

Research Article

# Serial Verbs Constructions as Double-headed Syntactic Structures: Evidence from Igbo

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## Abstract

Although serial verb constructions (SVCs) are widely observed across languages, there is ongoing debate regarding their syntactic representation, particularly in cases involving shared arguments. Two prominent approaches to SVCs with argument sharing are the double-headed structure proposed by Baker (1989) and the control structure suggested by Collins (1997). This paper presents novel data from Igbo to evaluate these differing approaches. First, we disentangle the confound between covert coordination and SVCs through syntactic and semantic tests, demonstrating that SVCs do exist in Igbo. We then conduct a comprehensive comparison between SVCs and corresponding verb-verb (V-V) compounds. The absence of a systematic derivational relationship between SVCs and V-V compounds raises doubts about the verb incorporation mechanism posited by Collins. Furthermore, the lack of resultative SVCs in Igbo challenges the existence of an empty category, further undermining the control structure for SVCs. In contrast, we illustrate that the endocentric property of Igbo SVCs aligns naturally with Baker's double-headed syntactic structure. Building on this, we propose a double-headed structure for SVCs in Igbo, both with and without shared arguments. Our findings thus provide a novel argument for a permissible structure of SVCs with argument sharing and for the availability of double-headedness in Universal Grammar.

## Keywords

Serial Verb Constructions, Igbo, Double-Headedness, Argument Sharing

## 1. Introduction

Serial verb constructions (SVCs) are widely observed in West African languages [1-6]. Following Aikhenvald (2006), this paper defines SVCs as follows.

“A serial verb construction is a sequence of verbs that acts together as a single predicate, without any overt marker of conjunction, subordination, or syntactic dependency of any sort. They are mono-clausal; their intonation properties are the same as those of a mono-verbal clause, and they just have one tense, aspect, and polarity value. Serial verb construction may also share core and other arguments. Each component of

an SVC must be able to occur on its own right.” [7]

Among various types of SVCs, SVCs involving argument sharing have been a core issue in generative syntax. A typical example of SVCs with argument sharing is illustrated by a resultative in Ewe. As in (1), the two verbs “nya” and “dzo” share an argument sandwiched between them<sup>1</sup>.

(1) Me nya  $\varnothing$ vi- $\epsilon$  dzo

<sup>1</sup>Abbreviations in glosses are as follows: OVS - open vowel suffix; 1, 2, 3 - 1st, 2nd, 3rd person; SG - singular; PL: plural; FUT - future tense; PROG - progressive aspect; NEG: negation; DEF: definite marker; P: postposition.

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1SG chase child-DEF leave  
 'I chased the child away.'  
 not 'I chased the child and I left.'

There are various approaches to argument sharing in SVCs. Baker (1989) proposes a ternary-branching structure as in Figure 1 [8], where a double-headed verb phrase allows an argument shared by two verbs. Hiraiwa & Bodomo (2008) offer a variant of this approach in which the verbs of an SVC are in separate constituents, but the shared argument is the constituent of more than one verb phrase [9]. Collins (1997) analyzes SVCs as control structures [10]. Based on data from Ewe, he maintains that argument sharing is mediated by the presence of a null pronoun *pro*, which must be controlled by the object of the first verb, shown in Figure 2. To rule out the impossible reading of (1) generated by the structure in Figure 3, where the *pro* is controlled by the matrix subject, Collins claims that the second verb must incorporate into the first verb in an SVC at Logical Form. Thus the structure in Figure 3 is ruled out since incorporation is blocked as V1 does not c-command V2.

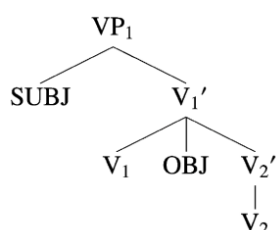


Figure 1. Double-headed structure by Baker (1989).

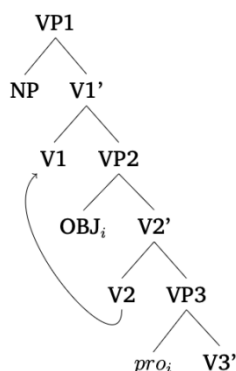


Figure 2. Control structure by Collins (1997).

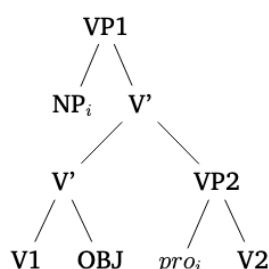


Figure 3. The structure of the infelicitous reading of (1).

Against this backdrop, we investigate SVCs in Igbo2. Igbo has been claimed to have both verb-verb (V-V) compounds and SVCs [11, 12]. For instance, the compound verb “*ḡba-bà*” in (2) can be decomposed into two independent verbs shown in (3). Therefore, Igbo provides a window to examine verb incorporation as well as different analyses of argument sharing.

- (2) *Obi ḡba-bà-rà ọhịa*  
 Obi run-enter-rV bush  
 'Obi run into the bush.'  
 (3) *Òbì ḡbà-rà ọsọ bà-a n' ọhịa*  
 Obi run-rV running enter-OVS P bush  
 'Obi ran and entered the bush.'

This paper investigates the relationship between SVCs and corresponding V-V compounds in Igbo and finds that in all types of SVCs with V-V counterparts, there are no systematic patterns indicating a derivational relationship. Moreover, the lack of resultative SVCs casts doubt on the existence of a *pro*. On the other hand, SVCs in Igbo are semantically endocentric as V-V compounds, which can be naturally analyzed by double-headedness. Therefore, our data provide support for Baker's insight of the double-headedness and challenge Collins's control structure.

The rest of the paper is organized as follows. Section 2 disentangles the confound between SVCs and covert coordination in Igbo and shows that SVCs exist in Igbo. Section 3 examines the derivational relationship between the V-V compound and SVCs for each type of SVCs. Section 4 discusses the incompatibility of a control structure and proposes a double-headed structure for SVCs based on their endocentric property.

## 2. SVCs and (c) Overt Coordination

There has been a debate about whether Igbo has SVCs or not. Lord (1977) did a typological study on the Niger-Congo language family and claims that Igbo appears to be unique with respect to predicate type by having widespread V-V compounds without SVCs [13]. This view has been challenged by recent studies. For example, Obiamalu & Mbagwu (2014) provide (3) to show that V-V compounds can be decomposed into SVCs [12]. However, they also have the following examples showing that V-V compounds can be decomposed into two sentences with a pause in between, e.g., (5), or coordinated structures indicated by an optional conjunction marker “*ma*”, e.g., (7). Therefore, it is not clear whether (3) is a real SVCs or covert coordination. Previous studies on SVCs in Igbo did not distinguish those two. This section provides tests to demonstrate that SVCs differ from coordination syntactically and semantically such that SVCs exist in Igbo.

- (4) *Àda tị-fù-rù akwụkwọ*

2Unless otherwise noted, all Igbo data were collected by the author during fieldwork through direct elicitation.

Ada throw-lose-rV book

'Ada lost a book.'

- (5) Àda t̩̀-ù akwùkwò, ò fu-o  
Ada throw-lose-rV book 3SG got.lost-OVS  
'Ada threw away a book and it got lost.'
- (6) Òbì kù-gb̩̀-ù agwò  
Obi hit-kill-rV snake  
'Obi hit to death a snake.'
- (7) Òbì kù-r̩̀ agwò ihē (ma) gbu-o yā  
Obi hit-rV snake thing and kill-OVS 3SG  
'Obi hit a snake with something and killed it.'

## 2.1. Syntactic Evidence for SVCs

### 2.1.1. Object Sharing

In Igbo, two verbal phrases can be coordinated by the conjunction marker “ma”. When two coordinated verbs have coindexed objects as in (9), the object of the second verb cannot be deleted under identity, shown by the obligatory pronoun “ja”, which indicates that structures like (8) with object sharing are real SVCs.

- (8) Àdà zò-ìò òkókò s í é  
Ada buy-rV chicken cook-OVS  
'Ada bought a chicken and cooked it.'
- (9) Àdà zò-ìò òkókò, mà s í é \*(jā)  
Ada buy-rV chicken and cook-OVS 3SG  
'Ada bought a chicken and cooked it.'

### 2.1.2. The Scope of Negation

As shown in (10), in SVCs, the negation maker “-ghì” is attached to the first verb but it scopes over the entire clause.

- (10) ȳĩ́ómá é-d̩̀-ghì ñmà gb̩̀-ó òkókò  
Chioma ?-use-NEG knife kill-OVS chicken  
'Chioma didn't kill the chicken with a knife.'

In coordination like (11), however, each conjunct needs to be negated separately. The contrast between (10) and (11) indicates that SVCs are distinct from (c)overt coordination.

- (11) Àdà á-zò-ghì òkókò, ò sí-ghì jā, mà  
Ada ?-buy-NEG chicken 3SG cook-NEG 3SG and  
ò í-ghì jā  
3SG eat-NEG 3SG  
'Ada didn't buy, cook or eat a chicken.'

### 2.1.3. Tense and Aspect Marker

In coordination such as (12) and (14), the future tense marker “ga” and progressive marker “na” occurring in the first conjunct need to be repeated in the second conjunct. However, they can be shared in SVCs without repetition, as in (13) and (15).

- (12) ó nà à-gbá ́s̩̀ mà (ná) é-gè égẁ̩  
3SG PROG ?-run race and PROG ?-listen music  
'He is running and listening to music.'
- (13) ó nà à-gbá ́s̩̀ é-gè égẁ̩  
3SG PROG ?-run race ?-listen music

'He is running listening to music.'

- (14) Ada ga-a-zu òkókò, \*(ga-e) si ja, ma  
Ada FUT-?-buy chicken, FUT-? cook 3SG, and  
\*(ga-e) í ja  
(FUT-?) eat 3SG  
'Ada will buy a chicken, cook, and eat it.'
- (15) ȳĩ́ómá gà-é-d̩̀ ñmà gb̩̀-ó òkókò  
Chioma FUT-?-use knife kill-OVS chicken  
'Chioma will use a knife to kill a chicken.'

## 2.2. Semantic Evidence for SVCs

Semantically, SVCs express a single event [14]. In directional SVCs, as in (16), the first verb expresses a manner of motion while the second verb expresses a direction. The two verbs can only be perceived as subparts of a single event and cannot be coordinated.

- (16) ó g à-à id̩̀zè (\*ma) bápé ná-ímé ólò  
3SG walk-rV walk and enter inside house  
'He walked and entered the house.'

On the other hand, For SVCs that have coordinated counterparts, the coordinated sentence is interpreted differently as involving separate events. For instance, when the benefactive SVC in (17) is expressed by coordination in (18), the indirect object of “je” is no longer interpreted as the benefactive of “zu”, shown by the translation.

- (17) ó zò-ìò ák'ók'ó jé ñ  
3SG buy-rV book give 1SG

'He bought a book and gave it to me./ He bought a book for me.'

- (18) ó zò-ìò ák'ók'ó mà jé ñ jā  
3SG buy-rV book and give 1SG 3SG  
'He bought a book (for himself), and he gave it to me.'

In sum, Igbo SVCs are different from (c)overt coordination syntactically and semantically. Syntactically, SVCs allow argument sharing. The future tense marker, progressive marker, and negation morpheme are only attached to the first verb of an SVC. Semantically, the two verbs in an SVC are interpreted as subparts of a single event. The contrast between SVCs and coordination demonstrates that SVCs exist in Igbo.

With the tests above, we identified five types of SVCs classified by the semantic relation between two verbs. They are (i) purpose SVCs as in (8), where the second verb denotes the purpose of the first verb, (ii) instrumental SVCs as in (10), where the first verb introduces an instrument for the action expressed by the second verb, (iii) manner SVCs as in (13), where the first describes the manner while the second verb indicates the action, (iv) directional SVCs as in (16), where the second verb expresses a path of motion, and (v) benefactive SVCs as in (17). Among those types, purpose SVCs and benefactive SVCs have shared arguments and are expected by Collins (1997) to allow two verbs to form a V-V compound through incorporation. Also, in manner SVCs and directional SVCs, the first verb is always intransitive and can in principle form a verb compound with the second verb. The next section

focuses on SVCs with possible compound counterparts to investigate the evidence for derivational relationship between V-V compounds and SVCs.

### 3. Relationship Between V-V Compounds and SVCs

The existence of both V-V compounds and SVCs in Igbo allows us to test the hypothesis of verb incorporation proposed by Collins (1997) through comparing their distributions. If compound verbs were derived by verb incorporation, we would observe systematic patterns between SVCs and V-V compounds. The comparison of SVCs and compound counterparts in four types of SVCs below, however, does not provide supporting evidence for a derivational relationship between them.

#### 3.1. Purpose SVCs and Benefactive SVCs

First, both purpose SVCs and benefactive SVCs involve argument sharing, and the shared argument linearly occurs between two verbs. For purpose SVCs, we did not find any compound form based on the elicited data. For instance, the SVC in (19) cannot be expressed by a compound verb, as in (20).

- (19) Àdà sì-ì òkókò íí-é  
Ada cook-rV chicken eat-OVS  
'Ada cooked a chicken and ate it.'

- (20) \*Àd às ì-ì òkókò  
Ada cook-eat-rV chicken

Benefactive SVCs, conversely, have V-V compound forms. (21) and (22) illustrate that the two verbs “zu” (‘buy’) and “je” (‘give’) can either form a compound or an SVC to express similar meanings.

- (21) ó zò-ìò ák'ók'w'ó jē ñ  
3SG buy-rV book give 1SG  
'He bought a book and gave it to me.'

- (22) ó zò-jè-ìè ñ ák'ók'w'ó  
3SG buy-give-rV 1SG book  
'He bought a book for me.'

However, not all benefactive SVCs have compound counterparts. For instance, similar to “zu” (‘buy’), the meaning of “zu” (‘steal’) also involves acquirement. But according to our speaker, the SVC formed by “zu” with “je” is marginal, shown in (23). Its corresponding compound verb is unacceptable, as in (24).

- (23) ??ó zù-ìù égō jē ñ  
3SG steal-rV money give 1SG  
'He stole money and gave it to me.'

- (24) \*ó zù-jè-ìè ñ égō  
3SG steal-give-rV 1SG money

For verbs encoding production, such as “de” (‘write’) and “se” (‘draw’), their SVC forms are degraded but the compound forms are unacceptable, as in (25) and (26).

- (25) ?ó dè-ìè létà jē ñ

3SG write-rV letter give 1SG

'He wrote a letter and gave it to me.'

- (26) \*ó dè-jè-ìè ñ létà

3SG write-give-rV 1SG letter

On the other hand, some verbs can only form compounds with “je” but not SVCs. A case in point is “gba”. It means ‘get/fetch’ when used alone as in “ñ nà-à-gbà ñmīī” (‘I am getting water.’) When it forms a compound with “je”, “gba-je” as a whole means ‘pour’, but this meaning cannot be expressed by an SVC, shown in (28).

- (27) ñ gbà-jè-ìè itè ñmīī  
1SG get-give-rV pot water  
'I poured water into a pot.'

- (28) \*ñ gbà ñmīī jē itè  
1SG get water give pot

#### 3.2. Manner SVCs and Directional SVCs

The other two types of SVCs that possibly have compound counterparts are manner SVCs and directional SVCs since they always have intransitives as the first verb. Previous studies have shown that a verb expressing motion can form a compound with a verb expressing direction [12, 13], such as “bia-fe” (‘come across’).

According to our data, the relationship between directional SVCs and verb compounds is complicated. Some compounds consisting of directional verbs such as “gba-ga” (‘run go’) and “gba-pu” (‘run exit’) can be decomposed into SVCs, as in (29) and (30). In those SVCs, the first verb can have an optional cognate object after it.

- (29) ó gbà-ìà (ósó) gá-á áhīā  
3SG run-rV race go-OVS market  
'He ran to the market.'

- (30) ó gbà-ìà (ósó) pò-ó nà-èzí úlò  
3SG run-rV race exit-OVS outside house  
'He ran outside a house.'

Other compounds require decomposed SVCs with a different word form. For instance, when “ga-ba” (‘walk enter’) is expressed by an SVC, the second verb needs to be changed to “bapè”, as in (31).

- (31) ó gà-ìà (ídžè) bápè ná-ímé úlò  
3SG walk-rV walk enter inside house  
'He walked into a house.'

Further, there are directional compounds with hardly acceptable SVC counterparts, such as “ga-fe” (‘go across’) shown below.

- (32) ó gā-fè-ìè úlò  
3SG go-cross-rV house  
'He went past a house.'

- (33) ??ó ga-ìà (ídžè) fè-e úlò  
3SG walk-rV walk cross-OVS house

Manner SVCs pattern with directional SVCs in having an optional cognate object after the first verb, but different from directional SVCs, they have no compound forms. For example, the two verbs in (34) cannot be incorporated into



“k<sup>w</sup>o-ge”.

- (34) ́ k<sup>w</sup>ò (ótó) é-gè égwū  
3SG stand stand ?-listen music  
'He is standing listening to music.'

### 3.3. The Lack of Resultative SVCs

Aside from the SVCs discussed above, there is one type of SVCs occurring in other languages but absent from Igbo, namely, resultative SVCs. Amaechi (2013) considers the causative structure below as resultative SVCs [11]. However, according to the definition of SVCs, each component of an SVC must be able to occur on its own right, but when “mere” is used on its own, such as “ṭĩómá mè-rè ihé” (‘Chiomá did something’), the causative meaning disappears.

- (35) Adá mere dí ya aruọ ụlọ  
Ada cause husband 3SG build house  
'Ada made her husband build a house.'

Despite a lack of resultative SVCs, Igbo has resultative compounds, and those compound verbs can be decomposed into two sentences or coordination but not SVCs. We have two examples shown in (5) and (7) in section 2. (37) and (39) present two additional examples. In each case, there are two sentences expressing action and result respectively. The required subject in the second sentence shows that the SVC form is not allowed.

- (36) Àd át ìw à-ìà éfèré  
Ada strike-break-rV plate  
'Ada broke a plate.'
- (37) Adá ti-ìì éfèrè nà àlà, \*(ó) wā-ā  
Ada stike-rV plate on floor 3SG break-OVS  
'Ada struck a plate on the floor and it broke.'
- (38) ́ gbā-bà-ìà bóólò ná- íné ́k ́è  
3SG kick-enter-rV ball inside basket  
'He kicked a ball into a basket.'
- (39) ́ gbà-ìà bóólò, \*(ó) bàné ná- íné ́k ́è  
3SG kick-rV ball 3SG enter inside basket  
'He kicked a ball and it entered a basket.'

To sum up, in this section, we explored the derivational relationship between V-V compounds and SVCs by comparing their distribution for four types of SVCs. It turns out that manner SVCs and purpose SVCs do not have compound forms. Some directional SVCs and benefactive SVCs have compound counterparts, but their distribution is not systematically predictable. Also, there are compound verbs without an SVC counterpart, illustrated by the lack of resultative SVCs in Igbo. Those facts challenge the view that V-V compounds in Igbo are derived from SVCs through verb incorporation and further cast doubt on Collins' (1997) analysis.

The following section further demonstrates the incompatibility of Collins' (1997) analysis with SVCs in Igbo and proposes a double-headed structure based on the proposal by Baker (1989) and Hiraiwa & Bodomo (2008).

## 4. A Double-Headed Structure of SVCs in Igbo

### 4.1. The Incompatibility of a Control Structure

Collins (1997) analyzes SVCs as a control structure with a *pro* as in Figure 2 [10]. His arguments for the existence of a *pro* come from resultative SVCs in Ewe. For instance, the resultative in (40) allows an optional postposition “yi”, which is a oblique/default case assigner in Ewe. The existence of “yi” shows that there is an empty category assigned case in (40). Collins thus proposes a control structure for SVCs where a *pro* coindexed with the matrix object.

- (40) Me nya ɖevi-ɛ dzo (yi)  
1SG chase child-DEF leave P  
'I chased the child away.'

However, the lack of resultative SVCs in Igbo poses a challenge to Collins' analysis. As is reported by Collins (1997), the case assigner “yi” is allowed in resultatives but not other SVCs with direct object sharing, such as (41). Therefore, there is a lack of evidence for the existence of empty category in Igbo SVCs

- (41) Wo ɖa fufu ɖu (\*yi)  
3PL cook fufu eat  
'They cooked fufu and ate it.'

Moreover, section 3 has established that the distribution of V-V compounds and SVCs would be unpredictable assuming the verb incorporation hypothesis, further invalidating Collins' proposal. Furthermore, constituency tests provide additional arguments against a control structure for SVCs. As in (42), the object of the first verb cannot form a constituent with the second verbal phrase in a coordination structure, contrary to Collins' prediction with the structure in Figure 2.

- (42) \*ṭĩómá ɖ̣ĩ ńmà gbú-ó ́kókò mà ósísí kó-ó àdā  
Chiomá use knife kill-? chicken and stick hit-? Ada  
Intended: 'Chiomá used a knife to kill a chicken and a stick to hit Ada.'

On the other hand, we will see in section 4.2 that a double-headed structure can naturally account for the syntactic and semantic properties of SVCs.

### 4.2. Endocentricity and Double-Headedness in Igbo SVCs

Ebere & Agbo (2021) studies the semantic relationship of V-V compounds and claims that compound verbs in Igbo are semantically endocentric such that compounding verbal lexemes are of unequal semantic degree [15]. Either the first or the second lexeme can be the semantic head, and the other is the modifier.

Since some V-V compounds can be decomposed into SVCs, the endocentric relation is also reflected between two verbs of an SVC. For instance, in the directional SVC in (29), repeated in (43), the first verb signals a manner of motion and serves as

a semantic modifier of the second verbal phrase. One piece of evidence is that the meaning of (43) is mainly encoded by the second verb as the manner of motion can be an implicit argument shown in (44). Another piece of evidence is that the cognate object of the first verb can be optional to make it phonologically lighter, which is in contrast with an intransitive verb used alone, (43) vs. (45).

(43) ó gbà-ìà (ósó) gá-á áhĩā  
3SG run-rV race go-OVS market  
'He ran to the market.'

(44) ó gá-ìà áhĩā  
3SG go-rV market  
'He went to the market.'

(45) ó gbà-ìà \*(ósó)  
3SG run-rV race  
'He ran.'

Also, there are V-V compounds with head-modifier relation that can be decomposed into SVCs, such as benefactive SVCs in (21), repeated in (46). Here, the second verb is semantically dependent as it introduces a benefactive of the first verb. Moreover, the shared object can only occur after the first verb as shown in (47), indicating that the first verb is the semantic head of benefactive SVCs.

(16) ó zò-ìò ákwók'wó jé ñ  
3SG buy-rV book give 1SG  
'He bought a book and gave it to me.'

(47) \*ó zò-ìò jé ñ ákwók'wó  
3SG buy-rV give 1SG book  
'He bought a book and gave it to me.'

We observe that for other types of SVCs in Igbo, the two verbs are also not semantically equivalent. They either form a head-modifier or modifier-head relation. Manner SVCs, e.g., (48) and instrumental SVCs, e.g., (49) pattern with directional SVCs in that the first verb can be phonologically lighter (without inflection) and semantically dependent.

(48) ó k'wò (ótó) é-gè égwū  
3SG stand stand ?-listen music  
'He is standing listening to music.'

(49) ó d'zì ñmà gbú-ó òkòkò  
3SG use knife kill-OVS chicken  
'He used a knife to kill a chicken.'

Purpose SVCs, e.g., (50), on the other hand, pattern with benefactive SVCs in that the shared object only occurs after the first verb.

(50) Àdà sì-ìì òkòkò íí-é  
Ada cook-rV chicken eat-OVS  
'Ada cooked a chicken and ate it.'

We show that the endocentric property of Igbo SVCs comes naturally from a double-headed structure by Baker (1989). In his analysis, both verbs are syntactically independent of each other. Thus, either of them can be a potential semantic head. Therefore, we propose a double-headed symmetric structure for SVCs in Igbo. For modifier-head SVCs, as (48), we have a structure in Figure 4, where two verbs have their own arguments and both project to the higher

V'.

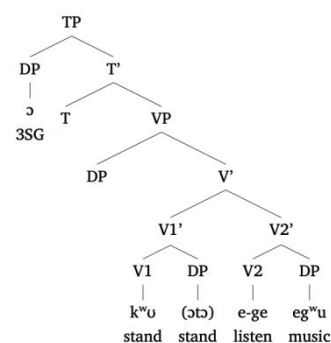


Figure 4. The tree structure of (48).

For head-modifier SVCs with shared arguments, as in (50), the two verbs constitute a multi-dominance structure, as in Figure 5. The theme theta-role is assigned to the shared object by both verbs. And we assume, following Hiraiwa & Bodomo (2008), that the symmetric structure changed to an asymmetric structure through verb movement and object shift before Spell-Out for linearization [9].

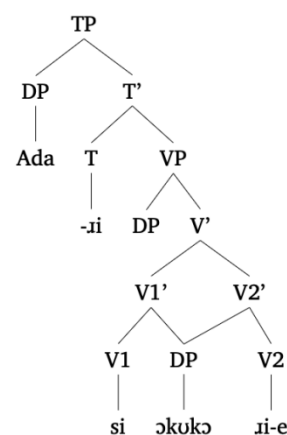


Figure 5. The tree structure of (50).

## 5. Conclusion

In this paper, we studied the syntactic structure and semantic relationship between two verbs of SVCs in Igbo. First, we disentangled the confound between SVCs and covert coordination and demonstrated that both V-V compounds and SVCs exist in Igbo. In addition, The comparison between the distribution of V-V compounds and SVCs does not support a derivational relationship and challenged the hypothesis of verb incorporation. Further, the lack of resultatives invalidated the existence of a *pro*. In contrast, we demonstrated that the endocentric property of SVCs in Igbo come naturally from a double-headed structure. Thus, our novel data from Igbo SVCs provide support for double-headedness building on

Baker (1989) and Hiraiwa & Bodomo (2008) but argue against a control structure by Collins (1997).

## Abbreviations

SVC Serial Verb Construction  
V-V Verb-Verb

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The data supporting the outcome of this research work has been reported in this manuscript.

## Conflicts of Interest

The author declares no conflicts of interest.

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## Biography



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## Research Field

**Jing Ji:** Syntax, semantics, computational linguistics, prosody, field work