$_{VP}$ *Zhāng Sān* [$_{V'}$ *bǎ*[$_{VP}$ *yīhú chá*[$_{V'}$ *qīde yànyànde*]]]]

As (29) shows, there are some constraints on the formation of *bǎ*-constructions: there must be an agentive constituent preceding *bǎ* and a theme-subject clause following *bǎ*.

Different from *bǎ*-insertion, verb-copying is an operation where a monosyllabic major predicate is copied into the empty verb position in the higher layer.

(30) a. *Zhāng Sān qī yīhú chá qīde yànyànde.*
Zhang San pour one-CL tea pour-RES strong-strong
b. *Lǐ Sì huà yīgè quān huàde yuányuánde.*
Li Si draw one-CL circle draw-RES round-round

The derivations of (30) are shown as below.

(31) a. [$_{VP}$ *Zhāng Sān* [$_{V'}$ (*qī*)[$_{VP}$ *yīhú chá*[$_{V'}$ *qīde yànyànde*]]]]
b. [$_{VP}$ *Lǐ Sì*[$_{V'}$ (*huà*)[$_{VP}$ *yīgè quān* [$_{V'}$ *huàde yuányuánde*]]]]

As (31) shows, in verb-copying sentences, the first verb is a lexical item which is inserted in the course of derivation. In effect, it is the second verb that serves as the predicate in such constructions. Note that *de*, as a resultative marker, is not copied together with the verb. According to the Null Predicate Hypothesis we have proposed above, the arguments of the predicate are arranged in accordance with the thematic hierarchy and syntactic hierarchy to form a lexical representation, based on which derivation is conducted in the computational system to give rise to a different structure. This approach has four theoretical implications. First, there is no overt derivation in a sentence without agentive constituents. Second, SVO is concerned with overt derivation, i.e., Move-α, as a result of which the verb moves to the position preceding the theme. To put it differently, in derivation of SVO, the object remains in situ while the verb's position changes. Third, the formation of *bǎ*-constructions is concerned with overt derivation, viz. GT. It selects a lexical item from the lexicon and inserts it into the empty position of the representation. This suggests that the verb in the representation does not move. To put it differently, in derivation of *bǎ*-constructions, the theme-subject and the major predicate do not move. In effect, *bǎ* is inserted into the structure in the course of derivation.

It is noteworthy that if S in SVO constructions is not an agentive constituent but an experiencer, the construction cannot be transformed into *bǎ*-constructions. This is due to the fact that the experiencer and theme are internal arguments and the former's theta-role is higher than that of the latter. Hence in a construction with an experiencer, *bǎ* cannot be inserted, for there is no empty verb position. As a consequence, SVO constructions cannot be changed into *bǎ*-constructions.

3.3 The position of state adjectives

State adjectives can occur in the position preceding the major predicate and in the sentence-final position as well. They have different semantic orientations because of their different distributions. In general, they tend to denote result when they are in the

sentence-final position. In this case, they are preceded by V-*de*. If, however, they are in the preverbal position, they tend to denote manner. In this case they are followed by V only. State adjectives in the preverbal position tend to be followed by the syntactic manner marker *de* (地) that is characteristic of typical adverbials in Chinese. It appears that they modify the verb. We argue that they can operate like adjuncts. Along the line of Dai Manchun (2003: 124-125), there are four different positions for adjuncts to enter the syntactic structure, as shown below.

(32) [$_{TP}$ AdvD[$_{TP}$ Spec[$_{TP}$ AdvC[$_{TP}$ T[$_{vP}$ AdvB[$_{vP}$ Spec[$_{vP}$ v[$_{AgroP}$ Spec[$_{AgroP}$ Agro[$_{VP}$ Spec[$_{VP}$ AdvA[$_{VP}$ V DP]]]]]]]]]]]]

Adjuncts that merge in the position AdvA follows VP after VP movement has taken place. They tend to modify VP. Adjuncts that merge in the position AdvB always precede the major predicate and hence tend to modify the subject. Adjuncts that merge in the position AdvC c-command the subject that has not raised to the position [Spec TP]. They take scope over TP and hence tend to modify the subject. Adjuncts that merge in the position AdvD modify TP. It seems that the positions where adjuncts enter the syntactic structure have an influence on the interpretation of the whole structure. Generally, adjuncts that merge in the position AdvA only modify VP and tend to denote manner. In Chinese, there are few adjuncts that merge in the position AdvA, especially those that are followed by the manner marker *de* do not merge here (Dai Manchun, 2003:130-138). Thus, we argue that state adjectives preceding the major predicate enter the syntactic structure in the position AdvB. They can be followed by the manner marker *de*. If they are preceded by the resultative marker *de* (得), they enter the syntactic structure in the position AdvA. It is noteworthy that the object following the transitive verb must raise to the preverbal position, i.e., between [Spec AgroP] and AdvC, as illustrated in (34). As a consequence, adjuncts with the resultative marker *de* c-commands VP when it is base-generated. After VP movement has taken place, it is c-commanded by VP. In this case, no more adjuncts of the same type can occur in the positions AdvA and AdvB.

(33) a. *Zhāng Sān* *yànyànde* *qīle* *yīhú* *chá.*
Zhang San strong-strong-MANN pour-PST one-CL tea
'Zhang San poured a pot of tea that tasted very strong.'

b. *Tā* *rèrède* *chīle* *yīwǎn* *miàntiáo.*
3SG hot-hot-MANN eat-PST one-CL noodle
'He ate a bowl of noodles that felt very hot.'

c. *Qiángshàng* *péngpéngde* *zhǎngzhe* *gǒuwěicǎo.*
on-wall fluffy-fluffy-MANN grow-PROG green-bristlegrass
'On the wall grows green bristlegrass that looks very fluffy.'

d. *Hēibǎnshàng wāiwāidǎodǎode xiězhe jǐháng zì.*
on-blackboard askew-askew-MANN write-PROG several-CL character
'On the blackboard there were several lines of characters that looked very askew.'

(34) a. *Zhāng Sān yīhú chá qīde yànyànde.*
Zhang San one-CL tea pour-RES strong-strong

b. *Tā yīwǎn miàntiáo chīde rèrède.*
3SG one-CL noodle eat-RES hot-hot

c. *Qiángshàng gǒuwěicǎo zhǎngde péngpéngde.*
on-wall green-bristlegrass grow-RES fluffy-fluffy

d. *Hēibǎnshàng jǐháng zì xiěde wāiwāidǎodǎode.*
on-blackboard several-CL character write-RES askew-askew

The contrast between (33) and (34) shows that adjuncts with the manner marker *de* and those with the resultative marker *de* are base-generated in different positions. The former is higher than the latter in terms of the syntactic structure.

As the above discussion suggests, state adjectives in SOOAs, as the object complement, occupy the sentence-final position. But as manner adverbials, they precede the major predicate. In both cases, they modify the object semantically. How are SOOAs derived? The above analysis has shown that in SOOAs the sentence-final complement and the preverbal adjunct are not derived from movement of the object attributive. If SOOAs are assumed to be the result of movement of the object attributive, their basic structure should be as follows: subject + major predicate + attributive + object. In this case, there will be some problems that need to be solved. They are as follows. Is the surface structure generated on the basis of the rightward movement of the attributive or the leftward movement of the object? What is the motivation of movement? Even though there is evidence to prove that such an approach (e.g., the leftward movement of the attributive) can account for the above data in Chinese, there are still some problems that cannot be avoided. Why is this approach only applicable to a small portion of Chinese data? Why can some state adjectives precede and follow the major predicate? Obviously, these problems remain unsolved. Hence, in order to cover all the data that we have found, we argue that the basic structure of SOOAs is as follows:

(35) $[_{VP}$ S $[_{V'}[_{VP}$ O$[_{V'}$ V ADJ]]]]

As (35) shows, the state adjective is base-generated in the position behind the object because its nature is to serve the function of the complement of the object. It co-occurs with the object in the embedded VP because they are closely related to each other in terms of semantics. There is no overt predicate between the object and the state adjective. The state adjective occurs in other positions, which is the result of movement. Movement falls into two types, viz. object movement and state adjective movement. In the light of the above analysis, object movement is prior to state adjective movement. To put it differently, the

former triggers the latter. In order to satisfy the requirement of feature checking, the object moves to the position NP. Then the state adjective moves to the major predicate and merges with it so as to maintain its semantic association with the state adjective and to serve the function of the complement. In this case, the resultative marker *de* must be inserted between the object and the state adjective. *De* is an indispensable resultative marker. In contrast, the causative marker *bǎ* is not necessary. If the state adjective moves to the position NP, the manner marker *de* will be added to show that the state adjective serves the function of the adverbial. The state adjective, triggered by the object movement, moves and merges with the major predicate to form a VC construction, viz. verb-complement construction. Furthermore, as long as it modifies the object semantically, the state adjective can occur in the position behind the link verb in the form of adjectives only and serve the function of the complement. Though the link verb in the embedded VP is null, it governs the state adjective that serves the function of the complement. This suggests that the analysis we have proposed above is reasonable. Based on the further observation of SOOAs, we find that the state adjective movement is based on the occurrence of the causative marker, resultative marker and manner marker in Chinese. These markers can license the state adjective in the landing sites and help to maintain its semantic association with the object. That is why the state adjective of SOOAs in Chinese can move freely.

(36) a. $[_{VP}$ S $[_{V'}$ CAUS $[_{VP}$ O $[_{V'}$ V-RES ADJ]]]] (resultative adverbial)

b. $[_{VP}$ S $[_{V'}$ ADJ_j V_i $[_{VP}$ O $[_{V'}$ t_i t_j]]]] (manner adverbial)

In contrast, state adjectives in English and German SOOAs do not move to the position preceding the major predicate because there are no resultative markers in the two languages. The movement of state adjectives may give rise to ungrammatical sentences.

(37) a.**We hot drink it.*

b.**He tight pulled the belt.*

c.**He large writes his characters.*

(38) a.**Er kalt trinkt Kaffee.*

b.**Er roh isst das Obst.*

c.**Der Arzt krank schrieb den Mann.*

We argue that the reason for the ungrammaticality of the data in (37)-(38) lies in that English and German lack the mechanism of the complement of result transforming into the adverbial of manner. To put it differently, the two languages have inflections. State adjectives must collocate 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, as illustrated in (37) and (38). We can further infer 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 embedded VP is null, it still governs the state adjective that serves the function of the complement. As a consequence, in English and German SOOAs state adjectives cannot move to the position preceding the major predicate and serve the function of the manner adverbial. It follows that the only difference between Chinese SOOAs and English as well as German SOOAs is the syntactic category of the secondary predicate. In the three languages state adjectives in SOOAs are base-generated in the sentence-final position. But they have different syntactic representations, as illustrated below.

(39) a. $[_{VP}$ S $[_{V'}$ ADJ_j-MANN V_i $[_{VP}$ O $[_{V'}$ t_i $t_j]]]]$ (Chinese)

b. $[_{VP}$ S $[_{V'}V_i$ $[_{VP}$ O$[_{V'}$ t_i ADJ]]]] (English and German)

As (39) suggests, the difference between Chinese SOOAs and English as well as German SOOAs lies in the distance of movement of state adjectives. According to the distance of movement of state adjectives, SOOAs fall into two types, i.e., Chinese-type SOOAs and English-type SOOAs. In Chinese-type SOOAs, the object does not move while the state adjective moves out of the embedded VP to the empty verb position where the manner marker is inserted. The major predicate moves to the same position and merges with the newly-formed syntactic object ADJ-MANN. In English-type SOOAs, neither the state adjective nor the object moves. In effect, only the major predicate moves to the empty verb position. Chinese-type SOOAs allow the state adjective to precede the major predicate as the manner marker can license the state adjective. In contrast, English-type SOOAs do not allow the state adjective to come before the major predicate because there is no manner marker to license it.

From the perspective of linguistic typology, adverbials in Chinese precede the major predicate and hence state adjectives in Chinese-type SOOAs have to move to the position preceding the major predicate to give rise to SOOAs. Chinese SOOAs may occur in the following two forms, viz. S+V+O+ADJ and S+ADJ+V+O. In contrast, adverbials in English and German come after V and hence state adjectives in English-type SOOAs do not move. English-type SOOAs may occur in the following form, viz. S+V+O+ADJ. This suggests that our approach to SOOAs has received support from independent evidence of linguistic typology. Based on the above discussion, we suggest the following parameter:

(40) *Positioning Parameter of State Adjectives*

A state adjective can precede V if and only if it is licensed by a manner marker.

In Chinese, this parameter is set to "on" because of the presence of a manner marker in the empty verb position; in English and German it is set to "off" as there is no manner marker in the empty verb position. Furthermore, we would like to suggest that this parameter is one of a family of parameters that allow complement licensing by a head.

(41) *Complement Licensing*

The head X can license the complement Y.

For X=major predicate and Y=embedded VP, this parameter characterizes the difference between languages that allow movement of the object and the state adjective (Chinese) and those that do not (English and German). For X=manner marker and Y=state adjective, it characterizes the difference between languages that allow state adjectives to precede V (Chinese) and those that do not (English and German). In fact, given the existence of a parameter like (41), the existence of languages with SOOAs is predicted by the theory, certainly a desirable result.

4. Conclusion

In this paper, we have proposed a novel approach to SOOAs. It assumes that language involves a semantic system and a syntactic system which interact with each other to give rise to a lexical-semantic structure composed of a head and its arguments. The structure undergoes derivation in the computational system to give rise to various forms in order to satisfy the requirement of the syntactic system and language performance. It is argued that the object-oriented adverbial is not derived from the attributive; in effect, it is base-generated in the complement position. The special properties of SOOAs follow from the way the verb's object and complement are displayed at the pre-syntactic level. The underlying structure must satisfy both the requirement of the syntactic system and the requirement of the semantic system. The presence of any symbol in a representation is conditional. The theta-roles of internal arguments are assigned by the predicate, whereas the theta-roles of external arguments are assigned by the maximal projection of the predicate, viz. VP. When an external argument occurs, there is an empty predicate position in the representation, for there is asymmetry between the conceptual system and the syntactic system. Derivation involves Move-α and GT. Different use of derivation methods gives rise to various forms of constructions in Chinese. Similarly, different semantic orientations result from different distributions. The state adjective is base-generated in the position behind the object because its nature is to serve the function of the complement of the object. It occurs in other positions, which is the result of movement. The difference between Chinese SOOAs and English as well as German SOOAs lies in the distance of movement of state adjectives. In Chinese there are causative markers, resultative markers, and manner markers which can license the state adjective in the landing sites and help to maintain its semantic association with the object while in English and German there are no such markers, as a result of which the state adjective is not allowed to precede the major predicate in the two languages.[①]

[①] An anonymous reviewer asks whether SOOAs can be explained in the framework of vP phase and

Abbreviations

3	Third Person	NEU	Neuter
ACC	Accusative	NP	Noun Phrase
ADJ	Adjective	O	Object
ADJ_j	Adjective which Is Moved from the Original Position t_j	PRES	Present Tense
		Pro	Pronominal
AgroP	Agreement Object Phrase	PROG	Progressive Aspect
AP	Adjective Phrase	Pro_i	Pronominal which Shares the Same Reference with the Noun
Bec	Become Serving as a Functional Category	PST	Past Tense
		RES	Resultative Marker
Bec`	The Middle Projection of the Functional Category of Become	S	Subject
		SG	Singular
BecP	The Maximal Projection of the Functional Category of Become	SOOA	Sentences with Object-oriented Adverbials
CAUS	Causative Marker		
Caus	Cause Serving as a Functional Category	Spec	Specifier
		t_i	Trace that a Constituent Leaves after Movement Takes Place
Caus`	The Middle Projection of the Functional Category of Cause		
		TOP	Topic Marker
CausP	The Maximal Projection of the Functional Category of Cause	TP	Tense Phrase
		V	Verb
c-command	Constituent-Command	V`	The Middle Projection Of Verb
CL	Classifier	V_i	Verb which Is Moved from the Original Position t_i
DP	Determiner Phrase		
GT	Generalized Transformation	vP	Light Verb Phrase
MANN	Manner Marker	VP	Verb Phrase

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left-periphery hypothesis. We find this question intriguing, but do not pursue it, for we have proposed a novel approach to SOOAs and this approach has been cross-linguistically testified. We leave for future research how to account for SOOAs with vP phase and left-periphery hypothesis.

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