

Derivation of Serial Verb Constructions*

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Though serial verb constructions have been a hot issue in grammatical research, the problem of the temporal iconicity in serial verb constructions has not been solved, or rather, various types of serial verb constructions have not been accounted for in a unified theoretical framework. Hence this paper attempts to probe into the internal structure of serial verb constructions and its generation in the framework of generative grammar. It is argued that structurally the two basic forms of SVCs are S+V1+O1+V2+O2 and S+O1+V1+O2+V2. VP1 made up of V1O1 governs VP2 made up of V2O2, and VP2 functions as the complement of VP1. Both SVO and SOV serial verb constructions follow the temporal iconicity, which is associated with the asymmetric nature of syntactic structures. V1 or VP1 c-commands V2 or VP2 asymmetrically, which is irrelevant to the types of SVCs and the order of V1 and V2. Based on this argument, an analysis for the derivation of serial verb constructions – Inter-VP Asymmetrical C-command Analysis – is proposed and used to account for the derivation of serial verb constructions in various languages. It is argued that in the serial verb construction there exist a null predicate and a null argument, the occurrence or non-occurrence of which gives rise to different types of serial verb constructions. It is evident that the approach to serial verb constructions can give a unified explanation of SVO and SOV serial verb constructions, including iconicity-predominant serial verb constructions typical of Chinese, abstractness-predominant serial verb constructions typical of the family of Tibeto-Burman languages, object-sharing serial verb constructions and non-object-sharing serial verb constructions as well as SOV serial verb constructions with double objects and solve the problems Baker (1989) and Li (2007) meet with in accounting for these data.

Keywords: serial verb construction, temporal iconicity, asymmetrical c-command, word order, generative grammar

* I would like to thank two anonymous reviewers for helpful comments. All errors are mine.

1. Introduction

Dixon (1997:339-344) presents the following criteria for the serial verb construction (SVC): 1) An SVC consists of more than one verb, but the SVC is conceived of as describing a single action. 2) There is no mark of linkage or subordination in an SVC. 3) Each verb in an SVC may also occur as the sole verb in a clause. 4) An SVC functions like a single predicate. 5) An SVC will generally have its own transitivity value. 6) There must almost always be (at least) one argument shared by all the verbs in an SVC. 7) The verbs in an SVC may make up one word, or may remain separate words. 8) The components of an SVC may be contiguous or non-contiguous. 9) Asymmetrical SVCs tend to become grammaticalized, and symmetrical SVCs tend to become lexicalized. 10) Although most SVCs in a language involve just two verbs, in most languages there can be three or more verbs involved.

SVCs have been extensively discussed in the literature on African and Chinese linguistics. In African linguistics, early accounts have been proposed by Stahlke (1970), Schachter (1974), Sebba (1987), Baker (1989), and Collins (1997). As for Chinese linguistics, early accounts mainly include Li and Thompson (1981), Dai (1990), Chang (1990), and Liu (1997). Subsequent analyses have focused narrowly on the construction in one particular language or language family (Kari 2003, 2007; Dakubu et al. 2007; Muansuwan 2001; Sudmuk 2005), attempting to find parameterization and typological correlates in polysynthetic languages (Baker 1989, 2002). However, there are many problems with the proposals (see Newmeyer 2004 for a discussion) and, particularly, the problem of the temporal iconicity in SVCs has not been solved, or rather, various types of SVCs have not been accounted for in a unified theoretical framework. Hence this paper attempts to probe into the internal structure of SVCs and its generation. It is organized as follows. Section 2 presents an analysis of the structure of SVCs in view of the types of the structure of SVCs, the argument structure of SVCs and the difference between the two types of structure. In section 3 the derivation of SVCs is laid out. Section 4 is the conclusion.

2. The Structure of SVCs

2.1. The Types of the Structure of SVCs

In view of its constituents, an SVC can only contain a noun subject and two head verbs or more constituents, for example, one or two objects. According to their constituents and order, SVCs can fall into the following seven types:

- | | |
|------------------|------------------|
| (1) a. S+V1+V2 | b. S+V1+O+V2 |
| c. S+O+V1+V2 | d. S+V1+V2+O |
| e. S+V1+O1+V2+O2 | f. S+O1+V1+O2+V2 |
| g. S+O2+V2+V1 | |

(1a) is a basic structure, of which V1 and V2 are followed by no object, as shown in (2). In (1b), V1 and V2 share the same noun object, and V2 can be a transitive verb or unaccusative verb, but V2 is causative, as shown in (3). In (1c), V1 and V2, which share the same object, form a compound with the structure of verb-complement. They govern the preceding noun and assign accusative Case to it, as shown in (4). In (1d), V1 is an intransitive verb and V2, a transitive verb, governs its following noun and assigns accusative Case to it, as shown in (5). In (1e), V1 and V2 govern different nouns, respectively. VP1 made up of V1O1 governs VP2 made up of V2O2, and VP2 functions as the complement of VP1, as shown in (6). In (1f), V1 and V2 also govern their preceding nouns and assign accusative Case to the nouns, as shown in (7). In (1g), V1, which is a governing verb, is followed by no object. Its action is prior to that of V2, which governs O2 and comes before V1 in terms of order, which gives rise to a surface structure violating the temporal iconicity, as shown in (8).

- | | |
|-------------------------------|---------|
| (2) a. Ta shangchuan shuijiao | Chinese |
| He ascend-bed sleep | |
| He went to bed. | |
| b. We'll go see. | |

- (3) a. Olú lu màálù kú Yoruba (Baker 1989)
 Olu beat cattle die
 Olu killed the cattle.

b. Bóló sè eran tà Nupe (Lord 1974)
 Bolo cook meat sell
 Bolo cooked meat for sale.

(4) a. Chelswu-ka chayksang-ul twutulki-e pwusi-ess-ta Korean (Li 2007)
 Chelswu-NOM table-ACC beat break-PST-DEC
 Chelswu broke the table.

b. John Mary-ra pruk-an Bill plap-an Miskito (Li 1991)
 John Mary-ACC beat Bill run-PST
 John beat Mary, and Bill ran.

c. Áràú ingo dérì pite-mí. Ijo (Williamson 1965)
 She net knit set-PST
 She knitted and set the net.

(5) Ta jueding huilai jie wo. Chinese
 He decide back-come meet me
 He decided to come back to meet me.

(6) a. Ìywi awá ótsi ikù utsì Yatye (Stahlke 1970)
 child take stick close door
 The child used the stick to close the door.

b. Koku só aty xo Asiba. Kwa (Lefebvre 1991)
 Koku take stick beat Asiba
 Koku used the stick to beat Asiba

c. Kofi naki Amba kiri en Sranan (Baker 1989)
 Kofi beat Amba kill her
 Kofi beat Amba and killed her.

(7) Áràú zu-ye áki buru teri-mí Ijo (Williamson 1965)
 She basket take potato cover-PST
 She took the basket to cover the potato.

- (8) a. ŋu^{33} thi²¹ ʂu^{33} li²¹ Yi (Dai and Qiu 2008)
 I him search go
 I went to look for him.
- b. the: fa xsə guə topu Qiang (Dai and Qiu 2008)
 he clothes new wear like
 He likes to wear new clothes.
- c. ŋa^{33} thu³³ku³³ fei³³ so²⁴ Kazhuo (Dai and Qiu 2008)
 I collar embroider learn
 I learn to embroider the collar.
- d. ŋa^{55} xo³¹ tea³¹ li³³ Hani (Dai and Qiu 2008)
 I rice cook go
 I went to cook rice.
- e. ŋa^{31} ma²¹za⁵³ te³¹ ga⁵³ Lahu (Dai and Qiu 2008)
 I soldier be want
 I want to be a soldier.

In fact, (1c) and (1d), (1e) and (1f) as well as (1g) reflect two different types of word orders: SVO and SOV. Word order just changes the linear order between the verb and the object, but it does not influence the syntactic and semantic relations between them. (2)-(8) all belong to the so-called “narrow SVC”, i.e. the construction includes only the sequence of verbs or verb phrases but excludes SVCs with the intervention of other constituents. In terms of structure, narrow SVCs fall into four categories: 1) V1 and V2 are closely linked and are followed by no object. 2) V1 is followed by an object and V2 by no object. 3) V1 is followed by no object. 4) Both V1 and V2 are followed by objects. Broad SVCs include not only narrow SVCs but also a sequence of prepositional phrase and verbs, SVCs in which there is a phonetic pause between the verbs, SVCs in which there are intervening constituents such as conjunctions, adverbs, auxiliaries, and connecting words, and SVCs whose subject is an agent or patient or an agent-patient complex. If the object is excluded, there are two most basic types of SVCs, i.e. S+V1+V2 and S+V2+V1. In the two types of SVCs, the former follows the temporal iconicity while the latter does not. In other words, under most circumstances verbs in SVO serial verb constructions follow the temporal iconicity (Yang 2009). SOV serial verb constructions also follow the temporal icon-

icity under most circumstances, and only a small portion of SVCs representing government violate this principle. Dai and Qiu (2008) argue that this is due to the fact the order of these languages is SOV. The temporal iconicity is more applicable to VO languages than OV languages. Since the characteristics of word order dominate the leading position, when cognition and word order are inconsistent, the characteristics of word order will be followed while the temporal iconicity will be violated. However, Korean, Miskito, and Ijo, which belong to the family of SOV languages, follow the temporal iconicity. This testifies that Dai and Qiu's (2008) conclusion is open to discussion. In fact, SVCs always follow the temporal iconicity, which is irrelevant to whether a language belongs to the family of SVO languages or that of SOV languages. This point will be discussed in detail below.

2.2. The Argument Structure of SVCs

According to isomorphism, the differences between the types of SVCs are due to their different internal structures. It also reflects the differences between the internal structure of SVCs. This section discusses the internal structure of various SVCs and summarizes the basic form of structure.

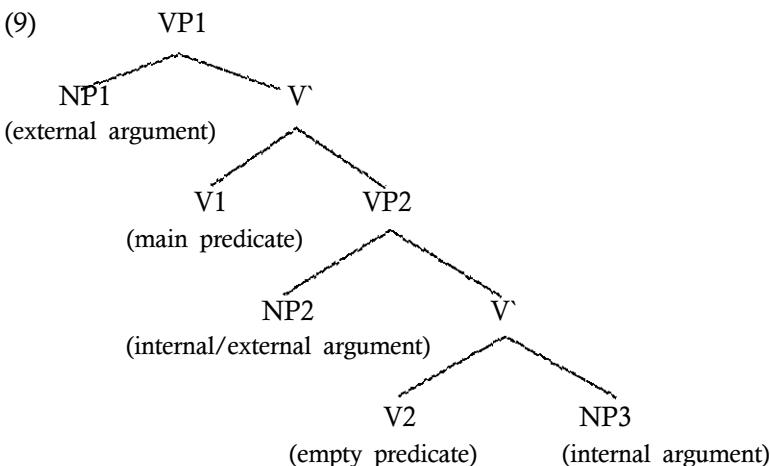
In the light of Qi et al. (1993:239) and Matthews (2000:339), the basic features of SVCs are as follows: there is no phonetic pause between linking verbs or verb phrases; the actions denoted by the verbs are made by the same agent; the actions represent a succession of occurrence, or the relation of action-purpose or the relation of manner-action. Hence in the syntactic system there are two heads, V1 and V2. In order to avoid Baker's (1989) and Li's (2007) theoretical self-contradiction,¹⁾ we adopt the Single Complementary Hypothesis proposed in Larson (1988). According to this hypothesis, a maximal projection contains only one complement, 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. According to the requirement of

1) Baker (1989) and Li (2007) can only be applied to SVCs sharing the same object, and hence they cannot account for SVCs sharing no object. Furthermore they can account for only a small portion of SVCs sharing the same object.

the syntactic system, representation forms are arranged in accordance with X' hierarchy, and each head can have one specifier and one complement. And the conceptual system allows the verb to have different numbers of arguments. Each argument of the verb must have a thematic role, which can only be borne by one argument, and the verb can have different numbers of thematic roles. Hence the syntactic system contains two levels of the conceptual system, i.e. the first-level syntactic system VP1 centered on V1 and the second-level syntactic system VP2 centered on V2. In the first-level syntactic system VP1, V1 has two arguments, i.e. an external argument functioning as the sentential subject and an internal argument functioning as the object of V1. In the second-level syntactic system VP2, V2 has an internal argument functioning as the object of V2²⁾ and shares the subject with V1. Thus V2 still has two arguments. Since V2 can be a transitive verb or an intransitive verb (unaccusative verb), the structure of VP2 is more complex than that of VP1. If V2 is a transitive verb, it can have an internal argument functioning as its patient. If V2 is an intransitive verb or an unaccusative verb, the preceding NP functions as V2's internal argument. In this case, V2 is causative.³⁾ If NP2 and NP3 co-refer, NP3 is c-commanded by NP2. If NP2 and NP3 refer discretely, NP3 is not c-commanded by NP2. Generally speaking, V1 is more closely related to the external argument than V2. Hence V1 comes before V2 in linear structure. Since the conceptual (semantic) system allows verbs to have different numbers of arguments, and the X' 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. (cf. Cheng 1999:239-240; Yang 2007a, 2007b, 2009) Since the predicate must assign thematic roles to the arguments in its projection, the internal argument must occur within

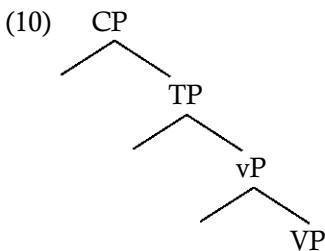
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- 2) We assume that V1 and V2 are transitive verbs, or rather, they both can assign accusative Case to nouns following them. If V2 is an intransitive verb, even if the preceding NP has the feature of experiencer, it should not be regarded as an external argument (e.g. Yatye, Kwa, Yoruba), because SVCs require that the verbs in the sentence share the subject.
- 3) Miskito is more complex. If V2 functions as an unaccusative verb, it is causative. It assigns a thematic role to the preceding NP2, and the whole VP2, which is c-commanded by VP1, represents result of V1. In other words, VP2 is part of the syntactic system, and its patient thematic role is assigned by VP1.

the maximal projection of the predicate. The thematic role of the external argument is assigned by both the predicate and its complement, or rather, it is base-generated in the position of the specifier of the verb predicate and hence it is part of the maximal projection of the verb predicate. (cf. Sportiche 1988; Kuroda 1988; Larson 1988, 1990) In order to satisfy the conditions, the lexicon of SVCs adopts the following form:



As (9) shows, in the second level of the lexicon corresponding to the second level of the conceptual system, NP2 is an external argument, which is higher in thematic hierarchy, and NP3 is an internal argument, which is lower in thematic hierarchy. In the first level of the lexicon corresponding to the first level of the conceptual system, NP1 is an external argument, which is higher in thematic hierarchy, and NP2 is an internal argument, which is lower in thematic hierarchy. There is some asymmetry between the conceptual system and the syntactical system, and the conceptual structure cannot correspond to the syntactic structure directly. Hence the conceptual structure must be conceptualized in order to correspond to the syntactic structure. At first, the conceptual system, which is hierarchical, contains two levels. Hence as a reflection of this characteristic in syntax, NP2 is of dual property, and there exists an empty predicate position. In this way the hierarchical requirement of the conceptual system can be satisfied, and the requirement that in syntax one head has only one specifier

and one complement can be satisfied. Second, the verb, which is transitive, can assign thematic roles to the internal arguments within its maximal projection. VP assigns a thematic role to NP3. However, there have existed thematic roles in the conceptual system. Hence the syntactic system must provide an empty predicate position in order to satisfy the symmetry between the conceptual system and the syntactic system. Third, since the external argument is not directly assigned a thematic role by the predicate, it must be excluded from the maximal projection of the predicate. In this way, to arrange an empty predicate position in the above structure and to assume that VP1 assigns a thematic role to NP3 by means of VP2 can avoid theoretical self-contradiction. (cf. Cheng 1999:244-245; Yang 2007a, 2007b, 2009) It is noteworthy that in SVCs there exists asymmetrical c-command between V1 and V2 (Barss and Lasnik 1986), i.e. V1 must c-command V2. The most basic semantics denoted by SVCs is semantic transference, and hence V1 and V2 form a semantic chain, as a result of which the whole structure is generated cyclically.⁴⁾ (cf. Chomsky 2000, 2001, 2004, 2005, 2007, 2008) V1 merges with O1 to form VP1 and V2 merges with O2 to form VP2. VP, composed of VP1 and VP2, merges with v and the subject to form vP. Then vP merges with T and C to form CP. In the framework of the Minimalist Program, syntactic derivation is conducted by phase and by means of merge. A simple sentence is composed of two phases, i.e. CP and vP. Its logical form is shown as (10).

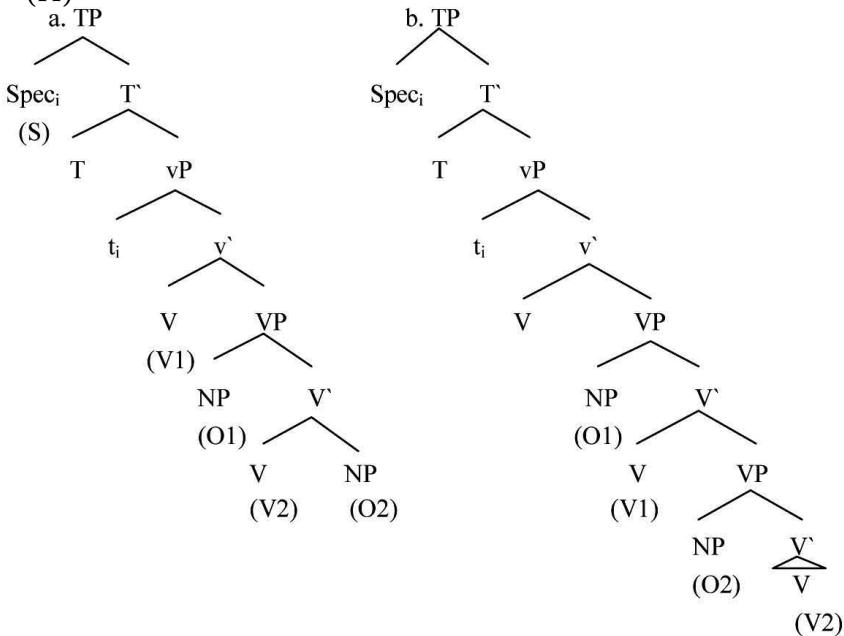


In linear structure, syntactic derivation is conducted from left to right,

4) According to Chomsky (2000, 2001, 2004, 2005, 2007, 2008), syntactic derivation is conducted cyclically and bottom-up. Derivation of CP does not take place until derivation of vP has come to an end. To put it another way, syntactic derivation is conducted by phase for the purpose of lightening the burden of computation and improving its efficiency.

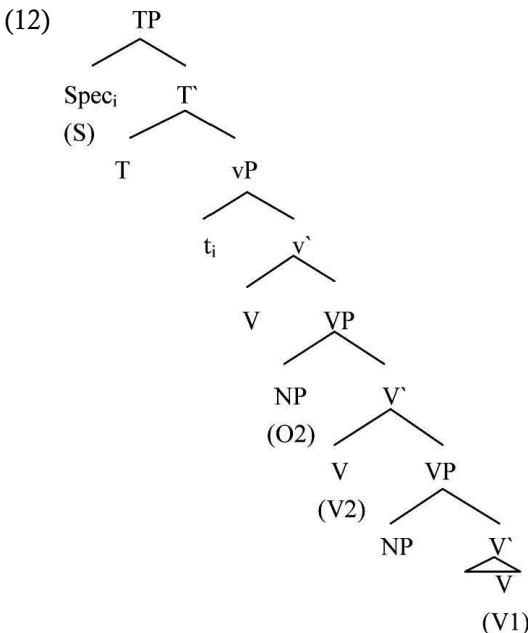
i.e. the phase vP is generated first, and then the phase CP is generated, which forms a structure shown as (10). According to the VP Internal Subject Hypothesis (Hornstein et al. 2005), the subject is generated within vP, and it moves from the position of the specifier of vP to the position of the specifier of TP. Hence the argument structure of SVCs can be analyzed as follows:

(11)



(11a) is the argument structure of SVO serial verb constructions. The subject is base-generated within vP, and it moves to the position of the specifier of TP in order to satisfy the requirement of the features of T and EPP. O1 and O2 are in [NP v'] and [NP V'], respectively, and V1 and V2 are in [V v'] and [V V'], respectively. (11b) is the argument structure of SOV serial verb constructions. The subject is also base-generated within vP, and it moves to the position of the specifier of TP so as to satisfy the requirement of the features of T and EPP just as for SVO. O1 and O2 are in outer [NP VP] and inner [NP VP], respectively, and V1 and V2 are in [V v'] and [V V'], respectively. As far as SVCs in Yi, Qiang, Kazhuo, and Hani, which do not follow the temporal iconicity, are concerned, their argument structure is

different, which is shown as (12).



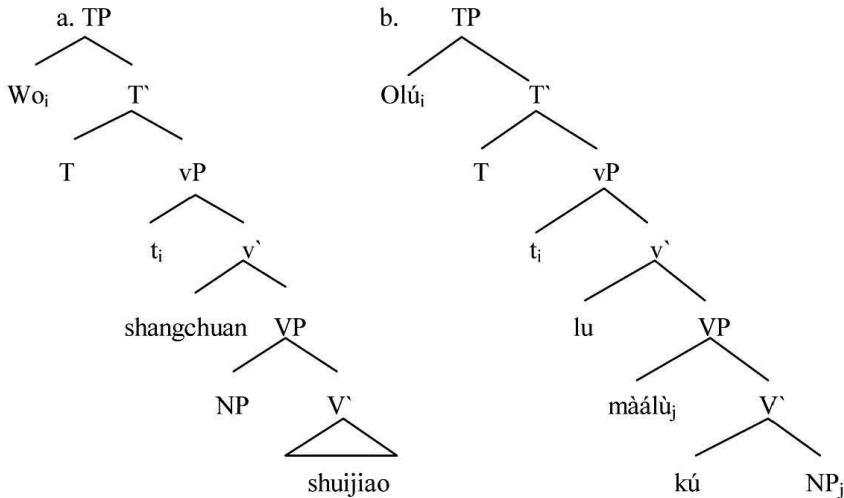
The subject, which is base-generated within the inner VP, governs V1. It moves to the position of the specifier, and then it moves to the position of the specifier of TP in order to satisfy the requirement of the features of T and EPP. V1 and V2 are in [V V'] and [V V'], respectively, and O2 is in the position of the specifier of VP.

2.3. The Difference Between the Two Types of Structure

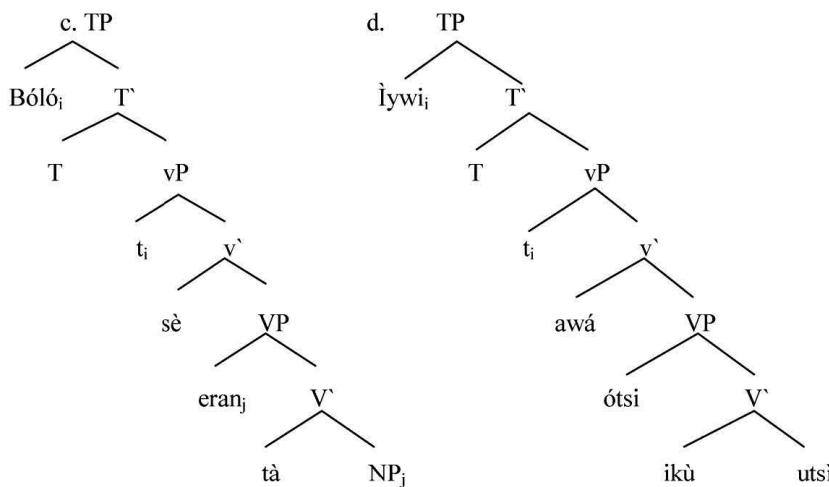
This section discusses the difference between the argument structure of SVO serial verb constructions and the argument structure of SOV serial verb constructions. As mentioned above, the subject of SVO serial verb constructions is base-generated within vP. It moves to the position [Spec TP] in order to satisfy the requirement of the features of T and EPP. O1 and O2 are in [NP v'] and [NP V'], respectively, and V1 and V2 are in [V v'] and [V V'], respectively. This structure has two internal arguments and one external argument. VP1 made up of V1 and O always precedes VP2 made up of V2 and O2, and VP1 c-commands VP2. V1 and V2 assign different thematic roles to O1

and O₂, respectively. V₁ represents instrument and manner, and its object functions as a circumstantial argument. Hence VP₁ is commensurate with PP. When there are two verbs sharing the same noun object in a sentence, V₁ assigns nominative Case to the noun and the relation between them is VO. The relation between V₂ and the noun is SV, but in underlying structure the relation between them is VO. V₁ c-commands V₂, and hence the relation between them is asymmetrical. The verbs in SVCs do not necessarily share the same object, but they must share the same subject, i.e. the actions are taken by the same agent. The internal structure of the phrase may be VO, OV, manner-aim, circumstance-action, or affirmation-negation. There exist such semantic relations as coordination, modification or SV between them.⁵⁾

(13)



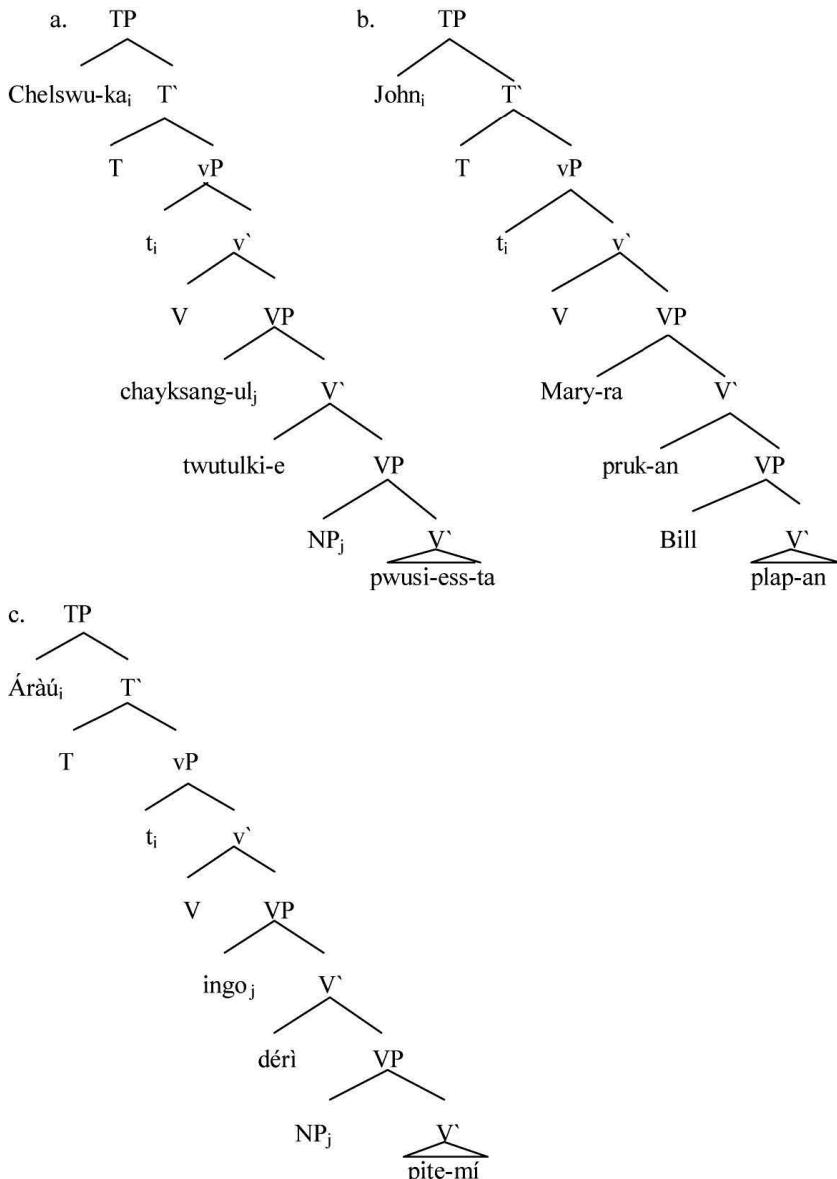
5) Semantically, SVCs can be regarded as the result of deletion of the conjunction “and” in “V₁ and V₂”. Between A and B there exist subordinative relations of condition, purpose, and cause-effect. In this case, V₂’s interpretation depends upon V₁’s interpretation.



As (13) shows, VP1, which functions as a SV phrase, governs VP2, which is in a subordinate position. And VP2 is commensurate with aim argument or result argument. Second, V1 and V2 share the same object, and O1 or O2 can occur covertly. If V2 is an intransitive verb, it is causative. Third, V1 and V2 govern different noun objects O1 and O2, and O1 is also the manner object of V2.

The subject of SOV serial verb constructions is also base-generated within vP, and it moves to [Spec TP] in order to satisfy the requirement of the features of T and EPP. O1 and O2 are in outer [NP VP] and inner [NP VP], respectively, and V1 and V2 are in [V v'] and [V V'], respectively.

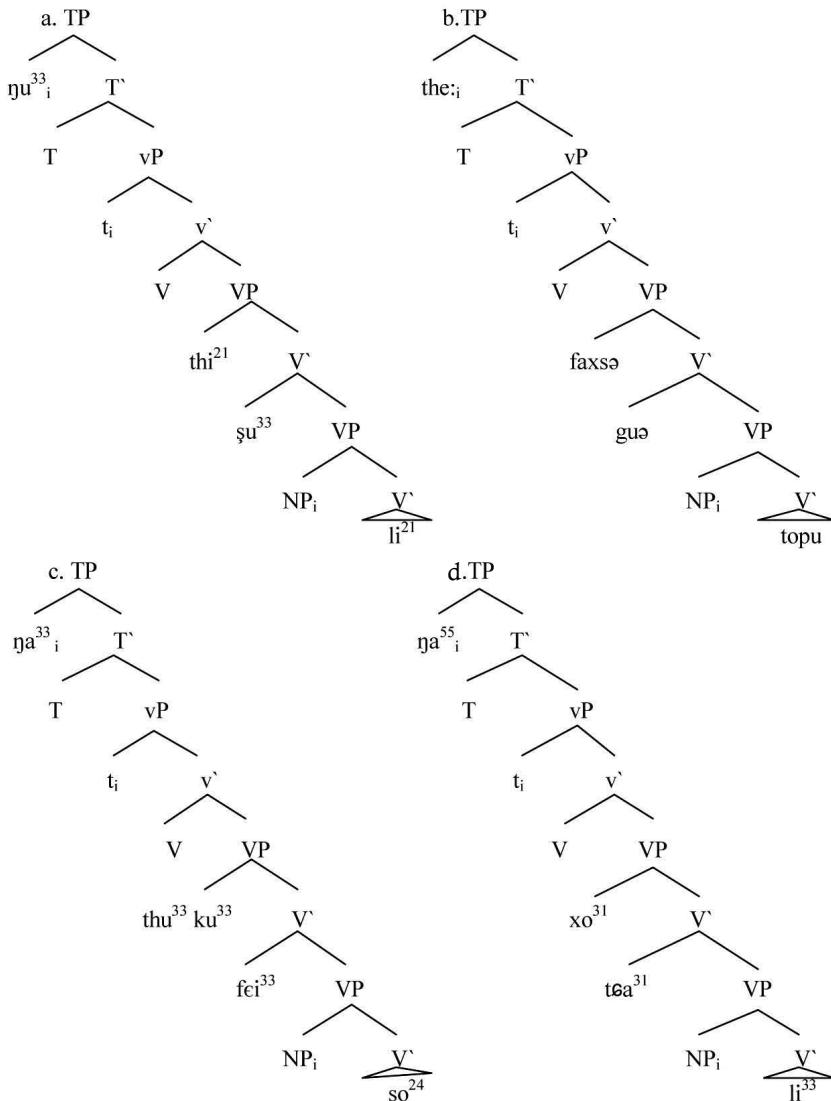
(14)

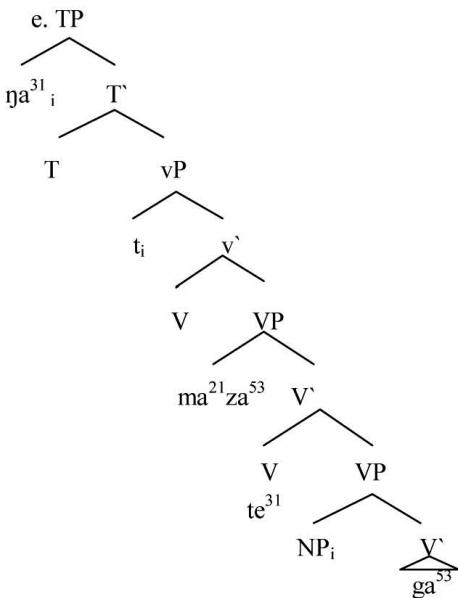


As (14a) shows, V1 and V2 share the same object, but the object precedes V1 and V2. The subject governs VP1 directly, and VP1 governs VP2, which is commensurate with result argument.

The SVCs in Yi, Qiang, Kazhuo, Hani, and Lahu follow the temporal iconicity in terms of coordination, modification and addition. But they do not follow the temporal iconicity in terms of government. The argument structure in (8) is shown as (15).

(15)





As (15) shows, V1 follows V2 and O2, and V1 represents intention or tendency. The subject is base-generated within the embedded VP. It moves cyclically to [Spec TP]. V1 follows V2, but it still governs V2 and c-commands V2, because V1 and its preceding noun form a SV relation before they and VP2 form a subordination relation.

3. The Derivation of SVCs

VP1 always c-commands VP2 asymmetrically, which is irrelevant to the types of SVCs and the order of V1 and V2. According to the Linear Correspondence Axiom⁶⁾ (Kayne 1994:33) and Principle of Category Order⁷⁾ (Dai 2003), if an arbitrary constituent X c-commands another arbitrary constituent Y, and Y cannot c-command X, the types of structure may be as follows:

6) Linear Correspondence Axiom (LCA)

A lexical item α precedes a lexical item β iff α asymmetrically c-commands β .

7) Principle of Category Order

A category α precedes a category β iff α asymmetrically c-commands β after merger or movement.

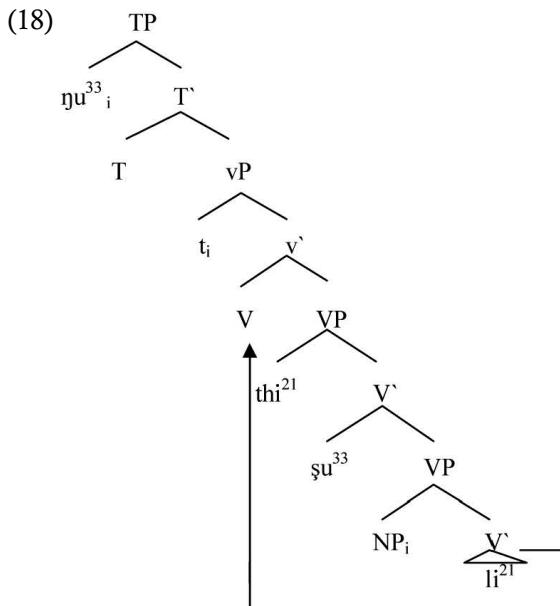
- (16) a. V1 c-commands V2.
 b. V1 c-commands O, and V1O c-commands V2.
 c. V2 c-commands O, and V1 c-commands V2O.

In view of (16), there is no mutual c-command but asymmetrical c-command between V1 and V2, which can guarantee that V1 is higher than V2 in terms of hierarchical structure and precedes V2 in terms of word order. Since V2 does not move, V1O c-commands V2. In this case, O functions as the semantic subject of V2. This hypothesis can give a sound explanation of SVO and SVO serial verb constructions.

The ungrammaticality of the constructions in (17) proves the grammaticality of the constructions in (16). V c-commands O, and VP1 c-commands VP2. Thus, if V2 moves, it has to move to the position which precedes VP1. If O1 moves, it has to move to the position which precedes V1. If both O1 and O2 move, O1 moves to the position which precedes V1 and O2 moves to the position which precedes V2. If either O1 or O2 moves, the structure will be ungrammatical. This shows that in SVCs, if V1 governs O1 and V2 governs O2, O1 and O2 must move at the same time in order to generate grammatical constructions. The constituents which are governed or c-commanded can only move to the positions which govern or c-command them, because they cannot cross over other nodes, or rather, they cannot go beyond the minimal domain of the maximal projection of the structure in which they are, otherwise they would violate the Minimal Link Condition (MLC)⁸(Chomsky 1995:311). V-movement and O-movement are head movement. The former is verb movement and the latter argument movement. V is base-generated within VP. It is attracted by v, and hence it moves and adjoins to v to form V+v.

8) The Minimal Link Condition requires that “at a given stage of a derivation, a longer link from α to K cannot be formed if there is a shorter legitimate link from β to K?”. (Chomsky 1995:295)

If v is phonetically empty, it forms v+e. V c-commands O, and VP1 c-commands VP2, which forms SVO serial verb constructions. If O moves, SOV serial verb constructions are formed. If V2 moves to the position which precedes V1, SOV serial verb constructions, which violate the temporal iconicity, are formed. Under this circumstance, V1's transitivity is lost, which can be regarded as ergativization, because it has lost its ability to assign. O2 and V2 can move to the position which precedes V1 by means of pied-piping to form SOV serial verb constructions. The subject moves to [Spec TP] so as to satisfy the requirement of the features of T and EPP. Likewise, the object moves to [Spec vP] so as to satisfy the requirement of the features of T and EPP. The former checks the feature of T while the latter checks the feature of vP. Verb movement is caused by being attracted by the light verb. Both SVO and SOV serial verb constructions follow the temporal iconicity. As far as Tibeto-Burman languages are concerned, only a small portion of them representing government do not follow the temporal iconicity, which can be soundly accounted for by means of our approach to SVCs. In other words, SVCs, which do not follow the temporal iconicity, belong to the type of SOV languages, the deep structure of which still follows the temporal iconicity. V2 and O2 are base-generated and then raise and move to generate the surface structure which does not follow the temporal iconicity, as shown in (8). The types of SVCs in (8) can be summarized as S+O2+V2+V1, i.e. both O2 and V2 precede V1. According to our approach to SVCs, the derivation is shown as (18).



In the light of the approach to SVCs proposed above, V1 is the main predicate, bearing tense-aspect markers, which occur covertly.⁹⁾ According to V'-Reanalysis, V' in underlying structure is made up of the verb li²¹ and an ASP bearing covert tense-aspect markers, for V1 is the main predicate. In this case, li²¹ raises to the position of the empty verb as a head to generate S+V1+O2+V2. If we further observe (8), we will find that when O1 is empty, O2 can move to this position in order to receive a thematic role. Accordingly, V2 can move to the position which precedes V1 so as to assign O2 accusative Case.¹⁰⁾ In gen-

9) V1 in Chinese SVCs can be followed by aspect marker complements, but V1 in Tibeto-Burman SVCs cannot. The complement can only be inserted between V1 and V2, and hence it is commensurate with a conjunction. (Dai and Qiu 2008) For example,

- (i) Ivu⁵⁵ mē²¹ non⁵¹ le⁵¹.
see envy (AUX)
see and envy.
- (ii) kjɔ³⁵ nák⁵⁵ mjan³¹ 3a⁵⁵.
hear sympathize (AUX)
Hear and sympathize.
- (iii) qá⁵⁵ du³³ mi³¹ kho³¹ xe³¹ sa³¹ a⁵⁵ ne³³ li³³
let's wood cut finish (CONJ) go
Let's go and cut wood.

10) Ferguson (1996) points out that there is connection between overt object raising and

eral, V1 only governs O1, and VP1 governs VP2. If bare V1 governs VP2, SOV serial verb constructions will take the form of S+O2+V2+V1. Thus, the conditions of generation of SVCs which do not follow the temporal iconicity can be summarized as (19).

- (19) VP2 precedes VP1, if and only if O1 is empty, V1 governs VP2.

In SVCs in such languages as Yi, Qaing, Kazhuo, Hani, and Lahu, if O1 is empty, O2 can move to this position, and V2 can move to the position which precedes V1, so that S+O2+V2+V1 can be generated. In contrast, in SVCs in Korean, Miskito, and Ijo, since O1 is not empty, O2 cannot move to this position, and V2 stays in situ, as a result of which S+O2+V2+V1 cannot be generated. In view of this, SVCs in Yi, Qaing, Kazhuo, Hani, and Lahu, do not follow the temporal iconicity in terms of surface structure, but they follow the principle in terms of underlying structure, for the underlying structure of this type of SVCs is still S+V1+O2+V2.

It follows that the approach to SVCs can account for SVO and SOV serial verb constructions which follow the temporal iconicity and SOV serial verb constructions whose surface structure violates the temporal iconicity. It is evident that this approach has three advantages: 1) It can give a unified explanation of SVO and SOV serial verb constructions and avoid Baker's (1989) and Li's (2007) theoretical self-contradiction. 2) It can give a unified explanation of iconicity-predominant SVCs typical of Chinese and abstractness-predominant SVCs typical of the family of Tibeto-Burman languages. 3) It can give a unified explanation of object-sharing SVCs and non-object-sharing SVCs and solve the problems Baker (1989) and Li (2007) meet with in accounting for these data.

Up to now, our discussion on the syntactic-semantic relation of SVCs has shown that to arrange an empty predicate and an empty argument and to assume that VP1 assigns a thematic role to NP3 by means of VP2 cannot only avoid theoretical self-contradiction but also give a sound explanation of SVCs in different languages. However, we haven't answered a question. What is the argument structure of SOV serial verb constructions with double objects? In what way are the

overt verb raising, for the verb checks the object. If the object raises, the verb also raises.

nouns in the sentence assigned thematic roles? We observe the following examples first.

- (20) a. ηai^{33} $\text{n}\underline{\text{u}}^{51}$ phe^{755} $\text{p}\check{\text{a}}^{31}$ $\text{l}\text{o}\text{j}^{33}$ la^{55} ηai^{51} mi^{33} $\text{m}\check{\text{a}}^{31}$
 I mother (ACC-AUX) coat one one
 zi^{33} ja^{33} $\text{s}\check{\text{a}}^{33}$ ηai^{33} .
 buy give
 I bought my mother a new coat.

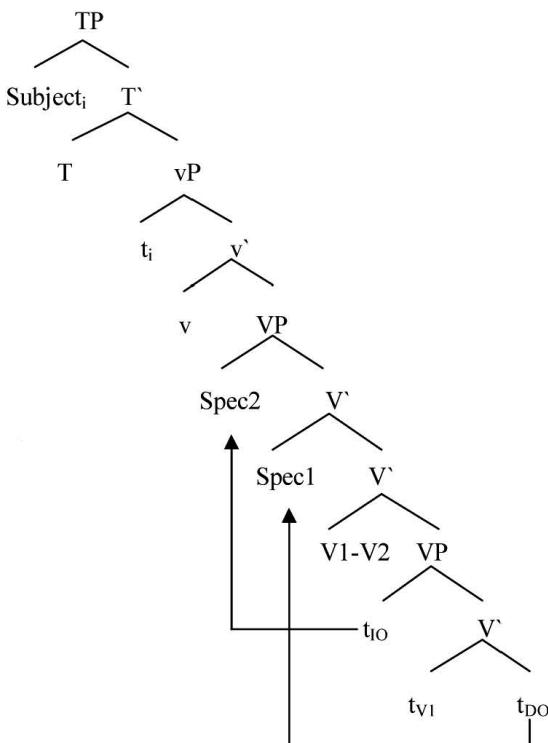
Jingpo

- b. ηa^{55} $\text{a}^{31}\text{m}\text{a}^{33}$ jo^{755} $\text{phe}^{55}\text{x}\text{o}^{31}$ tchi^{31} xo^{55} yy^{55} bi^{31} .
 I mother (ACC-AUX) coat one one buy give
 I bought my mother a new coat.

Hani

As (20) shows, the two verbs occur together and both the direct object and the indirect object precede the verbs. According to Chomsky (2000, 2001), a language L is a derivation process of mapping the feature F onto the representation. L first selects the feature [F] from the set of universal features, which make up the lexicon (LEX). Then L selects the lexical array (LA) from the lexicon and selects the lexical items, which are required by a phase, from LA, to constitute lexical subarray (LS) and maps them onto the representation. Derivation by phase can lighten the burden of syntactic computation, for each phase is determined by LA in the working memory of the lexical array. A nominal phrase has obtained an argument role in the lexical array, and the order of merge is regulated and controlled by thematic hierarchy. Headed functional categories have strong nominal features, which check the feature of the indirect object D. Hence the derivation of SOV serial verb constructions is shown as (21).

(21)



V1 merges with the direct object to form V', which merges with the indirect object to form VP, to license the two internal arguments. Then V1 adjoins to V2 to form V1-V2. Now there are four uninterpretable features: the ϕ feature of V1-V2, the strong nominal feature of V1-V2, the structural Case of the indirect object, and the inherent Case of the indirect object. V1-V2 checks agreement against the two objects and erases the features other than the strong nominal feature of V1-V2. According to the multiple specifier structure proposed in Chomsky (1995), the indirect object moves to Spec1 to check the strong nominal feature of V1-V2, and the direct object remains in situ to check agreement against V1-V2. And the external argument moves to Spec2 to license its role. In this case the derivation of the first phase is completed, and only the features of the external argument have not been checked. Therefore computation continues. T is extracted from the lexical array and merges with VP, which gives rise to four uninterpretable features: the feature [-V] of T, the ϕ fea-

ture of T, the features of EPP, and the strong nominal features of the external argument. Then T checks agreement against the subject and attracts it to satisfy the requirement of the features of T and EPP. Up to now, all the uninterpretable features have been checked, and the whole process of derivation has been completed. The structure generated by means of this derivation satisfies Barss and Lasnik's (1986) argument on double object constructions that the indirect object c-commands the direct object asymmetrically.

4. Conclusion

The present study is mainly concerned with the internal structure of serial verb constructions. It is argued that structurally the two basic forms of serial verb constructions are S+V1+O1+V2+O2 and S+O1+V1+O2+V2. Both SVO and SOV serial verb constructions follow the temporal iconicity, which is associated with the asymmetric nature of syntactic structures, i.e. V1 or VP1 c-commands V2 or VP2 asymmetrically. Based on this argument, an analysis for the derivation of serial verb constructions – Inter-VP Asymmetrical C-command Analysis – is proposed and used to account for the derivation of serial verb constructions in various languages. It is argued that in the serial verb construction there exist a null predicate and a null argument, the occurrence or non-occurrence of which gives rise to different types of serial verb constructions.

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