

Elicitation Manual and Questionnaire for Serial-Verb Constructions

Description:

This SVC-manual plus questionnaire provides a basis for the investigation of serial verb constructions cross-linguistically. Its aim is to test constructions at the syntax-semantics interface. Serial Verb Constructions (SVCs) are a recurring feature of many West African languages from the Kwa, Benue-Congo, and Grassfield Bantu families. SVCs are also found in languages from other parts of Africa and across the world. See, e.g., Collins (2002) on Khoisan; Jansen, Koopman and Muysken (1978) and Baker (1989) on Atlantic Creoles; Li and Thompson (1973), Bisang (1992), and Cole (2016) on East and Southeast Asian languages; Crowley (2002) and Hopperdietzel (2020) on Papuan and Austronesian languages; and Aikhenvald and Dixon (2006) on American languages.

Statement of Purpose

The purpose of this manual is to give a comprehensive guide to the elicitation of serial verb constructions for languages that exhibit these structures. It will help to establish preliminary information whilst providing the relevant background to understand and evaluate the elicited tests. Furthermore, the different sections are designed to divide the task at hand into smaller steps, taking the time to explain the procedure, purpose and possible pitfalls for each of the sections. Ideally, the result is an extensive overview of the syntactic and semantic structures of serial verb constructions in the language of choice.¹

Content:

The questionnaire consists of a theoretical background, an elicitation part, and a discussion of the results of the elicitations. The background provides the theoretical basis on which the tests are developed. The elicitations section is itself divided into two parts: Part 1 takes care of the structural preliminaries necessary for all further elicitations. Part 2 targets serial verb constructions as a phenomenon. Both parts consist of several elicitation sets that explain the purpose and procedure in detail. Additionally, smaller summaries are provided in the sets/parts with instructions on how the results can be evaluated. The last section briefly provides a compact discussion of the sections, tying together the theory with the purposes, and explains what the elicitation Tests can signify and how its meaning can be extracted.



¹This work has been funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation)
– Project-ID 317633480 – SFB 1287.

How to use the questionnaire:

The questionnaire is designed to be used by the collector and not the informant. Each set contains sentences that target a certain language phenomenon. These are explained in detail for each set. Each sentence is preceded by a context that should be read or communicated to the informant before eliciting the phrase itself. An example is illustrated in (1):

Context: Akosua cooks chicken soup.

(1) She eats it immediately.

Annotate your Tests here.

Comment:

This field is for comments and observations.

Semantic fieldwork consists of elicitations preceded by a context. For guidelines on semantic fieldwork, we direct the user to (Matthewson 2004).

The annotation box:

The box to notate the phrase in the target language. A common annotation structure is Leipzig Glossing rules - each word and meaning-bearing morpheme is tagged with the respective meaning. A third line is usually used for the literal translation. For a guide on the LGR see the link below.

A guide to the Leipzig Glossing Rules:

https://wikis.hu-berlin.de/interlinear_glossing/Glossing_Rules

EXAMPLE GLOSS

Context: Akosua cooks chicken soup.

(1) She eats it immediately.

ɔ-di-i no foforo
3SG-eat-PAST 3SG.OBJ fresh

The comment box:

The comment box serves the purpose of recording any observations, difficulties, or special remarks about the Tests. Also comments from the informant as well as alternatives for the sentences can be worth to take stock of using this box.

Theoretical Background

Serial Verb Constructions (SVCs) are monoclausal constructions that contain at least two (in)transitive verbs. They denote either complex events or a series of events. The verbs are juxtaposed without an overt linker and no predicate-argument relation between the verbs (Haspelmath 2016). A construction means that the meaning of the entire series of verbs is productively derived in a compositional fashion. This compositionality of SVCs and the absence of a predicate-argument relation between the verbs plays an important role in the analysis of SVCs.

A specific list of surface-diagnostics for SVCs is illustrated in (2). In addition to the elements of monoclausality and the lack of an overt linking element these are important ingredients for the categorization of SVCs.

(2) Necessary conditions on SVCs from (Veenstra & Muysken 2017):

- Monoclausal structure
- Only one grammatical subject;
- At most one shared grammatical object;
- Only one specification for tense/aspect often on V1; sometimes on both verbs, but agreeing in the specification; sometimes only on V2;
- Only one NEG;
- No intervening coordinating conjunction (no overt linking element).

According to them, a syntactic construction containing a series of verbal expressions qualifies as an SVC if it satisfies the set of necessary criteria in (2). In particular, the absence of an overt coordinating conjunction like ‘and’, is what makes a construction a likely SVC-candidate.

Amongst these criteria, argument-sharing is cross-linguistically the clearest indicator to determine the underlying structure. Transitive verbs in SVCs can share their object, see the examples from a few West African languages in (3). In Akan, for instance, the direct object *àkókɔ́ nó* ‘the chicken’ is realized only once, between the two verbs V1 and V2, but it is interpreted as the object of both verbs (as indicated by the use of the pronoun *it* in the English translation after V2). The same holds for the other examples (with the shared object in bold).

(3) **Object-sharing SVCs:**

- a. *Kweku kù-ù₁ àkókɔ́ nó nòá-àyɛ̀₂*
Kweku kill-PST chicken DEF cook-PST
‘Kweku killed the chicken and cooked **it**.’ *Akan, (Zimmermann & Duah 2023)*
- b. *ò dà sɛ́₁ lá nɛ́nè òò₂*
3SG PST roast F meat eat
‘He roasted meat and ate **it**.’ *Dàgáárè, (Hiraiwa & Bodomo 2008)*
- c. *Úchè gbù-rù₁ òkúkò sí-é₂*
Uche kill-rV chicken cook-SFX
‘Uche killed the chicken and cooked **it**.’ *Igbo, (Zimmermann & Amaechi 2023)*
- d. *Wo dā₁ fufu dū₂*
they cook fufu eat
‘They cooked fufu and ate **it**.’ *Ewe, (Collins 1997)*

Previous literature postulates several ways of distinguishing and categorizing SVCs on the basis of syntactic surface structure (4) (Veenstra & Muysken 2017).

(4) **SVC subtypes**

- Cook OBJ eat all - MULTI-EVENT SVC
- buy OBJ kill cook - SEQUENTIAL SVC
- hold OBJ cut OBJ - INSTRUMENTAL
- buy OBJ give OBJ - RECIPIENT/DATIVE
- carry OBJ go OBJ/place - DIRECTIONAL/GOAL
- hit break OBJ - RESULTATIVE (tr OBJ intr)
- use OBJ come - MANNER
- do OBJ laugh - CAUSATIVE
- V exceed - COMPARATIVE

From the surface structure however, it is not evident what the conditions are for object realization and object-sharing in SVCs. Take the examples in (5) and (6) from Akan:

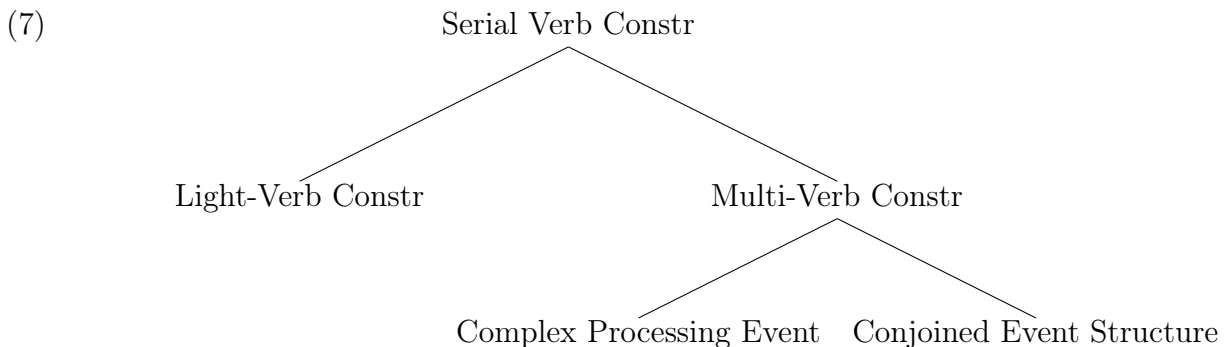
- (5) *Kweku kù-ù₁ àkókó nó nòá-à₂ báýèrè nó*
 Kweku kill-PST chicken DEF cook-PST yam DEF
 ‘Kweku killed the chicken and cooked the yam.’

- (6) *Kweku nòá-àýè₁ dí-éé₂*
 Kweku cook-PST eat-PST
 ‘Kweku cooked and ate it.’

Akan

Despite both (5) and (6) denoting parallel structures with transitive verbs, the objects are realized differently. Either each transitive verb has an object slot or both verbs have one. What we learn from taking the different types of classifications and investigating the underlying semantic structure is that the differences in SVC structures prevail only on the functional surface. The argument-structure is not obvious from surface syntax but instead first revealed at the semantic event structure level. A categorization based on functional surface characteristics is therefore not be fruitful. Semantically, SVCs bundle two or more sub-events into a single event, what (P. Pietroski 2005; P. M. Pietroski 2000) and Williams (2015a) call a macro-event (see also (Bohnenmeyer et al. 2007; Bohnemeyer & Van Valin Jr 2017)). The constituent events can be loosely linked — as in simple propositional conjunction — or tightly integrated, sharing a time–place frame, a common agentive intention, or identical thematic roles (Williams 2015a).

So-called **light verb constructions** (Aboh, 2009) make use of a verb series where the initial verb is of a functional nature, usually having no meaning on its own, consisting of a single event. On the other hand, in multi-verb construction all verbs in the series are also independent verbs. Figure in (7) illustrates this structure. Cross-linguistically, non-initial verbs often show reduced inflection (Haspelmath 2016; Veenstra & Muysken 2017).



Multi-verb constructions further distinguish between verbs that each individuate a semantic event, and those that together describe a complex event. The question is whether the SVC implements a multi-event construction where the object is present twice and shared on the surface or it is a true shared object of both verbs. In surface-sharing an object slot is present covertly for each verb. For true-sharing, a single conjoined event has one (covert) object shared by the verbs. This yields an event-structural distinction as in (8). The distinction between surface-sharing and true-sharing is summarized distinctly below.

- (8) a. [V1 OBJ]_{event 1} [V2 OBJ]_{event 2} \Rightarrow *surface-sharing argument-structure*
 b. [V1 OBJ V2]_{event 1} \Rightarrow *true-sharing argument structure*

a) Surface-sharing: This postulates a (separate) underlying object for each lexical verb. If the objects of non-initial verbs (V2, V3 ...) are pronouns co-referring with the NP-object of the initial verb V1, the impression of a single surface-shared object arises because these pronouns are silent (often: *pro*-dropped).

b) True-sharing: There is only one underlying object that is simultaneously linked to all verbs in the SVC. This construction often includes verb combinations that are a mixture of intransitive and transitive verbs.

Light-Verb constructions and **complex processing events** make use of a true-sharing argument structure, only one event takes place and only one object is present for both verbs. This is a case of V-stacking:

V-stacking \Rightarrow lexical causatives, resultatives , n-conjunction with OBJ-sharing

A complex event with sub-event structure with ONLY 1 agent, 1 theme: true OBJ-sharing

Multi-verb constructions are more likely to incorporate a surface-sharing structure. These furthermore divide into a conjunction of two vP/AspP or two VPs. On the surface these may appear the same. Semantically, a distinction is made out between two events that are existentially closed off or a cumulation of events.

The vP/AffP-conjunction \Rightarrow \exists e-conjunction

A conjunction of two existentially closed propositions expressing independent events that consist of 2 events, 2 agents, 2 themes

VP-conjunction \Rightarrow e-cumulation

This describes a plurality of 2 independent sub-events consisting of 2 events, 1 agent, 2 themes.

Part 1: Structural Preliminaries

Certain preliminaries have to be established before turning to the underlying object-structure of serial verb constructions. These concern the option of pro-drop. Pro-drop, that is whether a language has a covert pronoun in object position. See (9) for an example from Akan (\emptyset stands for a dropped pronoun). It is important to set up a context in which the object is given. This allows a pronominalization of the shared object and hence, an investigation of pronoun treatment in a language.

- | | |
|---|---|
| (9) Non-human object antecedent: | (10) Human object antecedent: |
| a. <i>Me hu-u adaka no</i>
1SG see-PST box DEF
'I saw the box.' | a. <i>Me hu-u Kofi</i> (Saah 1994)
1SG see-PST Kofi
'I saw Kofi.' |
| b. <i>Me hu-u *no / ✓\emptyset</i>
1SG see-PST 3sg
'I saw it (= the box).' | b. <i>Me hu-u ✓no / *\emptyset</i>
1SG see-PST 3sg
'I saw him (= Kofi).' |

(9) shows a difference in the explicit expression of the 3rd person singular object. The pronoun *no* 'it' can be dropped when it appears in the object position of a transitive verb. The assumption is that the transitive verbs still have an object-argument slot that is occupied by the covert pronoun. Under certain conditions this pronoun can be forced to be overt, revealing the underlying event-structure of the clause.

It has been observed already in the 19th century (Christaller 1875/1964; Riis 1854) that there is an animacy condition on pro-drop (see also (Korsah 2017; Osam 1996)): inanimate 3rd person object pronouns (referring to non-humans) are obligatorily dropped, while animate 3rd person object pronouns (referring to humans) must be overt. Animate pronouns in Akan are by default overt, see (10). And while inanimacy is a necessary condition for the drop of object pronouns in Akan, it is not a sufficient one. The structural environment also plays a role. In Akan, three contexts force dropped object pronouns to become overt (A-C).

- (A) followed by a (low) clause-final adverb (Saah 1994)
- (B) the argument of a secondary predicate (Korsah 2017)
- (C) selected by a change-of-state predicate (Osam 1996)

The subsequent diagnostics in Part 1 determine whether a language has pro-drop. Given the circumstance that the language under question is not a pro-drop language, not all the following diagnostics are sensibly applicable. For example, should the first set 'Diagnostics for Pro-drop' reveal that object-pronouns in the language by default are overt, then skip the next sets and proceed directly to Part 2.

Set 1: Diagnostics for Pro-drop

The following sets aim to determine if a language has pro-drop and under which conditions pro-drop is blocked. For cross-linguistic comparison of the object pro-drop property, we will make use of cross-linguistically common transitive verbs (11).

(11) Verbs: *cook, eat, see, read, buy, hold*

The following sets first determine the existence of pro-drop (set 1) and subsequently control for pro-drop by setting up conditions that block pro-drop.

Tests

Context: On Saturday morning Kofi goes to the market to get a chicken that he wants to prepare for dinner. After some minutes he finds a suitable one.

(12) Kofi sees it. Comment:

(13) He buys it.

(14) He cooks it.

(15) He eats it.

Context: At the end of the day the teacher hands out the homework. She tells the children that it is due the next day.

(16) The teacher holds it (in her hand). Comment:

(17) Ama reads it.

Context: The homework is easy and Ama starts doing it right away.

(18) She writes it.

Comment:

Animacy

Context: The next day Ama arrives early at school. She looks for her teacher to give her the homework.

(19) Ama sees her.

Comment:

Context: Kofi's little baby brother has been crying all day. He tried to comfort him.

(20) Kofi held him.

Comment:

Tests summary

Should the Tests points yield a structure that show pro-drop in the language, meaning that the object pronoun *it* is not overt in these (all or some) sentences, proceed to the next section. It is possible, that a difference arises between the dropping of animate and inanimate pronouns. Inanimate pronoun (in Akan) are more likely to be covert, contrary to animate 3rd person animate pronouns which are usually overt.

Set 2: Change-of-state verbs

Now we consider the effect of change-of-state (COS) verbs with a shared non-human object. We will set up a context for these examples in which the object is given. This allows us to pronominalize the shared object and hence, to investigate the interaction between verb class (CoS or not CoS) on (potential) object pro-drop.

In some African languages, change-of-state verbs block pro-drop (force overt expression of *it*) in languages like Akan and Ga (21) (Korsah 2017).

- (21) a. *Kofi na (*le).*
Kofi see it
'Kofi saw it.'
b. *Kofi ku *(le)* (Korsah 2017)
Kofi break it
'Kofi broke it.'

We can use this condition to see how CoS-verbs behave in combination with pronominalized objects. Verbs like "Break, tear, melt, straighten, bend, burst, destroy, wet, lose, split, scatter, burn, make hole (inside)" are examples of typical change-of-state verbs (Korsah 2023). We take a subset of these for testing.

non-change-of-state	change-of-state
cook	straighten/flatten
eat	break/tear
see	repair/make whole
read	wash(wet)
buy	bend
hold	lose

There is a possibility that the conditions for change-of-state vary in other languages, and what is considered a change-of-state verb in one language might not fulfill these criteria in another. To determine if a verb is CoS, one can test for their stativity and telicity.

Change-of-state diagnostics

Change-of-state verbs modify the result. They cause a result to happen, instead of modifying the event.

Points of Adjustment:

1. Modifying the event

'...all night long'-test

Context: Ama lost her key chain last weekend.

- (22) a. Ama **lost** it all night long. \Rightarrow should be unacceptable if *lost* is a CoS-verb.
b. After finding it again, Ama **held** it all night long. \Rightarrow **hold** is not a CoS-verb and acceptable with the modification

'...again'-test

Context: Outside of Kweku's house grows a big apple tree. For the first time Kweku goes to climb in it.

- (23) a. Kweku **breaks** the branch again. \Rightarrow Unacceptable if the branch has never been broken before.

2. Free choice of instrumental PP

Change-of-state verbs can usually freely pick the instrument that was used to achieve the result state. Contrast (24) with *'kill'* and *'break'* with the non-change-of-state verbs in (25):

- (24) a. Kwaku **killed** the bug with a towel/ paper/ finger.
b. He **broke** the chair with a stone/ finger/ look.
- (25) a. Kwaku **ate** the food with a towel/ look/ finger ⇒ only partially possible
b. He **cooked** the food with a towel/ paper/ stone ⇒ common sense says: not possible

3. Modification of context and *'for/in'*-test

'for/in'-test: Change-of-state verbs typically don't do well with temporal extensions. Contrast (a) and (b) in (26).

- (26) a. Kwame **lost** the book for 5 hours.
b. He **read** the book for 5 hours/ in 2 days. ⇒ Acceptable

In testing for the telicity of verb, it is important to beware of any modification that happens in the context. It is possible to modify the context in such a way that even a change-of-state verb is acceptable in a temporally extended situation. Take (27) as an example. *Break* is acceptable in both contexts, despite being a change-of-state verb.

- (27) Context: Akosua wants to reuse the wood of an old chair and breaks the chair into smaller pieces. However, the chair is really sturdy and it takes her a lot of effort and time to break it. She even had to come back the next day to finish breaking the chair.
- a. Akosua **broke** the chair for 3 hours. ⇒ Acceptable!
b. She **broke** it in 2 days. ⇒ Acceptable!

By manipulating the context a change-of-state condition can be achieved for non-change-of-state verbs, as (28) show:

- (28) Context: Akwada is a very skilled smith. She can repair, mend, and fix anything in a short time. A customer brought her a car part that had gotten a dent in an accident. Akwada took it and hammered it flat with one strike.
- a. Akwada **hammered** it.

Tests

Context: Ama goes to school in town. She enters the classroom on Monday morning and sits down in her chair. The chair is old and breaks under her weight.

- (29) Ama broke it. Comment:

Context: Ama prepares her clothes in order to be washed. She soaks the pile in a tub.

- (30) She wets it. Comment:

- (31) She dries it.

Context: Ama notices that her favourite dress has gotten a hole on one side. She lays the dress out on her bed and removes all wrinkles. She repairs the hole with a quick stitching.

- (32) She straightens it. Comment:

- (33) She repairs it.

Set 3: Clause-final Adverbs

Manner adverb like *quickly, slowly, lightly, hardly* are clause-final adverbs that are realized low in the syntactic structure. This means that they modify the event denoted by the verb, including its complement. It is important to take verbs that exclusively appear in a low position (clause-final) to test for pro-drop. Some adverbs like temporal adverbs *yesterday, today, earlier* can also surface clause-initially in which case they modify the whole phrase.

In Akan the addition of a low manner adverb blocks pro-drop and forces the inanimate pronoun to surface (34).

- (34) Akosua di **no** *ntem*.
Akosua eat **it** *quickly*
'Akosua eats **it** quickly.'

We use this diagnostic to test the pro-drop conditions in the language, for general pro-drop and for the change-of-state condition.

Tests

Context: On Saturday morning Kofi goes to the market to get a chicken that he wants to prepare for dinner. After some minutes he finds a suitable one.

- (35) Kofi sees it immediately. Comment:

- (36) He buys it quickly.

- (37) He cooks it quickly.

- (38) He eats it slowly.

Context: At the end of the day the teacher hands out the homework. She tells the children that it is due the next day.

(39) The teacher holds it (in her hand) Comment:
after class.

(40) Ama reads it thoroughly (alt.
quickly).

Context: The homework is easy and Ama starts doing it right away.

(41) She writes it today. Comment:

Set 4: Followed by Secondary Predicates

Secondary predicates modify the object of the verb. In English, the secondary predicate is realized by a non-verbal predicate, e.g. by an adjective (Larson 1998).

- (42) a. Peter hammered the metal **flat**.
b. Mary pushed the door **open**.
c. The child wiped the table **clean**.

Secondary predicates function similarly to manner adverbs. By modifying the object that is the internal argument of the verb, they can force over expression of the 3SG object pronoun.

Tests

Context: On Saturday morning Kofi goes to the market to get a chicken that he wants to prepare for dinner. After some minutes he finds a suitable one.

(43) Kofi sees it alive. Comment:

(44) He buys it fresh.

(45) He cooks it raw.

(46) He eats it hot.

Context: Ama notices that her favourite dress has gotten a hole on one side. She repairs the hole with a quick stitching and washes the dress afterwards.

(47) She washes it clean. Comment:

(48) Ama stitches it whole.

Context: Akwada is a very skilled smith. She can repair, mend, and fix anything in a short time. A customer brought her a car part that had gotten a dent in an accident.

(49) She hammers it flat. Comment:

Results:

The purpose of Part 1 Set 1-4 is to test the conditions in which pro-drop is blocked. These conditions are different in several languages, therefore making it important to create a bigger foundation to base an analysis on. In general, the conditions that block pro-drop include:

- Clause-final adverbs
- Secondary predicates
- Object of change-of-state verbs

If any conditions forces the covert pronoun to emerge and become overt, it has successfully blocked pro-drop in the language. These conditions might vary in different languages. The conditions that show successful pro-drop are good candidates to investigate the underlying event-structure of serial verb constructions in Part 2.

Part 2: Serial-Verb-Constructions

The purpose of this part is to test SVCs with respect to various semantic and syntactic properties. Specifically, it examines:

1. The underlying argument-structure, controlling for pro-drop.
2. The underlying event-structure and how these are linked (cumulation, conjunction, subordination)

Before turning to the sections on semantic and syntactic diagnostic, it is important to establish how serial verb constructions behave in the language. Taking the verbs from part 1, we apply a **change-of-state paradigm** to test SVC behaviour whilst controlling for possible pro-drop with change-of-verbs. This allows the investigation of the interaction between verb class (CoS or not CoS) on (potential) object pro-drop for all the verbs in the SVC.

(50)	Paradigm:	V ₁	V ₂
		V ₁	CoS-V ₂
		CoS-V ₁	V ₂
		CoS-V ₁	CoS-V ₂

By varying the position of the CoS-verb as in (50), it is possible to see if an overt pronoun must appear after any CoS-verb regardless of whether it is the initial verb (V1) or the non-initial verb (V2). Simultaneously, even if CoS-verbs are not a condition that blocks pro-drop in the language under discussion, it illustrates how serial verb constructions in general are formed.

It is likely, that a language employs more than one kind of serial verb construction. See an example from Igbo in (51). The purpose of the last set is to determine if the language also has so-called light verb constructions or idiomatic constructions.

Tests

Context: Kweku prepares dinner for himself and his brother. He bought chicken meat for this purpose.

(51) Kweku flattens and cooks it. Comment:

Context: Kweku prepares the rice for the dinner.

(52) He cleans and cooks it. Comment:

Context: Ama is making salad for dinner. The salad leaves are very big.

(53) She tears and washes it/ them. Comment:

Context: When Ama came to school on Monday, she sat down on a chair that had a broken leg.

(54) Ama bent and broke it. Comment:

Context: Kwame prepared dinner for himself.

(55) He cooks and eats it. Comment:

Context: Ama's friend from school has written her a letter. It arrived early in the morning.

(56) Ama sees and reads it. Comment:

Context: Ama wants to write a reply to her friend. But she is not satisfied with her first draft.

(57) She writes and tears it. Comment:

Context: Ama bought a beautiful flower in the morning. Unfortunately, the pot has left a dirt stain on the floor.

(58) Ama sees and cleans it. Comment:

Tests summary:

Interpreting the paradigm:

If only one of the verbs is CoS, we get (the impression of) object sharing because there is only a single visible object pronoun. Crucially, if both verbs are CoS, each verb could be followed by an overt pronoun. When none of the verbs in an SVC is CoS and the object was previously mentioned in the context (and can thus be taken up by a pronoun), none of the verbs may have an (overt) object.

Set 1: Semantic diagnostics

This section examines how sequences of two or more verbal predicates encode events. In well-studied languages like English, such sequences usually pair a finite verb with a non-finite or gerund form (Truswell 2007, 2011). Many non-Indo-European languages, however, rely on serial verb constructions (SVCs) instead.

The purpose is to test SVCs with respect to semantic properties. Specifically, to distinguish between the following event formations:

- 1. V-stacking** => lexical causatives, resultatives, n-conjunction with OBJ-sharing
A complex event with sub-event structure with ONLY 1 agent, 1 theme: true OBJ-sharing
- 2. The vP/AffP-conjunction** => \exists e-conjunction
A conjunction of two existentially closed propositions expressing independent events that consist of 2 events, 2 agents, 2 themes
- 3. VP-conjunction** => e-cumulation
This describes a plurality of 2 independent sub-events consisting of 2 events, 1 agent, 2 themes.

\exists e-conjunction refers to the expression of two fully separate events as parts of two independent propositions, each of which is existentially closed off at the event level (\exists e). Since each proposition comes with its own agent (in the case of agentive transitive verbs), \exists e-conjunction involves the same agent twice and two separate events as part of the individual propositions. The semantics diagnostics target the underlying event-structure. E-cumulation refers to the formation of plural events under sum-formation at the VP-level. The possibility of cumulation over events is extensively discussed in (Kratzer 2003, 2007). E-cumulation refers to the unconstrained formation of semantic pluralities from any two (or more) individual atomic events; see also Williams (2009:691) on the notion of independent cumulativity. The individual events e1 and e2 are specified by P1 and P2, respectively, and they do not stand in direct relation to one another. Since subjects are merged at the higher vP-level, e-cumulation only features a single (possibly plural) agent for the entire cumulated event plurality.

Three central diagnostics are applied to distinguish between (1-3).

- (A) Adverb/ Predicate asymmetries
- (B) A-Quantification
- (C) Free Agent Cumulativity

Diagnostic (A) and (B) are only consistent with an underlying structure that incorporates two separate events. They show either two covertly coordinated conjuncts (ergo two events), or without covert coordination, a complex event. This corresponds to an \exists -conjunction condition where two independent events are existentially closed off, and incorporates 2 events, 2 agents, and 2 themes.

Diagnostic (C) is only applicable if both sub-events can be totally independent of the other in terms of space and time, causal relations, and thematic arguments and corresponds to a e-cumulation, where the event incorporates 2 events, 1 agent, and 2 themes.

1.1 Adverbs and Secondary Predicate Asymmetries

The diagnostic employs contrary manner adverbs (Goldschmidt 2018; Hovav & Levin 2001; Williams 2015), such as *hard-lightly* and *quickly-slowly*, which specify an event along the same semantic dimension, but in opposite directions. Specifically, the diagnostic tests for whether the meanings of V1 and V2 in an SVC can be modified independently by such contrary manner adverbs, which are generated low inside the VP. We expect that semantically independent sub-events will tolerate modification with contrary adverbs, as each of the adverbs modifies its independent event, as shown in (59).

- (59) *Kwékù kù-ù àkókó nòí òtém só nòá-à nòí/ nòá-àyè Ø_i òkàkrákàkrá*
 Kwékù kill-PST chicken DEF quickly TOP cook-PST 3SG cook-PST slowly
 ‘Kwékù killed a chicken quickly and cooked it slowly.’

Three distinct adverb categories can be used for testing.

- Adverb positioning
- Contrary adverbs
- Secondary predicates

Variable adverb placements, contrary adverbs, and asymmetric secondary predicates are only consistent with *exists*-conjunction. They are only possible if the underlying structure incorporates two separate events that are covertly coordinated. The placement of adverbs or secondary predicates as in (60) that essentially block pro-drop reveals if two objects are present in the structure or not.

Context: Yesterday, Kófi bought meat at the market.

- (60) *Kófi* *nòá-à* 1 *nó sáá* *dì-ì* 2 *nó hỳèhỳèhỳè*
 Kófi cook-PST 3SG fresh eat-PST 3SG hot
 ‘Kófi cooked it fresh and ate it hot.’
- (61) *Kófi* *nòá-à* 1 *nó sáá* *dì-èè* 2 Ø
 Kófi cook-PST 3SG fresh eat-PST
 ‘Kófi cooked it fresh and ate it.’
- (62) *Kófi* *nòá-àè* 1 Ø *dì-ì* 2 *nó sáá*
 Kófi cook-PST eat-PST 3SG fresh
 ‘Kófi cooked it and ate it fresh.’
- (63) *Kófi* *nòá-àè* 1 Ø *dì-ìè* 2 Ø
 Kófi cook-PST eat-PST
 ‘Kófi cooked it and ate it.’

Note that not just any clause-final element that follows the inanimate pronoun can block pro-drop. The choice of adverbs should be given special importance. Manner adverbs and temporary adverbs build the base for testing this condition. And adverbs that can occur either in clause-final or in clause-initial position, such as temporal adverbs, do not block pro-drop when they surface clause-initially.

Tests

Context: Kweku prepares dinner for himself. He purchased a chicken for this purpose.

(64) He cooked it quickly and ate it. Comment:

(65) He cooked it and ate it quickly.

(66) Kweku cooked it quickly and ate it slowly.

(67) Kweku purchased it yesterday and cooked it in the morning.

(68) He pounded the meat flat and fried it raw. Comment:

(69) He cooked it fresh and ate it hot.

Context: The next morning Kweku ate the left over food of the dinner.

(70) He served it raw and ate it cold. Comment:

Context: Ama has received a letter from her friend abroad. She reads the letter and want to write a reply to her.

(71) She sees it after school and reads it in the evening. Comment:

(72) She wrote it today and sent it the next day.

(73) She writes it slowly and sends it quickly.

(74) Ama wrote it hastily and sent it.

1.2 A-quantification

A-quantifiers (*always, often, sometimes...*) map event predicates ($\langle v, t \rangle$) to propositions ($\langle s, t \rangle$). This diagnostic tests for the possibility of A-quantifiers on V2. Since the A-quantifier binds the event argument in mapping the event predicate to a proposition, A-quantification over V2 will only be consistent with an underlying structure that incorporates two separate events and the adverb quantifies over the second verb/ event.

- (75) *Kwékù kù-ù₁ àkókó nò_i nòá-à₂ nò_i m̀pén p̀ì*
Kwékù kill-PST chicken DEF cook-PST 3SG time many
‘Kwékù killed the chicken and cooked it many times.’

Tests

Context: Kweku purchased a chicken to cook it for dinner.

- (76) Kweku always cooks the chicken and eats it sometimes. Comment:

- (77) He cooks the chicken and eats it sometimes.

Context: Ama wants to write a reply to her friend. But she is not satisfied with her first draft.

- (78) She wrote it twice and always tore it. Comment:

- (79) Ama often writes a letter and sends it sometimes.

1.3 Free agent cumulativity

Free cumulation is a property of plural semantic entities under unconstrained sum-formation. (80) illustrates free agent-cumulation over theme based sub-events in English. Crucially, the sentence is true in a situation in which Uche read *Half of a Yellow Sun* and Obi read *Sunset at Dawn*, where both sub-events can be totally independent of the other in terms of space and time, causal relations, and thematic arguments.² Or in another example (81) is if some of the ducks are flying and some of the ducks are swimming under free agent cumulation.

(80) Uche and Obi read *Half of a Yellow Sun* and *Sunset at Dawn*.

(81) The ducks are flying and swimming.

By the same token, free agent-cumulation over event pluralities should be possible in SVCs with the abstract structure in (82-a). If an unconstrained cumulative construal were possible, (80) a should be true in the situation in (82) under free agent-cumulation.

- (82) a. [Uche & Obi]_{PL} catch fish cook
b. [Uche caught the fish] and [Obi cooked it].

The explanation of what the data means is provided at the end of the section.

Tests

Context: Akosua and her sister will be cooking dinner for their family. Akosua bought the food and her sister cooked it.

- (83) Akosua and her sister bought and Comment:
cooked dinner..

Context: After dinner they both cleaned the table. Akosua washed the dishes and her sister dried them.

- (84) Akosua and her sister cleaned the Comment:
dishes (washed and dried them).

²Example from (Amaechi, Duah & Zimmermann 2023)

Results

On the basis of event structure diagnostics, OBJ-sharing SVCs involve multiple independent events, if the following is applicable:

- Two VPs can be modified by contrary adverbs
- They don't allow free agent cumulativity

Specifically, it indicates that this type of SVC results from (i) (covert) coordination of vPs (whose external arguments undergo ATB-movement to SpecT), and (ii) surface OBJ-sharing with the object pronoun of the non-initial VP being dropped. This diagnostic provides a positive criterion for the identification of e-cumulation and \exists e-conjunction, where two or more fully independent sub-events are combined in the form of event pluralities or expressed as part of two propositions.

These diagnostics distinguish between \exists e-conjunction, on the one hand, and e-cumulation and other more tightly integrating processes of event-formation, on the other. \exists e-conjunction is the only mechanism that tolerates saturated event arguments, as it applies at the level of propositions.

As e-cumulation is the only compositional process that involves plural formation from possibly unrelated atomic events, it should freely license cumulation of plural agents over the plurality of independent sub-events expressed by an SVC.

Since subjects are merged at the higher vP-level, e-cumulation only features a single (possibly plural) agent for the entire cumulated event plurality.

If neither \exists e-conjunction or e-cumulation are applicable, it is an indicator of a complex-event that incorporates 1 single event and 1 theme, where the object is shared (and only present once).

The paradigm provided with the change-of-state diagnostic supports a surface sharing approach to object-sharing in SVCs if each lexical verb has its own object. This does mean, that in all of them are necessarily pronounced, sometimes they remain silent (when the language-specific conditions for pro-drop are met). If all but one object remain silent, we get the impression of object-sharing on the surface.

Set 2: Syntactic diagnostics

The syntax of object-sharing SVCs has been studied extensively, especially in West African languages, see, e.g., (Déchaine 1993) on Yoruba and Igbo, (Campbell 1996) on Akan, (Aboh 2009) on Gungbe). There are two distinct syntactic diagnostic that can be applied to test for the underlying structure.

- Ideophone placement
- Second conjunct

Constituents like a verb and its object [V OBJ] have a syntactic boundary at its outer-right edge. The syntactic diagnostics aim to identify these syntactic boundaries. They can for example show whether a second pro-dropped object is present in the structure.

2.1 Ideophone placement

We also want to see how the serial verb construction in focus behave with the intermediary placement of ideophones. Ideophones are meaning-bearing units that like adverbs modify the constituent they follow. An ideophone is a member of the word class of words that depict sensory imagery or sensations, evoking ideas of action, sound, movement, color, or shape. The class of ideophones is the least common syntactic category cross-linguistically; it occurs mostly in African, Australian, and Amerindian languages.

- (85) *Adwoa* [_{VP} *kù-ù₁* *àkókó* *nó* / *wom* *nòá-à(yè)₂* (*nò_i*)] *Example from Akan*
Adwoa kill-PST chicken DEF **swiftly** cook-PST 3SG
'Adwoa killed the chicken swiftly and cooked it.'

Placing an ideophone inside or after verbs identifies syntactic constituents, as these are constituency sensitive operations that determine syntactic boundaries. The reason is that ideophones normally can be placed at the boundary of syntactic constituents, see (85) (squared brackets indicate the syntactic constituent).

Test

To test this diagnostic, determine if the language under discussion has ideophones. Place these ideophones at varying positions in the serial verb construction. Placement of an ideophone at varying positions in the SVC may an indicator of a multi-verb construction (1).

- 1. [V1 OBJ] **ideophone** [V2 *pro*]
- 2. [V1 OBJ] [V2 *pro*] **ideophone**

A possible confound can arise with test (2), where the ideophone modifies the whole constructions. Further tests should be conducted here.

2.2 Insertion of a Second Conjunct

Another context that blocks pro-drop more is the addition of a second conjunct. Cross-linguistically, pro-drop seems to be impossible when the pronoun in question is a conjunct, even if all other (language-specific) conditions on pro-drop are met ((Cardinaletti & Starke 1996; Georgi & Amaechi 2023)). Consider (86-d), in which the object coordinates two inanimate nominals. When one of the conjuncts is pronominalized (see (86-d)), this pronoun must be overt, even though it refers to an inanimate entity.

A collective predicate like 'collect' can ensure that the coordination (if present) is between nominal phrases or DPs in object position, and not between bigger verbal units (i.e. VPs and

verb ellipsis) (see (86-a) vs. (86-b)). (86-c) shows that a (non-coordinated) inanimate (plural) object of this predicate can undergo pro-drop, so there is no confound in (86-e) that could be induced by the lexical material in these examples.

(86) collective predicate (examples from Akan):

- a. #Kofi collected a (single) stamp.
- b. Kofi collected stamps.
- c. Kofi collected them (\emptyset).
- d. Kofi collected [a stamp and a stone]
- e. Kofi collected [it and a stone]

The dropping of inanimate object pronouns in Akan is blocked when the pronoun is a conjunct. (87) shows an example with a coordinated shared object; both conjuncts are inanimate.

(87) Yesterday Kofi bought yam. This morning he killed [a chicken] and cooked [it and the yam].

(88) *Kofi kuu akokɔ no noaa no ne bayerɛ no.*
 Kofi kill.PAST chicken DEF cook.PAST it and yam DEF
 ‘Kofi killed the chicken and cooked it and the yam.’

Tests

Context: Akosua bought chicken for dinner.

(89) She bought the chicken and cooked it and rice. Comment:

Context: Kofi collects stamps as a hobby. This morning he purchased a stamp.

(90) Kofi collected it and a stone (from the beach). Comment:

Context: Today it is very warm outside and Ama plans to wear a summer dress.

(91) In her room she takes it and the shoes. Comment:

Results

If ideophone placements at the syntactic boundary of [V1 OBJ] and [V2 OBJ] are possible, it is an indicator that the structure is a multi-event structure. Two object slots are present in the syntax and semantics.

If the addition of a second conjunct forces the dropped 3rd person singular object pronoun to become overt, it indicates that this is a multi-event structure. The syntactic diagnostics are additional diagnostics to the semantic ones.

Set 3: Light verb and idiomatic constructions

Cross-linguistically, languages can have more than one type of serial verb construction. The purpose of this last set is to uncover the presence and the type of possible other SVCs in the language. Two types of constructions show parallel structures on the surface to multi-verb SVCs: Light-verb constructions and idiomatic constructions.

Light-Verb Constructions

Contrary to multi-verb constructions, light-verb constructions consist of a verb series where the initial verb V1 is of a merely functional nature. An example of a Light-Verb-Construction (LVC) is given in (92).

- (92) *Mè de Yaw kɔɔ Kumasi.* Example from Aboh (2009)
 I take Yaw go Kumasi
 ‘I took Yaw to Kumasi.’

Functional heads

The verb ‘de’ looks like a transitive verb that takes an internal argument. However, it is merely functional and does not bear meaning on its own. The functional ‘take’ in (93) has no θ -role. Indeed, in this language, V1 *de* (also glossed as ‘take’) can occur in an SVC even though it cannot license an internal argument on its own. Light-verb constructions have a **true-sharing structure**.

- (93) **Mè de Yaw.* Example from Aboh (2009)
 I take Yaw
 Intended: ‘I took Yaw.’

Aboh (2009) argues that serial verb constructions (SVCs) involve a functional verb (V1) that merges within the functional domain of a lexical verb (V2). On this account, the internal argument is consistently introduced and licensed within the vP shell associated with V2. Furthermore, cross-linguistic variation in the surface order of SVCs arises from the interplay between object movement and verb movement, resulting in other patterns such as V1-XP-V2 versus V1-V2-XP.

Test 1:

Check if the first verb V1 (...*take, go, see, etc.*) independently appears in the language bearing meaning and if it can take an object, as in (93).

Agreement

Another feature that distinguishes LVCs from transitive SVCs is agreement.

- (94) a. **Kofi fo Yao yi ati-ε.*
 Kofi hit Yao with stick-DET
 b. *Kofi fo Yao ku ati-ε.* (Kpele) (Collins 1997)
 Kofi hit Yao with stick.DET
 ‘Kofi hit Yao with the stick.’

The instrumental particle ‘yi’ is an agreeing preposition that licenses the copy of the moved

complement (Aboh 2009). ‘Yi’ cannot precede an in-situ object as in (96a), instead the element ‘ku’ is inserted (96b). Aboh takes this as evidence for a functional head within the extended projection of the second verb that introduces the instrument/manner adverb. In this case the instrument/manner argument has raised to a position between V1 and V2. The presence of a functional head that holds V1, indicates that V1 is only of a functional nature.

Test 2:

Research how the language fares with instrumental/ manner arguments. Can the particle precede or follow the object? Does the language have agreement?

Idiomatic Constructions

Idiomatic constructions like LVCs have a **true-sharing** structure but are complex processing events. V1 and V2 contrary to LVCs can have meanings independently of the constructions they appear in. However, V1 and V2 typically describe one event (95).

(95) [V1 OBJ V2]_{event 1}

The meaning is metaphoric stemming from the complex composition of several verbs. For example, the verbs in (95) independently bear their own meaning ‘collect’ and ‘eat’, but in a verb series are interpreted as ‘believe’.

(96) *Mè gyè dî-èè*
1SG collect eat-PST
‘I believed it.’

Tests:

As complex processing events, idiomatic construction can be subjugated to the same semantic and syntactic diagnostics, as described in Set 1 and Set 2. Unlike multi-verb constructions, sentence-final manner adverbs and secondary predicate modify the whole construction, instead of just [OBJ2] or [V2 OBJ2] (97)-(98).

(97) *Mè gyè1 dî-èè2 paa*
1SG collect-PST eat-PST strong
“I believed it strongly.”

(98) *Mè gyè1 dî-èè2 ànòpá nò*
1SG collect eat-PST morning DEF
“I believed it in the morning.”

Furthermore, varying the object position should yield differences in meaning:

1. V1 V2 **OBJ**

2. V1 **OBJ** V2 **OBJ**

Adding a second object (2) may trigger the literal meaning of the construction, as an example from Akan shows (99).

(99) *Mè gyè nó dî-èè nó*
1SG collect **it** eat-PST **it**
‘I collected it and ate it.’ (*Instead of intended idiomatic reading ‘believe’*)

Discussion of Results

The fact that inanimate 3rd person pronouns, which are usually zero, have to be overt in the structural contexts is evidence for a pro-drop analysis: inanimate pronouns are assumed to be syntactically present but remain phonetically silent (Korsah & Murphy 2020). Specifically, the diagnostic tests for the differences that arise under consideration of such an analysis.

Whether the meanings of V1 and V2 in an SVC can be modified independently by such contrary manner adverbs, which are generated low inside the VP. We expect that semantically independent sub-events will tolerate modification with contrary adverbs, as each of the adverbs modifies its independent event.

The diagnostic of A-quantification on V2 provides positive evidence for the application of \exists -conjunction in the semantics of multi-event SVCs, and negative evidence against \exists -conjunction in the semantics of OBJ-sharing SVCs.

Free agent cumulativity involves a division of subject over events. Free agent-cumulativity between plural subject agents and the individual sub-events of complex event predications serves as a positive diagnostic for the mechanism of e-cumulation. As \exists e-conjunction and other processes mapping onto complex process events do not involve plural event-formation, we expect free agent-cumulativity to be ruled out: Such compositional processes should not freely allow for agent-cumulation, where the individual subparts of a PL-agent partake in fully independent sub-events joined into a plural group by unconstrained sumformation. What may still be possible, however, is that different members of an agentive plural group are responsible for carrying out individual sub-events that form part of a complex process. This should be possible as long as their actions are presented as forming part of a collective action towards a common goal of the group.

	Adverb Asymmetries	A-Quantification	Free-AG cumulation
e-cumulation	NO/✓	*	✓
\exists -conjunction	NO/✓	✓	*
complex processing event	Yes (#)	*	*

We see the difference between light verb constructions/ idioms and serial verb constructions with multiple transitive verbs. Furthermore, in the multi-verb dimension, the diagnostics help us distinguish along syntactic and semantic parameters to identify true-sharing and surface-sharing constructions. The purpose of this approach is to see the underlying event structure that is ambiguous viewing only the syntactic surface structure, but becomes apparent semantically.

References

- Aboh, Enoch O. (2009). 'Clause structure and verb series'. In: *Linguistic Inquiry* 40, pp. 1–33.
- Amaechi, Mary, Reggie Akuoko Duah & Malte Zimmermann (2023). '(Seeming) OBJ-sharing SVCs in Igbo and Akan: A case of HIDDEN VARIABILITY'. In: *Complex/clustered predicates and argument structure in African languages*. ALS-LSA Workshop. URL: <https://websites.umass.edu/als-lsa2023/files/2023/07/SVCs-in-Igbo-and-Akan-A-case-study-in-hidden-variability.pdf>.
- Bohnenmeyer, Jürgen, Nicholas J Enfield, James Essegbey, Iraide Ibarretxe-Antuñano, Sotaro Kita, Friederike Lüpke & Felix K Ameka (2007). 'Principles of event segmentation in language: The case of motion events'. In: *Language* 83.3, pp. 495–532.
- Bohnenmeyer, Jürgen & Robert D Van Valin Jr (2017). 'The macro-event property and the layered structure of the clause'. In: *Studies in Language* 41.1, pp. 142–197.
- Campbell, Richard (1996). 'Serial verbs and shared arguments'. In: *The Linguistic Review* 13, pp. 83–118.
- Cardinaletti, Anna & Michal Starke (1996). 'Deficient pronouns: a view from Germanic. A study in the unified description of Germanic and Romance'. In: *Studies in Comparative Syntax II*. Ed. by H. Thráinsson, S. Epstein & S. Peter. Dordrecht: Kluwer, pp. 21–65.
- Christaller, Johann G. (1875/1964). *A grammar of the Asante and Fante language called Tshi [Chwee, Twi]*. New Jersey: Gregg Press.
- Collins, Chris (1997). 'Argument sharing in serial verb constructions'. In: *Linguistic Inquiry* 28.3, pp. 461–497.
- Déchaine, Rose-Marie (1993). 'Predicates across categories'. PhD dissertation. Amherst, MA: University of Massachusetts.
- Georgi, Doreen & Mary Amaechi (2023). 'Resumption in Igbo: Two types of resumptives, complex phi-mismatches, and dynamic deletion domains'. In: *Natural Language & Linguistic Theory* 41, pp. 961–1028.
- Goldschmidt, Anja (2018). 'Hitting playfully but hard: Conceptual effects of verb-adverb modification in the domain of force'. In: ——— (ed.), *Serial verb constructions: A cross-linguistic perspective*. Berlin: De Gruyter, pp. 1–24.
- Haspelmath, Martin (2016). 'The serial verb construction: Comparative concept and cross-linguistic generalizations'. In: *Language and Linguistics* 17.3, pp. 219–319.
- Hiraiwa, Ken & Adams Bodomo (2008). 'Object-Sharing as Symmetric Sharing: Evidence from Dàgààrè'. In: *Proceedings of the 26th West Coast Conference on Formal Linguistics*. Ed. by Charles B. Chang & Hannah J. Haynie. Somerville, MA: Cascadilla Proceedings Project, pp. 243–251.
- Hovav, Malka Rappaport & Beth Levin (2001). 'An event structure account of English resultatives'. In: *Language* 77.4, pp. 766–797.
- Korsah, Sampson (2017). 'Issues in Kwa syntax: Pronouns and clausal determiners'. PhD dissertation. Leipzig: Leipzig University.
- Korsah, Sampson & Andrew Murphy (2020). 'Tonal reflexes of movement in Asante Twi'. In: *Natural Language & Syntactic Theory* 38.3, pp. 827–885.
- Kratzer, Angelika (2003). 'The event argument and the semantics of verbs'. In: *Ms., University of Massachusetts, Amherst*.
- (Oct. 2007). 'Exclusive Interpretations via Scalar Implicatures?' Lecture notes, University of Massachusetts, Amherst.
- Larson, Richard K (1998). 'Events and modification in nominals'. In: *Semantics and Linguistic Theory*, pp. 145–168.
- Matthewson, Lisa (2004). 'On the Methodology of Semantic Fieldwork'. In: *International Journal of American Linguistics* 70.4, pp. 369–451.
- Osam, Emmanuel K. (1996). 'Animacy distinctions in Akan grammar'. In: *Studies in African linguistics* 23.2, pp. 153–164.
- Pietroski, Paul (2005). 'Meaning before truth'. In: *Contextualism in philosophy: Knowledge, meaning, and truth* 255, p. 302.
- Pietroski, Paul M (2000). 'On explaining that'. In: *The Journal of philosophy* 97.12, pp. 655–662.

- Riis, Hans N. (1854). *Grammatical outline and vocabulary of the Oji-language with especial reference to the Akuapim-dialect*. Basel: G. Detloff.
- Saah, Kofi K. (1994). 'Studies in Akan syntax, acquisition and sentence processing'. PhD dissertation. Ottawa, ON: University of Ottawa.
- Veenstra, Tonjes & Pieter Muysken (2017). 'Serial Verb Constructions'. In: *The Wiley Blackwell Companion to Syntax, Second Edition*. Ed. by Martin Everaert & Henk C. van Riemsdijk. Hoboken, NJ: Wiley-Blackwell, pp. 1–51.
- Williams, Alexander (2015). *Arguments in syntax and semantics*. Cambridge University Press.