MULTI-VERB CONSTRUCTIONS IN ÊDÓ: A TYPOLOGY

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ABSTRACT

Multi-verb constructions provide useful insight into the question of how languages distinguish between adjunction and complementation. This paper examines multi-verb constructions in Êdó (a Benue-Congo language) with the following focus:

- Within individual languages are there different types of multi-verb construction and tests that clearly identify them?
- What are the argument sharing patterns that characterize the different types?

Four structural types of multi-verb construction in Êdó are shown to display different patterning with respect to the distribution of a past tense suffix –r<v, a floating anaphor tóbórè 'by him/her/it self', VP adverbs and argument sharing patterns: V+modifier, V(P)+V(P), V+mood and V+infinitival complement constructions.

We draw main background assumptions from the following sources; implemented Head-Driven Phrase Structure Grammars for Norwegian (Hellan 2003) and Ga (Hellan 2007) a Kwa language spoken in Ghana. Two schemas are posited:

- Verb-serial-compl (ement)-phrase with a complementation structure for the V(P)+V(P) resultative and V+infinitival complement constructions.
- Serial-mod-phrase with an adjunction structure for V+mood constructions, V+modifier constructions and V(P)+V(P); consequential, purpose, and negative resultative constructions.

In particular, object sharing in multi-verb constructions is analyzed as token sharing by grammatical function.

1. INTRODUCTION

Multi-verb constructions occur in many languages in four main linguistic areas in the world; West African languages, African-Caribbean Creoles, South-East Asian languages and Oceanic languages.

I thank Ben Waldow for reading the paper. Any error is mine
Amaka (2005:2) uses the following criteria to identify a typology of multi-verb constructions in West African languages:

(i) No marking of syntactic dependency.
(ii) At least one shared argument.
(iii) VPs in series are seen as related.
(iv) Each verb in the construction can function as an independent verb in a simple sentence.

The above criteria together with language specific tests such as temporal sequencing, argument linking patterns, extraction properties, scope of negation, tense, aspect and adverbial distribution patterns, have served to distinguish between “true SVCs” and other multi-verb constructions such as consecutive constructions, covert-co-ordination, overlapping constructions and co-ordination constructions. SVCs are defined by Baker and Stewart (1999:2) as clauses that have just a single tense node, but two or more verbs, with no overt markers of coordination or subordination. Furthermore they have only one overt object that seems to express the theme argument of the verbs in series and it is this property that distinguishes the class of “true” SVCs (1999:28). The term multi-verb constructions as used in this paper encompasses (i)-(iv) above with SVCs as a subclass of multi-verb constructions. Theme argument sharing is not a necessary condition for multi-verb constructions.

Multi-verb constructions in Èdó (a Benue-Congo language) exhibit the criteria listed in (i)-(iv) above. In addition they have one surface syntactic subject. Four construction types are identified: $V+$ modifier, $V (P) +V (P)$, $V+$mood and $V+$infinitival complement (Ogie 2004:17-19). They are illustrated as follows:

$V+$modifier constructions

1. Òzó vié-rè kpéé
   *Ozo cry-PST.rV be long*
   'Ozo cried for a long time'

$VP+VP$ constructions

2. Òzó suá ọré dé
   *Ozo push.PST.H 3SG fall.PST.H*
   'Ozo pushed him/her/it down'

3. Òzó dé èbé tié
   *Ozo buy.PST.H book read*
   'Ozo bought a book and read'

$V+$infinitival complement constructions

4. Írán kùgbé-rè rrí ízè
   *They join.together-PST.rV eat rice*
   'They eat the rice together'

$V+$mood constructions

5. Òzó mié àkhé guó!ghó
   *Ozo see.PST.H pot break.PST.H*
'Ozo destroyed the pot (through a deliberate action of his)'

I discuss Baker and Stewart’s (2002) and Stewart’s (1998) classification of three kinds of multi-verb constructions as “true SVCS” based on their object-sharing properties: resultative SVCs, consequential SVCs and purpose constructions.

In particular I focus on their treatment of object sharing in consequential constructions as mediated by reference sharing whereby the object of V2 is pro. I show that object sharing is not mediated by pro but by token sharing by grammatical function of the NP object.

The aim of this paper is to demonstrate that different structural types of multi-verb constructions in Èdó display different patterns with respect to the distribution of a past tense suffix –rV, a floating anaphor tòbôrè 'by him/her/it self', VP adverbs and argument sharing patterns. Based on the observations, I present two schemas:

- *Verb-serial-compl (ement)-phrase* with a complementation structure.
- *Serial-mod-phrase* with an adjunction structure.

My analysis draws on three main sources as background assumptions; implemented Head-Driven Phrase Structure Grammars for Norwegian (Hellan 2003, Hellan and Haugereid 2004) and Ga, a Kwa language spoken in Ghana (Hellan 2007) and Hellan, Beermann and Sætherø (2003). I demonstrate how a non-pro based account of object sharing in multi-verb constructions can be accommodated through token sharing by grammatical function.

2. MULTI-VERB CONSTRUCTIONS IN ÈDÔ: IDENTIFICATION

Baker and Stewart (2002:1) examine the syntactic properties of the following multi-verb constructions and analyze them as true SVCs; resultative constructions (2), consequential constructions (3) and purpose constructions (5).

“Table 1 from Baker and Stewart (2002:3-4) presents their properties:

<table>
<thead>
<tr>
<th>Type</th>
<th>Size of VP2</th>
<th>Object of VP2</th>
<th>Attachment site</th>
<th>NP analog</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSVC</td>
<td>vP</td>
<td>Pro</td>
<td>Adjoined to vP1</td>
<td>Participial relative</td>
</tr>
<tr>
<td>RSVC</td>
<td>VP</td>
<td>None</td>
<td>Complement of V1</td>
<td>(Attrib. Modification)</td>
</tr>
<tr>
<td>PSVC</td>
<td>AspP</td>
<td>Wh-trace</td>
<td>Adjoined to AspP1</td>
<td>Operator relative</td>
</tr>
</tbody>
</table>

Resultative Serial Verb Constructions (RSVC) is represented as a *complementation structure* with a single structural NP as the object of two verbs, the second of which is unaccusative.

Consequential Serial Verb Construction (CSVC) is represented as a *VP adjunction structure* with object sharing represented as reference sharing. The theme of V2—Vn is assigned to pro.
Purpose Serial Verb Construction (PSVC) is represented as an *adjunction structure* whereby VP2 has an aspect/mood projection that is adjoined to the main aspect/mood projection of VP1.

Also Stewart (1998:78-80, 267 & 295) distinguishes between the three constructions above and covert co-ordination, modal-aspectual verb constructions and Instrumental verb construction. Covert Co-ordination (CC) is represented as a conjunction of Event Phrases while the later two are analyzed as re-analyzed structures involving subordination of VP2.

In the following I present a summary of the criteria used by Baker and Stewart (2002) and Stewart (1998) in the identification of CSVCs, RSVCs, PSVCs and CCs.

**CHARACTERISTICS:**

*Object of V2 is pro in CSVC:*

-A floating anaphor *tòbórè 'by him/her/it self'* is licensed. It is a right adjunct to an NP which may be overt or null (Baker and Stewart 2002:19-22):

(6) Òzó dé iyán dünmwün pro tòbórè (CSVC)

'Ozo bought the yam and pounded it by itself (the yam)'

(7) *Òzó sùá àghó dé tòbórè (RSVC)

'Ozo pushed the bottle down by itself'

(8) *Òzó mién àlimóì kpa’lán tòbórè (PSVC)

'Ozo found an orange to pluck by itself'

-In (9) it is true Ozo bought a few books in total and read them all while in (10), the quantifier only has scope over the falling event. Ozo could have pushed many trees but only a few fell. Larson (2005) presents a similar analysis for the Empty Subject Construction in Baule. Importantly, Baule has standard null objects which Edo lacks.

Null object has E-type pronoun reading. This reading arises only when a pronoun is interpreted as having a non c-commanding quantified antecedent (Baker and Stewart 2002:23):

(9) Òzó dé èbé khéré, tié proi (CSVC)

'Ozo bought (a) few books and read (them)'

(10) Òzó sùá èrhán khéré dé-lé (RSVC)

'Ozo pushed (a) few trees down'

Tentatively, I posit that the E-type reading of shared quantified NPs discussed above is due to the nature of object sharing: token sharing by grammatical function. This ensures that all properties of the NP are shared including scope resolution (I discuss token sharing in section three).
Subject of V2 is pro in CCs

- Tóbó licensed before the second verb (Stewart 1998:83-84):
  (11) *Òzók kókó Adésúwa tóbók mòsé (RSVC)
  Ozo raise.PST.H Adesuwa by.himself be-beautiful.PST.H
  (12) *Òzók lé èvbárè tóbók ré proj (CSV)
  Ozo cook.PST.H food by.himself eat.PST.H
  'Ozo cooked the food and he himself ate it'
  (13) Òzók lé ízè tóbók rri órè (CC)
  Ozo cook.PST.H rice by.himself eat.PST.H it
  'Ozo cooked the rice and he himself ate it'

VP adjunction
- Right adjunction of N (oun)-type adverbs (Stewart 1998:47-48):
  (14) Òzó lé èvbárè ègígíig ré (CSV)
  Ozo cook.PST.H food quickly eat.PST.H
  'Ozo cooked the food and quickly ate it'
  (15) *Òzó suá ógó ègígíig dé (RSVC)
  Ozo push.PST.H bottle quickly fall.PST.H
  (16) Òzó gbòó ivin ègígíig bóló ókà (CC)
  Ozo plant.PST.H coconut quickly peel.PST.H corn
  'Ozo planted the coconut quickly and he peeled the corn'

Inflection
In Èdó, two verbs in a RSVC and a CSV must match morphologically and each tense node has a unique morphological realization in a clause. This is exemplified by the Bare Stem Condition (Stewart 1998:326):
- No verb in the serial construction can bear morphological tense inflection.
  (Baker and Stewart 2002:15):
  (17) *Àkhé òré Òzó swá-ré dé (-rê) (RSVC)
  pot FOC Ozo push-PST.rV fall-(PST.rV)
  'It is the pot that Ozo has pushed down'
  (18) *Èvbárè òré Òzó lé-ré khién(-rê) (CSV)
  Food FOC Ozo cook-PST.rV sell-(PST.rV)
  'It is food that Ozo has truly cooked and sold'
  - However the bare stem condition does not hold of PSVCs and CCs,
  (Stewart 1998:91):
  (19) Àlimóí òré òràn mièn-rê kpá!án (PSVC)
  OrangeFOC they find-PST.rV pluck.PST.!H
  'It is an orange that they have found to pluck'
  (20) Èrhán òré Òzó khi!in kpá!án ivin (CC)
It is a tree ozo climbed and plucked coconut

In CCs, extraction is marked as a high-downstepped-high tone on the verb that subcategorizes for the extracted object.

Stewart’s (1998) and Baker and Stewart’s (1999, 2002) classification above provide a basis for classification of multi-verb constructions in this paper. However, there are two crucial areas where my analysis differs:

- The distribution of a past tense suffix marker \(-rV\)

The distributional of the \(-rV\) suffix is crucial in my classification of thirteen multi-verb constructions identified below which I analyze into four structural classes. The suffix is analyzed as licensed by the inflectional and valence property of a verb: mainly a constraint that the licensing verb has an empty COMPS list.

- The distribution and referential interpretation of the floating anaphor tòbó rè

I represent tòbó rè as having an extra instigator theta role denoting a subject (Cf. Dechaine and Manfredi1994:210).

2.1 \(-rV\) SUFFIX AND MULTI-VERB CLASSIFICATION

In table 2, I present the distribution of tense in simple constructions in Èdo with the following representation: H (igh) (´) and L (ow) (```).

“Simplifying somewhat, tense is represented by tones in Èdó, a past suffix \(-rV\) and a lexical item ghá that represents the future tense as in table 2 below.

<table>
<thead>
<tr>
<th>TENSE</th>
<th>UNISYLL</th>
<th>DISYLL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple past:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrans verbs/ transitive verbs with non-locally realized objects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dé (buy) (H)</td>
<td>guòghó (break) (H on final vowel)</td>
<td></td>
</tr>
<tr>
<td>só-rò (cry) (H-rV)</td>
<td>rhùlé-rè (run) (H on final vowel on verb-rV)</td>
<td></td>
</tr>
<tr>
<td>Present (habitual):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intransitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dè (L)</td>
<td>Guòghó (L-L)</td>
<td></td>
</tr>
<tr>
<td>só (H)</td>
<td>Rhùlé (H-L)</td>
<td></td>
</tr>
<tr>
<td>Simple future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ghá só (HL)</td>
<td>ghá-rhùlé (HH-!H)</td>
<td></td>
</tr>
</tbody>
</table>

In multi-verb constructions, the pattern observed in table 2 above also applies. With the exception of the past tense \(-rV\) suffix, the verbs in series may have the same tonal inflection for tense. I focus on the licensing of the suffix in multi-verb constructions. The suffix is made up of a consonant (r) + a vowel (V), where the form of the vowel is determined by vowel harmony with the final vowel of the verb stem. For disyllabic verbs in my data, only the tone on the final syllable is represented in my gloss.
Four structural classes of multi-verb constructions are identified with respect to licensing of $rV$:

- $V+$ modifier constructions: durational, directional, locational, manner and comparative constructions.
- $V\ (P)\ +\ V\ (P)$ constructions: resultatives, negative resultatives, consequential and covert co-ordination constructions.
- $V+$ mood constructions: Purpose constructions.
- $V+$ infinitival complement constructions: comitative, desiderative and instrumental constructions.

$V+$modifier, $V+$Infinitival and $V+$mood constructions all license $rV$ suffixation on V1 and have overlapping event interpretations. $V\ (P)\ +\ V\ (P)$ constructions on the other hand do not license this suffix on the verbs in series as would be expected when objects are realized in non-local environment. They represent non-overlapping events (Ogie 2004:17-19).

$V+$modifier constructions

$rV$ licensed

(21) Òzó vié-rè fòó

Ozo cry-PST.$rV$ finish.PST.$H$

'Ozo finished crying'

(22) Òzó rhùlé-rè kpàá

Ozo run-PST.$rV$ go.PST.$rV$

'Ozo ran away (away from the speaker)'

(23) Òzó mòsé-rè sèè

Àzàrí (comparative)

Ozo be beautiful-PST.$rV$ Surpass.PST.$H$

'Azo is more beautiful than Azari'

(24) Òzó rhùlé-rè làá ówá

Ozo run-PST.$rV$ enter.PST.$H$ house

'Ozo ran into the house'

(25) Òzó digiën-rèn rří èvbàřé

Ozo stoop-PST.$rV$ eat.PST.$H$ food

'Ozo bent while eating'

In $V+$modifier constructions, V2 in durational, directional, comparative and locational constructions serves a modifying function and delimits the event depicted by V1. In manner constructions on the other hand V1 serves in a modifying relationship to V2. The modifying verb is a re-analyzed verb and functions as an adverbial modifier (Agheyisi 1986b:274). The suffix is licensed in this construction type as with all $v+$adverb constructions in the language. The modifying status of the modifying verb may be marked overtly through phonological strategies like vowel lengthening and tonal change. I use the verb fòó “finish” in (21) as illustration. It has a different tonal pattern when functioning as the main verb in a simple sentence as shown in examples (26) and (27) below:
(26)  Ízè khián fó
Ize AUX (inceptive marker) finish (main verb)
'The rice will soon finish'

(27) *Ízè khián fôô
Ize AUX (inceptive marker) finish (modifying verb-as main verb)
'The rice will soon finish'

Also, such modifying verbs cannot take adverbial modifiers themselves:

(28) *Òzó vié rè fôô èsèsè
Ozo cry-PST.rV finish.PST.H intensely
'Ozo finished crying intensely'

\[ V (P) + V (P) \] constructions

-\( rV \) not licensed

(29) *Òchë ṣôrè Òzó swá-rè dë (-rè) (Resultatives)
Pot FOC Ozo push-PST.rV fall-(PST.rV)
'It is the pot that Ozo pushed down'

(30) *Èvbàrè ṣôrè Òzó lé-rè khiën (-rèn) (consequential)
Food FOC Ozo cook-PST.rV sell-(PST.rV)
'It is food that Ozo cooked and sold'

(31) *Èbô ṣôrè Òzó gárè mièn òkán (neg.result.)
Gods FOC Ozo serve-PST.rV receive.PST.H distress
'It is gods Ozo served and got trouble as his reward'

(32) *Èvbàrè ṣôrè Òzó lé-rè khiën (-rèn) ón rèn (cc)
Food FOC Ozo cook-PST.rV sell-(PST.rV) 3SG
'It is food that Ozo cooked and sold it'

The verbs in series in \( V(P)+ V(P) \) constructions have full verbal status and have the same Tense, Aspect and Mood (TAM) values, a restriction that seems to have implication for the non licensing of the \( rV \) suffix. VP adverb modifiers may occur after VP1 as illustrated in example (14) to (16) above. This does not apply for the resultative construction.

\( V+mood \) constructions

-\( rV \) licensed

(33) Àkhë ṣôrè íràn mièn-rèn ghuô!ghô (Purpose)
Pot FOC 3PL find-PST.rV break.PST.!H
'It is a pot they saw to break'

The event depicted is in the realis mood a fact which seems to license the \( -rV \) suffix (Baker and Stewart 2002:18). VP adverb modifiers may occur after VP1.

\( V+\) infinitival complement constructions

-\( rV \) licensed
In $V+$infinitival complement constructions, V1 and V2 have different values for Tense, Aspect and Mood (TAM) and thus -$rV$ is licensed. V2 occurs in an infinitival clause and an infinitival marker $yá$ may occur before it. VP adverb modifiers are not licensed after V1.

I now discuss the licensing of the $rV$ suffix. Manfredi (2005:16) explains –$rV$ as epenthetic and the absence in past-transitive verb constructions where the objects occur in-situ as a prosodic constraint stated in (i) and (ii) below:

(i) An inflectional pitch accent must be realized on a branching constituent within its phrase: by syntactic branching if possible, or by cv epenthesis (Insertion of weak syllable) as a last resort.

(ii) Foot parameter ($Èdô$): trochaic/right-branching i.e. $sw$ or [HL].

The assumption in (i) and (ii) is that tone-marking is dependent on inflection and syllabic structure as well as a syntactic constituent structure. Manfredi (2005:17) states further that $Èdô$ –$re$ ensures phrasal realization of the pitch accent ($sw$ or HL) denoting past aspect in a branching domain containing the root, just in case no syntactic complement is present.

Igbo, a Benue-Congo language spoken in Eastern Nigeria also has this suffix. Manfredi (2005:17) analyzes both as “segmental fill-ins, comprising a weak consonant plus a default vowel, arising as side-effects of inflectional accent and providing the minimal morphology by which past tense is achieved”.

Unlike –$rV$ in $Èdô$, here it is licensed in all multi-verb constructions. Also, it is a pronominal clitic licensed by the verb’s aktionsart that shifts information prominence over to the complement while the $Èdô$ counterpart ensures phrasal realization of the pitch accent ($sw$ or HL) just in case no syntactic complement is present.

Manfredi’s treatment of –$rV$ as presented in (i) and (ii), describes the phonetic reflexes of the fact that –$rV$ suffixation is licensed in part by the constraint on a verb’s valence values.
In a multi-verb construction then, \(-rV\) is licensed by the following criteria: an empty complement list, overlapping events, one of the verbs in series is a re-analyzed verb and TAM: different mood values for \(V_1\ldots V_n\).

### 2.2 CONSEQUENTIAL CONSTRUCTIONS AND THE FLOATING ANAPHR TÔBÔRÉ

Below is a characterization of the anaphor:

- Used for emphasis
- Internal structure té ‘to urge’+ôbó ‘hand’ + 3 person pronoun
  (Melzian1937: 133, 191-192).
- Cannot occur in object position

(38) *Ôsåró fián tôbôrê
    Osaro cut.PST.H by.himself
    'Osaro cut by himself'

(39) Ôsåró fián ègbêrê (tôbôrê)
    Osaro cut.PST.H himself(by.himself)
    'Osaro cut himself by himself'

The distribution of the anaphor is as follows:

*Can right adjoin to any phrasal category:*

(40) Írán tôbîrân ghá lè ízê (Subject NP)
    They by.themselves FUT cook food
    'They themselves will cook the food
    (they will cook the food themselves, even if no one joins them in the cooking)'

(41) Írán giégié tôbîrân lè ízê (Adv)
    They quickly.PRS by.themselves cook.L.PRS food
    'They themselves are quickly cooking the food
    (someone else should have joined them)'

(42) Írán lé ízê vbé ükóni tôbîrân (PP)
    They cook.PST.H rice in kitchen by.themselves
    'They cooked the rice in the kitchen by themselves
    (someone else should have joined in the cooking)'

*Subject oriented analysis of tôbôrê*

We must have the same number and person reference as the subject

(43) Írán₁ dê iyánk dùnmwún tôbîrân₁/*k (consequential)
    They buy.PST.H yam pound.PST.H by.themselves
    (i)'They bought the yam and pounded it by themselves'
    (ii)*'They bought yams and pounded them by themselves (the yams)'

(44) *Írán₁ dê iyánk dùnmwún tôbôrê₁/k
    They buy.PST.H yam pound.PST.H by.pronoun.self
(i)'They bought the yam and pounded it by themselves'
(ii)'They bought the yam and pounded it by itself'

\[(45)^*\]Íràn dé iyánk dùnmwún tóbôrèk
They buy.PST.H yam pound.PST.H by.itself (the yam)
'They bought the yam and pounded it by itself'

A plural object antecedent does not rescue the construction in (43ii):
\[(46)^*\]Òzó dé iyán èvák dùnmwún tóbiràṇk
Ozo buy.PST.H yam two pound.PST.H by. themselves (the yam)
'Ozo bought two tubers of yams and pounded them by themselves'

An anaphor interpretation similar to tóbôrè also exists in Haiti (Dechaine and Manfredi 1994:210):
\[(47)^*\]Jak i benyen lʃk de fwa pa jou
Jak bathe 3sg two times per day
(i)'Jak bathes himself [all by himself] twice a day'
OR (ii)'Jak bathes her/him/it twice a day'

\[(47i)^*\]is analyzed as implying an extra, instigator theta role, denoting a subject which acts contra to expectations on itself.

Based on these assumptions example (6) repeated below will have the following revised interpretation with object sharing represented as token sharing (I discuss this immediately below):
\[(48)^*\]Òzó i dé iyánk dùnmwún tóbôrèi/*k (consequential)
Ozo buy.PST.H yam pound.PST.H by.himself
'Ozo bought the yam and pounded it by himself'

3.0 ARGUMENT SHARING PATTERNS IN ÉDO MULTI-VERB CONSTRUCTIONS

In this section, I discuss first the different mapping patterns of the verbs in series and their arguments. Based on the observations, I present two schemas:
- *Verb-serial-comp (lement)-phrase* with a complementation structure for the resultative and v+infinitival constructions
- *Serial-mod-phrase* with an adjunction structure for the consequential, purpose and v+modifier multi-verb constructions.

The resultative, v+infinitival complement and covert-coordination do not share subject token while the consequential, purpose, negative resultatives and v+modifier constructions do. I discuss this immediately below:

3.1 ASSUMPTIONS
In section 2, I have argued that V2 does not license a covert object NP in consequential constructions. I show in this section how the argument selection properties of the verbs in series in multi-verb constructions are satisfied through token sharing as represented in Hellan, Beermann and Sætherø (2003:5):

Figure 1 Construals of co-reference (Hellan, Beermann and Sætherø 2003)

Argument sharing in SVC
(subject/object/switch sharing) coreference with overt anaphor

Token sharing of subjects by grammatical function: In V + modifier, V (P) + V (P); consequential and negative resultatives, and, V + mood constructions, the verbs in series share an NP token which is syntactically realized as the subject of V1. A test confirming this is the non-licensing of the floating anaphor before V2. I illustrate with (49) below:

(49) *Ózó k vié-rè tòbórèk fôó (V+modifier: durational)
Ozo cry-PST.rV by. himself finish.PST.H
'Ozo finished crying by himself'

(50) *Ózó k lé èvbàrè tòbórèk ré (V (P) + V (P): consequential)
Ozo cook.PST.H food by.himself eat.PST.H

(51) *Ózó k mié àkhé tòbórèk guó!ghó (V+mood: purpose)
Ozo see.PST.H pot by.himself break.PST.!H

Reference sharing of subjects
The NP which bears the grammatical function of subject to V1 shares referential index with a covert subject of V2 in V + infinitival complement constructions. Thus the floating anaphor is licensed before V2:

(52) Íràn k kùgbé-rè tòbíránk rří izè (comitative)
They join. together-PST.rV by.themselves eat.PST.H rice
'They ate the rice together by themselves'

This applies also for covert coordination (see (13) above).

Switch sharing
In resultative constructions, the NP which bears the grammatical function of direct object to V1 and is realized in its canonical object position also bears the subject grammatical function to V2. The floating anaphor is not licensed before V2:

(53) *Ózó k kòkó Adésúwà tòbórèk mòsé (resultatives)
Object sharing by grammatical function (GF)

A participant role, for example a theme role, is realized by a GF associated with V2, but is not realized by an NP in the position in which an object relative to it would occur. Instead, the GF is realized as a GF relative to V1. V1 supports an NP with the referent in question (Hellan, Beermann and Sætherø 2003:12-13). Consequential constructions and V+mood constructions exhibit token sharing of objects. I illustrate with (54) below:

(54) Òzó dé iyán důnmwún (consequential)
    Ozo buy.PST.H yam pound.PST.H
    'Ozo bought the yam and pounded it'

Objects are not shared

In covert co-ordination, V1 and V2 may each have objects occurring as their complements which may or may not share reference:

(55) Òzó dé ízèk rrí õrék
    Ozo buy.PST.H rice eat.PST.H it
    'Ozo bought rice and ate it'

(56) Òzó lé ízèk kpöló õwák
    Ozo cook.PST.H rice sweep.PST.H house
    'Ozo cooked rice and swept the house'

Also, in V+ infinitival complement and negative resultative constructions objects are not shared (if any).

The discussion so far in this paper is summed up in table three below:

<table>
<thead>
<tr>
<th>Construction type</th>
<th>rV Suffixation Floating anaphor before V(P)2</th>
<th>VP Adjuncts After V(P)1</th>
<th>Token Sharing of subjects</th>
<th>Switch sharing</th>
<th>Reference sharing Of subjects</th>
<th>Token Sharing Of objects</th>
<th>Objects are not shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>V+modifier</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>V(P)+V(P):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resultatives</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Consequential</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Neg.resultatives</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Covert-</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>coordination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V+mood</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>V+infinitival</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3.2 FORMAL REPRESENTATION

I use the standard HPSG typed feature-value formalism. However, different from standard HPSG assumptions is the representation of grammatical functions in the category information on signs through the attribute Q (UALITATIVE) VAL (ENCE) constraining the type cat (egory) (Hellan 2003:16-23). Unification of referential indices
ensures uniformity of information across attributes values. The use of boxed numerals called tags \([1]\] captures identity (re-entrancy or co-indexation).

I focus on argument sharing in resultative and consequential constructions but the analysis can be extended to the other construction types.

For both construction types, events in series express an over all macro event and is represented as an attribute SITPAIR-COND (TION) constraining \textit{mrs} (Hellan, Beermann and Sætherø 2003:10). This is illustrated in the AVM in appendix 1.

To express temporal relations, I have introduced an attribute NON-OVERLAP with value \textit{bool (ean)} as an additional constraint on \textit{sitmapair-cond} (see appendix 1).

Hellan (2007 Ga tdl) analyzes serial verbs in Ga into two schemas:

- \textit{Head-verb-isvc-switchsharing-phrase} with a complementation structure: the referential index value of the NP subject of non-head-daughter is identified with the referential index value of the NP that is the direct object of the head-daughter and the head-daughter and mother qval values are identified. The non-head-daughter is a complement of the head-daughter.

- \textit{Verb-serial-mod-phrase} with adjunction structure: the head-daughter is realized as a value of an attribute MOD (IFIED) that constrains the non-head-daughter’s head. The referential index values for the head-daughter’s subject and non-head-daughter’s are identified and the head-daughter’s qval value is also identified with the mother’s.

The analyses presented in the AVMs in appendices 2 to 5 reflect the assumptions above. The type \textit{verb-serial-compl-phrase} (see appendix 2) has the same assumptions as the \textit{head-verb-isvc-switchsharing-phrase}, however, the head-daughter’s COMP and direct object is unspecified to allow for inheritance for types constraining the \textit{resultative-verb-serial-compl-phrase} (see appendix 3) and the \textit{v+infinitival-verb-serial-compl-phrase} (I do not discuss the latter in this paper).

The type \textit{Resultative-verb-serial-compl-phrase} as shown in the AVM in appendix 3 inherits from the \textit{verb-serial-compl-phrase}. The referential index values of the direct-object of the head-daughter is identified with that of the non-head-daughter’s subject and the value for NON-OVERLAP is declared as \([+]\).

The type \textit{Consequential-verb-serial-mod-phrase} inherits from \textit{verb-serial-mod-phrase}. I have identified the values of the direct object of the head-daughter with that of the non-head-daughter’s direct object and the NP bearing the referential index is the head-daughter’s COMP value. This is illustrated in AVMs in appendix 5 and 4 respectively.

\section*{4.0 CONCLUSION}

In this paper, I have established four structural types of multi-verb constructions in Èdó; \(V+\textit{modifier}, V+\textit{mood}, V+\textit{infinitival complement}\) and \(V(P)+V(P)\) constructions based on
criteria such as adverb modification, licensing of floating anaphors, argument sharing patterns and the licensing of a past tense suffix \( rV \).

I have also examined Stewart’s (1998) and Baker and Stewart’s (2002) analyses of SVCs in Èdó and their claim of a pronominal element \( pro \) as the object of \( V2 \) in a Consequential Serial Verb Construction. An alternative analysis based on token sharing of NPs is given. Finally, I have presented two schemas: \verb-serial-compl-\ phrase and \verb-serial-mod-\ phrase. The former describes a complementation structure constraining the resultative and \( v+\text{infinitival complement} \) constructions and the latter an adjunction constraining the consequential, purpose, negative resultative and \( V+\text{modifier} \) constructions.

**BIBLIOGRAPHY**


APPENDIX 1. SITPAIR-CONDITION.

\[
\text{mrs}
\begin{array}{l}
\text{SITPAIR-COND}
\end{array}
\begin{array}{l}
\text{sitpair-cond}
\end{array}
\begin{array}{l}
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\end{array}
\begin{array}{l}
\text{DEPEND} \text{ relation}
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\end{array}
\end{array}
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APPENDIX 2. VERB-SERIAL-COMPL-PHRASE.

\[
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\text{verb-serial-compl-phrase}
\end{array}
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\end{array}
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\begin{array}{l}
\text{COMP} < >
\end{array}
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\begin{array}{l}
\text{PREREQ} [4]
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\begin{array}{l}
\text{DEPEND} [5]
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\end{array}
\end{array}
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\[
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\end{array}
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\text{SYNSEM.LOCAL.CONT}
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\text{SITPAIR-COND}
\end{array}
\begin{array}{l}
\text{PREREQ} [4]
\end{array}
\begin{array}{l}
\text{DEPEND} [5]
\end{array}
\begin{array}{l}
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\begin{array}{l}
\text{HEAD-DTR.SYNSEM.LOCAL.CONT}
\end{array}
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\end{array}
\begin{array}{l}
\text{INDEX} #3 \text{ & event}
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\begin{array}{l}
\text{E} \text{ TAM } \text{ TENSE tense}
\end{array}
\begin{array}{l}
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\text{mrs}
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\begin{array}{l}
\text{HOOK}
\end{array}
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\text{INDEX} #3
\end{array}
\begin{array}{l}
\text{RELS} < [5] \text{ ARG0} #3 >
\end{array}
\begin{array}{l}
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\end{array}
\begin{array}{l}
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\begin{array}{l}
\text{SITPAIR-COND} [6] \text{ list}
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APPENDIX 3. RESULTATIVE-VERB-SERIAL-COMPL-PHRASE.
resultative-verb-serial-compl-phase

<table>
<thead>
<tr>
<th>HEAD</th>
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<tr>
<td>SYNSEM.LOCAL.CAT</td>
<td></td>
</tr>
<tr>
<td>SUBJ &lt;[4]&gt;</td>
<td>comp &lt; &gt;</td>
</tr>
<tr>
<td>mrs</td>
<td>hook, index #3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEAD</th>
<th>verb</th>
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</thead>
<tbody>
<tr>
<td>HEAD-DTR.SYNSEM.LOCAL.CAT</td>
<td></td>
</tr>
<tr>
<td>comp &lt; [5]</td>
<td>ap-synsem</td>
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<tr>
<td>local cont hook, index #2</td>
<td>ap-synsem</td>
</tr>
<tr>
<td>local cont hook, index #3</td>
<td></td>
</tr>
<tr>
<td>QVAL</td>
<td>dob [5]</td>
</tr>
<tr>
<td>local cont hook, index #2 &amp; ref-ind</td>
<td></td>
</tr>
<tr>
<td>mrs</td>
<td>hook</td>
</tr>
<tr>
<td>local cont hook, index #3</td>
<td>hook</td>
</tr>
<tr>
<td>local cont hook, index #2 &amp; ref-ind</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>verb</th>
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<tbody>
<tr>
<td>NON-HEAD-DTR.SYNSEM.LOCAL.CAT</td>
<td></td>
</tr>
<tr>
<td>subject [4]</td>
<td>local cont hook, index #2 &amp; ref-ind</td>
</tr>
<tr>
<td>mrs</td>
<td>hook</td>
</tr>
<tr>
<td>INDEX #3</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>NON-HEAD-DTR.SYNSEM.LOCAL.CONT</td>
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</tr>
<tr>
<td>[7]</td>
<td>arg0 #3</td>
</tr>
<tr>
<td>[6]</td>
<td>arg1 #2</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>verb</th>
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<tr>
<td>NON-HEAD-DTR.SYNSEM.LOCAL.CONT</td>
<td></td>
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<tr>
<td>subject [4]</td>
<td>local cont hook, index #2 &amp; ref-ind</td>
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<td>mrs</td>
<td>hook</td>
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<tr>
<td>INDEX #3</td>
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<th>verb</th>
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<tbody>
<tr>
<td>NON-HEAD-DTR.SYNSEM.LOCAL.CONT</td>
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<tr>
<td>[7]</td>
<td>arg0 #3</td>
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<td>SITPAIR-COND</td>
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APPENDIX 4. VERB-SERIAL-MOD-PHRASE.

\[
\begin{align*}
\text{SYNSEM.LOCAL.CAT} & : \\
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& \quad \text{COMP} < > \\
& \quad \text{QVAL} \quad \	ext{SUBJECT} \{2\} \\

\text{mrs} & : \\
& \quad \text{HOOK} \quad \text{INDEX} \#1 \\
& \quad \text{RELS} <! \{3\}, \{4\} > \\

\text{SYNSEM.LOCAL.CONT} & : \\
& \quad \text{SITPAIR-COND} \\
& \quad \text{PREREQ} \{3\} \\
& \quad \text{DEPEND} \{4\} \\
& \quad \text{NON-OVERLAP} \text{bool} \\

\text{HEAD-DTR.SYNSEM.LOCAL.CAT} & : \\
& \quad \text{HEAD} \#verb \\
& \quad \text{VAL} \quad \text{SUBJ} < \{2\} > \\
& \quad \text{QVAL} \quad \text{SUBJECT} \{2\} \text{np-synsem} \\
& \quad \text{LOCAL.CONT.HOOK.INDEX ref-ind} \\

\text{mrs} & : \\
& \quad \text{HOOK} \quad \text{INDEX} \#1 \\
& \quad \text{RELS} <! \text{keyrel} \& \text{event-relation}\& \\
& \quad \{3\} \text{ARGO \#1} > \\

\text{HEAD.DTR.SYNSEM.LOCAL.CONT} & : \\
& \quad \text{HOOK} \quad \text{INDEX} \#1 \& \text{event} \quad \text{E} \quad \text{tense} \\
& \quad \text{RELS} <! \text{keyrel} \& \text{event-relation}\& \\
& \quad \{3\} \text{ARGO \#1} > \\

\text{VERB} & : \\
& \quad \text{HEAD} \quad \text{MOD} < \quad \text{SYNSEM.LOCAL.CAT.HEAD} \#verb \\
& \quad \text{SYNSEM.LOCAL.CONT.HOOK.INDEX \#1} > \\

\text{NON-HEAD-DTR.SYNSEM.LOCAL.CAT} & : \\
& \quad \text{QVAL} \quad \text{SUBJECT} \{2\} \\

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\text{NON-HEAD.DTR.SYNSEM.LOCAL.CONT} & : \\
& \quad \text{RELS} <! \text{keyrel} \& \text{event-relation}\& \\
& \quad \{4\} \text{ARGO \#1} > \\
& \quad \text{SITPAIR-COND} \{5\} \text{list}
\end{align*}
\]
APPENDIX 5. CONSEQUENTIAL-VERB-SERIAL-MOD-PHRASE.