Ota Ogie

Multi-Verb Constructions in ÈDÓ

Thesis for the degree of Philosophiae Doctor

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Norwegian University of Science and Technology
Faculty of Humanities
Department of Languages and Communication Studies
NTNU
Norwegian University of Science and Technology

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I dedicate this thesis to the memory of my late mother
Ruth Adidi Ehanire Ogie.
She told me that her children were her gifts from God.
May her gentle soul rest in perfect peace amen.

And
To my father Prof. Evbinma Ogie
who introduced me to Linguistics.
Acknowledgements

Once upon a time there lived a little girl in Benin City Nigeria. She dreamt that she would be a linguist just like her dad when she grew up.

The year is 2008 and the little girl has grown up and Santa Clause and her guardian angel ‘Èhì’ has brought her to Norway on the PhD programme at NTNU, she is now living in beautiful winterland in the land of trolls, askeladen, polar bears, moose, beautiful fjords and the midnight sun. It is Christmas and she is about to submit her thesis. Along the way she has had a lot of help from many Santa Clauses, elves and Èhì’.

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It’s Christmas and the adventure in winterland continues. The little girl grown big hopes that Santa Claus will bring many gifts to everyone and wishes everyone a merry Christmas and a happy new year. Even when you read this and it is not Christmas time, feel the message of Christmas which is that of hope. To God be the glory.

Úrùësé ‘thank you’
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1.1 Introduction

In this study using The Head-driven Phrase Structure Grammar, Minimal Recursion Semantics (MRS), The Norsource Grammar based on the HPSG Grammar Matrix (Matrix 0.6) (Oepen et al 2002, Hellan 2003, Hellan and Haugereid 2004, Beermann and Hellan 2005) and a sub-eventual templates analysis for events (Pustejovsky 1991, 1995 and 2005) as analytical tool I examine multi-verb constructions in Èdó (a Benue-Congo language). The term is applied to series of verbs that can head verb projections of their own in what appears at a first glance to be simple sentences with no overt marker of co-ordination or sub-ordination:

(1) Òzó swá Àzàrí dé.
    Òzó     swá     Àzàrí     dé.
    Ozo     push.PST.H Azari    fall.PST.H
    PN      V        PN      V

'Ozo pushed Azari down.'

(2) Òzó lè èvbâré rè.
    Òzó     lè      èvbâré rè.
    Ozo     cook.PRES.L food   eat.PRES.L
    PN      V        CN      V

'Ozo cooks food and eats.'

Multi-verb constructions provide useful insight into the question of how languages distinguish between adjunction and complementation. This thesis examines multi-verb constructions in Èdó with the following focus:

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

iii. What are the aktionsart and temporal relations that license combinations of multi-verb constructions?

Four structural types of multi-verb construction in Èdó are shown to display different patterning 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: $V+\text{modifier}$: durational, directional, manner, locational and resultative ($V_2$ is a degree state); $V(P)+V(P)$: resultative ($V_2$ is an achievement/individual level predicate), consequential, negative-resultatives and covert-co-ordination; $V+mood$: purpose construction and $V+\text{infinitival complement constructions}$: comitative and instrumental constructions.

In the combinations of the multi-verb constructions above, it is shown that the relation type of a verb licenses its combinatory potential with other verbs in series as well as how the type is linked to the verb’s categorical information (cat): its valence (val) and qualitative valence (qval). The type cat is defined as used in Hellan (2003) and Hellan and Haugereid (2004). I introduce a type eventstruc-rel that inherits from the type Arg0-relation to incorporate Pustejovsky’s sub-eventual templates into the matrix framework. This relation has the sub-types of aktionsart inheriting from it. Three types of events are recognized: processes, states and transitions.

To account for temporal relations between the events in series, I use mainly Pustejovsky’s (1995) analysis for the description on temporal relations. I show also, that temporal relations interact in an interesting way with tense in Èdó: overlapping multi-verb events license $–rV$ suffixation but not in “true” serial verb constructions and covert co-ordination that are non-overlapping. The non-licensing of $–rV$ in these constructions, it is shown is due in part to constraints on the realization of grammatical functions in canonical valence positions as well as temporal constraints on the events in series.
In Chapter 1, I discuss the basic grammatical structure of the language and define the HPSG theoretical framework with the linking types I will use in the thesis.

In chapter 2 I discuss tense, aspect and mood in Èdò and a type hierarchy is presented for verbal inflection. In particular, I introduce an attribute TONE constraining the type head to account for tone phenomena in the language.

In chapter 3, I discuss the literature on event semantics. I also discuss aspectual classes for simple sentences in Èdò. I extend this classification to multi-verb constructions in chapter 4.

In chapter 4, I introduce 14 verbal constructions and 11 are given the status of multi-verb constructions in the language. I discuss syntactic and semantic properties that serve to distinguish these classes of multi-verb construction. I also examine the distribution of tense and the –rV past suffix in these constructions. The light verb construction is examined and contrasted with multi-verb constructions with respect to the distribution of the –rV suffix. Lastly, using Hellan (2007) and Beermann, Hellan and Sætherø’s (2003) argument sharing framework, I examine argument sharing patterns in the multi-verb constructions. Two kinds of patterns are posited token sharing by grammatical function and reference sharing.

In chapter 5, I examine multi-verb constructions in the following languages of the Volta Congo: Èdò, Igbo, Yoruba, Gurenne, Ga, Baule, Akan and Ewe. I show that the typological features in these languages determine the types of multi-verb constructions they license.

In chapter 6, I bind together the discussions in chapters 2 to 5 by examining formally, the relationship between aspectual classes, temporal relations and –rV suffixation.

In Chapter 7 I discuss the schemata licensing the combinations of the multi-verb constructions. Two schemas are posited to account for Èdò multi-verb constructions:
i. *Verb-serial-compl (ement)-phrase* with a complementation structure for the $V(P) + V(P)$ resultative and $V+\text{infinitival complement}$ constructions.

ii. *Serial-mod-phrase* with an adjunction structure for $V+mood$ constructions, $V+\text{modifier constructions}$ and $V(P) + V(P)$; consequential, purpose, and negative resultative constructions.

I now discuss the basic grammatical structure of the language and the HPSG and Matrix theoretical frameworks. I also give the description of the basic linking types I will use in the thesis.

### 1.2 Language background

The Èdó people can be found in the Oredo, Orhiomwon, Uhunmwode and Ovia north-east and south-west local government areas of Èdó state. This region lies in the rain forest belt of South Central Nigeria. The immediate neighbours of the Èdó are the Esan people to the north, the Ika-Igbo to the east, the Urhobos and Itsekiri to the south and the Yorubas to the west and north-west. Of these, the Urhobo and Esan languages are the most closely related to Èdó and together with 17 other languages spoken in Èdó and Delta states of Nigeria form the Edoid language group (Elugbe 1979).

Èdó language is classified along with other Nigerian languages such as Yoruba, Igbo, Nupe, Idoma and Izon as sub branches of a generic Kwa (Greenberg 1966 and Armstrong 1967). Elugbe and Williamson (1977) classify it as a sub branch of Benue-Kwa while Bennett and Sterk (1978) classify it under South Central Niger-Congo.

Manfredi (2005) classifies Èdó together with Igbo and Bantoid as belonging to BK1 (Benue-Kwa). In Gordon (2005) it is classified together with Igbo and Yoruba as belonging to the Benue-Congo subfamily of the Volta-Congo, I adopt Gordon’s (2005) classification in this thesis.

Èdó appears in the literature under three different labels. These are: Benin, Èdó and Bini. In early European literature, the language is often referred to as Bini (Greenberg
1966 and Melzian 1937), while Thomas (1910) refers to it as Èdó. These labelling differences are explained by the fact that the language is spoken in the region formally known as the Benin Empire which had its capital in the city Èdó. The term Èdó is sometimes used in the literature to refer to both the Èdó language and the group of historically related languages spoken within and around the former Benin Empire. To avoid this confusion, Elugbe (1979) classifies the language spoken by the Èdó people as Èdó while the historically related languages are classified as Edoid in line with the fact that native speakers have always called the language Èdó. Èdó language is spoken by over one and a half million speakers (1991 census).

1.3 Èdó – some basic facts

Èdó is a tone language with an SVO structure. There are two basic tones in Èdó: high (′) and low (′). Nominal heads bear constant tones while verbal heads bear relative tones. By relative tones, I mean grammatically andlexically constrained tonal realization. Tense in Èdó may be realized as tones: past tense (′) and present tense (′) or (′), a suffix: past –rV, or a lexical item: future tense ghá. With respect to syllabic structure Èdó has an open syllable system with no consonant clusters. All nouns begin with vowels and all verbs with consonants:

(5) Íràn dé èbé.

Íràn dé èbé.
3PL buy.PST.H book
PRON V CN

'They bought books.'

1 In my gloss for tense on disyllabic verbs in this thesis, I gloss only the tone on the final syllable.
2 In Èdó orthographic system to distinguish between oral and nasal vowels, the letter -n- is placed after the nasal vowel as in Íràn [iràn] in example 5 above.
1.3.1 The structure of the noun phrase

In Èdó, the only obligatory constituent of an NP is the noun. A determiner may precede the head noun. Determiners consist of the determiner nèné ³ 'the' and the plural specifier àvbé. ⁴ All other modifiers occur after the head noun. Modifiers are of two types: modifying words and modifying clause (cf Agheyisi1990). Modifying words belong to the classes of adjectives, nominals, quantifiers and demonstratives while the modifying clause is a relative clause. Below is a schema (6a) showing the co-occurrence restriction of these modifying elements relative to the noun head in an NP. In the examples following (6b) to (6c), the NP is in brackets:

(6) a. \[
\begin{array}{c}
(\text{DET}) \quad \text{N (NOMINAL) (POSS) \{QUANTIFIER (NUMERAL)\} (DEM), (ADJ), (MODIFYING CLAUSE)}
\end{array}
\]

b. [Nèné úgbóòká mwé nií nòdigbà nè i yàáéñ] rré èvbá.

\begin{tabular}{llllll}
& DET & CN & CN & PRON & DEM.ADJ & ADJ \\
\end{tabular}

nè i yàáéñ] rré èvbá.

\begin{tabular}{llllll}
& REL & 3SG & own.PRES.H.EMPH & be.PRES.H & there \\
& PRON & PRON & V & V & ADV \\
\end{tabular}

'My big corn farm that I own is located there.'

³ nèné has an optional variant né.
⁴ The plural specifier can mean these or those depending on the nature of the demonstratives modifying the head noun.
⁵ The symbol comma " , " indicates that the ordering of the modifying elements is not fixed.
In (6b) the determiner, noun head, modifying nominal and the possessive occur in a fixed order as shown in the schema in (6a). In (6c) on the other hand, POSS occurs before the modifying nominal rendering the sentence ungrammatical.

Turning now to number interpretation in noun phrases, most Èdó common nouns are interpreted as singular or plural from the context of usage:

(7)  Òtién rré èmwá.

Cherry/cherries be.PRES.H here
CN V ADV

'Cherry/cherries are here.'

Plural specifiers, numerals and quantifiers may be used to state the plural status of a noun:

(8)  a. Àvbé òtién rré èmwá.

PL.SPEC cherries be.PRES.H here
DET CN V ADV

'The cherries are here.'
b. Òtièn èvá rré èmwá.

Òtièn èvá rré èmwá.

Cherrie two be.PRES.H here

CN NUM V ADV

'Two cherries are here.'

c. Òtièn èsó rré èmwá.

Òtièn èsó rré èmwá.

Cherrie some be.PRES.H here

CN QUANT V ADV

'Some cherries are here.'

A small set of common nouns mark plurality through vowel change of initial vowel. Examples are:

(9). SINGULAR \hspace{1cm} PLURAL

Òkhuò (woman) \hspace{1cm} Èkhuò (women)
Òmò (child) \hspace{1cm} Èmò (children)
Ògiè (king) \hspace{1cm} Ègiè (kings)

Pronouns may also be heads of NPs and in this case they do not license modification. They reflect case and number distinctions. Gender is not marked on Èdò pronouns. Examples (10)-(13) below illustrate this:

(10) Ì rré èvbá.

Ì rré èvbá.

1.SG.SUBJ be.PRES.H there

PRON V ADV

'I am there.'
(11) Ô gbé mè/ *mwèn.

Ô gbé mè/ *mwèn.
3SG.SUBJ dance.PST.H 1SG.OBL/ * 1SG.OBJ
PRON V PRON PRON

'He/She danced for me.'

(12) Ô gbé mwèn /* mè.

Ô gbé mwèn / * mè.
3SG.SUBJ beat.PST.H 1SG.OBJ *1SG.OBL

'He/She beat me.'

(13) Ô rhié èbé nérèn/ *ërè.

Ô rhié èbé nérèn / *ërè.
3SG.SUBJ take book 3SG.OBL *3SG.OBJ

'He gave a book to him/her.'

Table 1 below gives the skeleton of the Èdó pronominal system.

Table 1 Basic Pronouns in Èdó.

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th></th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person</td>
<td>1st 2nd 3rd</td>
<td>1st 2nd 3rd</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Ì Ù Ò</td>
<td>Mà Wà Íràn</td>
<td></td>
</tr>
<tr>
<td>Direct object</td>
<td>Mwèn Ùwé Èrè</td>
<td>Ímà Uwà Íràn</td>
<td></td>
</tr>
<tr>
<td>Oblique object</td>
<td>Mé Nùé Nérèn</td>
<td>Nimà Núwà Niràn</td>
<td></td>
</tr>
</tbody>
</table>

Some of the pronouns, shown in table 1 have variants, which I have omitted. In addition, Èdó provides a set of pronouns that are used in negative context, and another set that is used for emphasis.

---

Agheyisi (1990) classifies these pronouns as indirect objects. However, as I will show below, they are oblique pronouns. With the exception of the 1st person oblique pronoun, all oblique pronouns are complex in nature and are composed of the preposition nè (for) + direct object pronoun. Using the oblique pronoun ñûtë as illustration, it is composed of the preposition nè (for) and the direct object pronoun ñùwè (you).
1.3.2  Structure of the simple verb phrase

As stated above, all verbs in Èdó have open syllables. The basic syllabic structures for Èdó simple verbs are CV (monosyllabic), CVCV and CVV (bisyllabic).

By a simple verb phrase I mean a phrase with only one verb as opposed to a VP in a multi-verb construction with many verbs. In this section, I discuss verb predicates along three dimensions: aktionsart, argument selection and morphology. First, I discuss them along aspectual classification.

1.3.2.1 Verbs and aktionsart

Aktionsart represents ways in which languages systematically divide eventualities into categories that are crucial to the meaning of verbs, verb phrases and sentences (Pianesi and Varzi 2000).

In this study, the term eventuality applies to any real word happenings that are either states or events. The term event here is used to refer to situation types that are evaluated relative to other events while the term state is used for situations that are evaluated relative to no other events (Pustejovsky 1991). States are distinguished from events by the semantic notion of change. Events involve some kind of change while states do not. To rephrase Pustejovsky’s definition slightly moreover, states are static with arbitrary final points while events are dynamic and may involve agency. Smith (1991) represents this as [± static].

Smith (1991:3) points out that the term aspect has been broadened to include the temporal properties of situations themselves, the internal event structure or aktionsart. Thus aktionsart is classified as a type of aspect: situation type. Aspect is defined by Smith (1991: xvi) as:

> Aspect is the domain of the temporal organisation of situations. The aspect meaning of a sentence results from the interaction between two independent aspectual components, situation type and viewpoint.

Viewpoint gives the receiver a full or partial view of a situation and consists of the perfective and the imperfective aspect. It is often indicated by morphology (affixes, special forms).

---

7 The term here refers to an eventuality classification, not a linguistic description.
A distinction made in the literature between states [+static] and events [-static] is the ability of durative events to license imperfective morphology (Vendler 1967, Smith 1991, Pustejovsky 1991, 2005, Dowty 1979. This is discussed in detail in chapter 3).

In this section, I discuss briefly the different aspectual classifications of Èdó verbs.
I give a detailed discussion in chapter 3. Below are examples:

(14) Òzó kiè êkhú.

Òzó kiè êkhú.
Ozo open.PRES.L door
PN V CN
'Ozo opens the door.'

(15) Èkhú kìè-rè.

Èkhú kìè-rè.
Door open.PST-rV
CN V
'The door opened.'

In (14) the situation described is an event while in (15), a state is described.

Èdó verbs do not license imperfective morphology. Imperfective aspect is marked by the particles ghá 'present-progressive' and ghá!á 'past progressive'. (This is discussed in chapter 2 section 2.3.2).
The progressive aspect presents a non-culminative view of an event. That is, the event is still in development at a particular time (t) thus in Èdó, events can co-occur with the imperfective markers ghá (16) and ghá!á while states do not license them (17):
In Ga a related language (Volta-Congo) viewpoint aspect is expressed by morphological affixes. Aspect inflection on combinations of verbs in a construction type called the Extended Verb Complexes (EVCs) where V1 is a preverb - either a deictic verb or a verb expressing negation - is determined by the semantic category of the preverb. In particular, the progressive aspect is not licensed when the pre-verb is deictic. The verb combinations generally bring with them their lexical meaning (Dakubu, Hellan and Beermann 2007). A possible explanation may lie in the semantics of spatial deictics as locators of entities in space. They denote non durational eventualties.

Events are further classified into three classes in terms of two features: telicity and duration. Telic events are directed towards a goal. When the goal is reached, a change of state occurs and the event is completed. The goal is intrinsic to the event constituting its natural final point. Telic events are finite. The parameter of duration represents the presence or absence of internal stages in the temporal schema. Table 2 below shows a classification of events along these two dimensions:
Table 2: classes of events

<table>
<thead>
<tr>
<th>EVENTS</th>
<th>TELICITY</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities</td>
<td>[-]</td>
<td>[+]</td>
</tr>
<tr>
<td>Accomplishment</td>
<td>[+]</td>
<td>[+]</td>
</tr>
<tr>
<td>Achievement</td>
<td>[+]</td>
<td>[-]</td>
</tr>
</tbody>
</table>

1.3.2.2 Verb morphology

Most verbs in Èdó can be inflected for the purpose of pluralizing nouns that occur with them or to mark repeated action:

(18). Òzó dè-lè èbé.

Òzó dè-lè èbé.

Ozo buy.PST-PL book
PN V CN

'Ozo bought books.'

For transitive verbs with a participant bearing the grammatical function of the direct object as in (18) above, the direct object is interpreted as plural when the verb has plural suffixation. In addition, the event may be interpreted as iterative. For verbs were the second participant is an oblique as in (19), suffixation of the plural marker makes an iterative interpretation of the event obligatory:

---

8 These events may also contain sub-eventual structures (Pustejovský 1991a: fn 10). This will be relevant in my discussion on aspectual classes. Under this view, accomplishments and achievements are distinguished from activities by an event structure consisting of a process and a state and constitute a class called transitions, while activities are composed of only processes and are non-transitions. For example (1) below is analyzed as being composed of two sub-events. The first event is a process and the second event a state. I discuss this further in chapters 3, 6 and 7.

(1) John opened the door.
For verbs with only one argument which bears the subject grammatical function, the subject is interpreted as plural in the presence of plural suffixation on the verb. The event depicted by the verb with the exception of accusative verbs may also be interpreted as iterative:

(20) Òtién dè-lé-rè.

Òtién dè-lé-rè.

Cherry fall.PST-PL-rV

CN V

'Cherries fell.'

The verb stem to which a plural suffix attaches always bears a low tone. In addition, the last vowel on the verb root determines the form of the vowel on the plural suffix. There are six allomorphs of the plural suffix /le/, /le/ /lo/, /lo/, /ne/ and /no/. However, each allomorph has different tonal patterns in the past (´) and present (´) tense respectively. I illustrate the mapping paradigm in table 3 below:

<table>
<thead>
<tr>
<th>Verb</th>
<th>Plural-past suffix</th>
<th>Plural-present suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dè (buy)</td>
<td>Lé</td>
<td>Lè</td>
</tr>
<tr>
<td>Dè (fall)</td>
<td>Lé</td>
<td>Lè</td>
</tr>
<tr>
<td>Sò (cry)</td>
<td>Ló</td>
<td>Lò</td>
</tr>
<tr>
<td>Tin (fly)</td>
<td>Nó</td>
<td>Nó</td>
</tr>
<tr>
<td>Sò (tear)</td>
<td>Ló</td>
<td>Lò</td>
</tr>
<tr>
<td>Gbèn (write)</td>
<td>Né</td>
<td>Nè</td>
</tr>
</tbody>
</table>

Finally, tense and transitivity are marked on the verb either through tonal changes or by suffixation. This will be discussed in detail in chapter 2. In (20) above, the past
tense suffix \(-rV\) is attached to the stem \(de\) 'buy' + \(le\) 'plural suffix'. The final vowel on the stem determines the form of the vowel on the suffix. Plural suffixation will not be discussed in this thesis, as it has no theoretical implication on multi-verb-constructions. In chapter 2, I discuss verb forms and past tense suffixation. I now discuss immediately the theoretical framework I will use in my analysis.

1.4 The theoretical domain

1.4.1 Introduction

In this study, I use The Head Driven Phrase Structure Grammar (HPSG) (cf. Pollard and Sag 1987, 1994, Ginzburg and Sag 2001 and Sag, Wasow and Bender 2003), the LKB type feature structure grammars (Copestake 2002) and the NorSource grammar (Hellan 2003, Hellan and Haugereid 2004, Beermann and Hellan 2005).

1.4.2 HPSG: a theory of signs

The Head-Driven Phrase Structure Grammar (HPSG) is a grammar that attaches importance on information encoded in lexical heads. It is based on developments arising from research in Generalized Phrase Structure Grammar (GPSG) (Gazdar et al 1985) which sought to provide a non transformational syntactic framework (as opposed to the Principle and Parameters framework) by employing meta-rules which applied to lexically headed phrase structure rules and which constrained context free grammars. Parallel developments in LFG by Bresnan (1976 and 1982) provided a lexical based explanation to phenomena such as passivization.

Three phases in the development of the theory are described in the literature. Phase one refers to Pollard and Sag (1987), Phase two refers to chapters 1 to 8 of Pollard and Sag (1994) and Phase three refers to chapter 9 of Pollard and Sag (1994), Sag and Wasow(1999), Ginzburg and Sag(2001) as well as researches to date.

Not all details of the discussion in the following are relevant for my discussion in the later chapters. The discussion is nevertheless relevant since a comprehensive account
of the matrix framework is not found elsewhere in the literature except in Hellan (2003).

The fundamental concept of HPSG is that of the sign. It is a grammar theory whereby emphasis is based on representation of the lexicon as a system of structured linguistic objects represented as types and constraints on the types. Lexical entries correspond to lexical types that are related to each other in type hierarchies.

Following Ferdinand de Saussure’s idea of a linguistic sign, a sign in HPSG is a collection of different kinds of properties that include phonological, syntactic, semantic and contextual constraints that are represented as a typed attribute-value matrix (AVM). Example (21) below illustrates this:

```
(sign
  STEM list
  SYNSEM list
  ARGs list
  INFLECTED boolean
  ROOT boolean

  synsem
    local
    CAT cat
    CONT mrs
  NON - LOCAL
)
```

AVMs are descriptions of feature structures. A feature structure is a way of representing grammatical information. It is a specification of a set of features called attributes (written in capital letters) each of which is paired with a particular value (written in italics). The value must belong to a type. Types are classes of linguistic entities (words, phrases, categories, sounds, meaning, theoretical entities such as grammar rules etc) that form the grammar of a language. Entities are assigned to classes due to certain properties they share. Feature structures allow generalizations to be captured.

The linguist uses feature descriptions containing a certain part of the information that is present in the feature structure that models the linguistic object. A feature structure description can be partial (satisfied by many distinct feature structures) or total (satisfied by one).

---

9 Lexical entries are a pair consisting of a form and a lexeme description which are used to derive entries that pair a form with a word description (Sag and Wasow 1999:175)
In (21) above, the type *sign* has a specification of the following five attributes that constrains it: STEM, SYNSEM, ARGS, INFLECTED and ROOT.

The attribute STEM has a *list* as value. The constraint on the object contained in this list must include a list of phonemes.

The attribute SYNSEM has a type *synsem* as value. The attribute LOCAL constrains *synsem* and has the type *local* as value. *Local* information encompasses syntactic *cat* (category) and semantic *cont* (content) information. *Cat* contains category and valence information while *mrs* contains information on instances of linguistic objects. This will be discussed further in 1.4.3.3 below. The feature NON-LOCAL has a value *non-local*. Non-local information constrains relationships between an entity realized non-canonically and the lexical head that subcategorizes for it, as in unbounded dependencies.

ARGS has a *list* as value. *Lists* have *avm* as supertype with immediate subtypes: *cons* (non-empty), *null* (empty) and *olist* (optional). ARGS specify the daughters of a *type*. INFLECTED allows for information on inflectional patterns of lexemes, words and phrases to be captured and has the type *boolean* as value. *Boolean* has two subtypes + and -. This allows for the distinction between lexemes and words to be captured. Lexemes are neutral to inflectional variants for which they are defined and words realize inflectional variants.

Lastly, the feature ROOT captures what a grammar licenses as a “stand alone” utterance or a start symbol. This is captured by the constraint [IC *boolean*] in Ginzburg and Sag (2001), IC meaning independent clause. Bender (2002) represents words as [ROOT-] and phrases as [ROOT *boolean*]. Thus in this grammar words cannot function as start symbol.

In addition to being a sign based grammar, HPSG is constraint based. A constraint-based grammar consists of feature declarations that are also called appropriateness conditions on types. It declares which attributes and attribute values are appropriate for which type of objects. The constraint on a type must be consistent and compatible with inherited information from a parent type. The type *sign* in example (21) above is a parent for the type *word-or-lexrule* which has subtypes which includes *lex-item* and *word* types and *phrase-or-lexrule* which has subtypes which include *phrase*. This
means that these types must satisfy the constraint for the parent type \textit{sign}. Examples (22) and (23) illustrate this:

\begin{equation}
(22) \begin{bmatrix}
\text{word-or-lexrule} \\
\text{ARG-ST list}
\end{bmatrix}
\end{equation}

\textit{Word-or-lexrule} inherits all constraints of the parent type \textit{sign} with the additional constraint that it must have an ARG-ST (Argument Structure). ARG-ST consists of all subcategorized constituents a lexical head combines with. It is a feature only found on lexical heads and the ordering of elements in its value imposes a ranking on the phrases in the phrase structures corresponding to these values.

The type \textit{lex-item} is a parent for the type \textit{lexeme}. \textit{Lexeme} inherits ARG-ST information from \textit{word-or-lexrule} with the additional constraint that it has a – value for the feature INFLECTED. Lexemes are abstract proto-words that give rise to words:

\begin{equation}
(23) \begin{bmatrix}
\text{lexeme} \\
\text{INFLECTED-}
\end{bmatrix}
\end{equation}

The type \textit{lex-rule} and sub-types that include \textit{lexeme-to-word-rule} introduce inflectional variants. Inflection is not declared on the type \textit{word} but is declared on the type \textit{lexeme-to-word-rule} that induces inflection on a \textit{lexeme}, deriving a \textit{word}. Words realize inflectional variants. This is discussed in chapter 2 below.

The type \textit{word} is also a subtype of \textit{word-or-lexrule} and also inherits the constraint that lexical items have an ARG-ST. In addition, words cannot function as start symbols. This is captured by the following constraint:

\begin{equation}
(24) \begin{bmatrix}
\text{word} \\
\text{ROOT -}
\end{bmatrix}
\end{equation}
In addition to inheriting constraints on the super types \textit{sign} and \textit{word-or-lexrule}, the value for the feature \textit{ROOT} is declared on \textit{word} as having the value -. This differentiates the type \textit{word} from the type \textit{phrase}.

The type \textit{phrase} inherits information from a super type \textit{phrase-or-lexrule}, which has the type \textit{sign} as parent. \textit{Phrase-or-lexrule} contains constraint on semantic information of a rule in a construction and has the constraints in (25) below:

\begin{verbatim}
(25) SYNSEM[canonical - synsem[LOCAL.CONT.HOOK #hook]
C-CONT[mrs - min
HOOK #hook]
phrase-or-lexrule]
\end{verbatim}

\textit{Phrase} is different from the type \textit{word-or-lexrule} in that it has an empty ARG-STR list. This captures the generalization that ARG-STR is a feature relevant only for lexical heads.

\begin{verbatim}
(26) SYNSEM.LOCAL.ARG-STR ROOT phrase boolean<>
\end{verbatim}

The constraint on a type must be consistent and monotonic.\textsuperscript{10} As seen in (21) through (26) above, this means that constraints on super types affect all instances of subtypes without exceptions.

Every type must be defined or declared. This involves specification of types position in a hierarchy, as well as, specification of what attributes are appropriate to it and specification of possible values for each attribute. The types described so far are declared in the hierarchy in (30) below. This is discussed immediately below in section 1.4.3.

\textsuperscript{10} A non-monotonic system would allow for default inheritance.
1.4.3 Type feature structure grammar

The Linguistic Knowledge Builder (LKB) (Copestake 2002) is a grammar based on typed feature structures in the lexicon that has been mainly tested with grammars based on HPSG but which is framework independent. Type feature structure languages are based on typed feature structures and how they are related through an operation called unification. A type system grammar consists of: a type system, a start structure, lexical entries and grammar rules.

A start structure specifies what can be a stand-alone utterance in the type grammar. A lexical entry encodes information about orthography and specifies the semantic relation a lexical entry belongs to. In addition to these standard information, Hellan (2003) includes a constraint on lexical entries that they belong to a particular inflection class (I discuss this in chapter 2 below). I now discuss the type system.

1.4.3.1 The type system

The type system consists of

(27)

i. A type hierarchy that indicate specialization and consistency of types.

ii. A set of constraints which indicate which features are well-formed as well as features that are licensed for a particular type.

The type system also determines mutual compatibility between structures and captures generalizations that allows for underspecification and inheritance.

Feature Structures can be conceived in at least two or more ways: as functions, in the mathematical sense of the word,\(^\text{11}\) specifying a value for each of a set of features or else as directed graphs where feature names label arcs that point to appropriately labelled nodes. This is illustrated below:

\(^{11}\) Following Sag and Wasow (1999:48), this means that each feature in a feature structure must have a unique value.
In (28) above, the three nodes with types \textit{ne-list}, \textit{*top*} and \textit{list} are connected by directed arcs with labels FIRST and REST that are referred to as features. Arcs map the path into a structure. As discussed above features descriptions are also represented by AVMs thus (28) above can be represented as (29):

\[
\begin{bmatrix}
\text{ne-list} \\
\text{FIRST} * \text{top*} \\
\text{REST list}
\end{bmatrix}
\]

The type \textit{ne-list} has the type \textit{list} as super type. \textit{List} is a subtype of the type \textit{avm}. A type hierarchy consists of a unique most general type called \textit{*top*}. The hierarchy is a tree that consists of a specification of types and their parents together with constraints that licenses them. Features are declared only once in a hierarchy. The value for an attribute must be a type and must be represented in a type hierarchy and may inherit from an appropriate type that subsumes it. The hierarchy specifies how constraints are inherited. A type may inherit from two or more parents, a phenomenon known as \textit{multiple inheritance}. Crucially, it is assumed that all types that exist have a specified position in the hierarchy and that if two types are compatible there must be a single type that represents their combination. Below, I represent a simple type hierarchy to capture the descriptions in (21) to (29) above:
The type hierarchy in (30) shows the specified position of the types discussed so far as well as their feature declaration. In addition, the type *cat* is declared as constrained by an attribute HEAD with value *head*. This allows for part of speech information to be captured as well as generalizations peculiar to a part of speech. For example, the part of speech *verb* is declared as having the feature TENSE with value *tense* as appropriate for it and *noun* is declared as having the feature PNG with value *png* as appropriate. *Png* captures person, gender and number generalizations and may have the values (at least for a language like English) *3sing* and *non3sing*.

Inheritance mechanisms allows for *underspecification* in the grammar. In (30), the features STEM and SYNSEM are not declared on *lexeme, word* and *phrase*. These
features are inherited from the parent type *sign*. Illustrating further, inheritance allows for *underspecification* of value declaration. For example a phrase may be specified as:

\[
\text{SYNSEM}\begin{bmatrix}
\text{STEM} & \text{list of phonemes} \\
\text{syensem} & \\
\text{LOCAL} & \text{cat}\text{HEADhead}\text{CONTmrs}
\end{bmatrix}
\]

(31) allows for any part of speech to be declared as an appropriate value for a phrase.

### 1.4.3.2 Unification

Inheritance and underspecification are facilitated by a mechanism known as *unification*. Unification allows for two feature structures that are compatible to be declared in a type which contains all information pertaining to them. Such structures must be *consistent* and *compatible*. The unification of two compatible structures will have a type, which is their greatest lower bound. The result of unification is the greatest lower bounds of the structures being unified. This is illustrated below whereby the unification of the types *sign* (32) and *phrase* (33) results in (34):

\[
\text{ARGS}\begin{bmatrix}
\text{CAT}\text{vp}
\end{bmatrix}
\]

\[
\text{ARGS}\begin{bmatrix}
\text{ne}\text{list}
\end{bmatrix}
\]

\[
\text{ARGS}\begin{bmatrix}
\text{phrase}
\end{bmatrix}
\]
In (32) *ne-list* has the feature declaration FIRST.SYNSEM.CAT *top*. As mentioned earlier, the most general TFS of all is [*top*] and the result of unifying this with an arbitrary TFS [F] will always be [F]. In (33) *ne-list* has the feature declaration FIRST.SYNSEM.CAT vp, thus the result of unification in (34) gives the latter as value.

In (35) and (36) below, unification is not licensed, as there is no greater lower boundary for the types 3sing and non3 sing.

Also unification is not licensed when feature structures have different values. For example, (37) below cannot unify with (35) and (36) because it has a different value for head and therefore different generalizations capturing its head features.
Unification is also achieved through the use of boxed numerals called tags to capture identity between feature structures (re-entrancy or co-indexation). Two feature structures bearing the same tag are said to be token identical and are said to share structures. The paths are said to be equivalent. Structure sharing involves token identities of values and not just values that are structurally identical feature structures (cf. Pollard and Sag1994:19). For example, the head value of a phrase must be structure identical with that of its mother (I discuss headed structures in 1.4.6.5 below). This is represented through re-entrancy of shared feature structures as described in (38):

The boxed tag [1] captures the generalization that the head value of a word that heads a phrase is structure shared by the phrase.

Feature structure descriptions may be abbreviated. One can leave out type names and give the sequence of features that lead from a root node to a value for that feature structure description. Thus (38) can be abbreviated to (39) below:
1.4.4 Linguistic application of feature structure descriptions

In the discussion so far, we have worked with the assumption that linguistic entities are not necessary atomic in nature. Instead, they are classified in terms of properties they exhibit into classes that capture generalizations which we called types. The properties appropriate to each type are captured by constraints represented in attribute value matrices (AVM) that consist of features appropriate for the type as well as values for these features.

A common fact about language is that it is a system of form and meaning, a generalization realized by the feature SYNSEM. In essence, SYN (syntax) represents information about subcategorization and rules which licenses the combination of phrases from words and from phrases to form larger phrases until the subcategorization frame of a phrase is saturated. SEM (semantics) allow for information about the contribution of word meaning to phrases to be captured.

It explains how the meaning of phrases is composed from the meaning of its individual parts. Meaning as represented here is compositional in nature. The most general type that captures this characteristic of linguistic entities is the sign. As shown above in (21), the feature SYNSEM with the value of type synsem is one of the constraints on all linguistic entities that inherit from the type sign.

The type synsem has the constraint that all information is either local or non-local. The features LOCAL with value local and NON-LOCAL with value non-local represent this. Non-local information constraints relationships between an entity realized non-canonically and the lexical head that subcategorizes for it, as in unbounded dependences.

Local information is captured by three attributes: CATEGORY (CAT) with value of type category (cat), CONTENT (CONT) with value of type mrs and CONTEXT (CONTX) with value of type context (contx). These attributes form a single structure because they and they alone are shared between filler and a trace in an unbounded
dependency. Also, *local* allow for correspondence between syntactic and semantic structures in terms of possible combinations and linking to be stated as a class. Turning now to the attributes introduced by *local*, explaining briefly, the feature CAT captures all syntactic generalizations pertaining to part of speech, as well as, the combinatory potentials of lexical items. CONT captures the word’s contribution to context-independent aspects of the semantic interpretation of any phrase that contains it. CONTX encompasses context-dependent linguistic information such as indexicality, presupposition, and/or conventional implicature. I will not be discussing CONTX in this thesis. First, I discuss CATEGORY.

1.4.4.1 Category

The feature CAT has as value the structured object type *cat*. *Cat* has two features constraining it: HEAD with value *head* and VALENCE with value *valence*. I first discuss head features.

1.4.4.1.1 Head features

HEAD features include firstly part of speech information and secondly, properties that are characteristic of each part of speech. Part of speech categorization is derived in part by the distributional pattern of a lexical item and in part from the meaning pertaining to that lexical item. Using as illustration, the parts of speech *verb* and *noun* can be (simplifying much) defined as encoding descriptions of *events* for the former and of *referential-individuals* for the latter.

Following from this definition for verbs, *events* being located in time, a characterization of events with respect to utterance of speech act give rise to a finite, non-finite distinction. The feature V-FORM with value of type *vform* captures this (Ginzburg and Sag 2000). The type *vform* has the following subtypes *clausal* and *nonfinite*. *Clausal* types are finite in nature and serve as super type to the type *finite*. Infinitives have clausal properties and also are non-finite. This generalization is captured by a type *inf* that inherits from both *clausal* and *non-finite*. The types *finite* and *inf* distinguish *vforms* that head clausal constructions.
A second head property of verbs is whether they can be used as independent clauses. This is captured by the feature IC (independent clause) and has boolean as value. Illustrating so far verbs have the following constraints:

\[
\begin{array}{c}
\text{Name} \\
\text{vform} \\
\text{IC} \quad \text{boolean}
\end{array}
\]

Using the word *reads* as example, following the discussion so far, the following AVM constrains occurrences of this word:

\[
\begin{array}{c}
\text{Name} \\
\text{reads} \\
\text{vform} \\
\text{IC+}
\end{array}
\]

The attribute value matrix in (41) constrains the verb *reads* as belonging to the sign type *word* with the constraint that this *word* type have as value for its head feature a *vform* of type *finite* and *IC+*. This information is available through the path SYNSEM.LOCAL.CAT.HEAD that has the type *verb* as value.

As discussed in 1.4.3.1, information on agreement which is represented by the constraint PNG with value *png* on the type *noun* is represented as follows:

\[
\begin{array}{c}
\text{Name} \\
\text{noun} \\
\text{PNG} \quad \text{png}
\end{array}
\]

A further property of heads of this type is that they may encode information about case. Case is information about syntactic relationships pertaining usually to *nouns* and *determiners* and *adjectives* in relation to the lexical items that subcategorizes for them. A feature CASE imposes this restriction on these *head* types with value of type
Case. Case has two subtypes nominative (nom) and accusative (acc). (42) can now be expanded to include this restriction:

\[
\begin{pmatrix}
\text{noun} \\
\text{PNG png} \\
\text{CASE case}
\end{pmatrix}
\]

In (44) below, I show the avm constraint on a noun she.

(44) states that she is a sign of type word with head value of type noun. This head value has two constraints represented by the features PNG 3sing and CASE nom. This is accessed through the path SYNSEM.LOCAL.CAT.HEAD.PNG 3sing for the former and SYNSEM.LOCAL.CAT.HEAD.CASE nom for the later.

A further exemplification of a feature analysis description of categories is the head type determiner (det). Common to determiners in languages like English is the fact that they may encode information about the nature of nouns they can combine with. The feature COUNT with value boolean captures this constraint. The type det also encode agreement information. This is shown in (45) below:

\[
\begin{pmatrix}
\text{det} \\
\text{PNG png} \\
\text{COUNT boolean}
\end{pmatrix}
\]

A determiner like 'a' would have the constraints in (46):
So far I have shown how representation of categories as feature complexes works. An advantage of using such complex feature structures is that it allows us to group different categories into classes with respect to features that cut across them. For instance, one can talk about signs with agreement value of type \textit{3sing} without reference to their parts of speech. I exemplify this in (47) below:

The feature structure constraint in (47) may license signs with head value of types \textit{noun} and \textit{det}. Thus grammar rules may be formulated which take signs just as those described in (47) as input.

\subsection{Valence features}

In Standard HPSG, a second feature that constrains the type \textit{cat} is VALENCE (VAL) with value \textit{val}. This feature gives the co-occurrence restrictions of elements that occur with a lexical head. It is a specification of signs a lexical item must combine with in other for it to be saturated. Pollard and Sag (1994 chapters1 to 8) describe such information using a feature SUBCAT with a list value of type \textit{synsem}. All signs
occurring in the SUBCAT list are of the status *complement* and this includes not only sisters of lexical heads but also subjects and specifiers. Based on proposals by Borsley (1987, 1989 and 1990) Pollard and Sag (1994 chapter 9) a revision of the classification of co-occurrence restrictions in combinations of signs along the lines of grammatical category classification is made. The following valence distinctions are made: SUBJECT (SUBJ), SPECIFIED (SPEC), SPECIFIER (SPR) and COMPS. In the matrix 0.6 grammar these features are constraints on the type val. The type val is defined as an *avm*. I show this in (48) below:

\[
\begin{bmatrix}
\text{val} \\
\text{SUBJ list} \\
\text{SPR list} \\
\text{SPEC list} \\
\text{COMPS list}
\end{bmatrix}
\]

(48)

The feature SUBJ captures the grammatical relation subject that was formally specified in the SUBCAT list (Pollard and Sag 1994). The SUBJ list\(^{12}\) has a value of one and as with all types occurring in the valence list must be of type *synsem*. (49) below illustrates this.

\[
\begin{bmatrix}
\text{word} \\
\text{STEM reads} \\
\text{SYNSEM} \\
\text{LOCAL} \\
\text{CAT} \\
\text{HEAD} \\
\text{IC} \\
\text{VFORM finite} \\
\text{VAL SUBJ }<[\ ]>
\end{bmatrix}
\]

(49) places a constraint on the verb word *reads* to have one element on its SUBJ list. The representation [ ] specifies that the list is non empty.

The feature SPR allows a sign to select an element that specifies it. Nouns, adjectives, prepositions, adverbs and other specifiers may select an element that specifies them.

\(^{12}\) In Sag and Wasow (1999) subjects and determiners form a class referred to as SPECIFIER (SPR). The subject is not encoded by a separate SUBJ feature but treated as the first element in an ordered ARG-ST list.
The selection between the specifier and the element it specifies is that of mutual selection. This is done through the SPEC feature constraining the specifier and the SPR feature constraining the specified element. I explain this immediately below.

The feature SPEC is used by markers and determiners to select their head sisters. Thus the head selects the non-head element through its SPR list while the non-head specifier, through its SPEC feature, makes a reciprocal selection of the head-element. I show the relevance of these features with the determiner \textit{a} and the noun \textit{book}. For the purpose of quick exposition, I from now on, abbreviate path information into values where it creates no difference in the description of types.

Following the constraints on determiners declared in (45) above, in (50), the head of the word 'a' is constrained by the features PNG and COUNT with their corresponding values. In addition, information on its combinatory properties is accessed through the path SYNSEM.LOCAL.CAT.VAL.SPEC [head \textit{noun}]. It must combine with a synsem of type \textit{noun}. The PNG features of \textit{det} and the \textit{noun} must be token identical. This is ensured through the re-entrancy [1]. Observe that the feature COUNT is not a head feature of the noun and therefore its value is not shared by the determiner and the noun.\textsuperscript{13}

\textsuperscript{13} Another meaning of a HEAD feature is to be on the path CAT.HEAD. This would presuppose structure sharing of all HEAD features by \textit{det} and \textit{noun}.  

\[\text{(50)}\]

\[
\begin{array}{l}
\text{word} \\
\text{SYNSEM.LOCAL.CAT} \\
\text{VAL} \\
\text{\{det, HEAD \{PNG \{1 \} \text{sin} g\}, COUNT \{+\}\}} \\
\text{\{SPR \{\}} \\
\text{\{SPEC \{LOCAL.CAT \{\text{head} \text{noun} \{PNG \{1\}\}\}\}\}} \\
\text{\}} \\
\end{array}
\]

\[\text{(51)}\]

\[
\begin{array}{l}
\text{word} \\
\text{SYNSEM.LOCAL.CAT} \\
\text{VAL} \\
\text{\{HEAD \{\text{noun} \{PNG \{1\}\} \text{sin} g\}, \text{SUBJ} \{+\}\}} \\
\text{\{SPR \{\}} \\
\text{\{SPEC \{\}} \\
\text{\{LOCAL.CAT \{\text{head} \text{det} \text{PNG} \{1\}\}\}} \\
\text{\}} \\
\end{array}
\]
Observe that SPR list requirement is non-empty in (51) while the SPEC list is empty. The head of the word is of type noun and is constrained to have PNG $3_{\text{sing}}$. It is also constrained to have an element on its SPR list of type synsem with a head value det. Again, observe that the PNG values of the noun and its determiner are token identical and that the feature COUNT is restricted as a constraint on det.

In determiner + noun combinations, the head-daughter is the noun and as such lexical items selecting such combinations would only have access to the PNG information value of the head noun which is structure shared with the det in its SPR list (the re-entrancy [1]). The head constraint on headed phrases which stipulates that head feature of a daughter and a mother be token identical (I discuss this under constituent types in section 1.4.6.5) captures this. Such token identity ensures that the PNG value will be shared with the noun phrase mother. The assumption is that combinations of determiners and nouns form noun phrases headed by nouns. Following this, the value for the feature COUNT cannot be passed on to the mother phrase in such combinations. In English this is predicted by the fact that no verb places a constraint on its subject or object that it must be count or mass.

Hellan and Beermann (2006) discuss the theoretical status of the specifier in NPs. The standard assumption that every NP is represented by just one variable and one quantifier binding that variable is represented as a uniqueness constraint which generalizes across all languages. It can be interpreted in two ways (Hellan and Beermann 2006:59):

(52)

i. There must be one specifier in an NP as in English.

ii. There can be at most one specifier as in Norwegian.

In languages like English nouns are necessarily classified as having a non-empty SPR list while for languages like Norwegian this is not a requirement, that is, nouns may occur without specifiers. In Norwegian, Specifier+noun combinations are achieved through combinatory rules.
I now discuss the COMPS feature. It specifies the signs a lexical head must co-occur with in order for it to satisfy its sub categorization properties for complements and has a list value. Lexical types have a non-empty list while phrasal types have a saturated COMPS list. Still using the verb *reads* for exemplification, (53) illustrates this.

(53) restricts the verb word *reads* to have elements both on the SUBJ and COMPS list. Remember that valence elements must be of type *synsem*.

The four feature constraints on *val* discussed above encode information about what arguments a lexical item takes.

Hellan (2003) and Hellan and Haugereid (2004) modify the standard VAL list that I have discussed above to capture phenomena like, light pronoun distribution, presentational constructions, particle placement and predicative complement distribution in Norwegian. They make a distinction between classifying a verb in terms of its topological field labelled Valence (VAL) and in terms of its grammatical function labelled Qualitative Valence (QVAL). The type *qval* makes it possible to refer to an arguments grammatical function irrespective of its position on the valence list. This distinction is encoded as a constraint on the type *cat*. Thus *cat* is redefined as follows:
The feature VAL is redefined as follows as relevant for verbs:

\[
\begin{bmatrix}
  val \\
  SUBJ list \\
  COMPS list \\
  ICOMPS list \\
\end{bmatrix}
\]

The relationship between the fields depicted by the attribute in (55) is linearly fixed. SUBJ occurs before all modals and all elements occurring before the finite main verb. COMPS and ICOMPS occur after the main verb respectively. Elements that occur in the COMPS list include: indirect object, direct object, predicatives.

Interspersable Complements (ICOMPS) field identifies items with grammatical function \textit{oblique}, that is, PPs that are subcategorized for by the verb. Different from COMPS, they allow insertion of right-adjuncts between the main verbs and them.

\[(56) \quad \text{Per fortalte Marit igar om Jon} \]

\begin{tabular}{cccc}
Per & fortalte & Marit & igar & om & Jon \\
COMPS & ICOMPS & \\
Per & told & Marit & yesterday & about & Jon \\
PN & V & PN & ADV & PREP & PN \\
\end{tabular}

'Per told Marit Yesterday about Jon'

Grammatical function constraints are captured by the following constraints on the type \textit{qval}:
The SUBJECT, DOBJ, IOBJ, OBL and PREDIC features are constrained to have values of type \textit{synsem}. The value of IOBJ is further constrained to be a sub-type of synsem \textit{np- synsem}.

The verb \textit{beundre} ‘admire’ in (58) below shows the mapping between VAL and QVAL values:

\begin{itemize}
  \item In (58) the verb \textit{beundre} has a constraint that the element that functions as its grammatical subject must occur as the first element in its valence list. Also, the element that has the grammatical function of object must occur as the second element in its valence list. Hellan (2003)\textsuperscript{14} gives the following classification explaining the mapping relationship between the attributes and the fields they can occur in.
\end{itemize}

\textsuperscript{14} The Valence list has been reviewed with the attribute ACOMPS (Annex Complements) omitted. ACOMPS was occupied by light pronouns with either indirect object or direct object functions (Hellan pc).
Table 4

<table>
<thead>
<tr>
<th>ATTRIBUTE</th>
<th>CHARACTERIZATION AND EXAMPLE</th>
<th>FIELD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>SUBJ</td>
<td>COMPS</td>
</tr>
<tr>
<td>Indirect object</td>
<td>IOBJECT An NP with experiencer, benefactive or recipient role and always occurs in a position preceding the direct object</td>
<td>COMPS</td>
</tr>
<tr>
<td>Direct object</td>
<td>DOBJECT An NP with a theme or patient role, or a clause, or an infinitive occupies this position. In presentational constructions the NP must be indefinite if the position is occupied.</td>
<td>COMPS</td>
</tr>
<tr>
<td>Oblique</td>
<td>OBL A PP whose governee expresses a participant of the situation introduced by the verb</td>
<td>ICOMPS</td>
</tr>
<tr>
<td>Predicative</td>
<td>PREDIC A constituent that ascribes a property to the referent of the subject or direct object</td>
<td>COMPS</td>
</tr>
</tbody>
</table>

I now discuss *mrs* below and in later sections I show the mapping between values for *cat* and *mrs*.

### 1.4.5 Mrs

The Feature CONT in (21) repeated as (59) below is declared as having a value of type *mrs*.

\[
\begin{array}{l}
\text{sign} \\
\text{STEM list} \\
\text{synsem} \\
\text{SYNSEM} \quad \text{LOCAL} \quad \text{CAT*cat*} \\
\text{ARGS list} \\
\text{INFLECTED boolean} \\
\text{ROOT boolean}
\end{array}
\]

(59)


The type *mrs* is declared as an *avm* with four features constraints:
The representation of the type *mrs* as a flat structure consisting of a list of elementary predications that can be conjoined, allows for decomposition, relating and comparing semantic structures. This is relevant for a sub eventual analysis of eventualities in the thesis. Attributes constraining the type *mrs* will be discussed where relevant in the course of my analysis. Particularly, in chapter 6, I modify the attributes constraining *mrs* to include attributes that allow me to capture in a constrained manner temporal relations between events in series in multi-verb constructions.

### 1.4.6 Syntax-semantic interface


### 1.4.6.1 Lexical mapping theory in LFG

Lexical Mapping Theory (LMT) was developed based on research on interaction of phenomena such as passivization, locative inversion and applicative constructions in Bantu languages and cross-linguistic data (Bresnam and Kanerva 1989, 1992, Bresnam and Moshi 1990, Alsina and Mchombo 1993, Alsina 1992, 1994)

The basic idea behind LMT is based on a semantics that assumes a thematic hierarchy such as in (61) below:

(61) **Thematic hierarchy (Bresnan and Kanerva 1989)**

*agent > beneficiary > recipient /experiencer> instrument > theme/patient >locative.*
Rather than matching the thematic roles of a verb directly with syntactic arguments arranged in a corresponding hierarchy,\textsuperscript{15} LMT analyzes grammatical functions in terms of the features $[\pm r]$ (thematically restricted or not) and $[\pm o]$ (objective or not). These features are associated with the roles of the argument of a predicator in its argument structure (a-structure). A-structure consists of a predicate and its argument roles.

The feature $\pm r$ (restricted) and $\pm o$ (objective) classifies the grammatical functions subject (SUBJ), object (OBJ), restricted object (OBJ$\theta$) and oblique (OBL) as in (62) below:

\begin{center}
\begin{tabular}{ccc}
\(\text{(62)}\) & $\pm r$ & $\pm o$\\
\hline
$-o$ & SUBJ & OBL \\
$+o$ & OBJ & OBJ$\theta$
\end{tabular}
\end{center}

SUBJ is the subject of the clause and OBJ is the first object corresponding to the direct object in transitive clauses and indirect object in di-transitive clauses. These functions have no restrictions with respect to theta role assignment and so, may assume varieties of theta roles, as well as, non thematic arguments such as expletives. OBJ$\theta$ is the object theta and corresponds to the second object in di-transitive clauses while OBL corresponds to obliques (mainly PPs) that are not subjects or objects. They place restrictions on the theta roles they are assigned.

The second feature used in grammatical function classification $[-o]$, classifies SUBJ and OBL along the lines of lexicalization in a predicate external position while $[+o]$ classifies OBJ and OBJ$\theta$ as occurring in predicate internal position as objects.

Mapping between theta roles and argument functions is achieved by the application of the following three principles (cf Davis 2001:32):

\textsuperscript{15} A syntactic hierarchy such as: subject $>$ first object $>$ second object $>$ oblique.
Intrinsic classification (IC) associates features of a predicate with theta roles. For example, agents are assigned the IC [-o], theme/patient [-r] and locative [-o].

Morphological operations are provided by morphological rules which may add IC specifications consistent with a predicate specification. Thematic roles may be added or suppressed (e.g. passivization).

Default role classification. This rule applies after all morpho-syntactic derivations of a predicate. The highest thematic role receives [-r] (SUBJ or OBJ) and the next highest [+o] (OBJ or OBJθ) and next after that [+r] (OBJθ or OBL).

In (64a) and (64b) below, I show how (a) to (c) works with a verb predicate with an agent and patient argument. In a passive verb as in (64b), the highest role the agent is suppressed through the application of principle (b) and following default classification, the next theta role, the patient is realized as SUBJ.

(64)

<table>
<thead>
<tr>
<th></th>
<th>&lt;ag</th>
<th>pt&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC</td>
<td>-o</td>
<td>-r</td>
</tr>
<tr>
<td>Default</td>
<td>-r</td>
<td>+o</td>
</tr>
<tr>
<td>SUBJ</td>
<td>OBJ</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>&lt;ag</th>
<th>pt&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC</td>
<td>-o</td>
<td>-r</td>
</tr>
<tr>
<td>Passive</td>
<td>∅</td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>-o</td>
<td></td>
</tr>
<tr>
<td>SUBJ</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
There are two conditions that constrain lexical mapping relations. The first part states that each a-structure role must be associated with a unique function and conversely and the second part states that each predicate must have a subject.

A criticism of LMT is on the variable behaviour of instrument applicative arguments in languages like Chichewa (Alsina and Mchombo 1993), the Bantu language Hibena and the West Atlantic language Fula (Woolford 1993) with respect to lexicalization as SUBJ in passive constructions. It shows that the feature decomposition and mapping between theta roles may not be universal (cf. Davis 2001:37-40). Summarizing briefly, Alsina and Mchombo (1993) posit that the theme/patient role in such constructions is assigned [+o] by default classification and the feature [-o] is then assigned to the instrumental argument which is then lexicalized as subject. However the data presented by Woolford (1993) shows the opposite pattern with the patient being realized as subject and not the instrument.

I now discuss first, Jackendoff’s Lexical Conceptual Structure theory and thereafter a brief introduction to Pustejovsky’s Event Structure Templates.

1.4.6.2 Lexical conceptual structure and event structure template

In decomposition semantics, the meaning of words is analyzed into components that capture generalization on semantic relations. These components may combine to yield the semantics of different words. Such generalization involves capturing entailment relationships, with reference to semantic fields (Gruber 1965) and thematic roles.

Jackendoff (1990) captures these relationships by a set of ontological categories that form the essential units of conceptual structure that do not appear in isolation. They are only observed in combinations built up into conceptual constituents and their existence must be inferred from their effect on language and cognition as a whole (Jackendoff 1990:32). These ontological categories such as EVENT, STATE, ACTION, THING, PLACE, PATH, PROPERTY and AMOUNT consist of functions and arguments of these functions. These functions capture semantic concepts such as motion, causation, spatial location etc. A lexical item consists of an entity with zero or more open arguments.
Conceptual structure exists at a cognitive level and is about what a language expresses but it is not restricted to syntactic terms. It is a central cognitive level of representation that interacts with other cognitive capacities such as the spatial representation module. Linking between conceptual structure and syntactic structure is achieved by correspondence rules. While all syntactic constituents must correspond to elements in conceptual structure, not all conceptual categories express syntactic constituents. I illustrate the above with (65) below:

(65) Syntactic Structure
\[ [s, [NP \text{ John} [VP \text{ ran[PP into [NP [the room]]]]]]].

Conceptual Structure
\[ [\text{event GO ([thing John],[path TO [Place IN ([thing ROOM)])]])}].

The sentence correspond to \textit{event}, the \textit{verb} the \textit{event} function \textit{GO} that has two arguments a \textit{thing} \textit{John} corresponding to the first argument and a \textit{path} , the second argument, corresponding to the PP argument of the verb. \textit{Path} is composite in nature and has a \textit{place} argument that in turn takes a \textit{thing} argument \textit{ROOM}.

In order to capture generalizations about semantic fields and theta roles, Jackendoff posits three TIERS: action tier, thematic tier and temporal tier. The temporal tier links events and states in the action and thematic tiers.

The action tier consists of conceptual functions such as \textit{ACT}, \textit{AFF} (AFFECT) and \textit{REACT} together with arguments of that function. It is designed to capture Actor-Patient relations.

The thematic tier encodes conceptual roles dealing with motion and location and consists of such conceptual functions as \textit{GO}, \textit{STAY}, \textit{CS} (cause + force), \textit{MOVE} and \textit{INCH}. Conceptual field features represented as subscripts on a function distinguishes the paradigms from one another. These features capture the field in which a STATE or EVENT is defined. For example, the conceptual feature \textit{GO} is represented as \textit{GO}_{spatial} versus \textit{GO}_{poss} versus \textit{GO}_{ident} versus \textit{GO}_{temp}.

Below in (66b) is the conceptual structure for \textit{give} a double object verb.

(66) a. Harry gave Sam a book.
The C-structure above consists of a two-tier representation. The uppermost structure is the thematic tier with the function CS\(^+\) representing the successful outcome of the application of force (an undetermined outcome will be represented as CS\(^-\)). This function takes two arguments: a \textit{thing} Harry and an \textit{event} GO which in turn has two arguments: a \textit{thing} Book and a \textit{path}, which in turn is composite in nature with two conceptual functions FROM with a \textit{thing} Harry argument and TO with a \textit{thing} SAM argument.

The bottom structure represents the action tier with the function AFF\(^+\). This function captures Actor-Patient relation, with the first argument, the Actor, and the second argument, the Patient. The notation AFF\(^+\) captures a positive effect of the event on a participant, typically the beneficiary (AFF\(^-\) represents a negatively affected participant typically the patient).

The Greek symbol superscript stipulates argument binding between conceptual positions and indicates participant identity. A binding argument is notated with a Greek superscript and its bindee with a Greek letter within the square brackets. The assumption being that the part of meaning that corresponds most directly to syntax is the binder.

Mapping between semantic structures into syntactic arguments is achieved through identification of dominance of arguments and their positioning in the different tiers. Thematic role are represented as sets of argument positions in Conceptual Structure. For example, Agent is the first argument of ACT, CS and AFF, Theme is the first...
argument of GO, BE, STAY and ORIENT, Goal is the argument of TO while Source in the argument of FROM. Priority is given to the action tier with the first argument linked to the subject position and the second to the object position. The subject and the NP canonically following the verb are the canonical positions for action tier roles. The assumption is that the arguments on the action tier are linked first before arguments on other tiers. In the absence of arguments on the action tier, the first argument on the thematic tier is linked to subject position and so on. In (66b) above for example, the first argument of AFF+ HARRY will be linked to the subject and the second argument SAM to the object.

Unlike in the Lexical Mapping theory where arguments in lexical entries are stipulated in their Argument Structures, Lexical Conceptual Structure has no level of Argument Structure. Information on which entities are arguments is represented as annotations on Lexical Conceptual Structures called A-marking. This is shown in (66b) above where the category thing HARRY and SAM are annotated (the annotation on optional arguments (if any) are put in parenthesis).

It is often observed (Jackendoff 1990:4) that the conceptual functions of Lexical Conceptual Structure may not be primitives but subject to further decomposition and that there may be infinite regression. He states that it is not possible to determine in advance if the bottom is reached. Further decomposition of elements previously thought to be primitives reveal further layers of generalization and explanation.

The notion lexical decomposition presented by Jackendoff (1983), Levin (1988) and Dowty (1974) forms a base for an analysis of event structure by Pustejovsky (1989b, 1991, 1995, 2005). However to address the issue of minimal regression stated above, rather than posit a fixed set of primitives, he posits a primitive event structure type for a lexical item and generative rules that apply to these templates to derive further event types. Events are represented as complex in nature. They may contain sub-events. For him, a minimal decomposition of an eventuality (as defined in 1.3.2.1 above) would be in terms of an opposition of terms Q and ¬Q. Both terms in the opposition are predicated of different sub-events. A second criterion for the characterization of a verb’s semantics is the specification of causation. Both transitions and causation are structurally associated with slots in the event template for a word. The Event Structure identifies particular event types e.g. state, processes and transitions for a word. I give
a brief illustration using the *transition* event template for exemplification. The type
*transition* (*T*) consists of a *process* (*P*) and a *state* (*S*). The *process* part encodes the
negative part of the opposition while the *state* part consists of the resultant state which is
the positive part of the opposition. LCS\(^1\) is the level of predicate decomposition and
LCS is the interpretation of the Event Structure (ES) and LCS\(^1\) (Pustejovsky 2006:40).
A detailed discussion of event semantics is given in chapter 3 section 3.2.2.

(67)

In addition to the Event Structure mentioned above, three other levels of a lexical
items meaning representation are: Argument Structure, Qualia Structure and
Inheritance Structure. Summarizing briefly, Argument Structure is the predicate
structure for a word specifying its function and how it maps it to syntactic
expressions. Qualia Structure is the essential attributes of an object as defined by the
lexical item. Lastly, Inheritance Structure is how a word is globally related to other
concepts.

In this thesis, I do not discuss Argument Structure, Qualia Structure and Inheritance
Structure as proposed by Pustejovsky. I discuss only Event Structure and how it may
be incorporated within the type *relation* constraining the *mrs* value of the CONT
feature of a sign in an HPSG system. A type *eventstruc-rel* that inherits from the type
*event-rel* with seven subtypes *process-eventstruc-rel*, *state-eventstruc-rel*, *cause-
eventstruc-rel*, *result-eventstruc-rel*, *transition-achievement-eventstruc*, *transition-
inchoative-eventstruc-rel* and *transition-cause-eventstruc-rel* captures descriptions
present within the Event Structure template posited by Pustejovsky. The type
transition-cause-eventstruc-rel has three sub-types that inherit from it; transition-cause-canonical-eventstruc-rel, transition-cause-selfagentive-eventstruc-rel and the transition-cause-ballistic-eventstruc-rel. I discuss further Event Structure semantics in Chapters 3, 6 and 7.

1.4.6.3 Linking in the Matrix 0.6

I begin with how cat and mrs information are linked in lexical types. Using the description of the type verb lexeme as a point of departure, I first discuss how its combinatory potential is described within a type feature structure grammar.

1.4.6.3.1 Lexical types

A fundamental classification of verbs is along the lines of transitivity, that is, how many arguments it may subcategorize for. In the Matrix grammar, linking is done through constraints linking the semantic hooks of syntactic arguments to their ARG1-ARGN attributes values constraining their relation types. These constraints then interact with corresponding constraints combining words or phrases with their syntactic arguments (Flickinger, Bender and Oepen 2003:29). There is no direct correspondence between values of attributes on a valence list and the semantic participant ARG1…ARGN. These linking are stated as constraints on subtypes of the type synsem identifying the INDEX of the value of a qval attribute with the value of a lexical item’s participants. The following examples from Hellan (2003:19) are used as illustration:

(68) Examples of linking types:
   i. arg1-subject
      [LOC [CAT.QVAL.SUBJECT.LOCAL.CONT.HOOK.INDEX #1]
       KEYS.KEY.ARG1 #1].

   ii. arg2-dobject
      [LOC [CAT.QVAL.DOBJECT.LOCAL.CONT.HOOK.INDEX #1]
       KEYS.KEY.ARG2 #1].
iii.  arg3-iobject
[LOC [CAT.QVAL.IOBECT.LOCAL.CONT.HOOK.INDEX #1]
  KEYS.KEY.ARG3 #1].

iv.  arg2-subject
[LOC [CAT.QVAL.SUBJECT.LOCAL.CONT.HOOK.INDEX #1]
  KEYS.KEY.ARG2 #1].

The linking types in (68) are then realized as values of corresponding attributes on a lexical items valence list through re-entrancy of tokens. Example (68iv) is a linking type that allows for the lexicalization of unaccusative subjects while examples (68 i to iii) allows for lexicalization for subjects, direct objects and indirect objects respectively. I illustrate with the transitive verb *beundre* from Hellan (2003:20):

In example (69), the INDEX values of the elements on the valence, qualitative valence lists are identified with the participants’ values of the lexical item *beundre*, with constraints on linking as in (68i) and (68ii) for subjects and direct objects
respectively. The FEATURE LTOP links EPs with the same node and expresses a conjunction of EPs. The feature LBL is the value of the basic relation (the key EP) and is re-entrant with the value of the LTOP of the HOOK attribute as in (69). The HOOK feature with value hook represents the features which are visible to semantic functors. Observe that the value of the RELS list (a difference list) is re-entrant with the value of KEYS.KEY attribute and must be of type relation in this case an arg1-2-rel. The KEY value points to the main relation.

In the RELS list, all heads are constrained to have a distinguished element which is its ARG0. Subtypes of ARG0 are: quant-relation, noun-relation and event-relation. A verb like beundre has as part of its meaning that it has an entity that is predicated of the beundre event (ARG0) and an entity that has undergone the beundre event and this relationship may be captured by proto-roles such as agent and patient that are left unspecified and are referred to by counting the roles such as arg1, arg2,...argn. Thus arg1 relation may correspond to an initiating role but is applicable to all relations with one argument. Arg2-relation corresponds to the second argument in a relation with two roles and arg3-relation to the third argument and so forth. These roles are introduced as values for appropriate attributes ARG1, ARG2, ARG3…..ARGn as in (68 and 69) above. In the standard matrix grammar, these attributes are constraints on the following types arg1-relation, arg12-relation, arg123-relation... respectively and are represented as a hierarchical relationship with arg12 being a sub-type of arg1 relation and so forth. Hellan (2003:7) however adopts a flat structure representation where by arg1-relation, arg2-relation, arg3-relation and so on are sub-types of arg0-relation as shown in (70) below:
There is no dependency relation between the attributes ARG1, ARG2 and ARG3. That is for example, ARG3 can occur without ARG2. The architecture described so far for the transitive verb *beundre* also applies for a di-transtive verb like *give* in English. In example (71) below, the relation type is *arg0-2-3-rel* and linking is achieved through the constraints in (68 i- iii) respectively for the subject, direct objects and indirect arguments respectively:
The linking assumptions discussed above are applied to my analysis in the thesis. These assumptions accounts for argument lexicalization in the following examples from Èdó with a slight modification for a type that I label *arg4-obl (ique)-lexical-item*. I discuss this immediately below.

1.4.6.4. Èdó lexical types

Based on the discussion so far and anticipating the discussion on thematic roles in chapter 3 and argument realization and syntax-semantic interface in chapter 7, I discuss the classes of verb predicates in Èdó. I identify three classes:
(72)

i. One-argument verb
ii. Two-argument verb
iii. Three-argument verb

I adopt the terms one-argument verb and two-argument verb from Levin (2005) but with a different interpretation for the latter. In her use, a one-argument verb has one participant role while two argument verbs fit the description “agent act on and cause an effect on patient” and are core transitive verbs.

In this thesis, one-argument verb are verbs with only one participant while two-argument verbs are verbs with two participants and may correspond but not necessarily to an agent acting on a patient as in a transitive verb. Verbs with two participants may also correspond to an intransitive verb denoting event types with two participants (Davis 2001:66) Three-argument verbs are verbs with three participant roles. Participants in a situation are usually associated with thematic roles that serve to define the different classes of predicates. Researchers recognize their usefulness but do not agree as how they should be defined. Traditional views of thematic roles treat them as unanalyzed labels attached to a verb’s semantic roles (Gruber 1965). Others treat them as being defined by positions in a Lexical Semantic Structure (LSC) (Jackendoff 1992 etc.) and refined in Pustejovsky (1991, 2005 etc.). In HPSG the approach leans towards situational semantics with acceptance of individual roles. The approach, I adopt in this thesis is a combination of James Pustejovsky’s framework whereby thematic roles are defined by their position in an event template and definitions based on the referential properties that can be associated with each role bearer as in Gruber (1965) and Hellan (2007). Hellan (2007) also uses a decompositional approach to thematic role classification especially with reference to spatial location. I do not adopt this approach. In section 3.4 chapter 3, I present a hierarchy of semantic roles and show how they define the different classes of events. In my discussion in this section, the following thematic roles are relevant: agent, theme, affected, beneficiary, goal and location. They are used as defined in the literature cited above.

A word about the agent role, Jackendoff (1992) recognizes three kinds of agents: the doer of an action, the initiator of an action and the instigator of an action. I use the
term agent for the first two and the term precipitator for the instigator of an action. This is discussed further in chapter 3.
In the gloss in the examples in this section I provide information on thematic role as illustration.
I now discuss the one-argument verb.

1.4.6.4.1 One-argument verb
This class consists of predicates that have only one argument and fall under the traditional classification of intransitive verbs. Belonging to this class are state eventualities and a sub-class of event eventualities normally depicting activities. Below are examples:

(73) Ötà gbé.
Ôtà gbé.
\textit{Ota dance.PRES.H}
\begin{tabular}{ll}
AGT & PN V \\
\end{tabular}
'Ota dances (everyday) \hspace{1cm} or
'Ota is dancing.'

(74) Özó mósé.
Ôzó mósé.
\textit{Ozo beautiful.PRES.H}
\begin{tabular}{ll}
AFF & PN V \\
\end{tabular}
'Ozo is beautiful.'

Verbs with a past interpretation, with a participant role of one member encode this relationship through the suffixation of a suffix \(-rV\) (a detailed discussion is given in chapter 2):
1.4.6.4.2 Two-argument verb

By two argument verbs, I mean verbs with two participant roles and I identify two types: transitive-verb and oblique-intransitive verb. The eventualities expressed by the verbs are typically achievements and accomplishments in Èdó. Levin (2005) observes that not all two-argument verbs show the same realizations in and across languages. The unmarked expression being that one argument bears the grammatical function subject and the other direct object, a characteristic of predicates classified as core transitive verbs. I identify core arguments by three conditions (Ross 2002).

(76)  

i. The argument has morphosyntactic relationship to the verb that may be encoded on the verb by agreement affixes, coding on the argument (case marking) or by position in the clause.

ii. The argument is required by the subcategorization of the verb; a necessary but not sufficient condition as a verb may also require an oblique object.

iii. The argument has reference-related functions.

Condition (b) is necessary but not a sufficient condition and may be buttressed by the (a) and (c) conditions.
As said, I identify two sub-types of two argument verbs: the transitive-verb and the oblique-intransitive verbs.

The transitive-verb belongs to the traditional class of transitive as defined by Levin (2005). In Èdó, verbs do not bear morphological markings that may serve as pointers to the grammatical classes and functions the arguments they occur with may serve in. However, pronouns have different forms to indicate their grammatical functions as shown in table 1 in section 1.3.1 above. Transitive verbs subcategorize for participants with the grammatical function direct object. Example (77) below illustrates this:

(77) Ṙ gbè mwèn.

<table>
<thead>
<tr>
<th>Ṙ</th>
<th>gbè</th>
<th>mwèn.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SG.SBJ</td>
<td>beat.PRES.L</td>
<td>1SG.OBJ</td>
</tr>
</tbody>
</table>
PRON | V | PRON

'He/She beats me.'

From (77), we see that the participant that is affected by the event of beating has the form of direct object and is typically realized as the value of the ARG2 attribute introduced by a verb. The direct object delimits the eventuality expressed by the verb (in other words, the sentence expresses a telic eventuality).

I now discuss the participant which I call the oblique participant. In Èdó the oblique participant is introduced by a preposition if a noun but if it is a pronoun, the pronominal form may be a complex form consisting of two morphemes: a preposition and a pronoun as in the following example:
(78)  Ô gbè nuè.

Ô   gbè         nuè.
3SG  dance.PRES.L  PREP.2SG.OBL
AGT   BEN
PRON V   PRON

'He/She dances for you.'

Here, the pronoun nuè consists of two morphemes: the preposition nè 'for' and the 2nd person object pronoun ruè. The dancing event is interpreted as being a particular type of dance consisting of a process and a culmination. Verbs that occur with oblique arguments express event eventualities that may have unexpressed beneficiary arguments. Such beneficiary roles if expressed are typically introduced in applicative languages by an applicative affix on the verb. Èdó makes this distinction through the form of the pronoun in the object position.

There are two approaches to the status of the oblique participant. One is to treat it as an adjunct and the second is to treat it as a complement. I have chosen the second alternative for reasons which will be explained immediately.

I classify the verb in (78) above as an oblique intransitive verb that subcategorizes for a participant with an initiating role as ARG1 and an argument with the participant role of beneficiary, which may or may not be lexicalized. This argument typically occurs as the ARG4 role for the following reasons.

Firstly I make a distinction between direct objects, oblique objects and adjuncts.
There is a past tense suffix -rV (where the vowel V is determined by the final vowel on the verb stem) in Èdó that is only licensed on intransitive verbs or on transitive verbs when their objects are realized in non-canonical positions. When objects of transitive verbs are realized in the canonical object position the suffix is not licensed (79a). Importantly the two participant intransitive verb does not license this suffix when the oblique argument is realized in the canonical object position (79b). For intransitive verbs with adjuncts however, the suffix is licensed on the verb (79c).
(79) a. *Ôzó gbé-rè mwén. (v + direct object pronoun)

*Ôzó gbé-rè mwén.
Ôzo beat.PST-rV 1SG.OBJ
AGT AFF
PN V PRON
'Ozo beat me.'

b. *Ôzó gbé-rè mé/nùé. (v + oblique pronoun)

*Ôzó gbé-rè mé/nùé.
Ôzo dance.PST-rV 1SG.OBL /2SG.OBL
AGT BEN
PN V PRON PRON
'Ozo danced for me/you.'

c. Ôzó gbé-rè èsëšè/zàízàí. (v+ adverb)

Ôzó gbé-rè èsëšè/zàízàí.
Ôzo dance.PST-rV well/smartly
AGT
PN V ADV ADV
'Ozo danced well/smartly.'

Secondly I make a distinction between direct objects and oblique objects that is expressed in their patterning with reference to lexicalization in non-local environments. A direct object pronoun may be focused (80) while an oblique object pronoun that is directly governed by the verb cannot be (81):

(80) Ìmè òré ò gbé.

Ìmè òré ò gbé.
1SG.EMPH FOC 3SG.SBJ beat.PRES.H
AFF AGT
PRON PRON V
'It is me he/she beat.'

(81) * Ìmè òré ò gbé.

* Ìmè òré ò gbé.
1SG.EMPH FOC 3SG.SBJ dance.PRES.H
BEN AGENT
PRON PRON V
'It is me he/she dance.'
The beneficiary role can also be realized as the object of a preposition \( nè \) that introduces the beneficiary NP:

(82) \( Ò \) gbè \( nè \) Òzó.

\[
\begin{array}{llll}
3SG.SUBJ & \text{dance.PRES.L} & \text{for} & \text{Ozo}
\end{array}
\]

\[
\begin{array}{llll}
\text{AGT} & \text{BEN} & \text{PRON} & \text{V} & \text{PREP} & \text{PN}
\end{array}
\]

'He/She dances for Ozo.'

When the sentence is in the emphatic mode with a beneficiary NP pronoun as an oblique object, then the following form is used:

(83) \( Ò \) gbè nímè.\(^{16}\)

\[
\begin{array}{llll}
3SG.SUBJ & \text{dance.PRES.L} & \text{1SG.EMPH}
\end{array}
\]

\[
\begin{array}{llll}
\text{AGT} & \text{BEN} & \text{PRON} & \text{V} & \text{PRON}
\end{array}
\]

'He/She dances for me (emphatic).'</n

The beneficiary pronoun in (83) may be focused but different from direct object focus, the preposition marks the non-local realization by a vowel change from \( nè \) to \( nà \) as in example (84).

(84) Ìmè òré ò gbé nà.

\[
\begin{array}{llll}
1SG.EMPH & \text{FOC} & 3SG.SUBJ & \text{dance.PRES.H} & \text{for}
\end{array}
\]

\[
\begin{array}{llll}
\text{GOAL.BEN} & \text{AGT} & \text{PRON} & \text{V} & \text{PREP}
\end{array}
\]

'It is me he/she dance for.'

\(^{16}\) As shown in table I, the preposition and pronoun are formally lexicalized as a pronoun (Agheyisi 1990). For example \( níràn \) (for them) can be analyzed as being composed of the preposition \( nè \) and the pronoun \( ìrán \).
In summary direct objects and oblique objects in Èdó serve to delimit the eventualities expressed by the verbs they occur with. However, they have different case and syntactic patterning.

In (85) below, I propose the following linking type for the oblique argument.

(85)
\[
\begin{align*}
\text{arg} 4 & \rightarrow \text{obl} \rightarrow \text{lex} \rightarrow \text{item} \\
\text{LOCAL} & \left[ \text{CAT.QUAL.} \text{obl.} \text{CONT.HOOK.INDEX} \ #1 \right] \\
\text{KEYS} & \cdot \text{KEY. ARG} 4 \ #1 
\end{align*}
\]

The oblique argument may also occur with transitive verbs. I discuss this immediately below.

**1.4.6.4.3. Three-argument verb**

Three argument verbs are verbs with three participant roles and are typically accomplishments in Èdó. I identify two sub-types of three argument verbs: the di-transitive verb and the oblique-transitive verbs.

For the di-transitive verb, the first argument which is the value for the attribute ARG1 corresponds to the external argument and the second argument which is the value for the attribute ARG2 correspond to the direct object while the third argument may correspond with the value for the attribute ARG3 that is realized as the indirect object. As stated above the occurrence of the indirect object implies the occurrence of the direct object. The indirect object is realized as the first object of a verb and the direct object as the second argument. Example (86) below illustrates this:

(86) Ọzó há rùé/*nué ighó.

\[
\begin{array}{llll}
\text{Ọzó} & \text{há} & \text{rùé/} & \text{ighó.} \\
\text{Ozo} & \text{pay.PST.H} & \text{2SG.OBJ/} & \text{money} \\
\text{AGT} & \text{BEN} & \text{THEME} \\
\text{PN} & \text{V} & \text{PRON} & \text{CN} \\
\end{array}
\]

'Ozo paid you money.'
For the oblique - transitive verb construction, the values for the ARG1 and ARG2 attributes are realized as described above but the oblique third participant is realized as the value of the ARG4 attribute.

(87) Òzó gbé ëwé nué.

Òzó gbé ëwé nué.
Ozo kill.PST.H goat 2SG.OBL
AGT AFF GOAL.BEN
PN V CN PRON
'Ozo killed a goat for you.'

That the oblique object is a complement of the verb and not an adjunct is buttressed by their different characteristics under extraction. As shown in examples (84) above and (88a) below, extraction of an oblique object where licensed strands the preposition. Extraction of the NP object of a PP adjunct headed by a true preposition on the other hand does not license preposition stranding as shown in (89b), indeed the whole PP must be extracted for focus as shown in (89c)below:

(88) Ùwè òrë Òzó gbé ëwé ná.

Ùwè òrë Òzó gbé ëwé ná.
2SG.EMPH FOC Ozo kill.PST.H goat for
GOAL.BEN AGT AFF
PRON PN V CN PREP CN
'It is you Ozo killed a goat for.'

(89) a. Òzó gbé ëwé vbé òwá.

Òzó gbé ëwé vbé òwá.
Ozo kill.PST.H goat in house
AGT AFF LOC
PN V CN PREP CN
'Ozo killed a goat at home.'
b. *Ọwá ọrẹ Ọzọ gbé ẹwé vbé.

\[
\begin{array}{cccc}
\text{House} & \text{FOC} & \text{Ozo} & \text{kill.PST.H} \\
\text{LOC} & \text{AGT} & \text{AFF} \\
\text{CN} & \text{PN} & \text{V} & \text{CN PREP}
\end{array}
\]

'It is at home Ozo killed a goat.'

c. (Vbé) ọwá ọrẹ Ọzọ ná gbé ẹwé.

\[
\begin{array}{cccc}
\text{In home} & \text{FOC} & \text{Ozo} & \text{SEQM kill.PST.H} \\
\text{LOC} & \text{AGT} & \text{AFF} \\
\end{array}
\]

'It is at home Ozo killed a goat.'

Returning now to the di-transitive three argument verb, the third participant instead of being realized as a value for the ARG3 attribute may be realized as a value for the ARG4 attribute with the grammatical function of an oblique object:

\[
(90) \quad \text{Ọzọ há ighó mé/*mwèn.}
\]

\[
\begin{array}{cccc}
\text{Ozo} & \text{pay.PST.H} & \text{money} & \text{1SG.OBL/*1SG.OBJ} \\
\text{AGT} & \text{THEME} & \text{GOAL.BEN/*BEN} \\
\text{PN} & \text{V} & \text{CN} & \text{PRON PRON}
\end{array}
\]

'Ozo paid money to me.'

Here, the second object is an oblique 1st person pronoun, and a 1st person direct object pronoun form is not licensed. Also comparing (90) with (91) below shows that the 1st person oblique pronoun is not licensed as the indirect object or first object of a verbal predicate.
Example (91) above shows that Èdó marks the indirect object pronoun and the direct object pronoun with the same form.

A further difference between the oblique object and the indirect object is in the semantic functions typically associated with them. The indirect object is associated with a beneficiary role while the oblique object is primarily associated with a goal and may be also the beneficiary of the eventuality. Examples (92) and (93) below illustrate this.

(92)  Òzó há mwèn/*mè ighó.

Ôzó  há  mwèn/*mè  ighó.
Ozo  pay.PST.H  1SG.OBJ/*1.SG.OBL  money
AGT  BEN/*GOAL.BEN  THEME
PN  V  PRON  PRON  CN
'Ozo paid me money.'
(93) Ózó há ighó mé né i yá bọ ọwá né Àtití.

Ôzó há ighó mé

*Ozo pay.PST.H money 1SG.OBL*

PN V CN PRON

AGT THEME GOAL

Né i yá bọ ọwá né Àtití.

for 1SG.SUBJ INF build house for Atiti

AGT AFF BEN

PREP PRON V CN PREP PN

'Ozo paid money to me to build a house for Atiti.'

In (92) the indirect object is understood as being the recipient as well as the beneficiary of the paying event, that is, the participant benefits from the paying event. Since a verb may realize only one beneficiary role, having another beneficiary is therefore infelicitous.

In (93) on the other hand, the oblique object is understood as the goal and not necessarily the beneficiary hence another beneficiary is licensed.

Furthermore, the indirect object and oblique object of a di-transitive verb do not occur together in the same sentence.\(^{17}\)

---

\(^{17}\) An alternative is for the beneficiary to be realized as the object of a co-verb gú in a complex verb construction:

Ôzó gú mwén há ıran ighó.

Ôzó gú mwén há ıran ighó.

*Ozo help.PST.H me pay 3PL money*

AGT BEN GOAL THEME

PN V PRON V PRON CN

'Ozo helped me pay them.'
(94) *Òzó há íràn ighó mé.

*Òzó há íràn ighó mé.

Òzo pay.PST.H 3PL money 1SG.OBL
AGT BEN THEME GOAL.BEN
PN V PRON CN PRON

'Ozo paid them the money for me.'

An interesting construction that shows yet another patterning is the rhié 'take'+ ná 'prep' (meaning give) compound verb construction. Here, a right adjunct may be inserted between the direct and the indirect object when the indirect object is introduced by a preposition (95a). However when the third participant is the oblique complex pronoun, this is not licensed, an indication that the complex pronoun is a complement of the verb (95c).

(95) a. Òzó rhiè èbé bànbànnà nè íràn.

Òzó rhiè èbé bànbànnà nè íràn.

Ôzo take.PRES.L book just now to 3PL
AGT THEME BEN
PN V CN ADV PREP PRON

'Ozo gave them a book just now.'

b. Òzó rhiè èbé nè íràn bànbànnà.

Òzó rhiè èbé nè íràn bànbànnà.

Ôzo take.PRES.L book to 3PL just now
AGENT THEME BEN
PN V CN PREP PRON ADV

'Ozo gave them a book just now.'

c. *Òzó rhiè èbé bànbànnà nué.

*Òzó rhiè èbé bànbànnà nué.

*Ôzo rhiè èbé bànbànnà nué.

Ôzo take.PRES.L book just now 2SG.OBL
AGT THEME BEN
PN V CN ADV PRON

'Ozo gave you a book just now.'

Turning now to linking between participants and argument functions, for the three participant ditransitive verb the relation type is arg1-2-3-rel and linking is achieved through the constraints in (68 i- iii) respectively for the subject, direct objects and indirect arguments respectively as in example (71) above.

For linking of the oblique participant, I use the oblique-transitive verb as illustration in (96) below:
In (96), the values of ARG1, ARG2 and ARG4 attributes are re-entrant with the INDEX values for SUBJECT, DOBJ and OBL attributes of \textit{qval} respectively. The value for SUBJ on the valence list is re-entrant with SUBJECT and the values for the first and second elements on the COMPS list are re-entrant with the DOBJ and OBL values of \textit{qval} respectively. Here the key relation is of type \textit{arg1-2-4-rel}. For the oblique-intransitive verb, linking is as described in (96) except that there is no value for the direct object function and the key relation is of type \textit{arg-1-4-rel}.

I now present below a revised relation hierarchy to account for lexical types ((97)) and the basic clause structure ((98)) in Édó:
In (98), all complements and adjuncts occur after the verb with the exception of a few optional preverbal adverbial modifiers that I classify under AUX/ADV (see (99)). Also temporal auxiliary elements may occur before the verb. I discuss this further in chapter 2.

(99) Ọzó gié!gié gbén èbè vbé èsúkú.

'Ozo quickly wrote a book in school.'
are constrained by the type *inf-ltow-rule* (inflecting-lexeme-to-word-rule) and those that do not are constrained by the type *const-ltow-rule* (constant-lexeme-to-word-rule). Summarizing briefly, the type *inf-ltow-verb-word* inherits from the super-types *verb-word* and *inf-ltow-rule* and describes the verb being inflected but with inflectional category yet unspecified. I illustrate this with the partial description in (100):

```
(100)  [word
  SYNSEM.LOCAL  [CAT.HEAD verb
      CONT.HOOK.INDEX event[ E.TENSE tense ]]
```

Sub-types of (100) impose inflectional categories through a declaration of a sub-type of *tense* as in (101):

```
(101)  [word
  SYNSEM.LOCAL  [CAT.HEAD verb
      CONT.HOOK.INDEX event[ E.TENSE present ]]
```

Signs that combine to form phrases must be fully inflected thus only words can undergo constituent formation. I discuss this further in chapter 2. First, I discuss constituent formation immediately below.

### 1.4.6.5 Constituent types

Constituent combinations are licensed by the notion of *headedness*. The notion of headedness assumes that the head features of a lexical item are structure shared with the maximal projection of that phrase. Thus a Verb-Phrase for example will have access to all information in the path SYNSEM.LOCAL.CAT.HEAD pertaining to the verb that is its head. As we have seen in the previous section, the lexical specification of a lexical item may constrain the lexical item to combine with other signs in other to fully express its meaning in a stand alone utterance. Now, ordering in how such signs are combined is important and this achieved by a constraint on the type *phrase* that it has a DTRS attribute with value *daughter*. The phrase-structure as a whole is the
mother and the elements on the ARGS list are the daughters. Most phrases are of the type headed-phrase and this constrains the value of the attribute HEAD to be re-entrant with the value of the head daughter as in (102):

\[
\begin{align*}
\text{headed-phrase} & \quad \text{SYNSEM.LOCAL} \quad \text{CAT.HEAD} \neq \text{head} \\
\text{DTR daughter} & \quad \text{HEAD - DTR} \quad \text{SYNSEM.LOCAL} \quad \text{CAT[HEAD} \neq \text{head]} \\
\text{NON - HEAD - DTR non - head - daughter} & \\
\end{align*}
\]

A headed phrase with one daughter is called a unary-phrase and is composed through a unary-rule and a phrase with two daughters is called a binary-phrase and composed by a binary-rule.

A unary-rule constrains a phrase to have its NON-HEAD-DTR to be an empty-list and the head daughter to be the only element on its ARGS list as in (103):

\[
\begin{align*}
\text{unary - phrase} & \quad \text{SYNSEM.LOCAL.CAT.HEAD} \neq \text{head} \\
\text{DTR daughter} & \quad \text{HEAD - DTR} \quad \text{SYNSEM.LOCAL} \quad \text{CAT[HEAD} \neq \text{head]} \\
\text{C - CONT <(!>)} & \quad \text{ARGS[ ]} \\
\end{align*}
\]

Unary rules are applicable to cases where a phrasal category consists of only one constituent (as in an intransitive Verb Phrase).\(^{18}\) It is an input output mechanism where the input is the daughter constituent and the output the mother constituent.

A binary-rule constrains - when head-initial - the first daughter on the ARGS list to be re-entrant with the value for head-daughter and the value for the second daughter on the list to be re-entrant with that of the non-head-daughter as in (104) below:

\[
\begin{align*}
\text{DTR daughter} & \quad \text{HEAD - DTR} \quad \text{SYNSEM.LOCAL} \quad \text{CAT[HEAD} \neq \text{head]} \\
\text{NON - HEAD - DTR non - head - daughter} & \\
\end{align*}
\]

\(^{18}\) It is also applicable to lexeme-to-word-rules which I discuss in the next section.

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The *daughter* and *mother* values are constrained to be INFLECTED+ ensuring that only word class signs can combine to form larger signs.

Binary-phrases may be head-initial or head-final and this is represented in (105) and (106) below:

(105)
\[
\begin{align*}
& \text{head – initial} \\
& \text{DTR daughter} \quad \text{HEAD - DTR}[i] \\
& \text{ARGS}[i][j][k]
\end{align*}
\]

(106)
\[
\begin{align*}
& \text{head – final} \\
& \text{DTR daughter} \quad \text{HEAD - DTR}[j] \\
& \text{ARGS}[i][j][k]
\end{align*}
\]

In my analysis of multi-verb constructions in chapter 7 the schemata I apply to account for combinations of events in series all inherit from *binary-phrase*.

The five types of phrases above gives rise to the grammar architecture in (107a) below (cf. Hellan 2003):
I explain (107i) from bottom up, the rule types which all inherit from the type *headed-phrase*. These rules distinguish sub-types of phrases in terms of relations between the values of their valence features and a NON-HEAD-DTRS list.

The *head-complement-rule* constrains the value of the attribute COMPS in the mother as an empty list. It has a lexical head as head daughter and all complements of that lexical head must be saturated at the phrasal level. Elements on the COMPS list of the verb are sisters to it.
In (107ii), the symbol $\oplus$ represents sequence union and appends a list to another list.

The *head-mod-rule* has the modifier as HEAD-DAUGHTER. This element is selected by an attribute MOD a constraint on the *head* of the modified NON-HEAD-DAUGHTER as in (107iii) below:

$$
\begin{bmatrix}
\text{head - mod - rule} \\
\text{HEAD - DTR} \left[ \text{SYNSEM} \left[ 1 \right] \right] \\
\text{NON - HEAD - DTR} \left[ \text{HEAD} \left[ \text{MOD} \left[ 1 \right] \right] \right]
\end{bmatrix}
$$

The *head-subj-rule* discharges the subject of the phrase and has the following constraint:

$$
\begin{bmatrix}
\text{head - subj - rule} \\
\text{SYNSEM.LOCAL} \\
\text{HEAD - DTR} \left[ \text{SYNSEM} \left[ 1 \right] \right] \\
\text{NON - HEAD - DTR} \left[ \text{SYNSEM} \left[ 1 \right] \right]
\end{bmatrix}
$$

The *head-complementizer-rule* has a HEAD-DTR with value of type *complementizer* and it is constrained that at least one of the values for COMPS is a sentence with a saturate SUBJ value. The semantics of the phrase is interpreted from the semantics of the non-head-daughter (V-as saturated phrase in (107i)).
For the head-filler-rule the HEAD-DTR value for NON-LOCAL is non-empty and is the NON-HEAD-DTR value. The attribute that constrains this element to occur in a NON-LOCAL position is SLASH. The value of SLASH on the mother phrase is the union of all its SLASH values as in (107 vi).

A principle the semantic compositional principle that constrains the C-CONT value of a phrase to have a relationship to the CONT values of one of the daughters is called the head-compositional-phrase. The C-CONT value is the semantic contribution of the phrase itself. It may (but not necessary) be identified with the HOOK of one of its daughters and in (107vii) below, it is identified with the HEAD-DTRs HOOK value:
This constraint ensures that the semantics of the phrase will be identified with that of its head daughter.

I have discussed the HPSG theoretical frame-work in this main section and shown how it can be adapted to fit with Èdó valence patterns in section 1.4.6.4. The valence declaration I am applying for this dissertation is as specified by (Hellan 2003). This declaration enables a consistent and uniform account for local and non-local realization of arguments and their selection for tone and tense features explained in terms of saturation or non-saturation of the VAL values, and the type qval enables me to keep track of arguments through the grammatical function list that remains constant irrespective of the saturation or non saturation of a predicate’s argument on the VAL list. I now discuss the type tam in Èdó in Chapter 2.
CHAPTER TWO
TENSE, ASPECT AND MOOD IN ÈDÓ

2.0 Introduction

I discussed lexical types and the category *tam* in chapter 1 as it is situated in the formal system of a Matrix grammar. I discuss now the categories tense, aspect and mood in Èdó. I give an empirical description of these categories in general and thereafter, an analytical representation of the type *tense* in Èdó.

I presented the clause structure for basic sentences in Èdó in (98) in section 1.4.6.4 that I repeat in (1) below:

(1)

Èdó clauses may be finite or non-finite. Subtypes of non-finite in a language like English consist of the types infinitive (that inherits also from the type clausal), base and participle. In Èdó, only the category infinitive seems to be relevant with respect to the category non-finite. There is some discrepancy as to what is the tone on an Èdó CV verb in citation form. Agheyisi(1990:41) states that it is a high tone, Omozuwa (personal communication states that it is a low tone and Westcott (1963:29), (Amayo 1976), Omoruyi (1991), Ogieiriakhi (1975) and Manfredi (2005) state that Èdó root verbs are toneless and acquire tones in grammatical contexts and it is this tradition I adopt in this thesis. Non-finite may be marked by the infinitive marker *yá* that occurs in the AUX/ADV position in (1) (I discuss this in chapter 4). Let me state immediately that the verb occurring after the infinitive always bears a high tone suggesting that this might be a base form for the verb. However, I do not adopt this view because as I will show in chapter 4, the fixed high tone is present in other finite
clauses. Also Èdó verbs do not have particular inflection patterns with respect to the participles. In particular, Èdó does not have passivisation. I discuss only finite markers in this chapter.

With respect to the category mood, Dunn (1968:216) (cf. Omoruyi 1991) states that there are at least six modals in Èdó: 'will (want to)', 'necessity', 'intensity', 'used to', 'going to' and 'about to'. Omoruyi (1991) discusses them under Modality Auxiliary Markers (MAM) along with aspectual elements expressing the 'unfulfilled aspect' and 'incomplete aspect' which I discuss below. Baker and Stewart (2002:18-19) discuss a type of serial-verb construction that they label the purpose SVC. In this construction type, the event depicted by V2 is in the realis mood and asserted. This is represented as a fixed high tone on V2 if monosyllabic and a high downstepped high tone if disyllabic. The realis and irealis mood in Èdó are grammatical categories. Verb categories in Èdó do not have intrinsic mood to them and are interpreted from context, the tone pattern on purpose construction described above is not peculiar to this construction type. I discuss this construction in chapters 4 and 7.

I now discuss the category tense.

2.1.0 The category tense

Tense is marked on the first verbal element after the subject NP, that is, the AUX/ADV if present in a clause or otherwise on the verb. The auxiliary and preverbal modifiers mark tense when present in a sentence (Agheyisi 1990:75). The verbs they occur with if monosyllabic typically have the same tonal pattern as when they occur as the first verbal element in a sentence. Tense in Èdó may be realized as tones: past tense ( ́) and present tense ( ́) or ( ́), a suffix: past –rV, or a lexical item: future tense ghá. In this thesis, I analyze the first verbal element in a construction as exposing inflectional tense markers while other verbal elements if any may be specified as having compatible values for the feature TENSE where applicable. Verbal heads in Èdó bear relative tones. By relative tone, I mean grammatically and lexically constrained tonal realization. Stewart (1998) represents tone marking on verbs as non-morphological inflection. Following Manfredi (2005), in my analysis, I
represent tone as morphological inflection. This is discussed in this chapter and in chapter 4. I present immediately below, the hierarchy of tense in Èdó.

(2)

The grammatical category *present* is interpreted either as the *simple present tense* or *habitual aspect* depending on the context of usage. This is shown in examples (7) and (8) below. The grammatical category *past* as shown in (2) has a high tone and the \( -rV \) suffix as its exponents.

In (3) below, I present Baker and Stewart’s (1997) representation of finite inflection in Èdó (cf Manfredi 2005):

(3)

<table>
<thead>
<tr>
<th>One syllable verb so 'cry'</th>
<th>two syllable verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>(so 'cry' + lo 'plural')</td>
<td></td>
</tr>
<tr>
<td>i. simple past</td>
<td>só (H)</td>
</tr>
<tr>
<td>ii. present (habitual)</td>
<td>só (L)</td>
</tr>
<tr>
<td>iii. simple future</td>
<td>ghá só (HL)</td>
</tr>
<tr>
<td>iv. past perfective</td>
<td>só-rò (H-L)</td>
</tr>
<tr>
<td></td>
<td>'will cry'</td>
</tr>
<tr>
<td></td>
<td>'will.PST-rV'</td>
</tr>
</tbody>
</table>

Crucially, in (3) tense is interpreted from the tonal features on a verbal head. This is stated explicitly in Baker and Stewart (1999a:2) “the simple past/nonpast contrast is marked only by tones on the verb”.

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From (2) above, it is clear that this is not a sufficient description of tense in Èdó. I argue that tense if tonal or affixal is marked on a verbal head, but, it is interpreted through the interaction of valence properties and inflectional (tonal and affixal) information of a verbal head. It will be shown below, that the valence properties of verbs contribute to their tone marking (hence relative tone). My focus is on the expression of non-past and past tense on verb forms. In particular, a hightone (´) bearing CV verb may be interpreted as either present or past from its valence property (cf (5a) and (6a)) and a low tone (`) bearing CV verb is only interpreted as present and then only in the environment of an explicit direct object (cf. (4)). A sentence with a low tone bearing verb with an unrealized direct object and having a present interpretation, is ungrammatical as shown in example (5b). (Beermann, Hellan and Ogie 2001, Ogie 2002):

**Present transitive**

(4) Òtà gbèn èbé.

Òtà gbèn èbé.

_Ota write.PRES.L book_

PN V CN

'Ota writes a book.'

**Present intransitive**

(5) a. Òtà gbên.

Òtà gbên.

_Ota write.PRES.H_

PN V

'Ota writes.'

---

19 Tone as a syntactic head separate from INFL is mentioned by Baker (2005) as a possible analysis for the verbal morphology and word order ordering in Lokaa.
b. *Ọtā gbẹ́n.

*Ọtā gbẹ́n.

Ota write.PRES.L
PN V
'Ota writes.'

Past transitive

(6) a. Ọtā gbẹ́n èbé.

Ọtā gbẹ́n èbé.

Ota write.PST.H book
PN V CN
'Ota wrote a book.'

Past intransitive

b. Ọtā gbẹ́n-rèn.

Ọtā gbẹ́n-rèn.

Ota write.PST-rV
PN V
'Ota wrote.'

In (6b) the suffix is of the form r+V (where the final vowel is determined by vowel harmony). While the suffix may signal completeness, it is a past tense marker (Ogie 2001, Beermann, Hellan and Ogie 2002). Also, -rV is suffixed to verbs expressing past-time when their arguments are extracted (Beermann, Hellan and Ogie 2002). In addition, when attached to a closed set of dynamic inchoative verbs, it may have a present or past interpretation depending on context (Agheyisi 1990, Manfredi 2005). I now discuss the different sub-types of tense in more details.
2.1.1 The present tense

In table 5 as exemplified in the examples below I show the exponents of the present tense:

Table 5

<table>
<thead>
<tr>
<th>SYLLABIC STRUCTURE</th>
<th>INTRANS OR EXTRACTED DIRECT-OBJECT OR IMPLICIT OBJECT</th>
<th>TRANS (OBJECT PRESENT IN CANONICAL OBJECT POSITION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNISYLL</td>
<td>High tone (cv) (example(7), (11b))</td>
<td>Low tone (cv) (example (8), (11a))</td>
</tr>
<tr>
<td>DISYLL</td>
<td>Low+ high tones (cvcv) (example (9a), (9b) and (12b))</td>
<td>All low tones (cvcv) (example (10), (12a))</td>
</tr>
</tbody>
</table>

Monosyllabic verbs

(7) Ọtà gbé. (intransitive)

Ọtà gbé.

Ota dance.PRES.H

PN V

'Ota dances (everyday) or Ota is dancing.'

(8) Ọtà gbèn èbé. (transitive)

Ọtà gbèn èbé.

Ota write.PRES.L books

PN V CN

'Ota writes books (everyday) or Ota is writing a book.'

Following our discussion in chapter 1, the intransitive verb has no participant realized as its object and therefore has an empty COMPS list while the transitive verb has an element re-entrant with its DIRECT OBJECT value on its COMPS list.
Disyllabic verbs (Agheyisi 1990)

(9)  a. Òzó  kùú.  (CVV syllabic structure- intransitive)

Òzó  kùú.
Ozo  play.PRES.H
PN  V
'Ozo plays (everyday)
or
'Ozo is playing.'

b. Òzó  mòsé.  (CVCV syllabic structure-intransitive)

Òzó  mòsé. 20
Ozo  beautiful.PRES.H
PN  V
'Ozo is beautiful.'

(10) Òzó  kpòlò  òwá.  (CVCV syllabic structure-transitive)

Òzó  kpòlò  òwá.
Ozo  sweep.PRES.L  house
PN  V  CN
'Ozo sweeps the house (everyday)
or
'Ozo is sweeping the house.'

Examples (7) through (10) with the exception of (9b) express events and may also express progressive and habitual meaning. (9b) is a state and as discussed in chapter 1, they do not normally occur in the progressive.

As with lexically intransitive verbs (one argument verbs), when the object of a transitive verb (a two argument verb) is realized in non-local environments the verb bears a high tone for monosyllabic verbs as seen in the following example from Omoruyi (1989:296).

20 State eventualities expressed as predicative adjectives in languages like English are expressed by verbs in Edo and are normally intransitive verbs. I discuss this further in chapter 3.
(11) a. í rí iyán.

í rí iyán.
1SG eat.PRES.L yam
PRON V CN
'I eat yams' or 'I am eating yam.'

b. iyán èré ì ré.

ìyán èré ì ré.
Yam FOC 1SG eat.PRES.H
'It is Yam I eat' or 'It is yam that I am eating.'

(12) a. òzó kòkò ògó.

òzó kòkò ògó.
Ozo gather.PRES.L bottle
PN V CN
'Ozo gathers bottles.'

b. ògó èré òzó kòkó.

ògó èré òzó kòkó.
Bottle FOC Ozo gather.PRES.H
CN PN V
'It is bottles Ozo gathers.'

My assumption for the verbs in (11b) above and (12b) is that the value for the DOBJECT in qval is realized not on the COMPS list but in a non-canonical environment (see the schema in (19d) below). They have an empty COMPS list.

For disyllabic transitive verbs realized in a non-local environment, the verb bears a low tone followed by a high tone as with lexically intransitive disyllabic verbs (12b).
2.1.2 The past tense

In this section I discuss extensively the past tense especially the \(-rV\) suffix because it has implication for classification of multi-verb constructions in the following chapters. In table 6 as exemplified in the examples below I show the distribution of past tense:

Table 6

<table>
<thead>
<tr>
<th>SYLLABIC STRUCTURE</th>
<th>INTRANS OR EXTRACTED DIRECT-OBJECT OR IMPLICIT OBJECT</th>
<th>TRANS (OBJECT PRESENT IN CANONICAL OBJECT POSITION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNISYLL</td>
<td>High tone on verb stem +rV suffix (cv+ rV) (examples (16), (19b))</td>
<td>High tone on the verb stem (cv) (examples ((13), (19a))</td>
</tr>
<tr>
<td>DISYLL</td>
<td>High tone on final syllable of verb stem +rV suffix (cvcv+rV) (examples ((14), (19c))</td>
<td>High tone on final syllable of verb stem (cvcv) (example (15))</td>
</tr>
</tbody>
</table>

(13) Òtà gbén èbé.

Òtà gbén èbé.

\textit{Ota write.PST.H books}

PN V CN

'Ota wrote books.'

(14) Òzó kùú-rù.

Òzó kùú-rù.

\textit{Ozo play.PST-rV}

PN V

'Ozo played.'

(15) Íràn guòghó íkékê Òsàró.

Íràn guòghó íkékê Òsàró.

\textit{3PL destroy.PST.H bicycle Osaro}

PRON V CN PN

'They destroyed Osaro’s bicycle.'
The tone on the final syllable of a past-transitive verb is high ((13) and (15)), that is, the tone on the previous syllable(s) may be low or high depending on the syllabic structure of the verb. An -rV suffix attaches to the verb, when it has no following object (14) and (16) (Agheyisi 1990 and Omoruyi 1991). The final vowel on the suffix harmonizes with the final vowel on the verb stem.

In (13) and (15) the COMPS list is non-empty and in (14) and (16), it is empty. -Rv is not licensed by a transitive verb when its direct or oblique objects are realized in the canonical object position (in COMPS underlined). The following example from Omoruyi (1991:2) illustrates this:

((17) *Osàgié tié-rè rúé.

*Osàgié tié-rè rúé.

Osagie call.PST-rV 2SG
PN V PRON
'Osgagie called you.'

The constellation in (18) is thus one which does not allow −rV:
However, when the direct object of a transitive verb is realized in a non-local environment (in the position fronted in (107i) in chapter 1 above) (underlined below), the verb takes the -rV as in examples (19b) and (19c) from Omoruyi (1989:283 & 284) (the COMPS is then an empty list):

(19) a. Òsàgié tié rùé.

<table>
<thead>
<tr>
<th>Osagie</th>
<th>call.PST.H</th>
<th>2SG</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN</td>
<td>V</td>
<td>PRON</td>
</tr>
</tbody>
</table>

'Osagie called you.'

b. Wè èré Òsàgié tié-rè.

<table>
<thead>
<tr>
<th>Wè</th>
<th>éré</th>
<th>Osagie</th>
<th>call.PST-rV</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRON</td>
<td>PN</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

'It is you that Osagie called.'

c. Íkèkè Osàró èré íràn ghuòghó-rè.

<table>
<thead>
<tr>
<th>Bicycle</th>
<th>Osaro</th>
<th>FOC</th>
<th>3PL</th>
<th>destroy.PST-rV</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN</td>
<td>PN</td>
<td>PRON V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

'It is Osaro whose bicycle they destroyed.'

The distinction between the VAL and QVAL dichotomy allows us to state that the verb tié (read) is a transitive verb by instantiating a value for DOBJ but allowing this value to be re-entrant with the element in the fronted position and constraining its COMPS list to be empty. It is this empty value for COMPS that licenses –rV suffixation. I illustrate this with the partial AVM in (20) below:
My discussion on \( rV \) suffixation so far has an underlying assumption that an inherent transitive verb that licenses it has a defined DOBJ value but an empty COMPS list, while an intransitive verb has no object which can be re-entrant with an element on the COMPS list providing for an empty COMPS list. The essential criteria for \( rV \) suffixation discussed so are:

(21)

i. The value for tense must be *past*.

ii. The tone on the final syllable of the verb stem is a high tone.

iii. The COMPS list of the verb must be empty.

The relationship between \( val \) and \( qval \) and saturation of elements in the valence list and \( rV \) licensing is buttressed by its licensing pattern in oblique constructions. In such cases, the element that is the value for the attribute OBLOBJ is re-entrant with an element in the COMPS list and \( rV \) suffixation fails (22b):

(22) a. Ózó gbé mè/ nùè.

\[ \begin{array}{ll}
\text{Ózó} & \text{gbé} \quad \text{mè/ nùè.} \\
\text{Ozo} & \text{dance.PST.H} \quad \text{1SG.OBL/ PREP.2SG.OBL} \\
\text{PN} & \text{V} \quad \text{PRON} \quad \text{PRON} \\
\end{array} \]

'Ozo danced for me/you.'
b. *Òzó gbé-rè mé/nùé.

*Òzó gbé-rè mé/nùé.

Ozo  dance.PST-rV  1SG.OBL /PREP.2SG.OBL
PN   V   PRON   PRON

'Ozo danced for me/you.'

c. Òzó gbé-rè nè imè.

Òzó gbé-rè nè imè.

Ozo dance.PST-rV  for  1SG.EMPH
PN   V   PREP PRON

'Ozo danced for me.'

Significantly, when the pronoun is realized as the object of a preposition as in (22c), then –rV is licensed. I relate this back to the discussion in chapter 1 section 1.4.6.4 on the oblique object. The distribution of the suffix in (22b &c) buttresses my classification of the pronoun in (22b) as an oblique object.

I show a partial description in (23) constraining gbé in (22a) above:

That the oblique object is part of a verb’s complement structure is obvious from the fact that adjuncts cannot intervene between the verb and the oblique:

(24) *Òzó  gbé giè!giè mé/ nùé.

*Òzó gbé giè!giè mé/ nùé.

Ozo  dance.PST.H quickly  1SG.OBL /PREP.2SG.OBL
PN   V   ADV   PRON PRON

'Ozo danced quickly for me/you.'
In line with the assumption of an empty COMPS list which contributes to the licensing of $-rV$, in example (26a) and (26b) below, the elements èsésè/zàízàí occurring after the verb gbé are adjuncts and as such are not realized on the COMPS list or as a value for any of the attributes constraining $qval$. Instead it is realized as value for an attribute MOD (modifier) which is a head feature constraint, and as such the COMPS list value is an empty list and $-rV$ is licensed:

(26) a. Ózó gbé èsésè/zàízàí.

<table>
<thead>
<tr>
<th>Ózó</th>
<th>gbé</th>
<th>èsésè/zàízàí.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo</td>
<td>dance.PRES.H</td>
<td>well/smartly</td>
</tr>
<tr>
<td>PN V</td>
<td>ADV</td>
<td>ADV</td>
</tr>
</tbody>
</table>

'Ozo dances well/sm artly.'

b. Ózó gbé-rè èsésè/zàízàí.

<table>
<thead>
<tr>
<th>Ózó</th>
<th>gbé-rè</th>
<th>èsésè/zàízàí.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo</td>
<td>dance.PST-rV</td>
<td>well/smartly</td>
</tr>
<tr>
<td>PN V</td>
<td>ADV</td>
<td>ADV</td>
</tr>
</tbody>
</table>

'Ozo danced well/sm artly.'

Agheyisi’s (1990) account of the past tense differs from the above exposition with respect to the non-licensing of $-rV$ by a transitive verb. She claims (1990:71):

“Whenever the verb is followed immediately by its direct object
or complement, the PTM\textsuperscript{21} form that occurs with the verb is the variant without the initial consonant, /r/, and then, the processes of assimilation and contraction, or diphthongization, which normally occurs at word boundary…, results in the total elimination of the PTM vowel, leaving only the floating low tone to indicate the tense of the sentence.”

For her then, the difference in the realization of the past in transitive and intransitive verbs lies in a phonological process that deletes the segmental form \(-rV\) in the environment of an overt object, leaving behind only the supersegmental tone marking on the verb. The presence of this supersegmental tone is buttressed according to her by the realization of a downstep which lowers the tone on the verb’s object as in:

\begin{center}
\begin{tabular}{llll}
\textit{Ozo} & \text{buy.PST.H} & \text{DST} & \text{book} \\
\text{PN} & \text{V} & \text{CN} \\
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{rll}
\hline
\textbf{(27)} & \textit{Ozo dé! èbé.} \\
\hline
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{rll}
\textit{Ozo} & \text{buy.PST.H} & \text{DST} \\
\text{PN} & \text{V} & \text{CN} \\
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{ll}
\textit{'Ozo bought a book.'} \\
\end{tabular}
\end{center}

Manfredi\textsuperscript{22} (2005) is of the view that past interpretation in transitive verbs is not due to an \(-rV\) suffix that undergoes elision. Based on Amayo (1976) and the fact that Agheyisi (1990) only used an example of a past verb with an object NP bearing a low tone and a high tone which forces a down-step, he concludes that the down-step is the initial low on the noun and not a low of a deleted suffix (as in (28) below, my example)). I agree with this view.\textsuperscript{23}

\begin{flushright}
\textsuperscript{21} PTM = Past Tense Marker \\
\textsuperscript{22} Personal communication \\
\textsuperscript{23} Omoruyi (1990) also states the above view.
\end{flushright}
(28) Òzó dé ódó.

Ôzó dé ódó.

Ozo buy.PST.H mortar
PN V CN

'Ozo bought a mortar.'

In (28), no downstep is formed because the NP object has all high tones (so there is no tone spreading and tone simplification process between the verb and noun).

Manfredi (2005:16) explains –rV suffixation as epenthetic, and the absence in past-transitive verb constructions as a prosodic constraint stated in (29) below:

(29)

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 (Èdó): trochaic/right-branching i.e. sw or [HL].

The claim (29) makes the assumption that tone-marking is dependent on inflection and syllabic structure as well as a syntactic constituent structure. Manfredi (2005:17) states further that Èdó –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. Manfredi’s treatment of –rV as presented in (29) describes the phonetic reflexes of the fact that –rV suffixation is licensed in part by the relationship between a verb’s valence values and its qualitative valence values as I have discussed above.


Different from this view is that of Baker and Stewart (1998). Under this view, semantically, the –rV suffix expresses “something like past perfective” (1998:2). They hold that this gives a subtle contrast in meaning between sentences in the simple past
(past tense realized as a high tone on the verb) and sentences containing the \(-rV\) suffix as shown in (30a) & (30b) below:

(30) a. \(\text{'\Ozó vbié là ífuánrò igbé.'}\)

\[\text{\Ozó vbié là ífuánrò igbé.}\]

\(\text{Ozo sleep.PST.H for minute ten}\)

\(\text{PN V PREP CN NUM}\)

'Ozo slept for ten minutes.'

b. \(\text{'\Ozó vbi-rè là ífuánrò igbé.'}\)

\[\text{\Ozó vbi-rè là ífuánrò igbé.}\]

\(\text{Ozo sleep.PST-rV for minute ten}\)

\(\text{PN V PREP CN NUM}\)

'Ozo slept for ten minutes (Completive, suggests he woke up refreshed).'

However, in our view, the difference between (30a) and (30b) is not just that of completion. Both suggest that the sleeping event was completed and in the past. The difference lies in evaluation of how well the sleeping event was performed and this interpretation is restricted only to the verb \(vbié (sleep)\). Example (31) below, buttresses this view:

(31) a. Morning greeting: \(\text{lávbézè 'goodmorning'.}\)

b. Reply: \(\text{Éè. Dé ú vbi-rè sé? '? Q. PART 2SG sleep.PST-rV well}\)

\(\text{PRON V ADV}\)

'I accept the greeting. I hope you slept well and is refreshed.'

Example (31b) is uttered early in the morning when two people meet. Importantly, it is assumed that the sleeping event is already completed (as with all events in the past). The focus is therefore on how well the sleeping event went. One can reply to the
question in (31b) by saying “yes, I slept well” or “no, I did not sleep very well. My sleep was interrupted by a loud noise”.

An interruption of the performance of the events expressed in (30a) & (30b) respectively does not bring about a meaning difference suggesting that the additional reading of “being refreshed” may be contributed by shared knowledge (pragmatic and contextual factors) between the speaker and hearer. Examples (32a) & (32b) illustrate this:

(32) a. Òzó vbió là ífuánrò ìgbé Í ké dòó huén ónrèn.

Ôzó vbió là ífuánrò ìgbé
Ozo sleep.PST.H for minute ten
PN V PREP CN NUM

Í ké dòó huén ónrèn.
1SG SEQM SEQM wake 3SG
PRON V PRON

'Ozo slept for ten minutes before I woke him up.'

b. Òzó vbió-rè là ífuánrò ìgbé Í ké dòó huén ónrèn.

Ôzó vbió-rè là ífuánrò ìgbé
Ozo sleep.PST-rV for minute ten
PN V PREP CN NUM

Í ké dòó huén ónrèn.
1SG SECM SECM wake 3SG
PRON V PRON

'Ozo slept for ten minutes before I woke him up.'

The situations in (32a) & (32b) are understood as having occurred in the past. The suffixation of –rV to the verb vbió in (32b) carries no additional meaning of completion or of “being refreshed”. It only states that the sleeping event occurred in the past. I discuss this further in chapter 6.
To further buttress this view, observe the following example (33a) from Omoruyi (1989: 287) where the intransitive verb is in the present tense and bears a high tone:

(33) a. Òzó khián zàízàí.

Òzó khián zàízàí.

Ozo walk.PRES.H briskly
PN V ADV

'Ozo walks briskly.

'Ozo walked briskly.'

b. Òzó khián-rèn zàízàí.

Òzó khián-rèn zàízàí.

Ozo walk.PST-rV briskly
PN V ADV

'Ozo walked briskly.'

A past tense interpretation can only be attained by the suffixation of the –rV suffix as shown in example (33b) above (also Manfredi 2005). (33b) does not have an additional interpretation that the walking event was well executed. It simply states that the event of walking briskly took place in the past.

I therefore conclude that the –rV suffix marks past tense (the simple past tense in Baker and Stewart’s analysis) when attached to verbs depicting events. Thus the grammatical category past has the high tone and the –rV suffix as its exponents.

In addition to expressing the past tense, an inchoative meaning is also gotten when –rV is attached to a few stative verbs24 (Agheyisi 1990, Omoruyi 1991, Baker and Stewart 1999, Ogie 2004, Manfredi 2005):

---

24 Stative verbs that license –rV are typically individual level predicates. See also footnote (25)).
(34) a. Ózó mòsé.
   Ózó mòsé.
   Ozo beautiful.PRES.H
   PN V
   'Ozo is beautiful.'

b. Ózó mòsé-rè.
   Ózó mòsé-rè.
   Ozo beautiful.PST-rV
   PN V
   'Ozo was/ became beautiful.'

c. Ózó mòsé nòdè.
   Ózó mòsé nòdè.
   Ozo beautiful yesterday
   PN V ADV
   'Ozo was beautiful yesterday.'

A temporal adverbial expressing past time as in (34c) above may anchor the stative event in the past. The tone on the verb remains low-high as in the present tense.

Manfredi (2005) based on examples of –rV suffixation on inherently non-stative inchoatives which can have either a non-past or past interpretation, suggests that the term completive rather than past be used for the suffix:

(35) a. Ô gó.
   Ô gó.
   3SG bend.PRES.H
   PRON V
   'It is bending'
b. Ò gó-rè.

Ò gó-rè.
3SG bend.PST-rV
PRON V

'It bent or it is crooked.'

Example (35b) does not contradict the classification of –rV as a simple past suffix as the default interpretation here is past. (35b) simply shows that aktionsart as well as inflection and argument realization may contribute to tense interpretation (Ogie 2004, Manfredi 2005). In chapter 6, I discuss additional non-past interpretations of the suffix when affixed to atelic predicates. For now I focus on its function as a past tense suffix.

In summary, past tense is interpreted from the inflection-tone and suffix-on a verb, as well the values of its val and qval attributes. In particular, the essential criteria for –rV suffixation discussed are:

(36)

i. The value for tense must be past.

ii. The tone on the final syllable of the verb stem is a high tone.

iii. The COMPS list of the verb must be empty.

2.1.3 The future tense

The lexical item ghá bearing a high tone has three interpretations depending on the context of usage: future tense, progressive aspect and modal. The verb following if monosyllabic bears a low tone and if bisyllabic, a high downstep high tone.

(37) Òzó ghá gbè.

Òzó ghá gbè.
Ozo FUT dance
PN AUX V

'Ozo will dance/is dancing.'
(38) Òzó ghá rhú!lé.

Òzó ghá rhú!lé.

Ozo FUT run.DST.H

'Ozo will run.'

In table 7 below, based on the discussion above, I give data reflecting a revised classification of tense in Èdó:

Table 7

<table>
<thead>
<tr>
<th>TENSE</th>
<th>UNISYLL</th>
<th>DISYLL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transitive</td>
<td>dè 'buy' + (H) 'bought'</td>
<td>guòghó 'break' + (H on final vowel) 'broke'</td>
</tr>
<tr>
<td>Intransitive</td>
<td>só-rò 'cry' + (H,PST-rV) 'cried'</td>
<td>rhùlé-rè 'run' + (H on final vowel,past-rV) 'ran'</td>
</tr>
<tr>
<td>Present:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transitive</td>
<td>dè 'buy' + (L) 'buy'</td>
<td>Guòghó 'break' + (L-L) 'break'</td>
</tr>
<tr>
<td>Intransitive</td>
<td>só 'cry' +(H) 'cry'</td>
<td>Rhùlé 'run'+ (H-L) 'run'</td>
</tr>
<tr>
<td>Future</td>
<td>Ghà + H 'will' + só + L 'cry' 'will cry'</td>
<td>Ghà + H 'will' + rhùlè + H/H 'run' 'will run'</td>
</tr>
</tbody>
</table>

2.2 Pre-verbal modifiers

Four classes of pre-verbal modifiers are identified by Agheyisi (1990) as in (i) to (iv). Omoruyi (1991) also includes aspectual markers as in (v):

(39)

i. Modal elements (Auxiliary/adverb): gélé 'truly', sàbá 'can', bá 'deliberately'.

ii. The negative particle (Auxiliary): í 'present negative', má 'past negative' and ghé 'imperative'.

iii. Adverbal pre-modifiers (Adverb): rhùlé 'quickly' (the verbal counterpart means run), giègiè 'quickly', fèkò 'gently'.
iv. Adverbial clitic element (auxiliary): *ná* 'sequential marker', *yá* 'sequential marker'.

v. Aspectual markers (auxiliary): *ghà*-*ghá* 'unfulfiled aspect', *tè* 'incomplete aspect'.

The term auxiliary refers to aspect, polarity and modal markers. They cannot occur as main verbs in a sentence, they do not form the base for adjectival derivation as verbs do in Èdó, and do not have verbal counterparts, while the term 'adverbial pre-modifiers' refer to adverbs which may occur before the main verb in a construction, also they cannot serve as base for adjectival derivations. Different from auxiliaries they may have verbal counterparts (with different tonal patterns) with related interpretations if they occur as main verbs in a sentence. These elements occur after the subject NP when it occurs in the canonical subject position, as in English-like languages, but before the verb. They all share the ability to take the tense marker in a sentence (Agheyisi 1990:75). When they do, only the auxiliary and preverbal modifiers have tense. The verbs they occur with, if monosyllabic, typically have the same tonal patterns as when they occur as the first verbal element in a sentence, verbs in the non-past tense bear low tones and those in the past bear high tones on their final syllable. Also, the –$rV$ suffix never attaches to a main verb occurring after an auxiliary or preverbal modifier element (see (40b)). The distribution of these elements is shown in table 8:

<table>
<thead>
<tr>
<th>Auxiliary /ADV elements</th>
<th>Present tense on AUX elements</th>
<th>Past tense on AUX elements</th>
<th>Imperative</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV</td>
<td>low tone (example (49))</td>
<td>High tone (examples (50), (55), (56))</td>
<td></td>
</tr>
<tr>
<td>CV (NEG)</td>
<td>High tone (example (58))</td>
<td>High tone (example (59))</td>
<td>High tone (example (57))</td>
</tr>
<tr>
<td>CVCV</td>
<td>Low-low (example (43))</td>
<td>High-down-step-high (examples (40), (41a), (46), (47), (51))</td>
<td></td>
</tr>
</tbody>
</table>
(40)  Òzó gé!lé gbé. (past tense)
      Òzó  gé!lé                 gbé.
      Ozo  truly.PST.!H  dance
PN   ADV   V
'Ozo truly danced.'

(41) a.  Òzó gé!lé rhùlé. (past tense)
      Òzó  gé!lé                 rhùlé
      Ozo  truly.PST.!H  run
PN   AUX   V
'Ozo truly ran.'

b.  *Òzó gèlé rhùlé-rè. (past tense)
    *Òzó  gèlé                  rhùlé-rè.
    *Ozo  truly                  run.PST-rV
PN   AUX   V
'Ozo truly ran.'

c.  Òzó fèkó-rò rhùlé. (past tense)
      Òzó  fèkó-rò                 rhùlé.
      Ozo  gently.PST-rV  run
PN   ADV   V
'Ozo gently ran.'

In example (41b) past tense is already marked on the first verbal element after the verb, that is, the auxiliary gèlé 'truly' and the –rV suffix is therefore not licensed on the verb rhùlé 'run'. In (41c), the first verbal element fèkó 'gently' licenses the –rV suffix. Fèkó behaves differently from the other preverbal adverbs in that it licenses the suffix suggesting that it may at some stage have been a main verb. However, as with the other preverbal adverbials it never occurs as a main verb. The patterning in (41) above is consistent with the view expressed in section 2.1 in this chapter that only the first verbal element in a sentence exposes tense marking. It also buttresses the view that tonal patterning on subsequent verbal elements is only copying reflexes.

Agheyisi’s modal elements are classified into two classes by (Omoruyi 1999):
i. Modal Auxiliary Markers (MAM).

ii. Aspectual Auxiliary Markers (AAM).

Modal Auxiliary Markers (MAM) usually express manner specifications such as intensity, emphasis, ability, certainty and speed. They commonly belong to the syntactic category of adverbs and may be classified as “modal adverbs” (Lyons 1977:800 (cf. Omoruyi 1991)).

Aspectual Auxiliary Markers (AAM) on the other hand specify time relations and semantic relations such as completion and simultaneity, with respect to the verbs they modify. They belong to a closed class and have no lexical meaning, while Negation Markers negate the truth of a proposition.

I now discuss Modal Auxiliary Markers (MAM). I begin with example (43):

(43) Íràn gèlè lè èvbàré giègiè rè. (MAM) (Stewart 1998:41)
Íràn gèlè lè èvbàré giègiè rè. (present tense)
3PL truly.PRES.L cook food quickly eat
PRON AUX V CN ADV V
'Ozo truly cooks the food and quickly eats it.'

(43) expresses a proposition in the non-past tense and its annotation is representative of Stewart’s (1998) representation of tense by a low-low tonal pattern in the non-past tense on such modal elements with CVCV syllabic structure.

Omoruyi (1991) and Agheysi (1990) differ from Stewart (1998) in this respect. They mark non-past tense on a CVCV auxiliary element by a low-high tone pattern:
Examples (43)-(45) above and (46) -(47) below show that irrespective of the tone patterning on the auxiliary element adopted by the Èdó linguists discussed above, they agree in the patterning for the verbs the elements precede, that is, low tones for non-past tense and high tones for the past tense for monosyllabic verbs.

Agheyisi (1990) and Stewart (1998) mark past tense as a high-downstepped-high tone pattern for CVCV auxiliary elements:

(46) Írán gêlé lé èvbàrè gié!gié ré. (MAM) (Stewart 1998)
   Írán gêlé lé èvbàrè gié!gié ré. (past tense)
   3PL truly.PST.!H cook food quickly eat
   PRON AUX V CN ADV V
   'Ozo truly cooked the food and quickly ate it.'

(47) Òzó sábá lé èvbàrè. (MAM) (Agheyisi 1990)
   Òzó sábá lé èvbàrè. (past tense)
   PN AUX V CN
   'Ozo was able to cook food.'
Taking into consideration the observed general pattern for tense marking in Èdó so far, I use Stewart’s (1998) tone marking gloss for the CVCV MAM constructions in this thesis:

(48)

i. Present: a low- low tone sequence on the auxiliary element and a low tone on the verb occurring after it.

ii. Past: a high-downstepped-high tone on the auxiliary element and a high tone on the verb occurring after it.

In sentences containing monosyllabic MAM, both the MAM and main verb bear the same tonal pattern: the auxiliary and the verb bear low tones in the present ((49)) and high tones in the past ((50) and (51)) irrespective of the transitivity of the verb.

(49) Òzó bà lè èvbàrè.

Òzó bà lè èvbàrè. (MAM) (present tense)

Ozo deliberately.PRES.L cook food
PN AUX V CN
'Ozo is deliberately cooking the food.'

(50) Òzó bá lé èvbàrè.

(51) Òzó bá lé èvbàrè.

'Ozo deliberately cooked the food.'
The data discussed so far show that tense is represented on the first verbal element after the subject NP and this also applies to Aspectual Auxiliary Markers (AAM) which I now discuss.

As with MAM auxiliary elements, they bear low tones in the present and high tones in the past. However, the tone pattern on the verb is dependent on the construction type. Unlike MAMs, the verbs in some AAM bear low tones if transitive (52) and high tones if intransitive (53), while the tone on the MAM element is constant as described in (48) above, where the tone on the verb occurring after the auxiliary element is low in the present and high in the past irrespective of the transitivity of the verb. Omoruyi (1991:8) observes that if the verb is inherently intransitive or used intransitively, it obligatorily bears a high tone. This is consistent with the patterning of intransitive CV verbs in the non-past tense in the language:

(52) Òsàró ghà tiè èbé.

Ôsàró ghà tiè èbé. (UN-ASP (unfulfilled aspect))

Osaro UN.ASP  read book  
PN  AUX  V  CN

'Osaro should have read a book.'

25 The post-verbal form is ègiègiè as in (a):

(a) Òzó gbé-rè ègiègiè.

Ozo  dance.PST.rV quickly
PN  V  ADV

'Ozo danced quickly.'
(53) Òzó ghà rré mà ghá tiè ērè. (UN-ASP (unfulfilled aspect))

```
 Ozo  UN-ASP  come  1.PL UN-ASP  call  3.PL
 PN  AUX  V  PRON AUX  V  PRON
```

'If Ozo comes we shall call him.'

(52) is transitive and the verb bears a low tone. However in (53), the first part of the conditional sentence is intransitive and the first verb ‘come’ bears a high tone while the transitivity of the second part is reflected by the low tone on the second verb ‘read’. In sentences of this nature the situations described are “probable” situations.

Another example of an AAM construction is a construction containing the incomplete aspect marker ‘almost’. The verb it modifies usually bears a low tone (Omoruyi 1991).

(54) Òzó té dè. (incomplete aspect)

```
 Ozo    INCOMPL  fall
 PN  AUX  V
```

'Ozo almost fell.'

Here, the viewpoint presented includes the initial interval of an event that was interrupted.

Adverbal clitics elements are markers of temporal relations that occur pre-verbally whenever post-verbal adjuncts are moved to sentence initial position. Usually this clitic is the element ‘that occurs in constructions with focused locative and temporal adjuncts (Agheyisi 1990, Beermann, Hellan and Ogie 2002). Agheyisi (1986) calls it a sequential marker (SM). Constructions with focused temporal adjuncts may also occur with a clitic ‘(a Time Sequence Marker (TSM)) that is in complementary distribution with ‘.
(55) \[ \text{Èkì  èré  Ózó  ná  gbé.} \] (past tense)  
\[ \text{Market  FOC  Ozo  SECM  dance} \]
\[ \text{CN  PN  V} \]

'It is in the market, Ozo danced.'

(56) \[ \text{Òwíé  èré  Ózó  ná/yá  gbé.} \] (past tense)  
\[ \text{Morning  FOC  Ozo  SECM  SECM  dance} \]
\[ \text{ADV  PN  V} \]

'It is in the morning, Ozo danced.'

Different from MAM and AAM constructions are constructions with the negative auxiliary. The negative auxiliaries are \( \text{ghé} \) (imperative), \( i \) (negation in the present tense) and \( \text{má} \) (negation in the past tense). The CV verbs in negative constructions bear low tones in the non-past and high tones in the past as shown in the following examples from (Omoruyi 1991).

(57) \[ \text{Ghé  rri  èvbárè  èsì!} \] (imperative)  
\[ \text{IMP.NEG  eat  food  good} \]
\[ \text{AUX  V  CN} \]

'Do not eat good food!'

(58) \[ \text{Òzó  i  lè  èvbárè.} \] (present tense)  
\[ \text{Ozo  NEG.PRES  cook  food} \]
\[ \text{PN  AUX  V  CN} \]

'Ozo does not cook/ is not cooking food.'
Summarizing this section, CV auxiliary/adverbial elements bear low tones in the present and high tones in the past. CVCV elements bear low-low tones in the present and high-down-stepped high tones on the past. Negative auxiliaries on the other hand all bear high tones irrespective of their tenses. Verbs following these elements generally bear low tones in the non-past and high tones in the past.

2.3 Viewpoint aspect in Èdó.

Research on the aspectual system of Èdó has focused only on perfective/imperfective and habitual aspect (Agheyisi 1990, Omoruyi 1991). The aspectual system of Èdó is similar to English; there is a basic opposition between perfective and imperfective aspect. The habitual aspect as discussed in section 2.1 is derived through contextual interpretation of the category present. I now discuss perfective and imperfective aspect. Different from the unfulfilled and incomplete aspect discussed in the previous section, the perfective and imperfective aspect defines the progression of events in time.

2.3.1 Perfective aspect

There is just one perfective marker *nge*, which occurs post verbally (Agheyisi 1990). It occurs with all kinds of eventuality types and in past and present tenses. It may attain additional interpretations, depending on the polarity marking on a proposition and/or the nature of the verb it occurs with. The default interpretation is that of presenting closed eventualities that is, eventualities with initial and final viewpoints. Table 9 below with associated sentences (60) to (68) show the distribution:
Table 9

<table>
<thead>
<tr>
<th>Né</th>
<th>EVENTS</th>
<th>STATES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V+né</td>
<td>NEG marker +V+ né</td>
</tr>
<tr>
<td>Present</td>
<td>Inceptive/habitual reading (né) ((62))</td>
<td>Perfective-sequential reading (né) ((64))</td>
</tr>
<tr>
<td>Past</td>
<td>Perfective reading (né) ((60))</td>
<td>Positive-Perfective reading (né) ((67))</td>
</tr>
</tbody>
</table>

V+né combinations

(60) Òzó dé Ḗbê né. (past perfective reading)

Òzó dé Ḗbê né.

Ozo buy.PST.H book PERF
PN V CN

'Ozo had bought a book.'

(61) Òzó kpòlò né Ḗghê néì ná rên ṣôrên. (past perfective inchoative reading)

Òzó kpòlò né Ḗghê néì ná rên ṣôrên.

Ozo be.fat.PST.H PERF at time that 1SG SEQM know 3SG
PN V PREP CN COMP PRON V PRON

'Ozo had become fat as at the time I knew him.'

Example (60) expresses a past perfective reading of an event. (61), a stative eventuality, expresses both an inchoative reading and a past perfective reading.

When né occurs with positive event types in the present tense, it expresses either an inceptive or a habitual reading. This is illustrated in (62) below.
(62) Òzó tiè èbé né. (present inceptive or habitual reading)

Òzó tiè èbé né.
Ozo read.PRES.L book PERF
PN V CN
'Ozo has begun to read (a book),
or
Ozo has begun reading (habitual)
(cannot mean Ozo has read a book).'

In the inceptive interpretation, the eventuality expressed in (62) came into existence in the immediate or remote past and still holds as at the time of speech, while the habitual interpretation is generic.

When né occurs with positive stative types, it expresses an inchoative reading:

(63) Òzó kpôlô né. (present perfective inchoative reading)

Òzó kpôlô né.
Ozo be.fat.PRES.H PERF
PN V
'Ozo has become fat.'

NEG MARKER +V + NÉ

In event types containing the present-negative marker i and the perfective marker né, the negative marker loses its negation properties resulting in a sequential interpretation:
(64) a. Ôzó í ghí tiè èbé né, imà ké kpàá. (present perfective sequential reading)

Ôzó í ghí tiè èbé né, imà ké kpàá.

Ozo NEG.PRES AUX read book PERF 1PL SEMQ Leave
PN V CN PRON V

'Let Ozo read first, before we go (i.e. do his homework).' 

b. Ôzó í ghí tiè èbé né. (present perfective sequential reading)

Ôzó í ghí tiè èbé né.

Ozo NEG.PRES AUX read book PERF
PN V CN

'Let Ozo read first, before...'

In (64a &b) the event of reading has begun or is just about to begin. The event of leaving can only begin after the completion of the reading event. The subordinated clause may be omitted given shared information between the participants in the interaction. The sequential meaning is still available when this is the case ((64b)).

In stative types expressing present tense, the combination of the negative marker í and the perfective né, gives a ‘mood (ability)’ interpretation. It presents a positive end state of an inchoative. Here a situation thought impossible to attain is attained:

(65) Ôzó mòsé né (niá). (present positive inchoative reading)

Ôzó mòsé né (niá).

Ozo beautiful.PRES.H PERF (finally)
PN V ADV

'Ozo has become beautiful (finally).' 

---

26 Ghí is a negative polarity marker which intensifies the negative marking role of í and má (Omoruyi 1991).
(66) a. Ózó i mòsé (niá). (present negative)

Ôzó i mòsé (niá).
Ozo NEG.PRES beautiful (finally)
PN V ADV

'Ozo is no longer beautiful.'

b. Ózó i mòsé né (niá). (present positive inchoative reading)

Ôzó i mòsé né (niá).
Ozo NEG.PRES beautiful PERF (finally)
PN V ADV

'Ozo has become beautiful (finally)(Despite all odds).'

In (65), a positive sentence, there is no negative marker and the reading despite all odds is absent here. In (66a), the present negative marker is present but the perfective is absent and we also do not get a ‘mood’ interpretation. It is the combined interpretation of the present negative marker i and the perfective né in (66b) that contributes the positive end state inchoative interpretation. It implies that Ozo has achieved the state of being beautiful despite all odds and that the state continues to exist as at the time of speaking.

In the past tense for all eventualities, the combined interpretation of má and né also gives a despite all odds interpretation. I label this a positive perfective interpretation:

(67) Ózó má déèbé né (niá). (past positive perfective reading)

Ôzó má déèbé né (niá).
Ozo NEG.PST buy book PERF (at last/finally)

'Ozo had bought a book (finally)
(He bought the book despite all odds).'

The same applies to (68) below. The state of being clever is achieved contrary to expectations.
(68) Òzó má rën èbé nê (niá). (past positive perfective inchoative reading)
    Òzó má rën èbé nê (niá).
    Ozo NEG.PST know book PERF (finally)
    ‘Ozo became/has become clever despite all odds.’

2.3.2 Imperfective aspect

The imperfective aspect has the form ghá ‘present-progressive (pres-prog)’ and ghá!á ‘past progressive (past-prog)’ (Agheyisi 1990).

The present-progressive aspect ghá is homophonous with the future marker ghá discussed in 2.1.3 above. Table 10 below with associated sentences (69) to (73) show the distribution:

Table 10

<table>
<thead>
<tr>
<th>Imperfective</th>
<th>EVENTS</th>
<th>Affirmative</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>Ghá ((69))</td>
<td>i + verb ((72))</td>
<td></td>
</tr>
<tr>
<td>Past</td>
<td>Ghá!á ((70))</td>
<td>má + ghá ((73c))</td>
<td></td>
</tr>
</tbody>
</table>

Affirmative situations

The imperfective marker only occurs with events (excluding achievements) in affirmative sentences.

(69) Íràn ghá ghè ikù.

<table>
<thead>
<tr>
<th>Íràn ghá ghè ikù. 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>3PL PRES.IMPERF look dance</td>
</tr>
<tr>
<td>PRON AUX V V</td>
</tr>
</tbody>
</table>

‘They will/ are looking at a dance.’

In (69) the looking event is still on going. In (70) below, the looking event took place at some time in the past relative to the time of the utterance:

---

27 The present may also have a progressive interpretation:

Íràn ghè ikù.

<table>
<thead>
<tr>
<th>Íràn ghè ikù.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3PL look dance</td>
</tr>
</tbody>
</table>

‘They are looking at a dance.’
(70) Ìràn ghá!á ghé ikù.
  Ìràn   ghá!á   ghé   ikù.
 3PL    PST.IMPERF look   dance
  PRON   AUX   V   V
'They were looking at a dance.'

Ghá!á consist of ghá and rá. –rá encodes the information that the situation depicted by a verb is on going in the past (Omoruyi (1991)).

Negative situations
The imperfective marker also occurs with the past negative marker má and occurs with activities and achievements. However, when it occurs in sentences with state verbs, it has scope over the subject NP if it expresses an eventuality and not over the state verb as in (71a) & (71b).

(71) a. Ìwinnà níí má ghá màá.
  Ìwinnà níí   má   ghá   màá.
  Work   that   NEG.PST   IMPERF   good
  CN   DET   AUX   AUX   V
' That work was not good (work was still in progress).'

b. Ìwinnà níí má màá.
  Ìwinnà níí   má   màá.
  Work   that   NEG.PST   good
  CN   DET   AUX   V
' That work was not good (work may or may not be finished).'

There is a difference in the interpretation of (71a) & (71b). (71a) suggests an imperfective reading. The work though still in progress was unsatisfactory. In (71b) however, it is simply stated that the work was not satisfactory. A closer examination of the data suggests that ghá in (71a) takes its tense interpretation from the past

---

28 R is an approximant which is susceptible to deletion in Èdó. I suggest that –rá is a realization of the –rV past suffix. However, it is only in the past progressive aspect that –rá occurs. When –rV suffixes to verb stems ending with oral vowels, four possible alternations are possible: -rì, rù, rò and rè as in wìírì ‘lost’, wúrù ‘died’, vbóòró ‘ripen’ zò́rè ‘grew’ and rhàárè ‘stole’.
negative marker mà and marks past progressive aspect. Tense is marked on the first
verb-like element after the subject NP (In this instance mà). –rV fails therefore to
attach to ghà as discussed in section 2.2. Consider the following:

(72) a. Ìwinnà nìí í màá.

Ìwinnà nìí í màá.
Work that NEG.PRES good
CN DET AUX V

'The work is not good (The work may or may not be completed).'

b. *Ìwinnà nìí í ghá màá.

*Ìwinnà nìí í ghá màá.
Work that NEG.PRES IMPERF good
CN DET AUX AUX V

'The work is not good.'

(73) a. Òzó í gbé.

Òzó í gbé.
Ozo NEG.PRES dance
PN AUX V

'Ozo is not dancing.'

b. *Òzó í ghá gbé.

*Òzó í ghá gbé.
Ozo NEG.PRES IMPERF dance
PN AUX AUX V

'Ozo is not dancing.'
Examples (72) represent a stative eventuality and (73) an event. Examples (72b) and (73b) show that the imperfective marker cannot occur with the present negative marker *í*. In negative sentences expressing the present tense, the imperfective reading is got from the combination of the meaning of the non-past negative marker and the eventuality lexical item (72a) & (73a). In past progressive negative sentences *ghá* is obligatory in order to get a progressive interpretation ((73c)). A past progressive interpretation is not possible without the marker ((73d)).

So far, I have discussed how the lexical specification of a verb contributes to its tonal and affixal morphology, as well as tense interpretation (section 2.1). I have also discussed the interaction between a verb and an auxiliary element that can occur before it with respect to tense, mood and aspect interpretations (Sections 2.2 through 2.3). In section 2.4 below, I now discuss the constraints applicable in the derivation of a verb lexeme and how the interaction between its argument selection properties and tone specification works. I then specify the constraints necessary for the different

---

29 It is also possible to have the past-negative marker *má* and *ghá* occurring with a state verb but in this instance, the interpretation is of a change of state, not an imperfective reading:

\[ \text{Ézo má ghá mòsé.} \]

\[ Ozo \text{ NEG.PST \ IMPERF \ dance} \]

\[ PN \ AUX \ AUX \ V \]

'Ozo was not beautiful(when I saw him).' 

inflections verb words may have and how the lexeme serves as input for the derivation of these word forms relative to a matrix style HPSG grammar.

2.4 The type tense in Èdó

A property that constrains the head value of all parts of speech in Èdó is tone. As discussed in chapter 1, there are two basic tones in Èdó: high (\*\*) and low (\*\*). Nominal heads in Èdó bear constant tones while verbal heads bear relative tones. By relative tone, I mean grammatically and lexically constrained tonal realization. I have encoded tone information as a constraint on lexical heads in Èdó with the attribute TONE and value tone constraining the type head. This is declared in (74) below:

\[(74) \begin{array}{c}
\text{head} \\
\text{tone} \\
\text{LEX-TONE high-or-low} \\
\text{REL-TONE high-or-low} \\
\text{CONST boolean}
\end{array}\]

The constraint in (74) captures an underlying assumption that all lexical items are tone bearing. The attribute CONST (CONSTANT) with value boolean captures the constraint that the value for tone may be constant (+) or determined by grammatical context (-). Other constraints on tone are the attribute LEX-TONE (lexical tone) and REL-TONE (Relative tone). Both LEX-TONE and REL-TONE have the value high-or-low. The type high-or-low represents an undeclared value for high and low tones. (75) below declares these types:

\[(75) \begin{array}{c}
tone := \text{avm.} \\
\text{high-or-low} := \text{sort.} \\
\text{high} := \text{high-or-low.} \\
\text{low} := \text{high-or-low.}
\end{array}\]

Extending this constraint to particular instantiations of head values, the type noun is constrained by the attributes LEX-TONE and CONST with the latter having a '+' value (as in (76)), and the type verb is constrained by the attribute REL-TONE and a '-' value for the attribute CONST as in (77) below:
The value CONST- in (77) represents the generalization that the tone on a saturated verb is determined by its tense information, argument type and inflection. This I have shown in section 2.1 above. The above generalizations allow for underspecification of the type tone and explain the discrepancy in the literature as to the tone on the citation form of verbs. Agheyisi (1990:41) states that the citation tone is a high tone. Omozuwa (1997:114) states that it is a low tone and Wescott (1963:29) and (Amayo 1976) state that Èdó root verbs are toneless. Under the view I have explained above, Èdó base verb are not toneless but are underspecified for a value for the feature TONE.

Another constraint on the type verb which I have discussed above is tense. All tense markers with the exception of the future tense ghà and the past tense suffix -rV are tones. The suffix –rV has allomorphs which harmonize with the verb stem they occur with. They are as follows:
I discuss immediately below the general architecture by which tone and suffixation realize tense information.

Tense is defined semantically as a constraint on the type $tam$. $Tam$ is in turn a constraint on the attribute $E$ that constrains the type $event$. This constraint is stated in (78) below as:

$$
\begin{array}{|l|l|}
\hline
\text{Vowel Quality (ORAL/NASAL)} & \text{VERB STEM WITH VOWELS ENDING IN:} \\
\hline
\text{ORAL} & e, a, o \quad \text{-re} \\
& i \quad \text{-ri} \\
& u \quad \text{-ru} \\
& o \quad \text{-ro} \\
\hline
\text{NASAL} & \text{in} \quad \text{-rin} \\
& \text{un} \quad \text{-run} \\
& \text{en, on, an} \quad \text{-rgn} \\
\hline
\end{array}
$$

The verb sign described in (78) is of type $lexeme$ and as such is underspecified for REL-TONE and inflection sub-categories for the type $tense$ for Èdó in short. It is neutral to inflectional categories. The category $tense$ in Matrix grammar is not a marker of finiteness, and has non-past, past, perfective (perf) and infinitive (inf) as sub-types. I discuss only the past/ non-past distinction.
2.5 Lexeme-to-word-rule

The realization of an inflectional category that transforms a lexeme to a word is achieved by a type *lexeme-to-word-rule* (a unary-rule):

(79)

```
verb-as-word
   ....lexeme-to-word-rule
   Verb-as-lexeme
```

*Lexeme-to-word-rule* is a sub-type of *lex-rule* which inherits from *word-or-lex-rule*. *Word-or-lex-rule* inherits all constraints of the parent type *sign* with the additional constraint that it must have an ARG-ST (Argument Structure). This is declared in the partial hierarchy below (80):

(80)

```
      sign
        /
  word-or-lex-rule  phrase-or-lex-rule
     /
   lex-item  lexeme  word  lex-rule
                        /
lexeme-to-word-rule  constant-lex-rule
   /
inflecting-lex-rule
```

*Lexeme-to-word-rule* may combine with *inflecting-lex-rule* to add affixal morphology information, deriving a new sub-type called *inf-ltow-rule* (inflecting-lexeme-to-word-
*rule* or they may retain their stem form under inflection by combining with *const-ltow-word-rule* (*constant-lexeme-to-word-rule*).

These sub-types of *lex-rule* then combine with types that specify parts-of-speech type as in the partial hierarchy in (81) below.

(81)

The type *verb-word* has the following constraint in the partial AVM below:

(82)

In (82) verb-word is constrained to have SUBJECT *subject* value, and an element on the SUBJ list.

The attribute INFLECTED is not declared on *verb-word* but is introduced by the type *word-or-lex-rule*, the daughter value for the type *lexeme-to-word-rule* a unary rule. It is declared as INFLECTED- on the daughter and the mother value INFLECTED+ for the type *lexeme-to-word-rule*. Thus this rule introduces inflection but it is not declared
with respect to affixal morphology (a unary rule is an input output mechanism where
the input is the daughter constituent and the output the mother constituent).

(83) lexeme-to-word-rule := lex-rule &

\[
\begin{array}{c}
\text{INFLECTED +} \\
\text{KEY - ARG} \ # key arg \\
\text{SYNSEM} \ # synsem \\
\text{DTR} \ # dtr \ & \ \text{word - or - lex - rule} \\
\text{C - CONT} \ <!!> \\
\text{ARGS} < \ # dtr >
\end{array}
\]

The input to the rule is of type \textit{word-or-lex-rule} with a specification that its \textit{key arg}
and \textit{synsem} values be the same as the mother structure.

In (81) above the categories \textit{past-verb-word} and \textit{pres-verb-word} provide the
information that the verb is inflected. This may be either with affixal morphology in
which case it combines with \textit{infl-ltow-rule} to derive a sub-type \textit{past-infl-verb-word}, or
if there is no affixal morphology it combines with \textit{const-ltow-rule} to derive the sub-
type \textit{past-const-verb-word}. \textit{Pres-verb-word} in Èdó has no affixal morphology and in
which case it combines with \textit{const-ltow-rule} to derive the type \textit{past-const-verb-word}.

\textit{Past-verb-word} has the following specification:

(84) \[
\begin{array}{c}
\text{past-verb-word} \\
\text{NEED-AFFIX} \ boolean \\
\text{STEM} \ list \\
\text{KEY - ARG} \ # key arg \\
\text{DTR} \ # dtr \ & \ \text{word-or-lex-rule} \\
\text{SYNSEM} \ # synsem \\
\text{LOCAL} \\
\text{C - CONT} \ <!!> \\
\text{ARGS} < \ # dtr > \\
\text{INFLECTED} \ \text{ROOT} \ # root
\end{array}
\]

The type \textit{past-verb-word} is not a fully specified verb-word as yet because the values
for the attributes STEM and NEED-AFFIX are not specified. These constraints are
specified on the types \textit{past-infl-verb-word} and \textit{past-const-verb-word} which inherit
these constraints from \textit{infl-ltow-rule} and \textit{const-ltow-rule} respectively. Observe that the value for the attribute REL-TONE is \textit{high}. This captures the generalization described in section 2.1 above that the tone on a CV verb is \textit{high} in the past. For inflection suffixes like those in table 11 above to be expressed on the verb, it is stated as a constraint on the type \textit{past-infl-verb-word} (example(85) below) which inherit from both \textit{past-verb-word} and \textit{infl-ltow-rule} ((81) above). In line with our description in section 2.1 above, this type has a constraint that its COMPS be empty:

\begin{verbatim}
(85) past-infl-verb-word
NEED-AFFIX +
STEM list
KEY-ARG #keyarg
DTR #dtr & word-or-lex-rule
SYNSEM #synsem
INFLECTED-ROOT #root

SYNSEM #synsem
LOCAL

CAT HEAD TONE [tone REL-TONE high const -]

VAL.COMPS < >

mrs

CONT

HOOK.INDEX event[ E [TENSE past]]

RELS << ! >

AGR individual

ARG-STR list

C-CONT << ! >

ARGS << #dtr >

INFLECTED +

ROOT #root
\end{verbatim}

In (85), NEED-AFFIX is declared as +. The particular allomorphic variant of \textit{past-infl-verb-word} is then supplied by an inflection rule in this case for Èdò it is the \textit{past-rV_infl_rule} with the following constraint:

\begin{verbatim}
(86) past-rV_infl_rule :=
    %suffix (*rV)
    Past-infl-verb-word &
    [ARG < [INFLECTION past-rV]> ].  \footnote{In Chapter 6, I include constraints to account for \textit{−rV} licensing in overlapping events.}
\end{verbatim}
(86) presupposes a hierarchy declaring values for the attribute INFLECTION which is the type *inflection*. This type consist of all the inflectional allomorphs which in this case are the allomorphs of *past-rv_infl_rule* as described in table 11 above: A partial declaration of the type *inflection* is represented in the hierarchy in (87):

(87)

The INFLECTION value is mapped on from a lexical-item to an *infl-ltow-rule* through these patterns. As an example, I use the verb *gbèrè* (*dance.PST-re*) as illustration. (88) represents its lexical entry:

(88) gbè-v := intrans-verb-lxm &

\[
\begin{align*}
\text{INFLECTION v1} \\
\text{STEM "gbe"}, \\
\text{SYNSEM.LOCAL.CONT.RELS '<[PRED "gbe"-rel"]>'}
\end{align*}
\]

In (88) the value for inflection is v1 and since v1 is a sub-type of *past-rV*, gbè-v can undergo the *past-rV_infl_rule* as shown in (89) below:

---

31 This approach allows for the relationship between verb stems, tense and plural affixation to be developed in the future. Simply, plural affixation will be a sub-type of v-infl and the patterning between its allomorphs and *past-rV* allomorphs will then be represented as paradigms (i.e. v1-v7). Also, the paradigm would allow for CVCV eventive intransitive verbs like *rhiłe* (run) that do not occur with plural suffixation, while allowing for *-rV* suffixation to be constrained.
(89)

\[
\text{intrans-past-rV\_infl\_rule:=} \\
\%\text{suffix (*re)} \\
\text{Intrans-past-infl-verb-word \&} \\
[\text{ARG < [INFLECTION past-re]>}].
\]

An *intrans-past-rV-verb-word* is the output of (89) and it is constrained as follows:

Here, the STEM is declared as *gbérè* (dance+past-rè) and the value for TENSE is specified as *past*.

A *past-verb-word* can also occur without affixal morphology in which case it is represented as a constraint on the type *past-const-verb-word*. Here the mother and daughter STEM value are the same. The type *past-const-verb-word* inherits this constraint from both *past-verb-word* and *const-ltow-rule*. The latter is represented as follows:

(91) 
\[
\text{const-ltow-rule: = lexeme-to-word-rule \& constant-lex-rule \&} \\
[\text{STEM #1} \\
\text{ARGS < [stem #1 >]}] 
\]
I use the lexical entry for the transitive verb dé-v (buy) as an exemplification of an input for this rule but since no affixal morphology is present; the value for inflection is not instantiated ((92)), that is, it has no inflection code.

(92) \[ \text{dé-v} := \text{trans-verb-lxm} & \]

\[
\begin{array}{l}
\text{INFLECTION}\ \text{inflection} \\
\text{STEM} \text{"de"}, \\
\text{SYNSEM.LOCAL.CONT.RELS少数}\text{"de -rel\text{"}!} \\
\end{array}
\]

The type \textit{past-const-verb-rule} applies only to verbs with a filled COMPS list and has the following constraint:

\[
\begin{array}{l}
\text{past-const-rule} \\
\text{NEED-AFFIX} = - \\
\text{STEM} \text{"trans\text{"}} \\
\text{KEY-ARG} \#\text{key arg} & \text{boolean} \\
\text{DTR}\#\text{dtr} \& \text{verb-lxm} \\
\text{SYNSEM} \#\text{synsem} \\
\text{INFLECTED} \& \text{inflection} \\
\text{ROOT} \#\text{root} & - \\
\text{SYNSEM} \#\text{synsem} \& \text{verb-lxm} \\
\text{LOCAL} \\
\end{array}
\]

\[
\begin{array}{l}
\text{HEAD} \ \\
\text{TONEmore} \ [\text{REL-TONE} \text{high}] \\
\text{VAL} \ [\text{COMPS} < \ldots>] \\
\text{REL} \ [\text{HOLD INDEX event}] \ [\text{E [TENSE past]}] \\
\text{AGR individual} \\
\text{ARG-STR list} \\
\end{array}
\]

(93)

In (93) NEED-AFFIX is declare as – and the value for STEM in the mother and daughter are re-entrant. The value for INFLECTION is not instantiated in this instance since NEED-AFFIX value is -. The value for TONE is high.

Turning now to the type \textit{pres-const-verb-word}, it also inherits from the rule in (91) above. In addition, it inherits from the type \textit{pres-verb-word} which places a constraint that its TENSE value be \textit{present}. No restriction is placed on its COMPS to reflect the fact that both transitive and intransitive verbs may inherit from it. This is illustrated by the partial AVM in (94) below:
The correct assignment of sub-types of high-low is made only after combinations of (94) with intrans-verb-lxm and trans-verb-lxm. Such combinations licenses the types trans-pres-const-verb-word and intrans-pres-const-verb-word. I represent the constraint on the former in (95) below as exemplification:
2.6 Summary

In this chapter, I have given an empirical description of tense, aspect, modals and auxiliary markers in Èdó. Tense is marked by tones (present and past tense), a lexical item ghà (future tense) and a suffix –rV (past tense). In particular, verbs have relative tones that may be interpreted from the transitivity of the verbs. Intransitive verbs have a high tone in the present while transitive verbs have low tones. In the past, transitive verbs have high tones when their objects are realized in the canonical object position. Transitive verbs in the past with unsaturated objects or objects that are realized in non canonical positions license the past –rV suffix. Past tense is also marked on intransitive verbs by this suffix.

I have presented an analysis for tense in Èdó within the Matrix framework which accounts for relative tones in Èdó. I introduced an attribute TONE with a value tone an AVM constraining the type HEAD. The type tone is in turn constrained by the attributes LEX (ICAL)-TONE with values high-or-low, REL (ATIVE)-TONE with values high-or-low and CONST (ANT) with values boolean respectively. Nominals in Èdó bear lexical tones and the features declared as relevant for nominal heads are LEX-TONE and CONST with positive values for the latter. Verbs bear relative tones and the features declared as relevant for verbal heads are REL-TONE with value high-or-low and CONST with a negative value for the latter. The type high-or-low has the types high and low as subtypes. My analysis in this chapter has the assumption that tone marking and suffixation on verbs are inflectional. To account for mapping of inflection from lexeme to word, a type hierarchy was established with two components, the first with part of speech information and the second with inflectional rules that map lexemes to words. The inflectional rules are of two types Infl-ltow-rule (inflectional lexeme to word rules) and const-ltow-rules (Constant lexeme to word rules). Tone is introduced as part of the types pres-const-ltow-rule and past-const-ltow-rule.

To account for the fact that verb words marking present tense may have high or low tones depending on the transitivity of the verb, a type pres-const-ltow-rule is posited with an undeclared value for the attribute REL-TONE. Constraints on a verb’s transitivity then determine the value: high for intransitive verbs and low for transitive
verbs. For verb words marking the past tense with a tone, a type \textit{past-const-ltow-rule} with the feature REL-TONE declared as \textit{high} and a constraint that the COMPS list must be non-empty, map verb lexemes to verb words. For intransitive verbs and transitive verbs with and empty COMPS list that mark the past tense with the \textit{–rV} suffix, a type \textit{past-rV_infl_rule} with the constraint that the daughter has an empty COMPS list specification and a \textit{high} value for the feature LEX-TONE constraining the type \textit{tone} maps the verb lexemes to words.
3.0 Introduction

Aktionsarten represents ways in which languages systematically divide states of affairs into categories that pertain to the temporal properties of events, such as whether events last, change or complete (Mani, Pustejovsky and Gaizauskas 2006: X, Pianesi and Varzi 2000).

As defined in chapter 1, the term eventuality applies to any real world happenings that are either states or events. Basically, research in eventuality types has been approached from two different viewpoints.

(1)

Tense logic
i. Point/instant logic (Montague 1968, 1974 for example).
iii. Discourse/interval semantics (Smith1990).

(2)


Criteria for aspectual classification under tense logic are based mainly on temporal criteria as abstract properties of time points and intervals. Research has mainly been from the point of view of interval semantics. Smith (1991) using discourse semantics also evaluate eventualities from the point of view of interval semantics.

However it has been argued that analyses of aktionsart based on tense logic that uses bivalent truth values whereby the value of $P$ is either 1 or 0, are inadequate because they represent eventuality types as being static in nature, thereby failing to capture the intuition that the world is a system of dynamic processes (De Swart 1998). Events involve change and transition and unfold through time. This intuition is captured through the examination of the relations of overlap, inclusion and precedence between
events in an event structure (De Swart 1998). In event semantics, events together with individuals and times make up the domain of discourse and are the primitives of temporal structure following Davidson 1967 (Parsons 1990, Pustejovsky 1991a&b, 2005).

Despite the differences in the temporal characterization of events, it is generally agreed that the basic distinctions in the characterization of aspectual classes are those of change and culmination. These distinctions result in four aspectual classes: states, activities, accomplishments and achievements. While Aristotle is generally credited with the first observation that the meaning of some verbs involves an end or result in the way that others do not, Reyle (1949) is credited with introducing these notions into linguistic methodology. He distinguished between irresultative activities and resultative achievements (cf. Dowty 1989). The first proposal to separate verbs into the four distinct classes below is by Vendler (1967) and he is credited with introducing aktionsart into lexical semantics. Classification into these classes is based on restrictions by verbs on the kind of time adverbials, tenses and logical entailments they license. Table 12 below provides an over-view of aspectual classes as generally agreed on in the literature.

Table 12

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NO CHANGE</td>
<td>State</td>
<td>State</td>
</tr>
<tr>
<td>CHANGE+ NO CULMINITION</td>
<td>Activity</td>
<td>Activity</td>
</tr>
<tr>
<td>CHANGE + CULMININATION WITH ASSOCIATED PROCESS</td>
<td>Achievement with an associated task</td>
<td>Accomplishment</td>
</tr>
<tr>
<td>CHANGE+ CULMINATION WITH NO OVERT PROCESS</td>
<td>Achievement with no associated task</td>
<td>Achievement</td>
</tr>
</tbody>
</table>

In Èdó, there is a difference in the lexicalization pattern of some state eventualities. Stative eventualities are usually expressed as be+ adjective constructions in English.
In Òdó, states expressed as adjectives in English may be expressed as single lexical verbs or as complex fixed collocations. As I will show these collocations often do not exhibit the same restrictions as their English counterparts. In this study as stated in chapter 1, a generative approach to the semantic analysis of event types as proposed by Pustejovsky (1991, 1995, 2005 etc.) is preferred to a fixed primitive based approach like Jackendoff (1990 etc). Event structures are derived using the principle that verbs may specify an opposition of terms, for example, the opposition between closed and not closed, at the store and not at the store encode the notion of change (transition) and where no opposition is stated, a static situation is defined.32

3.1 Eventuality types

In this section, I review the discussions in the literature on aspectual classification. I begin with a brief summary of Vendler (1967) aspectual classification. Vendler (1967) asserts that the use of a verb may suggest the particular way in which that verb presupposes and involves the notion of time. Based on the following time schemata he arrives at the four classes of verbs below (Vendler 1967:106):

(3)

STATES: A loved somebody from \( t_1 \) to \( t_2 \) means that at any instant between
\( t_1 \) and \( t_2 \) A loved that person.

ACTIVITIES: A was running at a time \( t \) means that time instant \( t \) is on
a time stretch throughout which A was running.

ACCOMPLISHMENTS: A was drawing a circle at \( t \) means that \( t \) is on the
time stretch in which A drew that circle.

32 Galton (1984) makes similar distinctions. He distinguishes between state of affairs and change of states. States of affairs characterize state eventualities that are true at every moment of an interval. A change of state on the other hand involves two different times.
ACHIEVEMENTS:  *A won a race between* $t_1$ and $t_2$ *means that the time instant at which* $A$ *won that race is between* $t_1$ and $t_2$.

In his classification, he uses the following criteria: duration over time, change, set terminal point and homogeneity. Based on occurrence of a verb with the progressive in English, he classifies activities and accomplishments under one sort: [+process]. States and achievements do not license the progressive and fall under another sort: [-process]. The property [+definite] defines verbs with natural end points and [-definite] define verbs without natural end points.

Verkuyl (1993) gives a summary of Vendler (1967) and the following table from Verkuyl (1993:35) show the distinctions in (3) above.

Table 13

<table>
<thead>
<tr>
<th>Vendler’s aspectual classes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>-Process</strong></td>
</tr>
<tr>
<td><strong>-Definite</strong></td>
</tr>
<tr>
<td><strong>+Definite</strong></td>
</tr>
</tbody>
</table>

Below, I review briefly the characteristic properties of the aspectual types discussed in the literature. I begin with the following diagram (mine): 34

Figure 1

---

33 But see discussions below on this issue.

Vendler’s (1967) distinctions are presented in bold type. The transition/non transition distinction is introduced by Pustejovsky (1991). Smith (1991) adds an additional aspectual class: semelfactives. They are dynamic, atelic, instantaneous events. With the exception of the root nodes, each non-terminal node represents a cluster of conceptual temporal properties that serves to distinguish the different aspectual types. I begin with the distinction between states and events. States are distinguished from events by the semantic notion of change. Events involve some kind of change while states do not. States are static with an arbitrary final point while events are dynamic and may involve agency. A well-known fact about states is that their lack of dynamism makes them odd in imperatives *know! Also, states due to the lack of intrinsic separation of two distinct periods do not occur with the progressive in English *John was knowing maths. In a feature-based classification, a feature is used to capture this distinction. For example, Smith (1991) captures this distinction with the feature [± Stative] while Kamp and Reyle (1993) uses the feature [± STAT] whereby +STAT is used to describe a state and –STAT is used to describe an event. Within a sub-eventual framework analysis (Pustejovsky 1991, 2005), this distinction is embodied in the fact that states are evaluated relative to no other events while other eventualities must be evaluated relative to other events. That is, in line with the static nature of states, they do not encode opposing states in their meaning. A further distinction between states and events is that of homogeneity. An eventuality is homogenous if there is no difference between a proper part and the entire eventuality. The eventuality holds at a time value $t_{1...n}$ and at any sub interval of this time value, the eventuality still holds. In heterogeneous eventualities, the eventuality holds at a time value but the sub parts are not the same as the whole. This distinction does not serve as a perfect way of characterizing the difference between states and events. Activities, a type of event, are also homogeneous. Thus homogenous events are activities and states while heterogeneous events are transitions.

35 Vendler (1967) does not represent accomplishments and achievements as a natural class.
36 Some states are acceptable with progressives. This depends on whether the state property can be coerced into expressing a contingency property that changes over time. An example is I am understanding you but I am not believing you (Piansi and Varzi 2000). I discuss this further in section 3.3.1.
Activities are however different from states in that they involve change either of position or in time and are dynamic. Thus activities allow the progressive in English: *John is running*. A further difference between activities, accomplishments and states is in the entailment relations in homogeneous eventualities. As stated above a state eventuality holds at any sub interval of a time value of which it is true. This does not apply for all events. The entailment relations stated by Dowty (1979:57)\(^3\) below capture this:

\[(4)\]

If \(\phi\) is an activity verb, then \(x\ \phi\text{ed}\) for \(y\) time entails that at any time during \(y\), \(x\ \phi\text{ed}\) was true. If \(\phi\) is an accomplishment verb, then \(x\ \phi\text{ed}\) for \(y\) time does not entail that \(x\ \phi\text{ed}\) was true at any time during \(y\) at all.

Next on the event branch is the distinction between transitions and non-transitions. Transitions involve change that results in a new state while non-transitions involve change that does not result in a new state. Non-transitions do not have a natural culmination while transitions involve a natural culmination point (Pustejovsky 1991, 2005). Smith (1991) captures this distinction with the \([\pm\text{Telic}]\) feature. The notion of telicity has to do with a temporal end-point. It means that a temporal schema includes the initial and final point of a situation. Telic events have natural end points while atelic events do not. This notion has also been referred to in the literature as the bounded/unbounded distinction (Verkuyl 1972, Jackendoff 1990), the culminating/non-culminating distinction (Moens and Speedman 1988, Kamp and Reyle 1993) and the delimited/non-delimited distinction (Tenny 1987, 1994).

Activities and semelfactives are non culminative and do not involve transitions. Activities do not have a natural culmination point. They may terminate but their termination point is arbitrary. Consider the following examples:

\[(5)\]

a. Mary walked.

b. Mary walked for 30 minutes.

\(^3\)But see Verkuyl (1993) for arguments against this view. Summarizing briefly, Verkuyl points out that for sentences like *Mary waltzed*, for there to be a waltzing event, a sequence of more than two steps must be taken. If one is interrupted at the second step as soon as the waltzing event began, one cannot have waltzed.
(5a) and (5b) are processes. In the (5a) example, no termination point is given while in the (5b) example the adverbial *for 30 minutes* provides a termination for the activity of walking but it does not provide a culmination point. Thus, the notion of termination and culmination are not the same. An event may terminate without reaching a culmination point. (5b) is an example of a bounded process.

The event type of a sentence may differ from the event type of the main verb. Activities can through the process of event composition acquire a culmination point:

(6) Mary walked to the store.

The adverbial *to the store* provides a logical culmination for the process. In addition a type shift is involved. The situation described shifts from an activity to a transition - to be more precise- an accomplishment. When an event has a culmination there are two states of affairs entailed; a process eventuality and a culminating state eventuality (Pustejovsky 1991a&b, 1995, 2005, Parsons 1990). Accomplishments may also undergo type shift through the process of event composition. The co-composition of an accomplishment verb with a bare plural result in a type shift to a process:

(7) Mary sewed the dress (accomplishments).
(8) Mary sewed dresses (process).

A diagnostic test to differentiate between activities and accomplishments in English is the imperfective paradox (Bach 1986, Dowty 1979, Pustejovsky 1991a). It involves entailments from the progressive:

(9a) Mary was walking.
    b. Mary walked.

(9a) entails (9b). In (10) below, this entailment possibility does not apply for accomplishments.

---

38 In Dowty (1979) accomplishment are considered complex events containing two sub-event: an activity sub-event and a resultative sub-event.
10  a. Mary was cooking the food.
    b. Mary cooked the food.

*Mary was cooking the food* does not entail that *Mary has cooked the food*. If Mary was cooking the food with an electric cooker and there was a power cut, one cannot say that Mary has cooked the food. On the other hand, if Mary was walking and she fell down, one can say that Mary has walked. This difference has to do with the homogeneous and non-culmination nature of activities.

Modification by durative adverbials also provides a further difference between activities and accomplishments. Activities can be modified by the durative adverbial *for an hour* while accomplishments cannot.

(11)  a. Mary walked for an hour.
    b. * Mary cooked the food for an hour.

Furthermore, frame adverbial such as *in an hour* may modify accomplishments but do not modify activities.

    b. Mary cooked the food in an hour.

Within the framework of a sub eventual analysis as proposed by Pustejovsky (1991 etc.), the frame adverbial *in an hour* requires two events to be present for a proper modification. The temporal adverbial takes as its argument, the temporal distance between $e_2$ and the onset of $e_1$.

The notion of two sub events as distinguishing between events is also relevant to the distinction between accomplishments and achievements. Though both have natural end points, accomplishments involve both a process and a culmination point while in achievements only the culmination point is highlighted. This relationship is seen in the entailment relationship between the past tense forms and the progressive forms of these eventualities. Typically, the progressive only has scope over the process part of an event (Kamp and Reyle 1993).
(13) a. Mary died at 10:15 p.m.
   b. Mary was dying at 10:15 p.m.

(13) expresses an achievement situation. If Mary died at 10:15 p.m. is true then Mary was dying at 10:15 p.m. is false. Achievements do not include an associated process.

In (14) below, an accomplishment situation, the past tense implies the progressive.

(14) a. Mary cooked the food this morning.
   b. Mary was cooking the food this morning.

If Mary cooked the food this morning is true, then Mary was cooking the food this morning is also true. Thus an accomplishment includes an associated process.

Lastly, punctual adverbials also highlight the fact that achievements consist only of their culmination point. Mary died at 3 p.m. is an acceptable proposition but Mary cooked the food at 3 p.m. is not acceptable. Given our knowledge of the world, the cooking event takes some time. It consists of both a process and a culmination. Thus punctual adverbials can only modify events consisting of just the culmination points.

Turning back to figure 1, a third distinction between the four aspectual classes is that of duration. Eventualities are either durative or instantaneous. Smith (1991) states that the notion of an instantaneous event is an idealization. An instantaneous event may take several milliseconds. Generally though, an event is said to have duration when the set of time values it holds is greater than one. This property distinguishes between semelfactives and activities on the one hand and between accomplishments and achievements on the other hand.

Semelfactives do not have preliminary or resultant states and involves non-culmination. Though this event type is generally regarded as involving no process subpart, when it occurs with a durative adverbial in English, it is re-interpreted as a derived activity (Smith 1991) as in John coughed for 5 minutes. Here, the coughing is interpreted as being repetitive, that is a derived multiple event activity, that consist of a series of repeated semelfactive events. I do not regard semelfactives as a separate
class from activities in Èdó. Indeed, the lexical item that encodes the concept of coughing in Èdó, inherently encodes iteration. Here, I digress a little.

In Èdó as discussed in chapter 1, iteration may be marked by the suffixation of a suffix $LV$ where $l$ is the alveolar lateral consonant and $v$ is a vowel which harmonizes with the last vowel of the verb stem to which it attaches. The suffix may also signal the plurality of the object NP (15a). In the absence of an object NP, it may signal the plurality of the subject NP (16a). Below are examples:

(15) a. Òzó sòlò úkpòn.

\[
\begin{array}{ll}
\text{Òzó} & \text{sòlò} \\
\text{PN} & \text{V} \\
\text{Ozo tear.PL.PRES.L} & \text{cloth/clothes} \\
\text{CN} & \\
\end{array}
\]

'Ozo is tearing the cloth/the clothes.'

b. Òzó sò úsókpòn.

\[
\begin{array}{ll}
\text{Òzó} & \text{sò} \\
\text{PN} & \text{V} \\
\text{Ozo tear.PRES.L} & \text{rag} \\
\text{CN} & \\
\end{array}
\]

'Ozo is tearing the rag'

In (15a), the act of tearing may apply to one extremely wide cloth or to several clothes, hence the suffixation of the plural suffix $ló$ to the verb stem. In (15b) rags in Èdó culture are normally small in size and may be thorn in one swift swoop, therefore the suffix is not used here but if the rag is perceived as being large in size then $ló$ would be attached to the verb.

39 A bare NP may be interpreted as either singular or plural. The context of usage provides disambiguation.
(16) a. Ògó délè-rè.

Ògó délè-rè.
bottle fall.PL.PST-rV
CN
'The bottle(s) fell repeatedly/
The bottles fell in one swoop.'

b. Ògó dé-rè.

Ògó dé-rè.
bottle fall.PST-rV
CN V
'The bottle fell.'

In (16a) the bottles may fall in one swoop or each may fall one after the other. A second interpretation is that one particular bottle (let us assume it is made from a non-breakable material) fell repeatedly. (16b) implies that only one bottle fell once.

Applying the above to semelfactives, we find that the event of coughing in Èdó can only be expressed as an iterative event.

(17) a. Òzó tóló óhuén.

Òzó tóló óhuén.
Ozo scratch.PL.PST.H cough
PN V CN
'Ozo coughed.'

b. Òzó só ôbô (vbè úrhô).

Òzó só ôbô (vbè úrhô).
Ozo ?.PST.H hand (on door)
PN V CN PREP CN
'Ozo knocked (at the door).'
c. Òzó só òbó (vbè úrhò) (úhú!kpá).

<table>
<thead>
<tr>
<th>Òzó só</th>
<th>òbó</th>
<th>(vbè úrhò)</th>
<th>(úhú!kpá).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo</td>
<td>PST.H</td>
<td>hand</td>
<td>on door</td>
</tr>
<tr>
<td>PN</td>
<td>V</td>
<td>CN</td>
<td>PREP</td>
</tr>
</tbody>
</table>

'Ozo knocked (at the door) (once).'

d. Òzó só òbó làá ífuánrò igbé.

<table>
<thead>
<tr>
<th>Òzó só</th>
<th>òbó</th>
<th>làá</th>
<th>ífuánrò</th>
<th>igbé.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo</td>
<td>PST.H</td>
<td>hand</td>
<td>for</td>
<td>minutes</td>
</tr>
<tr>
<td>PN</td>
<td>V</td>
<td>CN</td>
<td>PREP</td>
<td>CN</td>
</tr>
</tbody>
</table>

'Ozo knocked for ten minutes.'

In (17a), the verb tòló is used irrespective of Òzó coughing once or several times. This does not apply to tóló alone. Some other lexical items belonging to the class of activities such as sáló ètó ‘comb hair’ and bàló àmè ‘scoop water repeatedly’ have this characteristic.

In (17b), it is the combination of só and òbó that gives the meaning 'to knock'.

Agheyisi (1990:94) classifies verbs that derive their meaning in association with associated nouns as verbs in collocation expressions. The independent meaning of these verbs becomes suspended or irrelevant in these contexts. In (17b), the default interpretation of the event depicted is that of iteration. In order to get an interpretation that Ozo knocked only once, the adverbial úhú!kpá ‘once’ must modify the whole situation as in (17c). Lastly, such verbs in Èdó also occur with the durative adverbial for X time as in (17d) above.

It is based on the above distributional pattern I classify semelfactives as activities. From the distribution all semefactives end up as activities.

Turning now to achievements and accomplishments with respect to duration, when they are modified by adverbs of temporal interval, we get different interpretations:

(18) Mary painted the picture in a year (accomplishment).
(19) *Mary won the race in a year (achievement).
In (18), it took Mary a whole year to paint the picture. (19) is ungrammatical because the event of winning a race is instantaneous.

A difference between accomplishments and other events is that of agency (Dowty 1979, Smith 1991, Pustejovsky 1991a). The adverbial *almost* when used in accomplishment situations has two readings and one reading with other events.

(20)

i. When *almost* is used with activity verbs it implies intension to begin the event.

ii. In achievements, *almost* has scope over the final state and implies a lack of culmination.

iii. In accomplishments it may have scope either over the initial state or over the final state. When it modifies the initial state, it implies only intension and when it modifies the final state it implies a lack of culmination.

Bearing in mind that accomplishments are composed of both a preparatory phase and a culmination phase, the ambiguity displayed in the scope of *almost* is expected. The adverbial *almost* can have scope over either the preparatory phase or the culmination phase. The lack of ambiguity displayed in processes and achievements is explained by the fact that the former consist only of the preparatory phase and the latter only of a culmination phase. The following examples from Pustejovsky 1991a illustrate this point.

(21) a. John almost swam.
    b. John almost painted a picture.
    c. John almost left.

In (21a), the action did not begin at all. There was an intension to begin the swimming act but it was never actualized. In (21b), *almost* may highlight the intension to begin painting or it may deny that a completed object can be asserted to exist. In (21c), the state of having left is asserted not to have been completed.
To sum up based on behaviour with respect to properties such as culmination, opposition between states, duration and dynamism, I recognize three aspectual classes: states, activities, transitions. Transition consists of the subtypes accomplishments and achievements.

3.2 Approaches to the study of aspectual classes.

3.2.0 Introduction

As stated in 3.0, two main approaches to eventuality research exist in the literature: the tense logic approach and the event based approach. I now review the following works as background to my discussions in the thesis. In the following I discuss Dowty’s (1989) work within the framework of interval semantics. I then discuss the works of Parsons (1990) and Pustejovsky (1991, 1995, and 2005) within the framework of event semantics.

3.2.1 Interval semantics

Dowty (1979) bases his theory on the following premises:

(22)

i. Philosophical insight from the research of Aristotle, Kenny (1963), Reyle (1949) and Vendler (1967).


iii. Formal theories of truth-conditional and model theoretic semantics.

Dowty bases his aspectual classification on two main criteria: change and possession of, or lack of, a culmination point [± definite]. His aspectual classes are shown in figure 2 below:
Dowty uses a fifth criterion - agency - in his classification. This criterion is perpendicular with the other aspeotual properties in figure 2 above and it splits the four classes into two:

(23)

i. Agentive (activities, accomplishments).

ii. Non-agentive (states, achievements).

However, agentivity cuts across the different classes above. There are accomplishments that are non-agentive as well as achievements that permit forms that are related to agency and control. Agency therefore is not per se a criterion for aspectual classification (Smith 1991, Verkuyl 1993 and Pianesi and Varzi 2000).

In figure 2, the bifurcation between Momentary and Interval represents the Static versus non-static classification between events and states and that between definite
and indefinite represents the telic/non-telic distinction. Lastly, the singular/complex bifurcation represents agency/non agency distinction in [+definite] events. In figure 1 the one I propose, the first two are represented by the bifurcation between events and states for the former and between transition and no transition for the later. Agency is not represented in figure 1 for reasons which will be discussed immediately below. In addition, in figure 1 a classification is made along duration/no duration distinction.

Dowty (1972) proposes a reductionist approach whereby the different aspectual properties of the various kinds of verbs can be explained by postulating a single homogeneous class of predicates: stative predicates plus three or four sentential operators and connectives. Statives are used as the base for all other derivatives because they can be judged “true or false of an individual by reference to the state of the world at only a single movement of time while other classes of verbs require “information” about more than one point in time and in some cases more than one possible world” (1979:71). Thus activities, accomplishments and achievements have stative predicates as basic structures together with three sentential operators DO, BECOME and CAUSE and the combinatory apparatus of intensional logic. He uses evidence from adverbial modification to buttress his classification. The following examples are representative of the logical formulas of the four classes (1979:123)

\[(24)\]

i. Simple states \[V_n (a_1, \ldots, a_n)\]  
\[(John\ knows\ the\ answer).\]

ii. Simple activities \[\text{Do } a_1 ([V_n (a_1, \ldots, a_n)])\]  
\[(John\ is\ walking).\]

iii. Non-agentive accomplishment \[[[\text{BECOME } \emptyset] \text{CAUSE } [\text{BECOME } \psi]]\]  
where \(\emptyset\) and \(\psi\) are stative sentences  
\[(The\ door\ opening\ causes\ the\ lamp\ to\ fall).\]

\[\text{An\ example\ is\ the\ use\ of\ the\ adverbial\ almost\ and\ its\ scope\ in\ a\ sentence\ as\ discussed\ in\ the\ previous\ section.}\]
iv. (Non-intensional agentive Accomplishments)

\[\text{[[DO}(\alpha_1, [\pi_n, (\alpha_1, \ldots, \alpha_n)]) \text{ CAUSE (BECOME } \rho_m (\beta_1, \ldots, \beta_2))]].\]

(John broke the window).

v. Simple Achievements

\[\text{BECOME } [V_n (a_1, \ldots, a_n)].\]

Here \(V_n\) is an \(n\)-place predicate and \(a_1, \ldots, a_n\) its arguments.

(John discovered the solution).

Pianesi and Vassi (2000) mention two problems with this analysis with respect to their translation in intensional logic. Firstly, causative verbs and their paraphrases with the causative verb \textit{cause} are not always synonymous. For example, following Dowty’s analysis, the sentence \textit{John opened the door} is supposed to entail the logical formula for non-intentional agentive accomplishments, as well as, the sentence \textit{John caused the door to become open}. They point out that this however is not the case. The logical formula does not entail direct causation and is therefore not a sufficient condition for the truth condition of the sentence. Secondly quoting Chierchia and McConnell-Ginet (1990) they assert that data from adverbial modification do not directly support Dowty’s decomposition analysis. They observe for example that verbs like \textit{clean} are not judged intuitively to have internal modifier interpretations.

(25) John caused the jacket to be clean again.

(26) John cleaned the jacket again.

A situation where John bought a new jacket and the first time the jacket got dirty, he cleaned it, is only expressed by (25) and not by (26). Yet, on Dowty’s decomposition analysis both sentences should be true of this situation. Dowty (1979:97) addresses the above contention. The operator \textsc{cause} is an abstract element and need not be considered identical with the English surface verb \textit{cause}. The surface verb \textit{cause} might contain other abstract predicates beside \textsc{cause} in its underlying representation or it might differ from \textit{cause} in its presupposition.

Turning now to the operator \textsc{become}, Dowty defines it from the point of view of interval semantics. According to him (1977:49) it is extremely doubtful that “the
result-state of an accomplishment comes to be true at a single moment rather than an
interval of time”. Achievements are composed of two parts of a transition
proposition: \( \neg \emptyset \) \( T \) \( \emptyset \). Following Benneth and Partee (1978), Dowty (1977, 1979), in
order to explain what happens between the states corresponding to \( \emptyset \) and \( \neg \emptyset \), defines
BECOME in terms of intervals. BECOME is defined as:

\[
\text{(27)} \\
[[\text{BECOME } \emptyset]]_{M,1g} = 1 \text{ iff} \\
i. \text{ For some interval } j \Sigma I \text{ containing the lower bound of } i, [[\emptyset]]_{M,1g} = 0. \\
ii. \text{ For some interval } k \Sigma I \text{ containing the upper bound of } i, [[\emptyset]]_{M,k,g} = 1. \\
iii. \text{ There is no non-empty } i' \subset i \text{ such that } a \text{ and } b \text{ hold for } i' \text{ and } I.
\]

A sentence like *Mary walked to Rome* is true with respect to the interval \( i \) iff at \( i *Mary was not in Rome* during interval \( j \) and at \( k *Mary is in Rome*. The gap between *not be in Rome* (the lower boundary of \( j \) in \( i \)) and *be in Rome* (the upper boundary of \( k \) in \( i \)) is bridged by BECOME together with the stipulation in (27iii):

Condition (27i) is designed to limit the truth of \( \emptyset \) to the smallest interval to which the
change of state has taken place. Dowty points out that this stipulation is too strong
because as long as \( \emptyset \) is bivalent, then \([\text{BECOME } \emptyset] \) can only be true at an interval
no larger than a moment (the process of becoming must be shortened to just two
moments: the lower boundary \( j \) and the upper boundary \( k \)). However condition (27iii)
can be interpreted as a felicity condition on assertions based on Grices conversational
maxims making it possible for truth value gaps between \( j \) and \( k \). Thus semantic,
pragmatic and discourse information become relevant for an adequate aspectual
description of verbal predicates.
3.2.2 Events semantics

I begin the discussion with Parson (1990) and thereafter Pustejovsky (1991a). Parson (1990) views intervals as encoding eventualities and has an underlying event framework. Eventualities are viewed as having the following properties:

(28)

i. They are individuals not generics.

ii. Most eventualities are concrete entities. They are located in space.

iii. They are perceivable.

The following assumptions underlie his theory:

(29)

i. Following Davidson (1967) the verb and its arguments are all predicates of e (event as individual).

ii. Events culminate at a given time.

iii. States hold at a given time.

iv. A moment of time is before or after another.

According to Parson (1990:181) an event culminates if its subject is in the extension of the relevant verb at the closure of the interval they are contained in. If the eventuality does not culminate then the subject is in the extension of the verb at the interval minus its end point. The notation ‘Cul (e, t)’ is used to mean that e is an event that culminates at time t.

An eventuality ‘holds’ at time t when either e is a state and e’s subject is in a state e at t, or e is an event that is in progress (in its development section at t). The notation 'Hold (e, t)' means e holds at t. Also within his theory, modifiers are represented as predicates of events.

Following the generative semantics tradition and Dowty (1979), Parson also adopts the relations CAUSE and BECOME. Unlike Dowty’s account whereby they are bridges between propositions, in Parson’s account, they are bridges between sub-events. The following example illustrates this:

(30) Mary flew the kite.
(30) consists of a quantification over two events. It means that Mary did something that caused a flying of the kite. This transitive form is analyzed as being derived from the intransitive form the kite flew. In this respect Parson’s analysis is similar to Dowty’s where the stative proposition is represented as the underlying form. (30) has the logical structure:

\[(31) \ (\exists e) [\text{Agent (e, mary)} & \text{Cul (e)} & [(\exists e') [\text{Flying (e')} & \text{Cul (e')} & \text{Theme (e', kite)} & \text{CAUSE (e,e')}]].\]

'Flying (e') ' refers to the kinds of things kites do (that is the intransitive form) and not to the kind of thing Mary does in flying it. Thus (31) entails (32).

(32) The kite flies
\[(\exists e')[\text{Flying (e')} & \text{Cul (e')} & \text{theme (e', kite)}].\]

I now discuss Pustejovsky (1989b, 1991a, 1995 and 2005). Pustejovsky (1991a) deviates from the view of an eventuality as being a single, existentially quantified event variable. Based on the ability of grammatical phenomena to make reference to the internal structure of an event, he assumes a sub-eventual analysis for predicates. He distinguishes between three types of basic eventualities: states, processes and transitions. Transitions are further divided into two groups; accomplishments and achievements. His classification is based on the assumption of subeventual templates to which generative rules of event composition may apply in order to generate complex events. He assumes three properties of an event structure:

(33)

i. The primitive event type of the lexical item.
ii. The rules of event composition.
iii. The mapping rules to the lexicon.

He assumes a level of lexical representation similar to Dowty (1979), Jackendoff (1983) and Levin and Rappaport (1988) whereby verb class distinctions are represented in an LCS (Lexical Conceptual Structure) like structure. An LCS is a
lexical semantic representation which takes the form of predicate decomposition. Different from Jackendoff (see chapter 1 section 1.4.6.2), Pustejovsky does not assume a fixed set of primitive terms; rather he assumes a minimal decomposition of verbs and sentences in terms of the principles of event structure. LCS\(^1\) is the level of predicate decomposition and LSC is the interpretation of ES (Event Structure) and LSC (Pustejovsky 2005:40).

Event Structures (ES) are represented as representing both temporal precedence and exhaustive event inclusion. Events are the basic constituents of time\(^{41}\) that is:

\[(34) \text{EVENT STRUCTURE}\]

For an event \(e\), represented as \([e_1, e_2]\), the intended interpretation is that \(e\) is an event containing two sub events, \(e_1\) and \(e_2\), where the first temporally precedes the second and there are no other events locally contained in event \(e\) (Pustejovsky 2005:39-40).

In the determination of an event structure, Pustejovsky evaluates the basic meaning of a word relative to an opposition. This type of analysis he points out is based on Aristotle’s (species of opposition). Aristotle identifies four species of opposition: correlation (double vs half), contrariety (good vs bad), privation (blind vs sighted) and contradiction (sit vs not sit). Based on this Pustejovsky evaluates eventualities that encode a result state as implying an opposition of two sub events \(E_1\) and \(\neg E_2\). For eventualities that are static such as states only the positive part of the opposition \(E\) is represented with no internal stages defined. For activity eventualities the positive part of the opposition is also represented but with a difference. The fact that activities have internal stages is represented as a relation between the different internal stages of an event: \(E_1 \ldots E_n\). The following basic event structures arise from the above (Pustejovsky 2005:40-44):

\(\text{\ldots}\)\(^{41}\) Parson (1990) also defines intervals in terms of eventualities. For example, he defines an open interval as having no culmination while a closed interval as having a culmination point.

\(\text{\ldots}\)\(^{42}\) These events may also contain sub-eventual structures (Pustejovsky 1991a: fn 10). This will be relevant in my discussion on aspectual classes in multi-verb constructions in chapter 6.
(35) States (S) are defined as: a single event which is evaluated relative to no other event. The opposition is left implicit.

\[
\text{STATE}
\]

\[
\begin{array}{c}
S \\
e
\end{array}
\]

(36) Processes (P) or activities are defined as a sequence of events identifying the same semantic expressions:

\[
P
\]

\[
\begin{array}{c}
e_1 \\
\ldots \\
e_n
\end{array}
\]

In processes, when the semantic expression \( P^I \) identified with \( P \) is true at an interval \( I \), then \( P^I \) is true for all subintervals of \( I \) larger than the moment.

(37) Transitions (T): an event identifying a semantic expression that is relative to its opposition. (\( E \) below is a variable for any event type):

\[
T
\]

\[
\begin{array}{c}
E_I \\
\_E_2
\end{array}
\]

The following examples illustrate (35) to (37) above (Pustejovsky 1991a:417).

(38) a. The door is closed. (state)
    b. The door closed. (achievement)
    c. John closed the door. (accomplishment)

The adjectival form in (38i) denotes a state as shown in (39) below.
The above schema represents the static nature of states. No opposition exist for stative events. Thus LCS' and LCS are identical.

In (38ii) & (38iii), the same lexical item *closed* has an inchoative and causative function respectively. A sub-eventual analysis captures the logical polysemy thereby obviating the need for multiple listing of words in the lexicon. This is shown in (40) & (41) respectively below where the privative part of the opposition expressed in the LSC\(^1\) is identical.

\[(39)\]

\[
\text{STATE} \\
S \\
E S \quad e \\
\text{LCS}^1 \ \text{[closed (the door)]} \\
\text{LCS} \quad \text{[closed (the door)]}
\]

Here the verb *close* is used intransitively so no mention is made of the causer, although the transition from close to not closed is still entailed.

According to Pustejovsky, here, the change of state is captured by the term *become* which is used in the sense of Dowty’s (1979) *become* operator.

In (41) below, *opened* has a causative function. The operator *cause* has the function of a derivative relation between events, structurally interpreted from an agentive predicate within the initial sub event of an event structure that is introduced by the
operator act. Also, the conjunction of predicates (&) indicates simultaneity (Pustejovsky 2005:41).

(41)

\[
\begin{align*}
\text{ES} & \quad T \\
\text{P} & \quad \text{S} \\
\text{LCS}^1: \ & \text{[act (j, the-door) \& \neg \text{closed (the door)}]} \\
\text{[closed the door]} \\
\text{LCS: cause ([act (j, the-door), become ([closed (the-door)])]})
\end{align*}
\]

Lastly, the structural difference between processes and other eventualities is shown in (42) below where the homogeneous property of processes are represented in the ES (Event Structure) as iteration of an event e. No opposition is involved here and LCS\(^1\) and LCS have the same interpretation:

(42) Mary ran

\[
\begin{align*}
\text{PROCESS} & \\
\text{P} & \\
\text{ES:} & \quad e_1 \ldots e_n \\
\text{LCS}^1: \ & \text{[run (m)]} \\
\text{LCS:} & \quad \text{[run (m)]}
\end{align*}
\]

The phenomenon of how these basic event types interact with other syntactic constituents is known as event composition.
While this study does not attempt to decide amongst the different systems for formalizing event description, I will use mainly Pustejovsky’s proposal of a sub event template for my analysis of temporal relation and event structure in section 3.4 below, chapter 6 and in my discussion in chapter 7. The theory allows for different interpretations for verbs when combined with other elements in multi-verb constructions. It also allows me to explain in a constrained manner the temporal relationship underlying multi-verb constructions.

3.3 Eventualities in Èdó

The distinction between state and event eventualities discussed above applies for Èdó. Verbs encoding events generally have the same characteristics as in English. On the other hand, the lexicalization of stative predicates in Èdó differs from languages like English. I discuss this immediately below.

3.3.1 States

I begin with a description of stative predicates in Èdó. Stative eventualities expressed in languages like English by a combination of the verb to be + predicative adjective are expressed as verbs in Èdó:

(43) Mary is beautiful.  (English)
(44) Òzó mòsé.  (Èdó)

Òzó  mòsé.
Ozo  beautiful.PRES.H
PN  V

'Ozo is beautiful.'

Only verbs in Èdó can form a base for nominal derivation, and stative predicates can undergo the process confirming their verbal status. Nominals may be derived through

---

43 I have presented here a series of tests to establish my aspectual classes. While this may not be necessary in well-studied languages like English, no such analysis exists for Èdó. It is then relevant to clearly define the basis of the aspectual classification that will be used in subsequent chapters. More importantly, while events generally have the same restrictions as in English like languages, there exist in some cases subtle differences.
the prefixation of a nominalizing affix to a verb stem, with tonal changes to the verb stem. Also, stative predicates serve as base for adjectival derivations through total or partial reduplication accompanied by tonal changes.

(45)  i ‘NOM prefix’ + rhùlé ‘run’ (process) → ìrhúlè ‘race’ (noun).
     i ‘NOM prefix’ + khuè ‘bath’ (process) → àkhuè ‘bath’ (noun).

Such nominalization processes result in tonal changes in the verb stem as seen in (45).

Also, a few manner adverbs undergo this process. However, no tonal changes occur in the verb stem (46a):

(46)  a. è ‘NOM prefix’ + gìé ‘quickly’ (adverb) → ègìé ‘quickly’
     b. i ‘NOM prefix’ + zài ‘swiftly’ (adverb) → *izài ‘swiftness’

Mòsè and other state verbs may also serve as a base for nominal ((47a)) and adjectival ((47b)) derivations.

(47)  a. Nominalization
     i ‘NOM prefix’ + mòsè ‘beautiful’ → imòsè ‘beauty’
     ò ‘NOM prefix’ + ghòghò ‘be happy’ → òghòghò ‘happiness’
     b. Adjectival derivation
        Mòsè ‘beautiful’ + mòsè ‘beautiful’ → mòsemòsè (total
           V + V ADJ reduplication)

From (47a) & (47b), we see that tonal changes occur in the state verb stems as with other verbs in (45).

Furthermore, only verbs can form the base for gerundive nominalization. Gerunds are formed by the affixation of the circumfix ú –mwèn to a verb stem in Èdó.
(48) Ú-tán-mwèn Ózó yèë mwèn.

Ú-tán-mwèn Ózó yèë mwèn.
NOM-tall-NOM Ozo appeal.PRES.H 1SG
NOM PN V PRON

'Ozo’s tallness appeals to me.'

(49) Ú-gbé-mwèn nè Ózó gbé nódè tití.

Ú-gbé-mwèn nè Ózó gbé nódè tití.
NOM-dance-NOM COMP Ozo dance.PST.H yesterday splendid
NOM PN V ADV V

'Ozo’s dancing yesterday was splendid.'

In (48) the gerundivization of the state verb tán is grammatical. This is also true of the activity verb gbé in (49). The use of the adverbial giégici as base for gerundive formation results in ungrammatical sentences in (50a) & (50b).

Lastly, stative verbs like mòsè 'beautiful' occur in a paradigm different from when they are used as predicative adjectives. When used as predicative adjectives, they undergo vowel lengthening and tonal changes:

(50) a. *Ú-giégié-mwèn Ózó yèë mwèn.

*Ú-giégié-mwèn Ózó yèë mwèn.
NOM-quick-NOM Ozo appeals.PRES.H 1SG

'Ozo’s quickness appeals to me.'

b *Ú-giégié-mwèn nè Ózó giégici gbé tití.

*Ú-giégié-mwèn nè Ózó giégici gbé tití.
NOM-quick-NOM COMP Ozo quickly dance.PST.H splendid
Let us now examine classes of state predicates in Èdó. Carlson (1977) makes a distinction between stage and individual predicates. According to him (1977:86)

Some verbs and adjectives that apparently predicate things of individuals and kinds actually amount to predications about stages that realize those individuals or kinds at the current time, while other verbs and adjectives really do predicate things of the individuals or kinds themselves.

A two place stage predicate like eat (x, y) is true of individuals x and y just in case there exist some stages x' that realizes x at that time, some stages y' that realizes y at that time and the stages x' and y' stand in some relation defined on stages, which Carlson calls the eat' relation.

Thus stages of individuals correspond to temporal slices of an individual, their manifestations in space and at individual times.

A two place individual predicate like love (x, y) is true of an individual x and y at a time just in case the individual x stands in a love relationship to the individual y. Thus, an individual predicate is whatever that ties stages together and make them a single unit.
Pustejovsky (1995:15) characterizes individual predicates as having properties that are retained more or less throughout a lifetime and can be identified with individuals directly. Stage level predicates on the other hand are non-permanent. He points out that Carlson’s distinction is related to but not identical with the oldest distinctions applied to adjectives: that of accidental vs necessary qualities as used in the Aristotelian and Scholastic senses.

While individual stative predicates are generally represented as lexical words in Èdó, most stage level stative predicates are expressed as fixed collocations of verbs and nouns. Agheyisi (1990:94) classifies them as collocation expressions. She defines them as a set of verbs which when they occur with certain nouns or noun phrases, derive their interpretation solely from their association with those nouns. They belong to the class of psychic state verbs. Below are examples:

(54) Òhànmwèn gbè Òzó. (stage level)

\[
\begin{array}{ccc}
\text{hunger} & \text{beat.PRES.L} & \text{Ozo} \\
\text{Ozo} & \text{CN} & \text{V} \\
\text{Ozo is hungry.'}
\end{array}
\]

(55) a. Òhù mú Òzó. (stage level)

\[
\begin{array}{ccc}
\text{anger} & \text{carry.PRES.L} & \text{Ozo} \\
\text{Ozo} & \text{CN} & \text{V} \\
\text{Ozo is angry.'}
\end{array}
\]

b. Òzó mú Òhù.

\[
\begin{array}{ccc}
\text{Ozo} & \text{carry.PRES.L} & \text{anger} \\
\text{Ozo} & \text{PN} & \text{V} \\
\text{Ozo is angry.'}
\end{array}
\]
(56) a. Ôhán mū Òzó.  
Ôhán  mū  Òzó.  
fear  carry.PRES.L  Ozo  
CN  V  PN  
'Ozo is afraid.'

b. Òzó mū òhán.  
Òzó  mū  òhán.  
Ozo  carry.PRES.L  Fear  
PN  V  CN  
'Ozo is afraid.'

c. Ôhán Àzàrí mū Òzó.  
Ôhán  Àzàrí  mū  Òzó.  
fear  Azari  carry.PRES.L  Ozo  
CN  PN  V  PN  
'Ozo is afraid/ frightend of Azari,'  
or  
'Ozo fears Azari.'

b. Òzó mū òhán Àzàrí.  
Òzó  mū  òhán  Àzàrí.  
Ozo  carry.PRES.L  Fear  Azari  
PN  V  CN  PN  
'Ozo is afraid/ frightend of Azari,'  
or  
'Ozo fears Azari.'

(57) Òzó rèn èbé.  
Òzó  rèn  èbé.  
Ozo  know.PRES.L  book  
PN  V  CN  
'Ozo is clever.'
The state of being hungry can only be expressed by the collocation of the noun Òhànmwèn 'hunger' with the verb gbè. The exact meaning of this verb in this usage is uncertain. A characteristic of such fixed collocations is that the verbs they license seem to be “light” in the sense of Butt and Geuder (2001) and Harris and Cambell (1995). These collocations can become so fixed that the ordering between the verb and the noun ceases to be relevant as in examples (55) and (56).

Permutations in the realization of the <experiencer, theme> arguments in Psychic state verbs such as in (55) and (56) are also attested in other languages, for example Norwegian, English, Italian and Finnish. Unlike these languages however, the permutations in Èdó do not map unto a causative/ non-causative paradigm.

Interestingly, this also obtains when a non-human causer argument is introduced:

(59) a. Ô yé òhán mú Òzó.
Ô yé òhán mú Òzó.
3SG make.PST.H fear carry.PST.H Ozo
PRON V CN V PN

'it frightened Ozo.'

b. Ô yé Òzó mú òhán.
Ô yé Òzó mú òhán.
3SG make.PST.H Ozo carry.PST.H fear
PRON V PN V CN

'it frightened Ozo.'

The introduction of a human causer argument does not license the permutation above.

In such constructions, the experiencer must occur in the object position:
Turning now to the characteristics of state predicates, they generally do not license the progressive in either Èdó or English.

(61) *John was being tall  (English)

(62) *Ôzó ghá rèn èbé.  (Èdó)

However, some stage predicates in English license the progressive while most individual predicates do not (Pustejovsky 1995, Carlson 1977):

(63) I am understanding you but I am not believing you.

Most stage level predicates in Èdó do not permit the progressive interpretation of a non-progressive form:
(64)  Î hòn èmwin nè ù tà sòkpán Î má yá rùé yí.

Î hòn èmwin nè ù tà sòkpán
1SG hear.PRES.L thing COMP 2SG say.PRES.H but
PRON V CN PRON V CONJ

Î má yá rùé yí. 
1SG NEG ? 2SG ?

"I am hearing/understanding what you are saying but I am not believing you.'

'OK as: I am hearing/understand what you are saying but I do not believe you.'

They also do not enter into predicates with the progressive form:

(65)  *Ôzó ghá!á hómwén Àzàrí.

*Ôzó ghá!á hómwén Àzàrí.
Ozo PST.PROG like.PST.H Azari
PN V PN

'Ozo was loving/ liking Azari.'

This is also true of individual level predicates in Èdó:

(66)  *Ôzó ghá tán.

*Ôzó ghá tán.
Ozo PRES.PROG tall
PN V

'Ozo is being tall.'

In summary, neither individual nor stage level predicates license the progressive.

Yet another difference between individual level predicates and stage level predicates is the occurrence with resultatives. Stage level predicates are typically licensed in this construction type while individual level predicates are not (Pustejovsky 1995).

44 The verb yàyí ‘believe’ fall into the class of verbs Awobuluyi (1969) calls the splitting verb. Both part of the verb complex have no independent meaning on their own. It is the complex as a whole that is meaningful.
(67) John drank himself sick with that cheap brandy.

(68) *Bill ate himself overweight over the years.

*Sick* is a stage level predicate and it has the function of culmination in this sentence. It provides a culmination point for the drinking event.

This is also the case in Èdó:

(69) **Ôzó hò úkpòn huán.**

Ôzó  hò  úkpòn  huán.

Ozo  wash.PST.H  cloth  clean

PN  V  CN  V

'Ozo washed the clothes clean.'

(70)  *Ôzó rrí ̀èrègbé kpòló.*

*Ôzó  rrí ̀èrègbé  kpòló.

Ozo  eat.PST.H  excessive  eating  fat.PST.H

PN  V  CN  V

'Ozo overate and became fat.'

(71)  **Ôzó kòkó Ádésúwà mòsèè.**

Ôzó  kòkó  Ádésúwà  mòsèè.

Ozo  raise.PST.H  Adesuwa  beautiful

PN  V  PN  ADJ

'Ozo brought up Adesuwa well (She is well behaved).'

(72)  a.  *Ôzó sé ̀èwù mòsè.*

*Ôzó  sé ̀èwù  mòsè.

Ozo  sew.PST.H  dress  beautiful

PN  V  CN  V

'Ozo sewed the dress beautifully.'
b. Òzó sè èwú mòsèè.

\[
\begin{array}{llll}
\text{PN} & \text{V} & \text{CN} & \text{ADJ}
\end{array}
\]

'Òzó sewed the dress well (the dress is well made).'

Huán in (69) is a stage level predicate and it delimits the washing event. In (70) kpòló is an individual level predicate and is not licensed in the resultative construction. In (71) mòsèè is used as a stage level predicate whereby it refers to the property of Ádésiúwà being well brought up and this makes the sentence grammatical. In (72a), it has an individual level interpretation and the sentence in ungrammatical. A stage level interpretation renders its usage grammatical in (72b).

Turning back to the licensing of the progressive by state eventualities, another type of stative predicate may also license the progressive in languages like English. They are verbs like sit, stand and lie that are primarily used to denote positions of the human body. These verbs also typically do not pass the rule of thumb “do” test.

(73) a. The socks are lying under the bed.

b. *What socks did was lie under the bed.

While the above verbs license the progressive, when verbs of motion are used as locatives the progressive is not licensed (Dowty 1979).

(74) a. The river flows through the center of the town.

b. ?The river is flowing through the center of the town.

Thus, progressives are acceptable with stative verbs of temporal position and location just in case the subject denotes a movable object that may have recently moved, or may be expected to move in the near future. Also, in volitional adjectives like be polite, be a hero, the progressive signals intentionality and not necessarily movement (Dowty1979).
The above observation applies in Èdó. Verbs of temporal position like lòvbié 'lie down' and tòtá 'sit' when used in the non-past tense are interpreted as being in the progressive. They however do not permit the overt progressive forms ghá 'present progressive' and ghálá 'Past progressive'. Also verbs of motion for example lé 'flow' when used as locatives do not license the progressive.

(75) a. Ôzó ghá tóta.
   Ôzó PST.PROG sit
   'Ozo is sitting.'

b. Ôzó tóta.
   Ôzó tóta.
   'Ozo is sitting.'

(76) *Èzé ghá lé légáà nènè igué.
   River PRES.PROG flow round the village
   'The river is flowing through the village.'

They also do not pass the ‘do’ test

(77) ?Èmwin nè Ôzó rú ọrè ighé Ô ná tóta.
   What COMP Ozo do.PST.H FOC COMP
   CN PN V
   Ô ná tóta.
   3SG SECM sat
   PRON V
   'What Ozo did is that he sat down.'
In summary, states in Èdó differ from state eventualities in English in the following respects:

(78)

i. They are lexicalized as verbs. Adjectival and nominals are formed using these state predicates as derivational base.

ii. Unlike the English stage level state predicates, stage level predicates in Èdó do not license the progressive form.

iii. State verbs depicting temporal position permit progressive interpretation although they do not license overt progressive markers.

And they are similar in the following respects:

(79)

i. Stage level predicates are licensed as event delimiters in resultative constructions while individual level predicates are not.

ii. They do not pass the “do” test.

iii. Verbs of motion used as locatives do not license the progressive.

### 3.3.2 Events and states

Turning to the diagnosis of aspectual classes in Èdó, I begin with the dichotomy between states and events. States differ from events in terms of separation of distinct parts in a temporal structure, opposition of terms, change, dynamism and agency.

I use the following tests for duration, dynamicity and agency to buttress the difference between states and events:

(80)

a. Co-occurrence with the durative adverbial *yé ágógó X* use X hours' that is only licensed by eventualities expressing separation of distinct parts.
b. Co-occurrence with a pre-verbal modifier bà 'deliberately' and a verb mètín 'can' that occur only with eventualities expressing agency and control.

In addition, these tests also distinguish between the sub-types of events: activities, accomplishments and achievements.

I begin the discussion with the simple durative adverbial yé ágógó X 'use X hours'. The scope of this adverbial defines the temporal phase of an eventuality. The adverbial is ungrammatical with an eventuality with no temporal distinct parts as in statives. States consist of an unbroken time schema as such; the test fails to highlight any part of a stative eventuality.

(81) a. *Ôzó yé ágógó èvá yá mòsé.
   *Ôzó yé ágógó èvá yá mòsé.
   Ozo use.PST.H clock two to beautiful
   PN V CN NUM V V

b. *Ô yá ágógó èvà yá mú òhán Ôzó.
   *Ô yá ágógó èvà yá mú òhán Ôzó.
   3.PL use.PST.H clock two to carry? fear Ozo
   PRON V CN NUM V V CN PN

   'He used two hours to be afraid of Ozo.'

c. Ôzó yé ágógó èvá yá rhùlé.
   Òzó yé ágógó èvá yá rhùlé.
   Ozo use.PST.H clock two to run
   PN V CN NUM V V

   'Ozo used two hours to run.'

d. Ôzó yé ágógó èvá yá lè ìzé.
   Òzó yé ágógó èvá yá lè ìzé.
   Ozo use.PST.H clock two to cook rice
   PN V CN NUM V V CN

   'Ozo used two hours to cook the rice.'
(81a) expresses an individual state, (81b) a stage level predicate (81c) an activity, (81d) an accomplishment and (81e) an achievement. (81a) cannot mean *she used two hours to be beautiful* 45 neither can it mean that *she was beautiful for two hours*. In (81c), *Ozo ran for two hours* but it is unspecified whether he reached his goal, that is, the culmination point of the running event is not specified. The adverbial has scope over the preparatory phase (in the sense of Kamp and Reyle 1993). In (81d) the adverbial has scope over both the preparatory phase and the culmination point. This sentence cannot mean 'Ozo cooked the rice for two hours'. Rather, it states that the cooking event took two hours. (81e) is acceptable under the following interpretation; *Ozo used two hours to get to Benin* implies that *Ozo got to Benin*. It implies in addition that he was expected to have arrived long before the actual time of arrival. Here both the preparatory phase and the culmination point lie within the scope of the adverbial. The scope distinctions made for (81c-e) above is immediately apparent when further information is provided by subordinate clauses for each of the sentences:

45 This meaning can be expressed through the introduction of a matrix sentence containing an event related to the process of becoming beautiful:

> Ozo use.PST.H clock two to dress

> 'Ozo used two hours to get dressed before he became beautiful.'

The durative adverbial has scope over the dressing event and the state event is the result of the dressing.
In (82a) to (82c) it is not the adverbial that excludes the meaning extension, it is the aktionsart. In (82a) no culmination or termination point is provided by the activity
eventuality, thereby making it possible to expand it with an incompletive subordinate phrase. For accomplishments (82b), the incompletive subordinate clause has scope over the culmination sub-event. Lastly (82c) is ungrammatical because the main clause has a saturated state sub-event. The states of reaching Benin having been attained, attachment of the incompletive subordinate phrase is infelicitous.

Summing up the discussions so far, the above tests clearly distinguish between states and events in terms of separation of distinct parts in a temporal structure in Èdó.

A second fundamental distinction between states and other eventualities is that of dynamism and change. States also cannot occur with some lexical items expressing agency. The adverb [bá] 'deliberately' and the verb [mètín] 'be able to' are used as illustrations.

(83) a. *Ôzó mètín mòsé.

*Ôzó mètín mòsé.

Ôzo be able to.PRES.H be beautiful
PN V V
'Ozo can be able to be beautiful.'

b. Ôzó mètín rhùlé.

Ôzó mètín rhùlé.

Ôzo be able to.PRES.H run
PN V V
'Ozo can run.'

c. Ôzó mètín lè èvbârè.

Ôzó mètín lè èvbârè.

Ôzo be able to.PRES.H cook food
PN V V CN
'Ozo can cook.'
d. Òzó mêtîn sê Èdô.

\[ Òzó \text{ mêtîn} \quad \text{sê} \quad Èdô. \]

\[
\begin{array}{lll}
\text{PN} & \text{V} & \text{PN}
\end{array}
\]

*\text{Ozo can arrive in Benin.}'

ok as

'Ozo can stop over in Benin on his way to somewhere else.'

\text{Mêtîn} requires a VP complement. It connotes that \text{Ozo} deliberately learned the act of running and cooking in (83b) & (83c). While in (83d), the speaker asserts that if it pleases \text{Ozo}, he can stop over in Benin on his way to somewhere else. (83a) is a state eventuality, (83b) an activity, (83c) an accomplishment and (83d) an achievement.

Yet another expression related to control is the adverbial \text{bá} ‘deliberately’. As with the English adverbial \text{deliberately}, it is typically used in propositions controlled by an agent. It is ungrammatical with states and is sometimes odd with some achievements.

(84) a. *Òzó bá mòsé.

\[
\begin{array}{lll}
*Òzó & \text{bá} & \text{mòsé}.
\end{array}
\]

\[
\begin{array}{lll}
\text{PN} & \text{ADV} & \text{V}
\end{array}
\]

'Ozo is deliberately being beautiful.'

b. Òzó bá rhùlé.

\[
\begin{array}{lll}
Òzó & \text{bá} & \text{rhùlé}.
\end{array}
\]

\[
\begin{array}{lll}
\text{PN} & \text{ADV} & \text{V}
\end{array}
\]

'Ozo is deliberately running.'

c. Òzó bá lé èvbâré.

\[
\begin{array}{lll}
Òzó & \text{bá} & \text{lé èvbâré}.
\end{array}
\]

\[
\begin{array}{lll}
\text{PN} & \text{ADV} & \text{V} \quad \text{CN}
\end{array}
\]

'Ozo is deliberately cooking the food.'
d. Òzó bá sé Èdó.

\[
\begin{array}{cccc}
\text{Òzó} & \text{bá} & \text{sé} & \text{Èdó.}
\end{array}
\]

\[
\begin{array}{cccc}
\text{Ozo} & \text{deliberately.PRES.H} & \text{reach} & \text{Benin}
\end{array}
\]

PN ADV V PN

'*Ozo deliberately arrived in Benin.'

ok as

'Ozo purposely stopped over in Benin.'

e * Òzó bàá wú.

\[
\begin{array}{cccc}
\text{*Òzó} & \text{bàá} & \text{wú.}
\end{array}
\]

\[
\begin{array}{cccc}
\text{Ozo} & \text{deliberately.PST.H} & \text{die}
\end{array}
\]

PN ADV V

'Ozo deliberately died.'

Stative eventualities do not involve agency ((84a)) while activities ((84b)), accomplishments ((84c)) and some achievements ((84d)) do. The ungrammaticality of ((84e)) is related to the fact that in the worldview of the Èdós, people do not deliberately take their life. The event of dying is perceived as being outside the control of the subject.

Relating the discussion so far back to Pustejovsky (1991a, 2005) distinction between states and events, we find that situations that are evaluated relative to no other events— that is states - have the following characteristics:

(85)

i. They are homogeneous, do not involve change and are therefore evaluated relative to no other event. They cannot be separated into distinct parts in an event schema. They do not license durative adverbials.

ii. They are non-dynamic and this is related to (iii) below.

iii. Do not license expressions depicting agency.

In contrast events must be evaluated relative to other events and involve change, dynamicity and license items expressing duration and agency. The data from Èdó discussed in this section reflects the above.
### 3.3.3. Events

As presented in section 3.2, events refer to situations consisting of two or more sub-events that are evaluated relative to each other. Events are dynamic and involve change. Tests used to distinguish subtypes of events are co-occurrence with durative adverbials, frame adverbials and point adverbials as discussed in section 3.1. Events in Èdó exhibit the same linguistics behavioural patterns as in English, I therefore discuss salient points.

A first bifurcation of event classes is the distinction between activities and transitions. Co-occurrence with the durative adverbial phrase *for X time* as in *John ran for one hour* in English reflects this distinction. In Èdó, the facts are the same:

(86)  

\[ Òzó \mbox{ run.PST-rV} \mbox{ for minute ten} \]

\[ PN \ V \ PREP \ CN \ NUM \]

'Ozo ran for ten minutes.'

But transitions are not compatible with this adverbial:

(87) a.  

\[ *Òzó \mbox{ cook.PST.H yam one for minute ten} \]

\[ PN \ V \ CN \ NUM \ PREP \ CN \ NUM \]

'*Ozo cooked one yam for ten minutes.'

b.  

\[ *Òzó \mbox{ reach.PST.H Benin for minute ten} \]

\[ PN \ V \ PN \ PREP \ CN \ NUM \]

'*Ozo reached Benin for ten minutes.'
Conversely, the degree of acceptability when activities occur with frame adverbials is minimal while transitions are felicitous:

(88) a. ?Úwé èháwà èvá òrè Ôzó yá rhùlé.

Úwé èháwà èvá òrè Ôzó yá rhùlé.

*Inside hour two FOC Ozo use.PST.H run*  
CN CN NUM PN V V  
'Ozo ran in two hour.'

b. Úwé èháwà èvá òrè Ôzó yá lé òghèdè ôkpá.

Úwé èháwà èvá òrè Ôzó yá lé òghèdè ôkpá.

*Inside hour two FOC Ozo use.PST.H cook plantain one*  
CN CN NUM PN V V CN NUM  
'Ozo cooked one plantain in two hours.'

c. Úwé èháwà èvá òrè Ôzó yá sé Èdó.

Úwé èháwà èvá òrè Ôzó yá sé Èdó.

*Inside hour two FOC Ozo use.PST.H reach Benin*  
CN CN NUM PN V V PN  
'Ozo reached Benin in one hour.'

(88a) is an activity, (88b) an accomplishment and (88c) an achievement. Also as with English, the occurrence of an activity verb with an NP object results in a shift in type to an accomplishment. Khue in (89a) is an activity but in (89b), it behaves like an accomplishment when it occurs with the NP *ìbié kà nìí* 'the children'. It becomes infelicitous with the adverbial phrase *làà ifúnàrò îgbé*:

(89) a. Ôzó khué-rè lá ifúnàrò îgbé.

Ôzó khué-rè lá ifúnàrò îgbé.

*Ozo bath.PST-rV for minute ten*  
PN V PREP CN NUM  
'Ozo bathed for ten minutes.'
b. Ṫezó khuë ibièkà nìí lá ìfúnàrò ìgbé.

.CONNECT

Ozo bathed those children for ten minutes.

In turn the occurrence of an accomplishment with a bare NP with a plural interpretation results in a type shift to a process.

(90) a. Ṫezó lé ọghèdè lá ẹdè ẹvá.

Ozo cooked plantains for two days.

b. *铨ezó lé ọghèdè ọkpá lá ẹdè ẹvá.

*Ozo cooked one plantain for two days.

A second bifurcation is that between transitions and non transitions and the duration/non duration dichotomy. Achievements are instantaneous and express only opposition of terms expressed by the BECOME operator as discussed in 3.2, and they permit modification by point adverbials:

(91) a. Ṫezó sé Òdó vbé ágógó igbé.

'Ozo arrived Benin at ten o’clock.'
b. Òzó wú vbé ágógó igbé.

Òzó wú vbé ágógó igbé.

Ozo die.PST.H at time ten
PN V PREP CN NUM
'Ozo died at ten o’clock.'

This is not possible for activities and accomplishments. (92a) is an activity and (92b) an accomplishment. Both are durative in nature:

(92) a. *Òzó rhùlè-rè vbé ágógó igbé.

*Òzó rhùlè-rè vbé ágógó igbé.

Ozo run.PST-rV at clock ten
PN V PREP CN NUM
'Ozo ran at ten o’clock.'

b. *Òzó lé nèné òghèdè vbé ágógó igbé.

*Òzó lé nèné òghèdè vbé ágógó igbé.

Ozo cook.PST.H the plantain at clock ten
PN V DET CN PREP CN NUM
'Ozo cooked the plantain at ten o’clock.'

At this point, I present the classification of aspectual classes in Èdò as depicted in verbs and constructions in figure 3 below:
In chapter 4, I examine the co-occurrence restrictions governing these eventualities in multi-verb constructions. I now present in 3.4 below the basic architecture of how I incorporate Pustejovsky’s Event-Structure templates in the Matrix grammar as sub-types of the event-relation.

### 3.4 EVENT RELATIONS AND EVENT STRUCTURE

I begin with Pustejovsky’s (1989b, 1991a, 1995 and 2005) account of how participants in an event predicate are mapped to argument positions. I then show how the mappings can be represented in a constraint based grammar like the Matrix grammar. Pustejovsky (1991a) deviates from the view of an eventuality as being a single, existentially quantified event variable. Based on the ability of grammatical phenomena to make reference to the internal structure of an event, he assumes a Sub- eventual analysis for predicates. He distinguishes between three types of basic eventualities states, processes and transitions. Transitions are further divided into two groups: accomplishments and achievements. His classification is based on the assumption of sub eventual templates to which generative rules of event composition may apply in order to generate complex events (see section 3.2.2). Below are examples of eventuality types:
(93) Mary ran (process).

(94) The door is closed (state).

(95) The door closed (achievement).

(96) John closed the door (accomplishment (transitive)).

(97) John gave Mary a book (accomplishment (ditransitive)).

Pustejovsky (2005) states that there is no direct or predictable behaviour for the arguments of a verb as determined by its event type alone. It is the Event-Structure combined with a set of mapping principles that constrains argument realization. The principles are as follows (Pustejovsky 2005:54):

(98)

A. The semantic participant involved in a predicate opposition is mapped onto the internal argument position of the lexical structure (roughly the d-structure object position).

B. The agentive participant in the initial sub event of event structure is mapped onto the external argument position of the lexical structure (roughly the d-structure subject).

C. If the predicate opposition involves a relation, then both of the participants are mapped onto internal argument positions of the argument structure. Otherwise, relational arguments are mapped directly as expressed at event structure: for example give and put are examples where the culminating state is a relation, and both arguments are realized as internal arguments.

D. Any participant in the initial event not expressed by principles (A) or (B) is mapped onto the external argument position.

E. Each sub event must be associated with at least one argument position at lexical structure.
Principle (A) assumes that the semantic participant in transitions such as in (97) above will be realized as objects in d-structure (He assumes a deep unaccusativity analysis for such participants as in Levin (1989)).

Principle (B) ensures that the agent that is the first participant in the act relation will be mapped to subject positions as in (98) and (99).

Principle (C) ensures that if the STATE subevent structure involves a relation as in di-transitive verbs, then both participants of the relation will be mapped onto internal arguments as in (99). Mapping of unergative subjects is taken care of by principle (D) as in (95). Lastly, principle (E) accounts for un产业基地 arguments of a predicate as in laugh herself silly.

Pustejovsky states that the level of Event Structure is a further refinement of the semantic responsibilities within a Lexical Conceptual Structure.

Also similar to Jackendoff, semantic participants are defined with respect to their positioning in the Event-Structure but unlike him, only the agent role is explicitly stated. Thematic roles such as theme, patient may be interpreted as the semantic participant referred to by principle (A) while the beneficiary and goal/source roles by principle (C).

In addition to the four basic event structures above, I recognize three other types. The first and second types represent the cause and result part of a causative relation respectively and the third a type that denotes inchoative events as in the following sentence:

(99) The banana ripened.

Fowley (1992) defines inchoation as a process of becoming, or a transition from the absence of a state to the presence of a state and is equivalent roughly to Vendler’s (1967) achievement.

Also different from Pustejovsky, I recognize three types of accomplishment constructions. Those that involve canonical causation as in (96) and (97) above, those
that involve self-agentive causation as in (100a) below and those that involve ballistic movement as in (100b) below:

(100)  a. John walked home.
       b. John threw a ball.

(100a) consists of a process that undergoes event shift to an accomplishment.

Pustejovsky’s account is similar to the Matrix framework in that thematic roles (with the exception of the agent theta role) are left unspecified. Following the discussion in the literature that no small set of discrete thematic roles will cover all the arguments of all kinds of verbs and the informal intuitive nature of theta role classification, an analysis such as Pustejovsky’s where mapping of participant roles to valence positions is determine by the position in the Event Structure template, allows for generalizations for sets of event predicates to be captured.

In my analysis the basic event structures: states, processes and transitions are introduced as subtypes of event-relation in the Matrix grammar that I label eventstruc-rel. This type is constrained by the attributes TELIC, DYNAMIC, DURATION, BALLISTIC, INCHOATIVE and DEGREE.

Participant roles are of the type semarg which are values of ARG constraining the type event-relation. In addition, an attribute ROLE with value role also constrains event-relation. I recognize four types of role from which sub-types may inherit: initiator, non-initiator, precipitator and path. The type precipitator is introduced to account for the participants in a causative relation. A sub-type on initiator is the agent. This type subsumes the doer of an action and a voluntary actor (cf Jackendoff 1990).

Referring back to Pustejovsky’s mapping principles in (98) above the participants in principle B is equivalent to the initiator and precipitator role while the non-initiator is equivalent to the participant in principle A. For principle C, the entity that is displaced is the theme and the second participant in a transfer/possession relation is the recipient, benefactive or goal. For principle D the participant is the agent (doer).
The hierarchy of roles is presented in (101) below. Linking between these values to values of attributes of val and qval is as defined in chapter 1. The types are: process-eventstruc-rel, state-eventstruc-rel, result-eventstruc-rel, cause-eventstruc, transition-cause-eventstruc-rel, transition-achievement-eventstruc-rel and transition-inchoative-eventstruc-rel. Sub-types of transition-cause-eventstruc-rel are transition-canonical-cause-eventstruc-rel, transition-self-agentive-cause-eventstruc-rel and transition-ballistic-cause-eventstruc-rel.

The constraints on these types by their basic aspectual properties are expressed as attributes with boolean values: TELIC [$\pm$], DYNAMIC [$\pm$], DURATION [$\pm$], INCHOATION [$\pm$], DEGREE [$\pm$] and BALLISTIC [$\pm$].

Pustejovsky’s analysis of eventualities that encode a result state as implying an opposition of two sub events $E_1$ and $\neg E_2$ can be defined in terms of telicity whereby the result event provides the temporal end point. They are therefore telic events. Processes consist only of the positive part of the opposition $E$ and are atelic in nature.

The types transition-cause-eventstruc-rel and transition-achievement-eventstruc-rel are further distinguished by the attribute DURATION. Accomplishment events are durational while achievements are not. Also the types process-eventstruc-rel and state-eventstruc-rel are distinguished by the attribute DYNAMIC. Process events are dynamic while states are not. In addition, the types transition-achievement-eventstruc-rel and transition-inchoative-eventstruc-rel are distinguished by a negative value for the attributes DYNAMIC and INCHOATION for the former and a positive value for the Latter. In addition, inchoative eventualities are telic in nature.

The causal relationship between sub-events in a transition-cause-eventstruc-rel is represented as a constraint on the ARG1 and ARG2 attributes constraining this type. ARG1 has the value cause-eventstruc-rel that is constrained by the attribute ROLE of the type precipitator. ARG2 has the value result-eventstruc-rel that is constrained by the attribute ROLE of the type non-initiator.

Below in (101) I present the hierarchy of role relations:
I now present the type hierarchy for event structure relations in (102) below:
The partial hierarchy in (103) below shows formally the relation of the eventstruc-relations to arguments of a verbal relation.

(103)

The types process-eventstruc-rel and state-eventstruc-rel if having a participant of one, inherit from arg1-eventstruc-rel. The following constraints show this.

(104)

The type transition-inchoative-eventstruc-rel (as in (99) above) also inherit from arg1-eventstruc-rel and has the following constraint.

(106)
The type *transition-eventstruc* (as in (95) above) may inherit from *arg2-only-eventstruc* and has the following constraint.

\[
\begin{array}{c}
\text{arg 2 \text{ transition \text{ \text{\text{\text{\text{-\text{achievment} \text{-eventstruc \text{-rel}}}}}}}}}
\end{array}
\]

The type *intrans-verb-lxm* discussed in chapter 1 inherits from either (104), (105), (106) or (107) depending on the aktionsart expressed by the predicate.

The *transitive-verb-lxm* and *ditransitive-verb-lxm* types of *transition-canonical-cause-eventstruc* has the former inheriting from *arg12-eventstruc-rel* (108) and the latter inheriting from *arg123-eventstruc-rel* (109) with appropriate constraints:

\[
\begin{array}{c}
\text{arg 12 \text{ transition \text{ canonical \text{ \text{cause \text{-eventstruc \text{-rel}}}}}}}
\end{array}
\]

I use the verb *rhûlē* 'run' a predicate expressing an activity, as illustration in (110) through (113) below.

(110) \[\text{intrans-process-verb-lxm := intrans-verb-lxm \& arg1-process-subject-lex-item.}\]

(111) \[\text{arg1-subject-lex-item}\]
The account given above explains in a constrained manner the interpretation of the –\( rV \) past tense suffix when suffixed to intransitive verbs with event structure of the type \textit{process-eventstruc-rel} (as in (106) through (113) above) and those with event structure of the type \textit{transition-inchoative-eventstruc-rel}. The former has only a past interpretation and the latter an inchoative interpretation as discussed in chapter 2. For the latter, I repeat examples (30a) and (30b) from chapter 2 as (114a) and (114b) below. And in (115) I give a partial AVM constraining this type.

\begin{enumerate}
\item[(112)] \text{arg\textsubscript{1}}-\text{process-subject-lex-item} := \text{arg\textsubscript{1}}-\text{subject-lex-item} \&
\[
\begin{array}{c}
\text{SYNSEM.LOCAL.CONT.RELS} \langle ! \text{arg\textsubscript{1}}-\text{process-eventstruc-relation} \rangle \\
\end{array}
\]
\item[(113)\textsuperscript{46}]
\end{enumerate}

\begin{tikzpicture}
\end{tikzpicture}

\textit{inflected-root.}

\textit{local}

\begin{itemize}
\item \textit{arg \textsubscript{1} – process – eventstruc – rel}
\item \textit{arg \textsubscript{1} – process – transition – eventstruc – rel}
\end{itemize}

\begin{itemize}
\item \textit{local}
\item \textit{cont}
\item \textit{hook}
\item \textit{lkeys.keyrel}
\item \textit{arg-st}
\end{itemize}

\begin{itemize}
\item \textit{arg\textsubscript{1}}
\item \textit{arg\textsubscript{0}}
\item \textit{arg\textsubscript{1} ref} & \textit{ind} \& \textit{\& ind\textsubscript{1}}
\end{itemize}

\textit{event tense}

\textit{rel}

\textit{handlekeyrel}

\textit{hook}

\textit{inflected-root.}

\textit{stem} \text{\langle shu\textsubscript{r}t\rangle}

\textit{cat}

\textit{val}

\textit{subi} \text{\langle local \cdot cat \cdot head noun \rangle}

\textit{comps} \text{\langle local \cdot cont \cdot hook \cdot index \# ind\textsubscript{1} \rangle}

\textit{local}

\textit{cont}

\textit{hook}

\textit{ltop} & \textit{handle}

\textit{index} \text{\& \textit{event} \text{\langle ftense tone\textsubscript{1} \rangle}}

\textit{rels} \text{\langle ! \& keyrel \rangle}

\textit{lkeys.keyrel}

\textit{arg-st} \text{\langle local \cdot cont \cdot hook \cdot index \& ind\textsubscript{1} \rangle}

\textit{stem}

\textit{inflected-

\textit{root.}

\textit{local}

\textit{cont}

\textit{hook}

\textit{ltop} & \textit{handle}

\textit{index} \text{\& event} \text{\langle ftense tone\textsubscript{1} \rangle}

\textit{rels} \text{\langle ! \& keyrel \rangle}

\textit{lkeys.keyrel}

\textit{arg-st} \text{\langle local \cdot cont \cdot hook \cdot index \& ind\textsubscript{1} \rangle}

\textit{stem}

\textit{inflected-

\textit{root.}

\textit{local}

\textit{cont}

\textit{hook}

\textit{ltop} & \textit{handle}

\textit{index} \text{\& event} \text{\langle ftense tone\textsubscript{1} \rangle}

\textit{rels} \text{\langle ! \& keyrel \rangle}

\textit{lkeys.keyrel}

\textit{arg-st} \text{\langle local \cdot cont \cdot hook \cdot index \& ind\textsubscript{1} \rangle}

\textit{stem}

\textit{inflected-

\textit{root.}

\textit{local}

\textit{cont}

\textit{hook}

\textit{ltop} & \textit{handle}

\textit{index} \text{\& event} \text{\langle ftense tone\textsubscript{1} \rangle}

\textit{rels} \text{\langle ! \& keyrel \rangle}

\textit{lkeys.keyrel}

\textit{arg-st} \text{\langle local \cdot cont \cdot hook \cdot index \& ind\textsubscript{1} \rangle}

\textit{stem}

\textit{inflected-

\textit{root.}

\textit{local}

\textit{cont}

\textit{hook}

\textit{ltop} & \textit{handle}

\textit{index} \text{\& event} \text{\langle ftense tone\textsubscript{1} \rangle}

\textit{rels} \text{\langle ! \& keyrel \rangle}

\textit{lkeys.keyrel}

\textit{arg-st} \text{\langle local \cdot cont \cdot hook \cdot index \& ind\textsubscript{1} \rangle}

\textit{stem}

\textit{inflected-

\textit{root.}

\textit{local}

\textit{cont}

\textit{hook}

\textit{ltop} & \textit{handle}

\textit{index} \text{\& event} \text{\langle ftense tone\textsubscript{1} \rangle}

\textit{rels} \text{\langle ! \& keyrel \rangle}

\textit{lkeys.keyrel}

\textit{arg-st} \text{\langle local \cdot cont \cdot hook \cdot index \& ind\textsubscript{1} \rangle}

\textit{stem}

\textit{inflected-

\textit{root.}

\textit{local}

\textit{cont}

\textit{hook}

\textit{ltop} & \textit{handle}

\textit{index} \text{\& event} \text{\langle ftense tone\textsubscript{1} \rangle}

\textit{rels} \text{\langle ! \& keyrel \rangle}

\textit{lkeys.keyrel}

\textit{arg-st} \text{\langle local \cdot cont \cdot hook \cdot index \& ind\textsubscript{1} \rangle}

\textit{stem}

\textit{inflected-

\textit{root.}
(114) a. Ó gó.

    Ó  gó.

3.SG  bend.PRES.H
PRON  V

'It is bending.'

b. Ó gó-rè.

    Ó  gó-rè.

3.SG  bend-rV
PRON  V

'It bent or it is crooked.'

(115) intrans-transition-verb-lxm := intrans-verb-lxm & arg1-transition-inchoative-
subject-lex-item &

    [ arg1−transition−inchoative−eventstruc−relation ]
    [ ARG1  ref-ind

We turn now to the phenomenon of event shift discussed in sections 3.1 and 3.2.3.2
whereby the occurrence of an accomplishment with a bare NP with a plural
interpretation results in a type shift to a process. Also, activities can through the
combination with a goal participant become an accomplishment.

For the shift from accomplishment to process as in 'John bakes cakes' two factors
come into play.

First, the construction shifts its telicity type to a negative value for the attribute
TELIC. Secondly, the shift in telicity triggers a non-resultative interpretation and
there is no longer a causative relationship thereby eliminating the ARG2 result-
eventstruc-rel constraining accomplishments. The type shift then results in a process
eventuality.

The opposite is the case for the shift from a process to an accomplishment as in 'John
walked home'. The addition of the goal participant home shifts the event type to a
causative event with a following shift in the value of the attribute TELIC from
negative to positive. The type transition-self-agentive-cause-eventstruc-rel represents
this construction type. I do not formalize the discussion on type shift in this thesis.
CHAPTER FOUR
MULTI-VERB CONSTRUCTIONS IN ÈDÓ: IDENTIFICATION AND CLASSIFICATION

4.0 Introduction
VP constructions whereby a sequence of juxtaposed VPs occur in what appear to be simple sentences are attested in the Kwa and Gur language families of West Africa, the Caribbean Creoles, South Asian and South East Asian languages, Oceanic and some Northern American Languages (Misumalpan). The term generally used to refer to this construction type is *serial verb construction* (SVC). However as Lord (1993) observes, what has been classified as SVC are only superficially similar constructions. The use of the term *multi-verb construction* in this thesis does not equate with the term *serial verb construction*.

In section 4.1, I introduce 14 types of VP constructions in Èdó and characterize them in semantic terms based on event semantics. Of the 14, 11 are identified as multi-verb constructions. In section 4.2, I examine the syntactic characteristics of the 11 types and further classify them into four classes of multi verb constructions: *V+modifier, V(P)+V(P), V+mood* and *V+infinitival complement* constructions. In particular in 4.2.1 through 4.2.4, I examine their co-occurrence patterning with respect to inflection with focus on licensing of the –rV suffix. I show that multi-verb constructions in Èdó can be classified along a continuum based on the nature of tense, aspect and mood. In 4.2.5, using the distribution of a floating anaphor tôbőrè‘by pronoun self’ in Èdó, I show that V(P)2 in *V+infinitival complement* and covert co-ordination (a subtype of the *V(P)+V(P) construction*) have unsaturated subjects whose referential indices are identified with the referential index of the overt subject of V(P)1, while the verbs in series in V(P)1 and V(P)2 in the *V+mood* and the other sub-types of *V(P)+V(P)* constructions token-share the overt subject NP. V2 in the *V+modifier construction* is reanalyzed in the literature on Èdó as an adverb and I agree with this view. No argument sharing pattern exists for this construction type where the re-analyzed verb is predicated of V1. These tests thus serve to distinguish empirically constructions which I give a covert reference sharing analysis from those which I give a token
sharing analysis. In addition, the distribution of an infinitival marker yá and pre and post verbal adverbs are used to establish the structure of the multi-verbs identified. V+modifier, V(P)+V(P) and V+mood constructions are identified as having an adjunction structure while a subtype of the V(P)+V(P) construction; the resultative construction (where V2 is an individual predicate or achievement) and the V+infinitival complement are identified as having a complementation structure.

In section 4.2.6, I examine the argument sharing patterns in the multi-verb constructions. Three types of subject sharing patterns are identified: token sharing by grammatical function, covert reference sharing and switch sharing. For objects, two kinds are identified: object sharing by grammatical function and overt reference sharing. Also the verbs in series may each have objects that are not shared. Section 4.3 presents the conclusion.

4.1 VP constructions in Èdó

Ameka (2005:2) uses the following criteria to identify a typology of multi-verb constructions in West African languages:

(1.1) There is no marker of syntactic dependency between the verbs in series.
(1.2) At least one argument is shared by the verbs in series.
(1.3) The VPs in series are seen as related.
(1.4) 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.

Research has mainly focused on SVCs and they can be identified by a list of criteria as found in Sebba (1987) and Kroeger (2001). These criteria include the following:

(2.1) There is one surface syntactic subject.
(2.2) The verbs in series must be morphologically independent.
(2.3) The verbs in series have no overt markers of subordination or co-ordination separating them.

(2.4) An SVC refers to a single (possibly complex) event.

(2.5) There is one specification for tense, aspect, negation etc.

(2.6) The overt NPs in the construction must be noncoreferential.

(2.7) No pause must separate the verbs in series.

Also, 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. They further classify “true” SVCs as having only one overt object that seems to express the theme argument of the verbs in series. According to them object sharing is the distinguishing property that distinguishes the class of true” SVCs (1999:28).

The term 'multi-verb constructions' as used in this paper encompasses (1.1)-(1.4) above with SVCs as a subclass of multi-verb constructions. Theme argument sharing is not a necessary condition for multi-verb constructions. Also, multi-verb constructions in general, may have more than one specification for tense, aspect and mood.

In the discussion of multi-verb constructions, one traditionally identifies subtypes that correspond to the different semantic patterns that arise in the combination of events. In the following, first, I introduce 14 construction types and then identify 11 of the constructions (i-xi) as satisfying the criteria in (1.1)-(1.4) above. I then examine how these 11 construction types pattern with respect to "true SVCs" as characterized in (2.1)-(2.7) above.

(3)

i. Durational constructions.

ii. Directional constructions.

iii. Comitative constructions.

iv. Instrumental constructions.

v. Resultative constructions.

vi. Negative resultatives constructions.

vii. Locational constructions.
viii. Manner constructions.
ix. Purpose constructions.
x. Consequential constructions.
xi. Covert co-ordination.
xii. Comparative constructions.
xiii. Causative construction.
xiv. Desiderative constructions.

4.1.1 Restrictions on verb co-occurrence in multi-verb constructions

Research in event semantics has focused on how encoding of events are compositionally built when they are expressed with dependent adjunct phrases and with resultatives. Wechsler (2003:4) has the following examples from English:

(4) a. John walked (for an hour/*in an hour).
    b. John walked to the store (? for an hour/in an hour).
    c. Mary hammered the metal (for an hour/*in an hour).
    d. Mary hammered the metal flat (? for an hour/in an hour).

As discussed in chapter 3, the durative adverbial for an hour is licensed by non-culminative events while the frame adverbial in an hour is licensed by events that have a natural culmination point. The former is atelic and the latter is telic. In (4b) the presence of the goal PP to the store renders the sentence telic, while the absence of the PP in (4a) renders the sentence atelic. Also the addition of the resultative AP flat in (4d) telicizes the hammering event in (4c-d). Wechsler argues that it is not the events themselves that are classified in this way, for example the event walk in (4a) and (4b) depicts the same walking event. It is therefore the conceptual representation of a situation that can be telic, atelic etc. Wechsler analyzes Tai motion verb complex in particular, a construction that has the structure 'walk enter'. When the verb walk is used alone in a sentence, it has a purpose interpretation. For the attainment of a locative telic interpretation, the verb enter must enter into composition with the verb walk. The following Tai examples illustrate this (Wechsler 2003:5).
The goal expression *den pay rooŋrian mũawaannii* loosely translated as *walk to school*, normally expresses the purpose behind the action rather than entailing that the destination has actually been reached. A telic interpretation is achieved through the introduction of a third verb ñũŋ meaning 'arrive' or khan 'enter':

(6)  

a. Piti *den pay thũŋ rooŋrian mũawaannii.*

Piti  den  pay  thũŋ  rooŋrian  mũawaannii.

Piti  walk  go  arrive  school  yesterday
PN  V  V  V  CN  ADV

'Piti walked to school yesterday (telic).’
b. **Piti den pay thûŋ rooŋrian nay welaa sip naatii.**

Piti den pay thûŋ rooŋrian nay welaa
Piti walk go arrive school in time
PN V V V CN PREP ADV

Sip naatii.
ten minute
NUM ADV

'Piti walked to school in ten minutes.'

c. **Piti den khân pay nay rooŋrian.**

Piti den khân pay nay rooŋrian.
Piti walk enter go in school
PN V V V PREP CN

'Piti walked into the school.'

Wechsler (2003:6-7) proposes three possible interpretations for example (6c) which he extends to the other sentences:

(7)

i. Serial interpretation: A walk event followed by an entering event: *Piti walked, and then entered the school.*

ii. Goal interpretation. A walking event along a path whose end-point is located inside the school: *Piti walked to a place within the school.*

iii. Coextensive interpretation. An event involving simultaneous, co-extensive walking and entering: *Piti entered, walking.*

The serial interpretation implies a ‘*and then*’ interpretation, that is concatenation of two events in time. On the goal interpretation, the PP specifies the location of the end-point of the walking path and lastly, the co-extensive interpretation has a single event interpretation consisting of both the walking event and the entering event both having
the same temporal trace. The interpretation of the sentences above when used in composition with the following expressions is used as evidences for the adoption of the co-extensive interpretation which has a single event interpretation.

The expressions are: frame adverbials as in example (6b), distance measure phrases as \( \text{pen ráyáthaŋ hāa may} \) 'for distance five miles' and the progressive as \( \text{kamlaŋ} \) 'PROG', as well as, the property of detachability whereby the process is detachable from its outcome for accomplishments but not with other eventuality types using the adverb \( \text{k̪uap} \) 'almost' (Wechsler 2003: 7-11).

Pustejovsky (1995) has a similar view. He adopts a sub-eventual approach to the analysis of events. According to him, an extended event structure is interpreted as a tuple:

\[ < E, \leq, <, o, \subseteq, * > \]

where \( E \) is the set of events, \( \leq \) is a partial order of part-of, \( < \) is a strict partial order, \( o \) is overlap, \( \subseteq \) is inclusion and \( * \) designate the “head” of an event. Event headedness provides a way of indicating foregrounding or backgrounding of event arguments.

He represents the relationship between an event and its proper sub-parts as consisting of an ordered relationship between the sub events. He suggests three orderings: a partial order \( <_x \), overlap \( o_x \), and ordered overlap \( o_x \).

In partial order, \( e_1 \) and \( e_2 \) are exhaustive ordered parts of \( e_3 \), with \( e_1 \) being temporally ordered before \( e_2 \). \( e_1 \) must completely precede \( e_2 \).

In ordered overlap relation \( e_1 \) starts before \( e_2 \), that is: \( e_1 \) precedes and overlaps \( e_2 \) with both ending simultaneously.

Overlap relation involves two sub events occurring simultaneously with ordered overlap and overlap as distinct relationships.

I interpret Wechsler’s temporal relations in the following ways: serial interpretation corresponds to Pustejovsky’s partial order, his goal interpretation corresponds to the ordered overlap relation and his co-extensive interpretation corresponds to the overlap relation.

\[ ^{47} \text{This will be discussed in detail in chapter 6 when I discuss temporal relations in multi-verb constructions.} \]
Turning now to Èdó data, in chapter 3, the presence of adverbial expressions such as the following, were used to distinguish states from events on the one hand and subtypes of events from one another:

(8) The durative adverbial expression:

i. lá  ífúnàrò X .  
  lá  ífúnàrò  X .  
  For minute (a variable standing for number)
  PREP CN
  'For X time.'

ii. Vbé ágógó èvá dó sé ágógó èné.  
  Vbé  ágógó èvá  dó  sé  ágógó èné.  
  In clock two SECM reach clock four
  PREP CN NUM V CN NUM
  'From two o'clock to four o'clock.'

(9) The point adverbial expression:

Vbé ágógó X.  
Vbé  ágógó  X.  
In clock (a variable standing for number)
PREP CN
'At x time.'

(10) The frame adverbial expression.

i. Vbé ífúnàrò X.  
  Vbé  ífúnàrò  X.  
  In moment (a variable standing for number)
  PREP CN
  'In x moments.'
ii. Úwé èháwà X.

Úwé èháwà X.

Inside hour (a variable standing for number)

CN CN

'In x hours.'

(11) The agency expression bá (deliberately):

NP bá VP.

deliberately

'NP deliberately did VP.'

In table 14 below I present a brief summary with a list of verbs that are typical of each class.

Table 14

<table>
<thead>
<tr>
<th>Eventuality Type</th>
<th>Durative adv: lá (for)</th>
<th>Durative adv: yé ágógó (time)</th>
<th>Point adv: vbé ágógó (time)</th>
<th>Frame adv: 'vbé (in) ífúnàrò (minutes)</th>
<th>Frame adv: Úwé èháwà (hour) X</th>
<th>Agency: Bá (deliberately)</th>
</tr>
</thead>
<tbody>
<tr>
<td>States</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Kpè ‘be long’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>acceptable</td>
<td>Yes</td>
</tr>
<tr>
<td>Viğ ‘cry’, Lòó ‘use’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhùlé ‘run’</td>
<td></td>
<td></td>
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<tr>
<td>Kóbó ‘gather’</td>
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<tr>
<td>Kpóló ‘sweep’</td>
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<tr>
<td>Gbè ‘dance’</td>
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<td></td>
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<tr>
<td>Accomplishments</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ëlè’cook’, ré’ eat’</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Achievements</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Acceptable For some</td>
<td>Acceptable For some</td>
</tr>
<tr>
<td>Fòó ‘finish’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Kpàá ‘leave’</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Làó ‘enter’</td>
<td></td>
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<tr>
<td>Mién ‘see’</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Kpàán ‘pluck’</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dé’ ‘buy’</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Fián, giá’ cut’</td>
<td></td>
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<td></td>
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<tr>
<td>Suà ‘push’, dé’ fall’</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Importantly, the aspectual type of a proposition may be coerced under the influence of modifiers like tense, temporal adverbials and aspectual auxiliaries (Moens and Steedman 2006). In the following I show that the lexical aspectual class of a verb may be coerced in co-composition with other verbs in multi-verb constructions. Where relevant, I apply the adverbial tests in table 14 above to clarify the aspectual class of a construction. In table 15 below, I present a brief summary of the aspectual classes of multi-verb constructions and I then go on to discuss each class.

Table 15

<table>
<thead>
<tr>
<th>V1 (Eventuality type)</th>
<th>V2 (Eventuality type)</th>
<th>CONSTRUCTION TYPE</th>
<th>ASPECTUAL TYPE OF CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>State</td>
<td>Duration, resultative, direction, instrumental</td>
<td>State</td>
</tr>
<tr>
<td></td>
<td>Achievement</td>
<td>Location, directional, commitative, durational, instrumental</td>
<td>Achievement</td>
</tr>
<tr>
<td></td>
<td>Accomplishment</td>
<td>Comitative, instrumental</td>
<td>Accomplishment</td>
</tr>
<tr>
<td>Accomplishment (Accompl.)</td>
<td>State</td>
<td>Durational, resultatives</td>
<td>State</td>
</tr>
<tr>
<td></td>
<td>Achievement</td>
<td>Durational, consequential</td>
<td>Achievement</td>
</tr>
<tr>
<td></td>
<td>Accomplishment</td>
<td>Consequential, negative resultatives</td>
<td>Accomplishment</td>
</tr>
<tr>
<td>Achievement</td>
<td>Achievement</td>
<td>Purpose, resultatives, consequential, negative resultatives, instrumental</td>
<td>Achievement</td>
</tr>
<tr>
<td></td>
<td>Accomplishment</td>
<td>Purpose, consequential</td>
<td>Accomplishment</td>
</tr>
<tr>
<td>State (temporal position state)</td>
<td>Event</td>
<td>Manner</td>
<td>Event&lt;sup&gt;49&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

A generalization immediately drawn from table 15 above is that the aspectual class of the multi-verb construction is with the exception of some purpose and instrumental constructions, predictable from the aspectual class of V2.

<sup>48</sup> The term V1 refers to the first verb in the composition and the term V2 refers to the second verb.

<sup>49</sup> Events as defined in previous chapters consist of both processes and transitions.
In line with the standard view that covert co-ordination represents a series of uncoordinated events, aspectual restrictions are not relevant for verbal co-occurrence in this construction.

I will also introduce informally the temporal relations binding the events in series leaving the formal discussion to chapter 6. The following temporal relations patterns are predictable from the co-occurrence restrictions patterns observed in aspectual classes in the discussion below:

(12).

i. The default temporal relation pattern for a combination of accomplishment events in a multi-verb construction is that of disjunct order. This follows from the aspectual property of accomplishments: duration and culmination. Each event culminates giving rise to a predictable non-overlapping temporal interpretation.

ii. The default temporal relation pattern for a combination of achievement verbs following from their culminative property is also non-overlapping. Also, due to the instantaneous property of achievements, the temporal relation is that of partial order. This default value may be overridden by construction specific interpretations as with purpose constructions where the relationship is overlapping.

iii. The atelic/homogeneous properties of processes and states predict an overlapping relationship as the default irrespective of the aspectual class of V2.

iv. A combination of achievements and accomplishments is not so productive in the language. An achievement event in V1 position must be a verb of perception or a verb that introduces an instrument or
agent. In V2 position, it is the verb expressing finality in Èdó fó 'finish'.

To consolidate the above conclusions, I discuss each construction type separately below.

In four of the 14 construction types below, V2 is reanalyzed as an adverb (Agheyisi 1986, 1990). They are the durational, locational, manner and directional constructions.

Importantly, adverbs cannot serve as base for adjectival derivations, while verbs do. They also cannot occur as the main verb in a simple sentence. They may have closely related verbal forms but with different tonal patterns with related interpretations. The reanalyzed verbs in the constructions discussed below have these characteristics. I now discuss each construction type.

**DURATIONAL CONSTRUCTIONS**

In this construction type the event depicted by V1 may either be delimited by V2 indicating the nature and type of ending of V1 or V2 may specify the duration of V1.\(^{50}\) V2 is predicated of the event expressed by V1 as in (13). Let us examine the following sentences:

(13) a. Òzó vié-rè kpéè.

¿Ózó vié-rè kpéè.

\(Ozó \ cry.\ PST-rV \ long\)

PN V ADV

'Ozo cried for a long time.'

b. Òzó vié-rè lá/*vbé ífuánrò igré.

¿Ózó vié-rè lá/*vbé ífuánrò igré.

\(Ozó \ cry.\ PST-rV \ for/*in \ minute \ ten\)

PN V PREP/PREP CN NUM

'Ozo cried for ten minutes/*in ten minutes.'

\(^{50}\) In Yoruba this construction type is an SVC. Bamgbose (1986:33) defines durational SVCs as “one in which the action or state of the first verb continues until the action or state of the second verb is attained” (cf.Kari 2003:282-283).
c. *Ôzó kpeê lá/vbé ifuánrò ighé.  

\[
\begin{array}{cccc}
\text{PN} & \text{V} & \text{PREP/PREP} & \text{CN} & \text{NUM} \\
\hline
\text{Ozo} & \text{long.PST.H} & \text{for/in} & \text{minutes} & \text{ten} \\
\end{array}
\]

'Ozo long for/in ten minutes.'

d. *Ôzó viê-rê kpeê lá/vbé ifuánrò ighé.  

\[
\begin{array}{cccc}
\text{PN} & \text{V} & \text{ADV} & \text{PREP/PREP} & \text{CN} & \text{NUM} \\
\hline
\text{Ozo} & \text{cry.PST-rV} & \text{long} & \text{for/in} & \text{minutes} & \text{ten} \\
\end{array}
\]

'Ozo cried long for/in ten minutes.'

(14) a. Ôzó lóó Òrí fóó.  

\[
\begin{array}{cccc}
\text{PN} & \text{V} & \text{CN} & \text{ADV} \\
\hline
\text{Ozo} & \text{use.PST.H} & \text{cream} & \text{finish} \\
\end{array}
\]

'Ozo finished the cream.'

b. Ôzó lóó Òrí fóó vbé ágógó ighé.  

\[
\begin{array}{cccc}
\text{PN} & \text{V} & \text{CN} & \text{ADV} & \text{PREP} & \text{CN} & \text{NUM} \\
\hline
\text{Ozo} & \text{use.PST.H} & \text{cream} & \text{finish} & \text{in} & \text{clock} & \text{ten} \\
\end{array}
\]

'Ozo finished the cream at ten o'clock,  
or  
'Ozo finished using the cream at ten o'clock.'

c. Ôzó lóó Òrí kpeê.  

\[
\begin{array}{cccc}
\text{PN} & \text{V} & \text{CN} & \text{ADV} \\
\hline
\text{Ozo} & \text{use.PST.H} & \text{cream} & \text{long} \\
\end{array}
\]

'Ozo used the cream for a long time.'
(13a) has the interpretation that there is a crying event vié (a verb) and kpéé (a verb reanalyzed as an adverb, see further discussion below) is predicated of the crying event and provides a time frame for it. (13b) shows that the crying event alone is non-culminative. (13c) describes a state as opposed to entry into a state and so the two adverbial tests are not licensed. More importantly, kpéé patterns similarly with the adjectival class of open-scale adjectives in English (Wechsler 2003). The maximal values of such adjectives are impossible to identify. Examples from English are long, wide, short and cool. Despite the atelic nature of the crying event, we find that the presence of the time adverbial in (13a) renders further modification by the two adverbial expressions in (13d) ungrammatical. This indicates then, that the adverb kpéé imposes its aspectual (static) profile on the entire event rather than just indicating a measure of time. This is made immediately apparent when we examine the combination of another verb lòó “use” with another durational adverb fòó “finish” (an achievement) that belongs to Wechsler’s close gradable adjectives class ((14a) & (14b)) and kpéé ((14c) & (14d)). Importantly the point adverbial test is licensed in the former, while it is not for the latter. Lò depending on its co-compositional property may be interpreted as a process or an achievement. When used as a process, it is not in co-composition with the achievement verb fòó and it licenses the durative adverbial (15). Modification by fòó induces an achievement interpretation in (14b) above and the point adverbial is licensed:

---

51 Remember that adjectives are often expressed as verbs in Èdò.
In (15) the durative adverbial modifies the using event and the point adverbial is not licensed while in (14b), the point adverbial is licensed and may modify the using event alone or the VP. This is a natural fall-out from the nature of the verb fò and its reanalyzed adverbial counterpart fòó. Wechsler (2003) classifies adjectives having completive meaning as belonging to the class of closed gradable or scalar adjectives. Closed scalar adjectives are further divided into two classes: those with maximal end points like dry, clean and flat and those with minimal endpoints such as wet or dry.

When in construction with other verbs, these adjectives not only describe the result state of the verbs they occur, with, but also lend their aspectual structures to the entire event. This is precisely what obtains in (14b), we find that only modification by the point adverbial is licensed. This implies then that in durative constructions it is V2 that determines the aspectual structure of the situation.

Before I discuss further the other types of multi-verb constructions, I discuss immediately the lexical reanalysis of V2 above.52

It is a well known phenomenon not only for Èdó multi-verb constructions, that some verbs undergo lexical re-analysis, that is, they lose their verbal status.

52 I continue to use the term V2 for the re-analyzed verb in these constructions. The POS tags in the data glosses indicate their re-analyzed status.
As Lord (1993:215) observes:

“… “Adverb” is sometimes a label for a transitory phase from verb to auxiliary. Many West African languages show evidence of this development occurring or having occurred…”

The following example from Twi below reflects this view (1993: 218).

(17) **O-da kye.**

<table>
<thead>
<tr>
<th>3.SG sleep</th>
<th>long</th>
</tr>
</thead>
</table>

PRON-V V

‘He sleeps long.’

Here, although *kye* has the formal status of a verb, it semantically modifies V1 and therefore can be viewed as an adverb.

Agheyisi (1986a) shows that some verbs in multi verb constructions become prepositional case markers and adverbs synchronically in Èdó. As adverbial modifiers, they then cannot take adverbial modifiers themselves, but when they occur as main verbs, they can.

(18) and (19) support Agheyisi’s claim. V2 in durational constructions cannot occur with manner adverbials:

(18) **Òzó vié-rè kpéè ësësè.** (durational)

<table>
<thead>
<tr>
<th>Òzó</th>
<th>vié-rè</th>
<th>kpéè</th>
<th>ësësè.</th>
</tr>
</thead>
</table>

*PN V ADV ADV

‘Ozo cried intensely for a long time,'

*Ozo cried for a very long time (whereby intensely modifies be long).'*
(19) *Ózó vié-rè ësësè kpèè.

*Ózó vié-rè ësësè kpèè.

Ozo cry.PST-rV very much long
PN V ADV ADV

In (18), vié ‘cry’ is modified by both kpèè ‘be long’ and ësësè ‘very much’. The ordering between kpèè and ësësè in (19) is not possible. Aspectual modifiers/auxiliary elements must precede other modifiers. This is further buttressed by example (20) below:

(20) a. Ózó vié-rè né ësësè.

Ôzó vié-rè né ësësè.

Ozo cry.PST-rV PERF very much
PN V ADV

'Ozo had finished crying intensively.'

b. *Ózó vié-rè ësësè né.

*Ôzó vié-rè ësësè né.

Ozo cry.PST-rV very much PERF
PN V ADV

Né marks the perfective aspect in Èdó. It must occur immediately after the verb.

A further indication to Kpèè’s loss of verbal status in (18) can be seen from the fact that it can occur with the adverb ësësè when it occurs as an independent verb in a simple sentence.

(21) Ózó kpèè-rè ësësè.

Ôzó kpèè-rè ësësè.

Ozo be long.PST-rV very much
PN V ADV

'Ozo stayed (away) for a very long time.'
The contrast between examples (18), (19) and (21) shows that in durational constructions, V2 has the function of an aspectual adverb. In addition, examples (22) to (23) below show that V2 has undergone lexical re-analysis to become an adverb. The distribution of the verb *fô* ‘finished’\(^{53}\) and its adverb counterpart *fôó* ‘finished’ illustrates this (Agheyisi1990:63-66 also discusses this phenomenon).

(22) a. Ózó vié-rè fôó. (durational)

Ôzó vié-rè fôó.

*Ozo cry.PST-rV finish
PN V ADV

'Ózo has finished crying.'

b. *Ôzó vié-rè fô.* (durational)

*Ôzó vié-rè fô.

*Ozo cry.PST-rV finish
PN V V

'Ózo has finished crying.'

(23) a. Ízè khián fô.

Ízè khián fô.

*Rice inceptive marker finish
CN AUX V

'The rice will soon finish.'

---

\(^{53}\) This contrast is also found between *kpáá* ‘away’ and *kpáó* ‘leave’ (Aigbe 1985) as in

(a) Ózó rhùlé-rè kpáá. (directional)

Ôzó rhùlé-rè kpáá.

*Ozo run.PST-rV away
PN V

'Ozo ran away (away from the speaker).'

(b) I kpáó. (Omorogie 1983)

I kpáó.

*I leave.PST.H
PN

'I left.'
b. *Ízè khián fòó.

*Ízè khián fòó.

Ize inceptive marker finish (adverb)
CN AUX ADV
'The rice will soon finish.'

The verb fò and the adverb fòó occur in mutually exclusive environments. Fòó can only occur as a modifier to a verb ((22a)), It cannot occur as a main verb ((23b)). The reverse goes for fò. It can only occur as a main verb ((23a)) but not as a modifier ((23b)). Indeed the pattern observed with respect to fò and fòó is attested with other categorial types in Èdó. This is also observable in the following locational constructions (I discuss this construction immediately below) in example (24) where kùá an adverb and kuè a preposition occur in mutually exclusive environments (Agheyisi1990:66).

(24) a. Àmè tué-rè kùá.

Àmè tué-rè kùá.

Water pour.PST-rV away (adverb)
CN V ADV
'Water poured away.'

b. Àmè tué-rè kuè ótò.

Àmè tué-rè kuè ótò.

Water pour.PST-rV away ground
CN V PREP CN
'Water poured onto the ground.'

Example (25) below is a directional construction (I discuss this construction below) and also displays this pattern. The final syllable of fìí ‘into’ (preposition) undergoes

---

54 Glides are formed in Edo when [i] and [u] are non-tone bearing and followed by other vowels. Kùá in (24a) is disyllabic while kuè [kwè] in (24b) is monosyllabic consisting of a consonant and a glide as the syllabic onset and a vowel as the core.
vowel reduction when used as a verb *fí* ‘throw, leave behind’ (verb). In (24) and (25) the reanalyzed adverbs modify the event depicted by V1.

(25) a. Òzó fí úgbé.

Òzó  fí  úgbé.

*Ozo threw.*
PST  V  CN

'Ozo threw.'

b. Òzó suá ëwé fìí ézé.

Òzó  suá  ëwé  fìí  ézé.

*Ozo pushed.*
PST.H  V  CN  PREP  CN

'Ozo pushed the goat into the river.'

From examples (18) and (22) to (25) we see that lexical re-analysis is reflected as follows:

(26)

i. No phonetic or morphological change (Example (18)).

ii. Reduplication of final vowel and tonal change (Examples (22) and (25)).

iii. Change in vowel quality of final vowel, reduction in syllabic structure and tonal change (Example (24)).

Durational constructions have been reported in a wide variety of languages (Lord 1993); Benue-Kwa (Twi (Ghana), Yoruba, Degema and Engenni (Nigeria)) and Lhasa a Tibeto-Burman Language.

**Locational Constructions**

Locational function in Èdó is expressed by combinations of verb + dynamic preposition constructions. As mentioned above, V2 is a reanalyzed verb. The re-analyzed V2 is predicated of the event depicted by V1. The following example from (Heigemeijer and Ogie 2008:9) illustrates this.
The preposition \( yè \) 'on' is used when the object of the compound verb is in-situ, and \( yí \) is used when the object is reanalyzed in a non canonical position. As with the cases of reanalysis discussed earlier, the dynamic preposition has been posited to be a verb. According to (Hagemeijer and Ogie 2008:9) “Melzian (1937, 1942) mentions that \( yí \) is a verb, because it is tonally marked for imperfective and perfective and indicates the direction in which an action is performed”. However the prepositional status of \( yè/yí \) is uncontroversial (Agheyisi 1990: 64, Baker and Stewart 2002: 36, Stewart 1998: 169). Agheyisi (1990: 64) further states that \( yè \) is a preposition that expresses location, which takes on the form \( yí \) when it occurs in sentence-final position.

**DIRECTIONAL CONSTRUCTIONS**

In directional construction, V2 performs a deictic/aspectual function and specifies the direction of motion for V1. V2 is predicated of the subject of V1. There are two kinds of directional constructions: the deictic directional and the non-deictic directional. In the discussion on durational constructions, the durative and point adverbial tests were presented for each of the verbs in each sentence.

Non-deictic directional constructions are different from deictic directional constructions in how the events expressed by V1-V2 unfold. For deictic directional constructions they unfold at the same time while for non-deictic constructions, the event depicted by V1 commences before that depicted by V2 with both ending simultaneously. V2 is predicated of the subject of V1. V1 in both is intransitive. V2
for the deictic directional is also intransitive but for the non-deictic it is transitive. I
now discuss the non-deictic directional:
Èdó has only one verb làg “enter” (reanalyzed as an adverb as in the discussion
above) which expresses the end point (of change of location) of the action depicted by
V1.
All other non-deictic directional functions are expressed by prepositions. The
interpretation of the sentences in (29) and (30) is similar to the Tai examples
discussed earlier: entered by Y (where Y stands for the process event V1) but with an
ordered overlap interpretation. Thus Ozo entered the house running in (29) and he got
outside by dancing in (30).

(29) a. Òzó rhùlé-rè làó òwá.  (achievement)
Òzó rhùlé-rè làó òwá.
Ozo run.PST-rV enter house
PN V ADV CN
'Ozo ran into the house.'

b. Òzó làó òwá vbé ágógó ìgbé.  (achievement)
Òzó làó òwá vbé ágógó ìgbé.
Ozo enter.PST.H house in clock ten
PN V CN PREP CN NUM
'Ozo entered the house at ten o'clock.'

c. *Òzó làó òwá lá ífuánró ìgbé.  (achievement)
*Òzó làó òwá lá ífuánró ìgbé.
Ozo enter.PST.H house for minute ten
PN V CN PREP CN NUM
'Ozo entered the house for ten minutes.'
d. Œzó rhùlé-rè làó òwá vbé/*lá ífuánrò igbé. (achievement)

Ozo run.PST-rV enter house in/*for minutes ten
PN V ADV CN PREP/PREP CN NUM
'Ozo ran into the house in ten minutes/*for ten minutes.'

(30) Œzó gbé-rè làó óróré. (achievement)

Ozo dance.PST-rV enter outside (the house)
PN V V CN
'Ozo danced out of the house.'

A pattern begins to emerge: we find that it is yet again the aspectual nature of V2 that determines the aspectual specification of the whole situation.

Sentences like (29) and (30) are different from sentences with locative PP modifiers. In the former, VP delimiting modifiers are not licensed after V1 while they are in the latter:

(31) *Œzó rhùlé-rè égiégíè làó òwá.

*Ozo run.PST-rV quickly enter house
PN V ADV ADV CN
'Ozo ran quickly into the house.'

(32) Œzó lé èvbàré égiégíè vbé òwá.

Ozo cook.PST.H food quickly in house
PN V CN ADV PREP CN
'Ozo cooked the food quickly in the house.'
As discussed in chapter 2, the adverb *quickly* in Èdó has two forms: *égiégié* and *giégié*. The former occurs after the verb and its complement and may delimit a VP boundary while the latter occurs before the verb and its complement. Example (31) indicates the absence of a VP boundary between V1 and V2 in location multi-verb constructions, while in (32) such a boundary is evident between V1 and V2.

Non-deictic directional SVCs are attested in Twi (Lord 1993), Yoruba (Lord 1993, Oyelaran 1982, Awoyale 1988) and Degema (Kari 2003).

In deictic directional constructions, V1 is a process and V2 may be a progressive state or an achievement. The event depicted by V2 unfolds after the event depicted by V1 has begun, the relationship between them being that of overlap. For example in (33) below, *dèé* “towards” locates the running event in relation to the speaker’s location:

(33) a. Ọzó rhùlé dèé.  
   (progressive state)  
   Ọzó rhùlé dèé.  
   *Ozo run.PRS.H coming*  
   PN V ADV  
   ’Ozo is running towards me.’

b. Ọzó rhùlé lá ifuánrò ịgbé.  
   (process)  
   Ọzó rhùlé lá ifuánrò ịgbé.  
   *Ozo run.PST.H in minutes ten*  
   PN V PREP CN NUM  
   ’Ozo ran for ten minutes.’

c. *Ọzó dèé lá/vbé ifuánrò ịgbé.  
   (progressive state)  
   *Ọzó dèé lá/vbé ifuánrò ịgbé.  
   *Ozo coming for/in minute ten*  
   PN V PREP/PREP CN NUM  
   ’Ozo is coming towards me for/in ten minutes.’
When V2 in deictic directional expressions is a progressive state as in (33), it is understood as not imposing any maximal value to the event depicted by V1. While rhùlé licenses the durative adverbial when used in a simple sentence (33b), déé ‘the progressive form of the verb to come rré’ does not license any of the adverbial
modification (33c). The ungrammaticality of (34d) follows from (33c) and shows that the directional construction inherits the aspectual class of V2 with neither the durative nor point adverbial licensed. Moving now to (34b), \textit{rhùlé}, being a process verb, never licenses the point adverbial while \textit{kpàó} being an achievement adverb, licenses it (34c). Example (34d) shows that the construction inherits the aspectual class of V2.

Agheyisi (1986b) classifies V2 in such construction types as having a modifying function. Directional SVCs are found also in Yoruba (Bamgbose 1982, Awobuluyi 1975 etc) and Kinyarwanda (Kinmeyi 1980 (Cf. Lord 1993)).

**MANNER CONSTRUCTIONS**

The construction type referred to as manner constructions depicts the body posture while performing an event. Awoyale (1988) classifies it under modality SVCs, while Oyelaran (1982) classifies it under circumstantial SVC. In this construction type V1 - a temporal position state - depicts the body posture of the agent. Example (35) is understood within the context of Ozo picking up a plate of food and then bending to begin eating at once. The events are simultaneous with the bending event ending with the eating event (37i). A sequential interpretation is also possible here but then, the manner interpretation is lost (35ii). Under this interpretation (a covert co-ordination), the bending situation is independent of the eating situation. Ozo could have been bending and then stood up immediately to eat.

(35) \textit{Ọzó digién-rên rří èvbàrè}. (accomplishment)

\begin{verbatim}
Ọzó digién-rên rří\textsuperscript{55} èvbàrè.  
Ozo stoop.PST-rV eat.PST.H food  
PN ADV V CN

'(i) Ozo bent while eating (Ozo bent and ate).'
'(ii) Ozo bent, and ate.'
\end{verbatim}

\footnotesize{\textsuperscript{55} The verb eat has two forms: \textit{rří} 'eat + transitive' and \textit{rě} 'eat + intransitive'.}
As discussed in chapter 3, temporal position states typically encode stative as well as process information. Unlike most states in Èdó, they license the durative adverbial (recall that they also license the do test):

(36)  Òzó digién-rën lá/*vbé ifuánrò igbé. (temporal position state)

Òzó digién-rën lá/*vbé ifuánrò igbé.
Ozo bend.PST-rV for/*in minute ten
PN ADV PREP/PREP CN NUM
'Ozo bent for ten minutes.'

In (35) V2 depicts an accomplishment situation and it determines the aspectual properties of the whole situation, this is buttressed by (37) below:

(37)  Òzó digién-rën rrí èvbàrè vbé/*lá ifuánrò igbé. (accomplishment)

Òzó digién-rën rrí èvbàrè vbé/*lá ifuánrò igbé.
Ozo bend.PST-rV eat.PST.H food in/*for minute ten
PN ADV V CN PREP/PREP CN NUM
'Ozo bent and ate in ten minutes (Ozo bent while eating).'

In the sequential interpretation, V1 can be modified by a durative adverbial and it modifies V1, alone unlike the manner interpretation where both events fall under the scope of the adverbial as in (38) below. Later on in section 4.2.5.3, I will use adverbial scope to determine the compactness of the events in series:

(38)  Òzó digién-rën lá ifuánrò igbé, rrí èvbàrè nií.

Òzó digién-rën lá ifuánrò igbé, rrí èvbàrè nií.
Ozo bend.PST-rV for minute ten, eat food that
PN ADV PREP CN NUM V CN DET
'Ozo bent for ten minutes, and (he also) ate that food.'

Manner constructions have also undergone lexical reanalysis, but unlike in the durative and durational constructions, it is V1 that has undergone grammaticalization
to become a manner adverb. Let us look at the interaction of preverbal adverbs under manner and durational constructions.

I start by providing general information on Èdó adverbs. Adverbs in Èdó are split into two classes: preverbal and postverbal. Preverbal adverbs are inflected for tense and if they occur as the first “verbal” element after the subject NP they host the –rV suffix. Postverbal adverbs are never inflected for tense. Below are examples. Giégié ‘quickly’ is preverbal while ègiégié ‘quickly’ is post verbal.56

\[(39)\] a. Ôzó gié!gié / ègiégié vié. (past)

Ôzó gié!gié / ègiégié vié.

Ozo quickly.PST.H!H/ *quickly cry.PST.H

PN ADV ADV V

'Ozo quickly cried.'

b. Ôzó giégié/* ègiégié vié. (present)

Ôzó giégié/ ègiégié vié.

Ozo quickly.PRS.H/*quickly cry.PRS.H

PN ADV ADV V

'Ozo is quickly crying.'

\[(40)\] a. Ôzó vié-rè ègiégié / * gié!gié. (past)

Ôzó vié-rè ègiégié / * gié!gié.

Ozo cry.PST-rV quickly/ *quickly.PST.H!H

PN V ADV ADV

'Ozo cried quickly.'

---

56 Only a few adverbs can be used in both pre and post verbal positions and not all of them exhibit change in phonological form. Gélél (41b) does not license the –rV suffix and exhibits no changes in phonological form though it may be used in both pre and post verbal positions. Fèkó also does not change in phonological form (41b) but licenses the –rV suffix in pre verbal positions (41a).
b. Ôzó vié ègiégié/*giégié. (present)

Ôzó vié ègiégié/*giégié.
Ozo cry.PRS.H quickly/*quickly
PN V ADV ADV

'Ozo is crying quickly.'

Also, when sequences of pre-verbal adverbs modify a verb, they may occur in any order.

(41) a. Ôzó fëkó-rò gié!gié gé!lé gbé.

Ôzó fëkó-rò gié!gié gé!lé gbé.
Ozo gently.PST-rV quickly.PST.H!H truly.PST.H!H dance.PST.H
PN ADV ADV ADV V

'Ozo gently quickly truly danced.'

b. Ôzó gé!lé gié!gié fë!kó gbé.

Ôzó gé!lé gié!gié fë!kó gbé.
Ozo truly.PST.H!H quickly.PST.H!H gently.PST.H!H dance.PST.H
PN ADV ADV ADV V

'Ozo truly quickly gently danced.'

However, it is not possible for them to occur post verbally

(42) *Ôzó gbé-rè fë!kó gié!gié.

*Ôzó gbé-rè fë!kó gié!gié.
Ozo dance.PST-rV gently.PST.H!H quickly.PST.H!H
PN V ADV ADV

'Ozo danced gently quickly.'

We find that the reanalyzed verb in manner constructions exhibit the above pattern (V1 is underlined).
We have seen in (41) that sequences of pre-verbal adverbs may occur in any order when they modify verbs. This is reflected also in the ordering between *digién* and the preverbal adverbs in (43) and (44). Particularly in (44), we find that preverbal adverbs occur after *digién* contrary to what we find in (42) where the preverbal adverbs cannot occur after the verb. The contrast between examples (42) and (44 & 45) is explained under the hypothesis that *digién* is functioning as an adverb occurring in an adjunction relationship to the verb with the other preverbal adverbs *giégié* and *fékó*. Another

57 There is no adequate English translation for these sentences when V1 is a modifier. The adverbs *quickly* and *gently* together with *stooping* all modify the verb *cook.*
interpretation to the data in (44) & (45) is that VP boundary exists between V1 (VP1) and V2 (VP2). Under this covert co-ordination interpretation, fèkó and giégié are interpreted as pre-verbal modifiers modifying V2 in VP2 (44) and in (45) fèkó modifies VP1 and giégié VP2. While this interpretation is possible, viz a situation where Ozo bent (and maybe stood up after some time) and then applied himself to the cooking task, the default interpretation is the manner interpretation whereby dígién is a re-analyzed verb and stands in a modifying relationship to the verb together with the other pre-verbal adverbials. This is obvious when a post-verbal adverbial bánbáná “just now” is inserted after V1 in (45): the adverbial permutation as shown in (43) to (45) is no longer licensed and only a covert co-ordination reading is available ((46)). Observe also that a sequential marker dó is licensed under this interpretation:

(46) a. Òzó fèkó-rò dí!giéén bánbáná gié!gié dó lé èvbàré.

Ozo gently.PST-rV stoop.PST.H!H just now quickly.PST.H!H SM cook food
PN ADV ADV ADV ADV V CN
'Ozo gently bent just now, and then quickly cooked the food.'

b. * Òzó bánbáná fèkó-rò gié!gié dí!giéén dó lé èvbàré.

* Òzó just now gently.PST-rV quickly.PST.H!H
PN ADV ADV ADV

dí!giéén dó lé èvbàré.
'bent.PST.H!H SM cook.PST.H food
ADV V CN
c. * Òzó  fèkó-rò gié!gié  bánbánná di!gién dó lé èvbàré.

\[
\begin{align*}
\text{PN} & \quad \text{ADV} & \quad \text{ADV} \\
\text{Ozo} & \quad \text{gently.PST-rV} & \quad \text{quickly.PST.H!H} & \quad \text{just now} \\
\text{PN} & \quad \text{Adv} & \quad \text{ADV} \\
\text{d！gién} & \quad \text{dó} & \quad \text{lé} & \quad \text{èvbàré}.
\end{align*}
\]

bent.PST.H!H  SM  cook.PST.H  food
ADV  V  CN

Furthermore in (47) below, rhùlé ‘run’ when used as a verb can occur with giégié. However when rhú!lé ‘quickly’ is used as an adverb in a manner construction, it cannot occur with giégié ‘quickly’ due to its adverbial function. A further confirmation of its adverbial status is that a pause occurs between rhùlé and lé èvbàré when the sentence has a co-ordinate meaning while no pause exists when it has a modifying clause reading.

(47) a. Òzó rhùlé-rè / rhú!lé lé èvbàré.

\[
\begin{align*}
\text{PN} & \quad V / \quad \text{ADV} & \quad V & \quad \text{CN} \\
\text{Ozo} & \quad \text{run.PST-rV/quickly.PST.H!H} & \quad \text{cook .PST.H} & \quad \text{food} \\
\text{'Ozo ran, and cooked the food/} & \quad \text{or} & \quad \text{Ozo quickly cooked the food.'}
\end{align*}
\]
b. Òzó giè!giè rhú!lé lé èvbàré.

Òzó giè!giè rhú!lé lé èvbàré.

'Ozo quickly ran and (afterwards) cooked the food.'

Manner SVCs may be found in Yoruba and Kinyarwanda (Kimenyi 1980).

**COMPARATIVE CONSTRUCTIONS**

The notion of comparison in Èdó is expressed by the verb sèè “surpass”. Both V1 and V2 depict state events. V1 is typically an open scale state verb with V2 mapping out a point along the scale relative to the two entities predicated of the complex event. The adverbial tests are not relevant here. Drawing from the observed pattern so far, I classify V2 as the aspectual head.

(48) Òzó mòsè sèè Àzàrí

Òzó mòsè sèè Àzàrí.

'Ozo is more beautiful than Azari.'

Comparative SVCs occur also in Haitan (Dechaine 1987), Sranan (Sebba 1987) and Yoruba (Oyelaran 1982, Awoyale 1988). The relationship between events in comparative constructions cannot be said to be temporal in nature and so fall outside the scope of this thesis.58

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58 Similarly, in Santome, comparative constructions are not true SVCs. V2 fail standard verbal tests such as predicate cleft and licensing of aspect marking (Hagemeijer and Ogie 2008).
**PURPOSE CONSTRUCTIONS**

Purpose clauses describe projects rather than an actual action (Sebba 1987). However, unlike in languages like Nupe where the event depicted in V2 is in the irrealis mood, in Èdó, the event is in the realis mood (Baker and Stewart 2002:18). Below are examples. First an example from Nupe:

(49) **Musa wan nangi ya tsigbe.** (Nupe)

Musa  wan  nangi  ya  tsigbe.

*Musa caught a goat to give it medicine.*

(50) **Òzó mién àlimóí kpá!án.** (Èdó)

Òzó  mién  àlimóí  kpá!án.

*Ozo saw an orange to pluck.*

According to them, V2 in purpose constructions in Nupe is not always asserted while in Èdó, it is. Example (49) does not entail that Musa gave the goat medicine but (50) entails that Ozo plucked an orange. In (50), the successful completion of the seeing event implies the successful completion of the plucking event. While the English sentence *He sees an orange to pluck* does not imply that *he plucked the orange*, (50) implies that *Ozo plucked the orange*. In that sense Èdó purpose constructions can be described as having an ordered overlap event structure, the complex event being successfully completed only after the seeing event is achieved. I therefore classify the relationship between the two events as that of an ordered overlap.

Turning now to the aspectual classification, V1 depicts an achievement event and V2 must be a transition: accomplishment or achievement. The resulting construction also depicts a transition. This is predictable when two transition events come into co-composition. However, here we have a different situation from what we have
observed so far. It seems that V1 determines the aspectual class of the situation as a whole. Consider the following sentences:

(51) a. Òzó mién àlimoi vbé ágógó igbé. (achievement)
    Òzó mién àlimoi vbé ágógó igbé.
    Ozo saw.PST.H orange in clock ten
    PN V CN PREP CN NUM
    'Ozo saw an orange at ten o'clock.'

b. *Òzó mién àlimoi lá ifuánrò igbé. (achievement)
    *Òzó mién àlimoi lá ifuánrò igbé.
    Ozo saw.PST.H orange for minutes ten
    PN V CN PREP CN NUM
    'Ozo saw an orange for ten minutes.'

c. Òzó kpàán àlimoi vbé ágógó igbé. (achievement)
    Òzó kpàán àlimoi vbé ágógó igbé.
    Ozo pluck.PST.H orange in clock ten
    PN V CN PREP CN NUM
    'Ozo plucked the orange at ten o'clock.'

d. *Òzó kpàán àlimoi lá ifuánrò igbé. (achievement)
    *Òzó kpàán àlimoi lá ifuánrò igbé.
    Ozo pluck.PST.H orange for minutes ten
    PN V CN PREP CN NUM
    'Ozo plucked the orange for ten minutes.'

e. Òzó mién àlimoi kpá!án vbé ágógó igbé. (achievement)
    Òzó mién àlimoi kpá!án vbé ágógó igbé.
    Ozo see.PST.H orange pluck in clock ten
    PN V CN V PREP CN NUM
    'Ozo saw an orange to pluck at ten o'clock.'
(52)  Òzó mién èvbàré lé vbé ágógó ìgbé.  
\[ Òzó mién èvbàré lé vbé ágógó ìgbé. \]
\[ Ozo see.PST.H food cook in clock ten \]
\[ PN V CN V PREP CN NUM \]

'Ozo saw food to cook at ten o'clock.'

The whole situation is interpreted as a punctual event: an achievement. Purpose constructions have been discussed in the literature by Sebba (1987) in Sranan and Ekundayo and Akinnaso (1987) for Yoruba, as well as Baker and Stewart (2002) for Èdó.

**DESIDERATIVE CONSTRUCTIONS**

Desiderative constructions are those in which the event depicted by V2 (an accomplishment) is a desired outcome of the eventuality depicted by V1 (a state expressing a proposition). Oyelaran (1982) classifies this construction type as connative.

(53)  Òzó miànmián-rèn kie ðkhú.
\[ Òzó miànmián-rèn kie ðkhú. \]
\[ Ozo forget.PST-rV open door \]
\[ PN V V CN \]

'Ozo forgot to open the door.'

As with comparative constructions, a discussion of this construction is beyond the scope of this thesis. The event depicted by V2 cannot be said to have taken place in time.
In comitative constructions V1 indicates group participation in an event. Èdó has three verbs, which lexically encode this function: gbá, kòkó and kùgbé. The very meaning of the situations occurring in this construction entails a temporal relation of overlap.

(54) Ìràn kòkó-rò dé ímọtò.

Îràn kòkó-rò dé ímọtò.

3.PL gather.PST-rV buy car
PRON V V CN
‘They bought the car together (joint ownership)’

(55) Ìràn gbá dé.

Îràn gbá dé.

3.PL be.together.PST.H fall
PRON V V
‘They fell together.’

(56) Ìràn kùgbé-rè rrí ízè.

Îràn kùgbé-rè rrí ízè.

3.PL gather together.PST-rV eat rice
PRON V V CN
‘They eat the rice together.’

The aspectual class of V2 determines the aspectual class of the whole situation:
(57) a. *Íràn kòkó-rò dé ímótó vbé ágógó èvá dósé ágógó èné. (achievement)

*Íràn kòkó-rò dé ímótó vbé ágógó èvá
3.PL gather.PST-rV buy car from clock two
PRON V V CN PREP CN NUM
dó sé ágógó èné.
SECM reach clock four
V CN NUM

'They gathered together to buy the car from two to four o’clock.'

b. Íràn dé ímótó vbé ágógó èvá. (achievement)

Íràn dé ímótó vbé ágógó èvá.
3.PL buy.PST.H car in clock two
PRON V CN PREP CN NUM

'They bought a car at two o’clock.'

c. Íràn kòkó ógó lá ífuánró ɪgbé. (process)

Íràn kòkó ógó lá ífuánró ɪgbé.
3.PL gather.PST.H bottle in minutes ten
PRON V CN PREP CN NUM

'They gathered bottles for ten minutes.'

(58) Íràn kòkó-rò lé èvbáré vbé ágógó èvá dó sé ágógó èné. (accomplishment)

Íràn kòkó-rò lé èvbáré vbé ágógó èvá
3.PL gather.PST-rV cook food from clock two
PRON V V CN PREP CN NUM
dó sé ágógó èné.
SECM reach clock four
V CN NUM

'They cooked the food together from two to four o’clock.'

The adverbial phrase from two to four o’clock picks out phrases that encode duration. Now, accomplishments are durative while achievements are punctual. The adverbial
phrase thus fails to pick out the achievement event dé in (57a). In (58), the accomplishment event lé èvbäré is durative and the phrase is licensed.

Comitative SVCs have been reported also in Twi (Lord 1993). Oyelaran (1982), Awoyale (1988) and Lord (1993) classify this construction type as SVCs.

**INSTRUMENTAL CONSTRUCTIONS**

In an instrumental construction, V1 indicates the means by which the event depicted by V2 is carried out. There are three kinds of instrumental verbs in Èdó: ýá ‘use’ lòó ‘use’ and rhié ‘take’. While ýá is only used in instrumental constructions, rhié can be used in other construction types that encode transfer of an entity and lòó can be used in construction types encoding just the event of using (as in (14) above). While V1 may encode a process (lòó), or an achievement (rhié, ýé), the only restriction on V2 is that it be a transition.

(59) Òzó yé/ lòó ehò fián irí.

\[
\begin{array}{cccc}
\text{PN} & \text{V/} & \text{V} & \text{CN V CN} \\
\text{Ozo} & \text{use.PST.H/use.PST.H} & \text{knife} & \text{cut} & \text{rope} \\
\end{array}
\]

'Ozo used a knife to cut the rope.'

(60) Òzó rhié ehò fián irí.

\[
\begin{array}{cccc}
\text{PN} & \text{V} & \text{CN V CN} \\
\text{Ozo} & \text{take.PST.H} & \text{knife} & \text{cut} & \text{rope} \\
\end{array}
\]

'Ozo cut the rope with a knife.'

In (59) the event of using is properly included in the event of cutting an indication that the two events bear an overlap relation to one another. The using event begins with the cutting of the rope and ends when the rope is cut. The aspectual properties of V2 together with its complement determine the aspectual class of the whole situation:
(61) a. Òzó lóó ेhó fián néné ìrri vbé/*lá ifuánrò ọkpá. (achievement)
Òzó lóó ेhó fián néné ìrri vbé/*lá ifuánrò ọkpá.
Ozo use.PST.H knife cut the rope in/*for minute one
PN V CN V DET CN PREP/PREP CN NUM
'Ozo used a knife to cut the rope instantly/*for two minutes.'

b. Òzó lóó ेhó fián né èmiówò vbé/*lá ifuánrò ịgbé. (accomplishment)
Òzó lóó ेhó fián né èmiówò vbé/*lá ifuánrò ịgbé.
Ozo use.PST.H knife cut the meat in/*for minute ten
PN V CN V DET CN PREP/PREP CN NUM
'Ozo used a knife to cut the meat in ten minutes/*for ten minutes.'

(62) Òzó lóó ọkpia ịa irùnmwùn lá/*vbé ifuánrò ịgbé. (process)
Òzó lóó ọkpia ịa irùnmwùn lá/*vbé ifuánrò ịgbé.
Ozo use.PST.H cutlass cut grass for/*in minute ten
PN V CN V DET CN PREP/PREP CN NUM
'Ozo used a cutlass to cut grass for ten minutes/*in ten minutes.'

(63) Òzó lóó ọkpia ịa néné irùnmwùn vbé/*lá ifuánrò ịgbé.
Òzó lóó ọkpia ịa néné irùnmwùn vbé/*lá ifuánrò ịgbé.
Ozo use.PST.H cutlass cut the grass in/*for minute ten
PN V CN V DET CN PREP/PREP CN NUM
'Ozo used a cutlass to cut the grass in ten minutes/*for ten minutes.'

The VP fián irri in (61a) represents a punctual culminative event while the VP in (61b) fián né èmiówò and (63) già néné Irùnmwùn are accomplishments and consist of iterated cutting events and represent a durative culminative event therefore, the latter two can occur in co-composition with the durative adverbial, while the former (61a) cannot. In (62) the VP già irùnmwùn represent a process with the noun grass having a bare NP interpretation, so the durative adverbial is also licensed. I now apply

59 Iterated cutting event where the object is cut into several pieces is represented by the verb già ́cut'.

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the vbé ágógó èvá dó sè ágógó èné ‘from 2 pm- 4pm’ test to further illustrate the above claim:

(64) a. *Òzó lòó èhó fián néné irrí vbé ágógó èvá dó sè ágógó èné.

*Òzó lòó èhó fián néné irrí vbé ágógó èvá

Ozo use.PST.H knife cut the rope in clock two
PN V CN V DET CN PREP CN NUM
dó sè ágógó èné.

SECM reach clock four
V CN NUM

'Ozo used a knife to cut the rope from 2pm to 4pm.'

b. Òzó lòó èhó fián néné èmiówó vbé ágógó èvá dó sè ágógó èné.

Òzó lòó èhó fián néné èmiówó vbé ágógó èvá

Ozo use.PST.H knife cut the meat in clock two
PN V CN V DET CN PREP CN NUM
dó sè ágógó èné.

SECM reach clock four
V CN NUM

'Ozo used a knife to cut the meat (a large chunk) from 2pm to 4pm.'

(65) Òzó lòó ókpià giá irünmwùn vbé ágógó èvá dó sè ágógó èné.

Òzó lòó ókpià giá irünmwùn vbé ágógó èvá

Ozo use.PST.H cutlass cut grass in clock two
PN V CN V CN PREP CN NUM
dó sè ágógó èné.

SECM reach clock four
V CN NUM

'Ozo used a cutlass to cut grass from 2pm to 4pm.'
In (64a), the cutting event is punctual and the frame adverbial test is not licensed. In (64b) the cutting event is iterative and the adverbial test is licensed. In (65) and (66) the cutting event is iterative in nature thus licensing the adverbial.

Instrument constructions with *take* verbs have also been reported in Chinese (Cf. Lord 1993) Sranan (Sebba 1987 etc), Yoruba (George 1985 etc), Twi, Nupe, Ewe, Fon, Dagbani (Lord 1993), Kinyarwanda (Kimenyi 1980).

**CAUSATIVE CONSTRUCTIONS**

In a causative construction, V1 is a causative verb. The two causative verbs in Èdó are *gí* ‘let’, which occurs without an overt complementizer introducing V2, and *zéé* ‘cause’, which occurs with an overt complementizer introducing V2. None of the verbs occur as heads in simple constructions following the definition in section 4.1. I therefore do not discuss this construction type further in this thesis. Here, the two events may or may not overlap. In line with this lack of restriction on the temporal relation between the events in series, the dependent phrase may be an event or a stage level state eventuality.
(67) Òzó gi íràn múohú.
Òzó gi iràn múohú.
Ozo let.PST.H 3.PL angry
PN V PRON V
'Ozo made them angry.'

The context determines the interpretation of the events depicted by V2 in causative constructions as either overlapping or not overlapping. In (67), Ozo could be making funny noises and those standing around him get angry as the noise continues. The anger may start immediately at the onset of the noise making and end as soon as the noise stops (simultaneous) or it may start at some point during the noise and may or may not have the same end point as the noise making event (ordered overlap). Yet another scenario is that the angry feeling sets in at the remembrance of the noise making event at some time point after Ozo stopped the noise making.

Causative SVCs are also described in Yoruba (Oyelaran 1982 and Lord 1974 and Kinyarwanda (Kinmeyi 1980).

RESULTATIVE CONSTRUCTIONS

Resultative constructions like causative constructions are those in which V1 may cause the realization of the event depicted by V2. However, there is little or no time lapse between the performances of the two events.

(68) a. Òzó suá Àzàrí dé gbé òtò.
Òzó suá Àzàrí dé gbé òtò.
Ozo push.PST.H Azari fall.PST.H against ground
PN V PN V PREP CN
'Ozo pushed Azari down.'

60 Gí ‘let’ subcategorizes for either a bare infinitival phrase as in (67) or, an optional ghá ‘to (infinitive)’ may introduce the VP as in (a) below:

(a) Òzó gi íràn ghá lé évbârè
Òzó gi iràn ghá lé évbârè
Ozo let.PST.H 3.PL to cook food
PN V PRON AUX V CN
'Ozo allowed them to cook the food.'
b. *Ọ kàkàbó dé.

*Ọ kákábó dé.

'It exceedingly fell.'

(69) a. Òzó hò úkpòn huán. (degree state)

Òzó hò úkpòn huán.

'Ozo washed the clothes clean.'

b. Ò kákábó huán.

It exceedingly clean.

'It was extremely clean.'

Example (68a) differs from (69a) in the following ways: In (69a), the attainment of the state depicted by V2 is usually gradual and measurable while in (68a), it is usually punctual and non-measurable. As discussed in chapter 3, verbs like huán 'clean' belong to the class of degree predicates that refer to situations of gradual change. Degree predicates can indicate a certain increase or decrease of a property, or an absolute presence or absence of that property. The situation expressed refers to gradual change (Smith 1991:46).

The above observation is related to the next. The two events in (68a) are in a sequential relation: the event of pushing must be over before the event of falling begins. In (69a) an ordered overlap relation relates the event in series: the washing event and the clean event both unfold at the same time but not at the same rate and ends at the same time.
Also, (68a) differs from (69a) in the nature of V2. In the former V2 may be a state or achievement while in the later V2 must be a state (a degree state).

In line with our observation on the determination of the aspectual class of a situation so far, we find here also that the aspectual class of V2 determines the aspectual class of the complex event:

(70) a. *Òzó suá Àzàrí dé gbé òtò vbé ágógó èvá dó sé ágógó èné.

*Òzó suá Àzàrí dé gbé òtò vbé ágógó èvá
dó sé ágógó èné.

Ozo push.PST.H Azari fall.PST.H against ground from clock two
PN V PN V PREP CN PREP CN NUM

'Soo pushed Azari down from 2pm to 4pm.'

b. Òzó suá Àzàrí dé gbé òtò vbé ágógó èvá /*ífuánrò èvá.

Òzó suá Àzàrí dé gbé òtò (achievement)

Ozo push.PST.H Azari fall.PST.H against ground
PN V PN V PREP CN

vbé ágógó èvá /*ífuánrò èvá.
in clock two /minute two
PREP CN CN/CN NUM

'Ozo pushed Azari down at 2pm.'

Not

'*Ozo pushed Azari down in two minutes.'

(71) a. *Òzó hò úkpòn huán vbé ágógó èvá. (degree state)

*Òzó hò úkpòn huán vbé ágógó èvá.

Ozo wash.PST.H cloth clean.PST.H in clock two
PN V CN V PREP CN NUM

'Ozo washed the cloth clean at 2pm.'
b. Òzó hòó úkpòn huán vbé ifuánrò èvá. (degree state)

Òzó hòó úkpòn huán vbé ifuánrò èvá.
Ozo wash.PST.H cloth clean.PST.H in minute two
PN V CN V PREP CN NUM

'Ozo washed the cloths clean in two minutes.'

The pushing and falling events in (70a) and (70b) are not iterative in nature. Examples (70) and (71) highlight the instantaneous property of achievements as opposed to the durative property of processes and degree states.

Resultative constructions have been discussed for Yoruba (Awoyale 1988 etc), Chinese (Li 1993 etc) and Akan (Agyemea 2002). Stewart (1998) has discussed in great detail the SVC status of resultative constructions in Òdó.

NEGATIVE RESULTATIVES CONSTRUCTIONS

In negative resultatives the event depicted by V1 causes a negative state which is contra to the expectation of the agent participant in the event depicted by V2. The subject NP is both agent and patient of the macro event. The temporal relationship between the two events is non-overlapping.

(72) Òzó gá ébò miën òkán.

Òzó gá ébò miën òkán.
Ozo serve.PST.H juju receive.PST.H distress
PN V CN V CN

'Ozo got trouble as his reward for serving gods.'

In example (72), Ozo could have served his gods a month earlier and got into trouble a month later.

While the event depicted by V2 must be an achievement, the event depicted by V1 may be an accomplishment or an achievement. Interestingly, the aspectual value of V1 determines the aspectual value of the whole situation. In (73) the aspectual value of gá ébò 'serve juju', an accomplishment event, licenses the occurrence with the
durative phrase, but in (74) this phrase is not licensed since *guòghó 'break' expresses an achievement event:

(73) Òzó gá ébò mién òkán vbé úkí né ó gbéràá dó sè úkí ná.

'Ozo served juju and received trouble as his reward from last week to this week.'

(74) *Òzó guòghó úwáwà làó èmwén vbé úkí né ó gbéràá dó sè úkí ná.

'Ozo got into trouble as a result of breaking the pot from last week to this week'

In (73) the verb gá encodes an accomplishment and this licenses the durational adverbial test. In (74) the verb guòghó encodes an achievement which is instantaneous in nature thus the durational adverbial test is not licensed.

Negative resultatives are discussed in Ogie (1991).

**CONSEQUENTIAL CONSTRUCTIONS**

Consequential constructions are those in which the verbs in series express a natural sequence of events and they are temporally ordered in a precedence relationship (Stewart 1998), thus the relation between the events in series must be that of a partial
order. An additional stipulation is that the events in series be transitions, that is, achievements and accomplishments.

(75)  Òzó lé ízê ré.

Òzó  lé       ízê     ré.
Ozo  cook.PST.H  rice  eat.PST.H
PN    V      CN    V

'Ozo cooked rice and ate.'

The SVC status of this construction type in Èdó has been discussed extensively by Stewart (1998), Baker and Stewart (1999), Baker and Stewart (2002) etc.

COVERT CO-ORDINATION CONSTRUCTIONS

In Covert co-ordination constructions two separate and distinct events are co-ordinated without any overt marker of co-ordination between the verbs in series. However, an intonational pause occurs between the two verbs. There are two types in Èdó.

(76)

i. Those in which the verbs in series may express a natural sequence of events and may be temporally ordered in a precedence relationship. However, the time span between the events in series need not be interwoven. In addition each verb must have its own object. The object of V2 must be a pronominal and must be coreferential with the object of V1 (77).

ii. Those that can express any sequence of events that may or may not be naturally related (78) and (79). Both V1 and V2 must have different objects (if transitive (78)).
While the events in series in (76i) must be accomplishments, the only co-occurrence restriction on the event in series in (76ii) is that they be not states. A further difference between the two types is that in the former, the event depicted by V1 must occur before the event depicted by V2 while in the latter, the order between the two events is irrelevant. From this, one can posit that the events in series do not form a complex event. I discuss this further in the following chapters.

In section 4.2 below, I discuss the verbs in series with respect to their syntactic characteristics. The aim here is to distinguish the different structural types of multi verb constructions and their argument sharing patterns. I return to discussions on aspectual properties and co-compositional rules in chapter 6 and 7.
4.2. Multi-verb constructions: syntactic characterization

This section addresses the general issue of how multi-verb constructions pattern with respect to inflection, adverbial markers and argument sharing. With respect to argument sharing, the resultative, consequential and purpose multi-verb constructions discussed in 4.1 above are classified as “true SVCs” based on their object sharing properties, and the covert co-ordination as not an SVC by Baker and Stewart (1999, 2002). Stewart (1998) discusses in addition two kinds of multi-verb construction which are not SVCs: the modal aspectual construction and the instrumental construction, which correspond to my desiderative and instrumental constructions respectively.

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.

4.2.1. Multi-verb construction: identification

In 4.1, I have discussed 14 VP construction types and established 11 of them as subtypes of multi-verb constructions. All of them have no overt marker of co-ordination or subordination and share only one surface subject. With respect to these 11 constructions, all verbs that occur in serialization have syntactic independence. Based on language specific tests, 4 constructions are further shown to have a re-analyzed verb in the series, thus there are 7 multi-verb constructions in Èdó. The following tests are applied in the identification of the properties of each type of multi-verb construction:

(80.1) Extraction.
(80.2) Scope of tense, aspect and negation.
(80.3) Distribution of the floating quantifier tòbórè “by pronoun self”.
(80.4) Adverbial modification.
(80.5) Argument sharing patterns.

Based on their patterning with respect to the properties above, I classify the 11 constructions into four construction types. The V+modifier constructions are not
multi-verb constructions while the $V+$\textit{infinitival complements}, $V(P)+V(P)$ and the $V+$\textit{mood} constructions are multi-verb constructions. I discuss this immediately below and in this chapter.

(81)

i. \textit{$V+$ modifier constructions}: durational, directional, locational and manner constructions.

ii. \textit{$V(P)+V(P)$ constructions}: resultatives, negative resultatives, consequential and covert co-ordination constructions.

iii. \textit{$V+$ mood constructions}: purpose constructions.

iv. \textit{$V+$ INF complement constructions}: comitative and instrumental constructions.

I give representative examples of each type in (82) to (85) below with the relevant distinguishing element underlined:

\textbf{$V+$ modifier constructions}

(82) Òzó vié-rè fôô. (durational)

Òzó vié-rè fôô.

\textit{Ozo has finished crying.}

\textbf{$VP+VP$ constructions}

(83) Òzó dé èbé tié. (consequential)

Òzó dé èbé tié.

\textit{Ozo bought a book and read.}
V+mood constructions (purpose)

(84) Òzó mién àkhé guó!ghó.

Òzó mién àkhé guó!ghó.

Ozo see.PST.H pot break.PST.!H
PN V CN V
VP VP

'Ozo destroyed the pot (through a deliberate action of his).'

V+infinitival complement constructions (comitative)

(85) Írán kùgbé-rè (yá) rrí ízè.

Írán kùgbé-rè (yá) rrí ízè.

They join.together.PST-rV INF eat rice
PRON V AUX V CN

'They eat the rice together.'

I state immediately that V+modifier constructions are not multi-verb constructions based on the fact that one of the verbs in the series is re-analyzed as an adverb as discussed above. However, I include the V+modifier constructions in my discussion in this thesis because their patterning with respect to the properties outlined above and discussed in this chapter serve to emphasize the characterization I have made of multi-verb constructions in the thesis.

For the V+infinitival complement constructions, V2 is an infinitival complement of V1. An optional infinitival marker yá marks the infinitive. As will be discussed below, V2 always has a fixed high tone.

The VP+VP constructions consist of two or more verbs that share arguments (if any) and have the same marking for tense.

As discussed earlier for the V+mood construction, mood is marked by a fixed high tone on V2 if monosyllabic and as a high downstepped high tone if disyllabic (as in (84)). The verbs in series in this construction type are transitive.

I discuss immediately below each test and their application to the multi-verb constructions.

4.2.2. Extraction

Extraction of arguments from multi-verb constructions have been applied to distinguish between overt co-ordination, covert-coordination and “true SVCs” in the literature (Baker 1989, Hellan et al 2003 etc), that is, multi-verb constructions that license extraction of their arguments are classified as “true SVCs”, while those that do
not are classified as co-ordination overt or covert. However, Baker and Stewart (1999) working on Èdó data, show that arguments can be extracted out of covert co-ordination, and state that this construction type has no conjunction head. According to them, the term covert coordination may prove to be a misnomer. Thus this test does not distinguish between any of the different kinds of multi-verb constructions in Èdó. I illustrate with the following examples:

V+modifier constructions
(86) Ôzó ̀gré ó vié-rè kpèé.
Ôzó ̀gré ó vié-rè kpèé.
Ozo FOC PLUG61 cry.PST-rV long
PN PRON V ADV
'It is Ozo that cried long.'

V+infinitival complement constructions
(87) Èhó ̀gré Ôzó lóó-rò fián èmiówò.
Èhó ̀gré Ôzó lóó-rò fián èmiówò.
Knife FOC Ozo use.PST-rV cut meat
CN PN V V CN
'It is knife Ozo used to cut the meat.'

VP+VP constructions
(88) Àzàrí ̀gré Ôzó suá dé.
Àzàrí ̀gré Ôzó suá dé.
Azari FOC Ozo Push.PSTH fall.PST.H
PN PN V V
'It is Azari Ozo Pushed down.'

61 A Pronominal plug with 3SG reference occurs at the subject positions of NPs (with either singular or plural reference) realized in noncannonical environments (see Beermann, Hellan and Ogie 2002).
(89) Ìyán ìré Òzó dé lé. (consequential)
Ìyán ìré Òzó dé lé.
Yam FOC Ozo buy.PST.H cook.PST.H
CN PN V V
'It is yam Ozo bought and cooked.'

(90) Ìyán ìré Òzó dé èmiówó lé. (covert co-ordination)
Ìyán ìré Òzó dé èmiówó lé.
Yam FOC Ozo buy.PST.H meat cook.PST.H
CN PN V CN V
'It is yam Ozo bought meat and cooked.'

(91) Ìyán ìré Òzó kó!kó dún!mwún. (covert co-ordination)
Ìyán ìré Òzó kó!kó dún!mwún.
Yam FOC Ozo gather.PST.H!H pound.PST.H!H
CN PN V V
'It is yams Ozo gathered and pounded.'

Overt coordination

(92) * Ìyán ìré Òzó dé èmiówó vbé lé. (overt coordination)
* Ìyán ìré Òzó dé èmiówó vbé lé.
Yam FOC Ozo buy.PST.H meat and cook.PST.H
CN PN V CN CONJ V
'It is yam Ozo bought meat and cooked.'

V+mood constructions

(93) Àlimôì ìré Òzó mién-rén kpá!án. (purpose construction)
Àlimôì ìré Òzó mién-rén kpá!án.
orange FOC Ozo see.PST-rV pluck.PST.!H
CN PN V V
'It is an orange Ozo saw to pluck.'
Examples (86) through (91) show that NP arguments can be extracted out of multi-verb constructions. Example (86) belongs to a class of multi-verb constructions where V2 is reanalyzed as an adverb (with the exception of manner constructions) and serves a modifying function. In (87), V1 subcategorizes for an infinitival complement. Examples (90) and (91) are covert co-ordination constructions and belong to the class of $VP+VP$ constructions, while example (92) is an example of overt co-ordination with an overt conjunct vté 'and' and does not belong to the class of multi-verb constructions. In (88) through (91), V1 must be a transitive verb. In the purpose construction in (93), the V1 is also transitive and V2 has a different value for mood. Interestingly in (91), where the objects of V1 and V2 share referential index, two gaps are construed across the board and extraction is registered as high-downstepped-high relative tone on the disyllabic verbs (Stewart 1998:91).

Extraction of NPs, have implication for tense realization, in particular, the past tense suffix. I discuss tense immediately below.

### 4.2.3. Tense, mood and negation

In multi-verb constructions, the pattern observed in chapter 2 for tense marking and interpretation also applies, that is for transitive verbs, low tones in the present tense and high tones in the past when their objects are realized canonically i.e. non-extracted (but I discuss some exceptions in multi-verb constructions below). For intransitive verbs and transitive verbs with extracted or unrealized objects, the pattern is high tone in the present (for intransitive verbs) and a suffix $-rV$ in the past. Tonal tense marking may spread over the verbs in series as in $VP+VP$ constructions but there is only one instantiation of the past tense $-rV$ suffix and this is licensed on V1 where appropriate.

**V+modifier constructions**

(94) a. Ózó vié-rè kpéę.

<table>
<thead>
<tr>
<th>Ózó</th>
<th>vié-rè</th>
<th>kpéę.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo</td>
<td>cry.PST-rV</td>
<td>long</td>
</tr>
<tr>
<td>PN</td>
<td>V</td>
<td>ADV</td>
</tr>
</tbody>
</table>

'Ozo cried for a long time.'
b. Özó vié kpèë.

Òzó vié kpèë.

Ozo cry.PRS.H long
PN V ADV

'Ozo cries for a long time.'

In (94a) the past tense is marked by the suffixation of the $–rV$ suffix on V1 and in
(94b) present tense is marked by a high tone on V1 as with all intransitive verbs in
Èdó. The tone on the reanalyzed verb is constant.

**V+infinitival complement constructions**

(95) a. Özó lòó êhó fián èmiówò.

Òzó lòó êhó fián èmiówò.

Ozo use.PST.H knife cut meat
PN V CN V CN

'Ozo used a knife to cut the meat.'

b. Özó lòò êhó fián èmiówò.

Òzó lòò êhó fián èmiówò.

Ozo use.PRS.L knife cut meat
PN V CN V CN

'Ozo uses a knife to cut the meat.'

In example (95), V1 is a CVV transitive verb and past tense is marked as a Low-High
tonal pattern as in (95a) while present tense is marked as a Low-Low pattern as in
(95b). V2 has a fixed high tone irrespective of the tense in both examples.

**V(P)+V(P) constructions**

(96) a. Özó suá Àzàrí dé.

Òzó suá Àzàrí dé.

Ozo Push.PST.H Azari fall.PST.H
PN V PN V

'Ozo Pushed Azari down.'
b. Ôzó suà Àzàrí dè. (resultative-present)

Ôzó suà Àzàrí dè.

Ozo Push.PRS.L Azari fall.PRS.L
PN V PN V

'Ozo Pushes Azari down (often).'

(97) a. Ôzó dé iyán lé. (consequential-past)

Ôzó dé iyán lé.

Ozo buy.PST.H yam cook.PST.H
PN V CN V

'Ozo bought yam and cooked.'

b. Ôzó dè iyán lè. (consequential-present)

Ôzó dè iyán lè.

Ozo buy.PRS.L yam cook.PRS.L
PN V CN V

'Ozo buys yam and cooks.'

(98) a. Ôzó dé iyán lé èrè. (covert coordination-past)

Ôzó dé iyán lé èrè.

Ozo buy.PST.H yam cook.PST.H èrè.
PN V CN V 3.SG PRON

'Ozo bought yam and cooked it.'

b. Ôzó dè iyán lè èrè. (covert coordination-present)

Ôzó dè iyán lè èrè.

Ozo buy.PRS.L yam cook.PRS.L èrè.
PN V CN 3.SG PRON

'Ozo buys yam and cooks it.'

In examples (96) to (98) V1 is transitive and past tense is marked as a high tone while present tense is marked as a low tone. Here both V1 and V2 have matching tone patterns. This also applies to the v+mood construction in (99) below.
V+mood constructions

(99) a. Òzó mién àlimòi kpálán. (purpose construction-past)

Òzó mién àlimòi kpálán.
Ozo see.PST.H orange pluck
PN V CN V

'Ozo saw an orange to pluck.'

b. Òzó miè àlimòi kpá!án. (purpose construction-present)

Òzó miè àlimòi kpá!án.
Ozo see.PRS.L orange pluck
PN V CN V

'Ozo sees an orange to pluck.'

For the v+modifier construction, contrary to the default marking expected, V2 does not inflect for tense. This is also the case for the v+infinitival complement construction, where V2 is an infinitival complement to V1 (adverbial distributional patterning is used to buttress the complement status of V2 below) and occurs with an optional infinitival marker as in (100) below:

(100) Òzó lòó ċhó yá fián èmió!wò. (instrumental-past)

Òzó lòó ċhó yá fián èmió!wò.
Ozo use.PST.H knife INF cut meat
PN V CN AUX V CN

'Ozo used a knife to cut the meat.'

In (100), the preceding lexical item before V2 fián 'cut' is the infinitival marker yá and its presence does not affect the tone marking on V2. Observe however, that there is no meaning difference between (95a) without the infinitival marker and (100). I discuss this construction type further in 4.2.5.1 below.

In (99a&b), the tone on V2 is a high-downstepped- high tone and Baker and Stewart (2002:19) classifies this as a marker of mood on V2. I agree with them and in 4.2.4.2. I discuss this further and show that lexical items classified as mood markers (and that do not occur with tensed lexical items) can occur before V2.
From the data in (94) through (100) token identity of finite tense marking in a multi-verb construction is marked by tone identity. For the \( V + \text{infinitival complement} \) constructions, the \( V + \text{mood} \) constructions where there is no identity in tense, aspect and mood values between \( V_1 \) and \( V_2 \), \( V_2 \) has a fixed high tone. This also applies to \( V + \text{modifier} \) constructions where \( V_2 \) is a reanalyzed verb. Manfredi (2005:13) expresses this generalization for serial verbs in the following constraints:

(101)

i. A (quantized) event must be tensemarked.

ii. Nonlocal tensemarking must be overt (morphological head-marking).

iii. A complex event is tensemarked if any of its segments is.

(102)

A sequence of aspectually unrelated events cannot be expressed in a single clause (i.e. as a Stahlkean (Stahlke 1970) serial construction) unless each root is either local to tense or audibly tensedmarked.

Non-local tense marking refers to instances where the verbs in series do not share the same tense domain and local tense marking refers to instances where they do. The constraint in (101) and (102) capture the inflectional pattern in the multi-verb constructions mentioned above for the \( V + \text{infinitival} \) complement (an infinitival marker before \( V_2 \)) and the \( V + \text{mood} \) constructions (a high down stepped high tone on \( V_2 \)). Here \( V_1 \) and \( V_2 \) do not have the same value for tense and mood. Also, as will be discussed below -\( rV \) suffixation may be licensed on \( V_1 \) when \( V_2 \) does not share the same tense domain as \( V_1 \).

With respect to licensing of lexical tense-bearing elements such as the future marker \( ghá \) and negation markers such as the present negative marker \( i \) in Èdó, such items are only licensed before \( V_1 \):
V+modifier constructions

(103) Òzó ghá/i viè * ghá/i kpèè. (future/negative)

Òzó ghá/i viè * ghá/i kpèè.
Ozo FUT/PRS.NEG cry *FUT/PRS.NEG long
PN V ADV

'Ozo will cry for a long time/ Ozo is not crying for a long time.'

V+infinitival complement constructions

(104) Òzó ghá/i lòò èhó* ghá/i fián èmiówò. (future/negative)

Òzó ghá/i lòò èhó * ghá/i fián èmiówò.
Ozo FUT/NEG.PRES use knife *FUT/NEG.PRES cut meat
PN V CN V CN

'Ozo will use a knife to cut the meat/ Ozo is not using a knife to cut the meat.'

V(P)+V(P) constructions

(Future/negative)

(105) Òzó ghá/i suà Àzàrì * ghá/i dè. (resultatives)

Òzó ghá/i suà Àzàrì * ghá/i dè.
Ozo FUT/ Push Azari *FUT/PRS.NEG fall
PN V PN V

'Ozo will push Azari down/ Ozo is not pushing Azari down.'

(106) Òzó ghá/i dè iyán * ghá/i lè. (consequential)

Òzó ghá/i dè iyán * ghá/i lè.
Ozo FUT/NEG.PRES buy yam *FUT/PRS.NEG cook
PN V CN V

'Ozo will buy yam and cook Ozo is not buying yams and cooking.'
Some Volta-Congo languages such as Ewe distinguish between types of serialization through the realization of the future marker before each verb in series. Collins (1997) for example, uses the distribution of the future marker to distinguish SVCs from covert co-ordination in Ewe. Sequences where the future marker can occur before both verbs are analyzed as sequences of I’s or IP’s (I discuss this further in chapter 5). Sequences where they occur only before V1 are analyzed as true SVCs. In comparison, the Èdó data in (103) through (108) show that there is only one finite tense realization in Èdó multi-verb constructions.

4.2.4 Multi-verb constructions and the \(-rV\) suffix

In section 4.2.2 above, I discussed data ((86) – (93)) where the \(-rV\) suffix is realized on V1 in some constructions but not in others. In particular following the discussion of the suffix in chapter 2, it is expected that extracted arguments in examples (88)-(90) repeated below as (109) - (111) would trigger affixation on the subcategorizing verb, but this is not the case:
I examine immediately below the licensing of the suffix in multi-verb constructions. In section 4.2.4.1 through 4.2.4.4, I discuss the distribution and licensing of the suffix in $V+$modifier, $V+$mood, $V+$ infinitival complement and $V \ (P) + V \ (P)$ constructions respectively. In 4.2.4.5, I examine briefly the distribution of the suffix in light verb constructions. I show that the category of the verbs in series, their interpretation and inflection determine the distribution of the suffix (where it is licensed). In multi-verb constructions the suffix attaches to $V_1$, and in light verb constructions, it attaches to $V_2$. This indicates that in light verb constructions, the verbs in series form a complex while they do not in multi-verb constructions (I discuss light verb constructions in 4.2.4.5).

I begin the discussion with a summary of the relevant distributional pattern of the past tense and $-rV$ distribution as discussed in chapter 2 in table 16 below.
The essential criteria for $-rV$ suffixation discussed in chapter 2 are as follows:

\[(112)\]

i. The value for tense must be past.

ii. The tone on the final syllable of the verb stem is a high tone.

iii. The COMPS list of the verb must be empty.

Manfredi (2005:16) explains $-rV$ suffixation as epenthetic and the absence of it in past-transitive verb constructions as due to a prosodic constraint stated as (29) in chapter 2 and restated below as (113):

\[(113)\]

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 ($\tilde{E}d\tilde{o}$): trochaic/right-branching i.e. $sw$ or [HL].

The constraint in (113) makes the assumption that tone-marking is dependent on inflection and syllabic structure as well as syntactic constituent structure. Manfredi (2005:17) states further that $\tilde{E}d\tilde{o} - re$ 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.

Crucially, (113) above captures a generalization that V2-Vn must be a sister and in some kind of complementation or modification relationship with V1 and must be realized as a branching constituent of it. This is demonstrated in the following example from Manfredi (2005:18):

<table>
<thead>
<tr>
<th>SYLLABIC STRUCTURE</th>
<th>INTRANS OR EXTRACTED DIRECT-OBJECT OR IMPLICIT OBJECT</th>
<th>TRANS (OBJECT PRESENT IN CANONICAL OBJECT POSITION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNISYLL</td>
<td>High tone on verb stem $+rV$ suffix (cv$^\dagger$+rV)</td>
<td>High tone on the verb stem (cv$^\dagger$)</td>
</tr>
<tr>
<td>DISYLL</td>
<td>High tone on final syllable of verb stem $+rV$ suffix (cvcv$^\dagger$+rV)</td>
<td>High tone on final syllable of verb stem (cvcv$^\dagger$)</td>
</tr>
</tbody>
</table>
(114) a. Òzó giá irhùnmwùn khèré.

Òzó giá irhùnmwùn khèré.

Ozo cut.PST.H grass small.PST.H (verb)
PN V CN V

'Ozo cut the grass a little bit.'

b. Ìrhùnmwùn òrè Òzó giá(-*rè) khèré(*-rè).

Ìrhùnmwùn òrè Òzó giá(-*rè) khèré(*-rè).

Grass FOC Ozo cut.PST.H (*-rV) small.PST.H (*-rV) (verb)
CN PN V V

'It’s the grass that Ozo cut a little bit.'

(115) a. Òzó giá irhùnmwùn khérée.

Òzó giá irhùnmwùn khérée.

Ozo cut.PST.H grass small (adjective)
PN V CN ADJ

'Ozo cut the grass short.'

b. Ìrhùnmwùn òrè Òzó giá-rè khérée.

Ìrhùnmwùn òrè Òzó giá-rè khérée.

Grass FOC Ozo cut.PST-rV small (adjective)
CN PN V ADJ

'It’s the grass that Ozo cut short.'

In (114) V2 khèré 'small' modifies V1 giá 'cut' but has an intervening object NP and –rV is not licensed when the object irhùnmwùn 'grass' is realized non-canonically. On the other hand, in (115), the adjective khérée 'small' modifies the noun irhùnmwùn 'grass' and does not form a right branch with the verb giá 'cut' and –rV is licensed.

In my analysis in chapter 2 –rV is treated as affixed to verbal stems through an affixation rule and not as a prosodic constraint as presented by Manfredi, however the licensing principles are compatible. Manfredi’s treatment of –rV as presented in (113)-(115) describes the phonetic reflexes of the fact that –rV suffixation is licensed in part by the relationship between a verb’s valence values, in particular its COMPS value and its qualitative valence values. I extend this analysis to multi-verb constructions.

256
Igbo, a Benue-Congo language spoken in Eastern Nigeria also has this suffix.

(116) Ṡ rè-re jí (wè-é) bya.

\[
\begin{array}{llll}
\text{Isg} & \text{sell-AFF} & \text{yam} & \text{take-AFF} & \text{come.AFF} \\
\text{PRON} & \text{V} & \text{CN} & \text{V} & \text{V} \\
\end{array}
\]

'I sold the yams and (then) came.'

Unlike -rV in Èdó, it is licensed in all multi-verb constructions. Also it lacks a consistent temporal value and may be interpreted as past or non past and this is accounted for by the fact that it is a pronominal clitic licensed by the verbs aktionsart that shifts information prominence over to the complement. The Èdó counterpart differs in that it ensures phrasal realization of the pitch accent (sw or HL) just in case no syntactic NP complement is present.

I now begin my discussion of the licensing of the suffix with an overview over my findings in this section in table1' below:
TABLE 17 \( -rV \) licensing in multi-verb constructions

<table>
<thead>
<tr>
<th>CONSTRUCTION</th>
<th>V1 IS FINITE</th>
<th>V2 IS A MOOD CLAUSE</th>
<th>V2 IS AN INFINITIVAL CLAUSE</th>
<th>ONE VERB RE-ANALYZED AS ADV/PREP</th>
<th>RV SUFFIX ON V1</th>
<th>Tone On V2</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V^{+\text{modifier}} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>durational, directional, manner and locational constructions</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>High</td>
</tr>
<tr>
<td>( V^{+\text{infinitival complement}} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>instrumental and comitative constructions</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>High</td>
</tr>
<tr>
<td>( VP^{+} V(P) )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resultative, negative resultative, consequential and covert co-ordination, constructions</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>STANDARD TENSE MARKING: High in Past and low in present</td>
</tr>
<tr>
<td>( V^{+\text{mood}} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purpose Constructions</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>High-Downstepped-High/high</td>
</tr>
</tbody>
</table>

Crucially a generalization from table 17 is that \(-rV\) is licensed only when there is no token identity of TAM features for the verbs in series, thus in \( V(P)^{+}V(P) \) constructions, the verbs in series are “full verbs” that reflect standard tense marking properties in Édó (same tone marking for tense on the verbs in series) and \(-rV\) suffixation on V1 is not licensed.\(^{62}\) In addition, none of the verbs have undergone lexical re-analysis. Interestingly, those in which the \(-rV\) suffix is licensed on \( V^{+\text{modifier}} \) constructions (durational, directional, manner and locational), \( V^{+\text{infinitival complement}} \) constructions (instrumentals and comitative) and \( V^{+\text{mood}} \) constructions (purpose) either have a positive value for infinitival or mood features for V2, or one of the verbs has undergone lexical re-analysis. V1 and V2 (if finite) are not token identical with respect to tam values.

Furthermore, I will show in the discussion below that the verbs in series in resultatives, negative resultatives and consequential constructions, bear the same tonal

\(^{62}\) The licensing of \(-rV\) in multi-verb construction ties in interestingly with the temporal relations relating events in series. In Chapter 6 I discuss the relationship between \(-rV\) suffixation, temporal relation and inflection.
pattern. That is, tense spreads onto both verbs. This is explained under the assumption that the verbs are token identical for the feature tense. However, in V+infinitival complement and V+mood constructions, the tone on V1 inflects to reflect changes in tense, while V2 if monosyllabic, always has a fixed high tone. Again, this is explained under the assumption that tense value for V1 and V2 are not identified. Tense marking on V2 if any is non-local to V1. For the V+modifier construction as discussed earlier V2 is a reanalyzed verb and this is reflected in the tonal patterning.

I claim in the discussion below that multi-verb constructions where the verbs in series are not reanalyzed and share tense are true SVCs.

I now discuss the constructions listed in table 17 in the following order. In 4.2.4.1, I discuss V+modifier constructions. In section 4.2.4.2 I discuss the V+mood constructions and in 4.2.4.3, the V+ infinitival complement constructions. Lastly in section 4.2.4.4, I discuss the VP+V(P) constructions.

4.2.4.1 V+ modifier constructions and the -rV suffix

In V+modifier constructions: durational, directional, manner and locational constructions as discussed in section 4.1.1 above I showed that one of the verbs in series, in addition to serving a modifying function, has undergone lexical re-analysis to become an adverb. The shift can be from a [Subj V VP] structure to a [Subj Adv VP] structure, or from [Subj VP V] to [Subj VP Adv].

As stated previously, these constructions are not multi-verb constructions: rather they are single verb constructions consisting of a main verb and an adverbial modifier. They are included in my analysis in this thesis to highlight the characteristics of multi-verb constructions. In line with the above assertion, we will see that they behave like intransitive single verb constructions with respect to –rV suffixation.

In the constructions discussed in this section, V1 is intransitive and the –rV suffix attaches to V1. One of the verbs normally has a modification function.

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63 This phenomena is generally attested in Volta-Congo languages and is discussed extensively by Lord (1993).

64 In instances where V1 is transitive, non canonical realization of the direct object triggers –rV suffixation on V1 as with the simple constructions.
In (117), V2 performs the semantic function of specifying the length of time the action depicted by V1 took. In (118) V2 specifies the direction of the running. In (119), V1 specifies the posture of the body while cooking and in (120), V2 depicts the end point of the running event depicted by V1. Lastly, in the above examples the $rV$ suffix attaches to V1 irrespective of the function being depicted by it. The crucial point being made here is that the $rV$ suffix is only licensed on V1 (or the first verbal element as in (119)) in these constructions when one of the verbs in series has undergone lexical re-analysis to become an adverb, thereby transforming the
constructions to single verb constructions. In durational, directional and locational constructions, V1 has full verbal status and V2 has a modifying status and has undergone lexical re-analysis to become an adverb or a preposition.

In manner constructions, the verb in V1 position is reanalyzed as an adverb and V2 has full verbal status. The modifying verb is a re-analyzed verb and functions as an adverbial modifier (Agheyisi 1986b:274) as discussed in 4.1.1.65

Only V1 can bear the \(-rV\) suffix. Sentences (117) to (120) become ungrammatical when the \(-rV\) suffix is attached to V2. I illustrate with (121) and (122) below:

(121) *Ôzó vié kpéê-rè.  

*Ôzó vié kpéê-rè.  
Ozo cry.PST be long.PST-rV  
PN V ADV

(122) *Èvbàré órê Ôzó digién- rèn lé(*-rè).  

*Èvbàré órê Ôzó digién- rèn lé(*-rè).  
Food FOC Ozo stoop.PST-rV cook.PST(*-rV)  
CN PN ADV V

'It is food Ozo bent and cooked.'

However, when the verbs in V2 positions in (121)-(122) above are heads of simple clauses, they take the \(-rV\) suffix in the past:

(123) Ôzó kpéê-rè.  

Ôzó kpéê-rè.  
Ozo be long.PST-rV  
PN V

'Ozo kept long.'

65 For ease of exposition, I continue to refer to these reanalyzed modifiers as V1 and V2 where appropriate."
(124) Èvbàré ãrê Õzo lé-rê.

Èvbàré ãrê Õzo lé-rê.
Food FOC Ozo cook.PST-rV
CN PN V

'It is food Ozo cooked.'

Interestingly even under extraction of the direct object, the rV suffix cannot be attached to V2 in (122), a requirement licensing it in a single verb construction (124).

In section 4.1.1 I showed that V2 in durational, directional and locational constructions were reanalyzed and that for manner constructions it was V1 that was reanalyzed. I showed that the reanalyzed V1 in manner constructions could undergo adverb stacking with other preverbal modifiers of V2. I repeat examples (43) and (44) above as (125a) and (125b) below:

(125) a. Òzó gié!gié fé!kó di!gién lé èvbàré. (manner)

Òzó gié!gié fé!kó di!gién lé èvbàré.
Ozo quickly.PST.H!H gently.PST.H!H stoop.PST.H!H cook.PST.H food
PN ADV ADV ADV V CN

'Ozo quickly gently stooping, cooked the food. 66

b. Òzó di!gién-rên fé!kó gié!gié lé èvbàré.

Òzó di!gién-rên fé!kó gié!gié lé èvbàré.
Ozo stoop.PST-rV gently.PST.H!H quickly.PST.H!H cook.PST.H!H food
PN ADV ADV ADV V CN

'Ozo was bent while gently quickly cooking the food (manner).

Or

? Ozo bent, and gently quickly cooked the food.' (covert co-ordination)

In comparing the ordering of preverbal adverbs (adverb stacking) with respect to V1 illustrated for manner constructions above, we find that such permutations are not

---

66 There is no adequate English translation for these sentences when V1 is a modifier. The adverbs quickly and gently together with stooping all modify the verb cook.
possible in durational, directional and locational constructions where V1, has full verbal status. This is shown using examples (126a) & (126b) as illustration.

(126) a. Ózó gié!gié fê!kó rhû!lé ré. (direction)

Ôzó gié!gié fê!kó rhû!lé ré.  
Ozo quickly.PST.H!H gently.PST.H!H run.PST.H!H come
PN ADV ADV V ADV
'Ozo quickly gently ran here (towards the speaker).'

b. *Ózó rhûlé-rê gié!gié fê!kó ré.

*Ózó rhûlé-rê gié!gié fê!kó ré.  
Ozo run.PST-rV quickly.PST.H!H gently.PST.H!H come
PN V ADV ADV ADV
'Ozo ran quickly gently here (towards the speaker).'

The following input and output representations capture the generalization above. Example (127) represents manner constructions while (128) represents durational, directional and locational construction as in the directional construction in (126) above.

(127) Manner construction

INPUT

[V1[verb], V2[verb]] ⇒ [Adv, V2]

(128) Directional, durational and locational constructions

INPUT

[V1[verb], V2[verb]] ⇒ [V1, {Adv}

Prep}

The suffixation of –rV is then explained given the output representations above. The verbs in the constructions examined so far are intransitive verbs occurring in single verb constructions. We have seen that tense attaches to the first verb like element

67 Agheyisi (1986b) discusses the reanalysis of the lexical item ré.
occurring after the subject in a sentence. We have also shown that the \(-rV\) suffix may attach to verbs and adverbs if they occur as the first verbal element after the subject. Most importantly, we have seen that these constructions behave exactly like intransitive single clause constructions with respect to \(rV\) suffixation and tonal marking. We conclude therefore that these constructions are single verb constructions and not multi-verb constructions.

In chapter 2, I discussed preverbal modifiers and the fact that tense is marked on the first verbal element after the subject NP and in particular, past tense is marked as a high downstepped high tone on disyllabic preverbal modifiers. In \(V+\text{modifier}\) constructions, this high downstepped high tone pattern is spread only to \(V1\) as in the following example:

(129)  Ozo gié!gié dí!gién bolo òká.

\begin{verbatim}
Ozo quickly.PST.H!H bend.PST.H!H peal corn
PN ADV ADV V CN
'Ozo quickly bent to peal the corn.'
\end{verbatim}

The tone spreading pattern in (129) serves to distinguish between “true” SVCs as opposed to other multi-verb constructions in Èdó. Baker and Stewart (2002) identify resultative, consequential and purpose constructions as true SVCs mainly based on their argument sharing patterns. As discussed earlier, “true” SVCs share their internal argument. Also they must have identical tense marking. The verbs in series in resultative and consequential constructions must match morphologically and each tense node has a unique morphological realization in a clause. This is stated in the Bare Stem Condition (Stewart 1998:326):

(130)  No verb in the serial construction can bear morphological tense inflection.

However, Manfredi (2005) argues that tone marking in Èdó verbs count as morphological tense marking and I agree with this view. I have shown above that \(V(P) + V(P)\) constructions do not license the \(-rV\) suffix. This class consists of “true”
SVCs and covert co-ordination thus rendering (130) as an inadequate characterization for SVC identification (Manfredi 2005 makes a similar point). I have also shown that $V+$modifier, $V+$infinitival complement and purpose constructions (classified by Baker and Stewart (2002) as a “true” SVC) license the suffix, again rendering (130) as an inadequate criterion in the identification of SVCs.

On the other hand unlike with the $V+$modifier construction, tone marking for tense in “true” SVCs spread to both verbs when modified by an inflection type adverb (Stewart 1998:87, Baker and Stewart 1999:15-16). The following example from Stewart (1998:30) illustrates this.

(131) Øzo gi!égié kó!kó Àdésúwà mó!sé.

<table>
<thead>
<tr>
<th>Øzo</th>
<th>gi!égié</th>
<th>kó!kó</th>
<th>Àdésúwà</th>
<th>mó!sé.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN</td>
<td>ADV</td>
<td>V</td>
<td>PN</td>
<td>V</td>
</tr>
</tbody>
</table>

'Ozo quickly raised Adesuwa to be beautiful.'

(131) is a resultative construction (a subtype of $V(P)+V(P)$ construction). Both the preverbal adverbs and the verbs in series have one tonal pattern. As we saw for the $V+$modifier constructions in (129) the tonal pattern of the preverbal adverbial does not spread to V2, while in (131) a $V(P)+V(P)$ construction, it spreads across all the verbal elements in series.

However, the tonal pattern discussed by Stewart (1998) in (130) and (131) above also does not apply for the purpose construction (my $V+mood$ constructions) that Baker and Stewart (2002) also classify as “true” SVCs. I discuss this construction immediately below.

4.2.4.2 $V+$ mood constructions and the $-rV$ suffix

V1 in purpose constructions is transitive with a membership of one verb: mien 'see/find'. V2 in this construction has a fixed tonal pattern: high tone if monosyllabic and a high downstepped high tone if disyllabic. As with $V+$modifier constructions, V1 in
purpose constructions takes the $rV$ suffix under extraction of its object. This is illustrated in examples (132) and (133) (Baker and Stewart 2002:3&15).

(132) Òzó ghá miǹiyán ̀évá lé.

<table>
<thead>
<tr>
<th>Òzo</th>
<th>FUT</th>
<th>see</th>
<th>yam</th>
<th>two</th>
<th>cook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo</td>
<td>V</td>
<td>CN</td>
<td>NUM</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

'Ozo will see two yams to cook (and do so).'</n>

(133) Àlimóí òré iràn miǹ-rèn kpá!án.

<table>
<thead>
<tr>
<th>Álimói</th>
<th>òré</th>
<th>iràn</th>
<th>miǹ-rèn</th>
<th>kpá!án</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>FOC</td>
<td>3.PL</td>
<td>see.PST-rV</td>
<td>pluck.H!H</td>
</tr>
<tr>
<td>CN</td>
<td>PRON</td>
<td>V</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

'It is an orange Ozo saw to pluck.'

To explain the fixed tone pattern on V2, Baker and Stewart (2002:19) posit the existence of a mood/aspect head before V2. For them, purpose constructions consist of an adjunction of Asp phrases with AspV2 adjoining to Aspv1.

Data below supports the claim that V2 has a value for the feature mood. Example (134) shows that lexically realized mood elements can occur before V2 as would be expected if each verb is uniquely related to a distinct mood/aspect head. In (134), an auxiliary element té occurs before V2. Té under this usage according to Agheyisi (1986b:142) implies that the state or action described in the verb though attained or accomplished is still lacking in truth-value or effect. This lexical item has a homophone té (used to-INFL element which specifies past habitual aspect) and a near homophone tè (nearly, already- an adverb). Of interest here is the fact that while té, the mood element, can occur before V2 (134), té 'used to' the tense element, cannot ((135a)). Thus as discussed in 4.2.3 above, there can only be one lexical auxiliary tense bearing marker in this construction type and it must occur before V1 ((135b)).
Examples (134) and (125 a&b) show that lexical items encoding tense and mood occur in mutually exclusive environments before V2. Tense elements are not licensed before V2 in purpose constructions.

Purpose constructions differ crucially from $V+modifier$ constructions in that no aux element can occur before V2 in the latter (example (136-139)) while in the former as discussed above, té the mood element can occur before V2 (example (134)): 

(136) *Ôzó vié-rê té kpéê. (durational)  
*Ôzó vié-rê té kpéê.  
$Ozo$ $cry.PST-rV$ $AUX$ $be long$  
$PN$ $V$ $AUX$ $ADV$

(134) Ôzó mién iyán èvá té lé.  
Ôzó mién iyán èvá té lé.  
$Ozo$ $see.PST.H$ $yam$ $two$ $AUX$ $cook$  
$PN$ $V$ $CN$ $NUM$ $AUX$ $V$

'Ozo saw two yams to cook (but ...).'

(135) a. *Ôzó mién iyán èvá té lé.  
*Ôzó mién iyán èvá té lé.  
$Ozo$ $see.PST.H$ $yam$ $two$ $used to$ $cook$  
$PN$ $V$ $CN$ $NUM$ $AUX$ $V$

'Ozo saw two yams used to cook.'

b. Ôzó té mién iyán èvá lé.  
Ôzó té mién iyán èvá lé.  
$Ozo$ $used to$ $see.PST.H$ $yam$ $two$ $cook$  
$PN$ $AUX$ $V$ $CN$ $NUM$ $V$

'Ozo used to see two yams cook.'
From example (133) above, we can see that the purpose construction behaves like the \(V+\text{modifier}\) construction in the licensing of \(-rV\) on \(V1\).

In summary, I represent the conditions for \(rV\) suffixation discussed in 4.2.4.1 and 4.2.4.2 below:

Conditions for \(-rV\) suffixation

(140) 

**General conditions**  

i. The value for tense must be *past* and,

ii. The tone on the final syllable of the verb stem is a high tone and,

iii. The COMPS list of the verb must be empty.

**Construction specific conditions**

vi. One of the verbs in series have been lexically reanalyzed as in durational, directional, manner and locational constructions or,

v. \(V2\) has a positive value for the attribute MOOD as in purpose constructions.
4.2.4.3 V+ infinitival complement constructions and the -rV suffix

V1 in comitative and instrumental constructions subcategorize for infinitival complements. We have seen in 4.2.4.1 and 4.2.4.2 above that –rV suffixation is licensed on V1 only when there is one verb in a construction or the tam values of the verbs in series are not token identical. In (141) to (142) below, the –rV suffix is licensed on V1. No empirical evidence exists as indication that any of the verbs in these constructions have undergone lexical re-analysis. Tone marking evidence indicates that as with the V+modifier and purpose constructions, V2 has no tense representation. CVCV verbs bear a high downstepped high tone and CV verbs bear a high tone irrespective of the tense marking on V1 in purpose constructions. Different from the V+modifier and V+mood constructions, however, is the fact that V2 in the V+infinitival complement constructions reside in an infinitival clause. Evidence buttressing this claim is found in the distribution pattern of the floating anaphor tòbố̀rè ‘by pronoun self’ and the infinitival subordinate marker yá. This will be discussed in 4.2.5. –RV is thus licensed on V1 because it resides in a finite clause. I relate this to the criteria for the licensing of –rV in (140 iii) above that states that the COMPS list of the verb must be empty. This applies for transitive verbs and intransitive verbs that do not subcategorize for sentential complements. The verbs that occur as V1 in an infinitival complement construction all subcategorize for infinitival complements.

(141) Írán kúgbé-rè kó!kó ízè.

Írán kúgbé-rè kó!kó ízè.
3.PL join.together.PST-rV gather rice
PRON V V CN
’They joined together to gather rice.’

(142) Èhò ̀ọ̀rè Òzó rhié-rè fián ̀alímóí.

Èhò ̀ọ̀rè Òzó rhié-rè fián ̀alímóí.
Knife FOC Ozo take.PST-rV cut orange
CN PN V V CN
’It is a knife Ozo used in cutting the orange.’
In example (142), V1 is transitive and the $rV$ suffix attaches after the extraction of its object. Recall that $-rV$ suffix also attaches to V1 in purpose constructions, an indication that $-rV$ suffixation is not a property of intransitive verbs alone in multi-verb constructions.

In (143) below, I show the distribution of the floating anaphor tòbò̀rè ‘by pronoun self’ and the infinitival subordinate marker yá. Summarizing briefly, the anaphor may right adjoin to overt VPs, NPs, AUX, PPs or AdvP. It is licensed before V2 when it has an unsaturated NP subject that share referential index with the overt subject NP of V1 as in (143) below. By an unsaturated NP subject, I mean that the item that bears the grammatical function of subject to a verb is not realized in the valence of that verb.

(143)  Ìrànₙₙ kùgbé-rè yá tòbirànₙₙ rří izè.

$\text{They join.together.PST-rV INF by.3Pl.selves eat.H rice}$

'$They eat the rice together by themselves.'$

In (141) the verb kùgbé 'join.together' subcategorizes for an infinitival complement kó!kó izè 'gather rice' and in (142) the verb rhiè 'take' subcategorizes for an NP object èhò 'knife' and an infinitival complement fián àlímòí 'cut orange'. In (143) the infinitival complement of kùgbé 'join.together' is introduced by the infinitival marker yá. In (142) the object of rhiè 'take' is extracted and the $-rV$ suffix is licensed on V1. However, the infinitival complement is realized as a value of the verb’s COMPS attribute. In (143) the $-rV$ suffix is also licensed even though the verbs COMPS list is non-empty. This suggests that condition (iii) of (140) above need to be revised to account for the presence of sentential complements of verbs.$^{68}$

In conclusion, I revise the conditions for $-rV$ suffixation discussed earlier:

$^{68}$This also applies to verbs that subcategorize for finite sentential complements as in:

<table>
<thead>
<tr>
<th>Òzó kháa-rè ighé Àtítí ghá rrè.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Òzo say.PST-rV COMP Atiti will come</td>
</tr>
</tbody>
</table>

'$Ozo said that Atiti would come.'
General conditions

i. The value for tense must be past and,
ii. The tone on the final syllable of the verb stem is a high tone and,
iii. The COMPS list of the verb must have an empty value for objects of type np-synsem.

Construction specific conditions

vi. One of the verbs in series have been lexically reanalyzed as in durational, directional, manner and locational constructions.

or

v. V2 has a positive value for the attribute MOOD as in purpose constructions.

or

vi. V2 resides in an infinitival clause as in comitative and instrumental constructions.

In 4.2.4.4 below I discuss examples in which V1 is transitive and V2 does not reside in an infinitival clause.

4.2.4.4 V (P) + V (P) constructions and the -rV suffix

We have seen that -rV suffix only attaches to transitive verbs when their objects are focused. In resultative, negative resultative and consequential constructions, V1 is transitive. However focusing of direct objects do not license the suffixation of –rV. Consider examples (145) to (147) and below.

(145) *Àzàríọ́ré Ôzó suá-rè dé gbé ṣòtò. (resultative)

*Àzàrí ọ́ré Ôzó suá-rè dé gbé ṣòtò.

Azari FOC Ozo push.PST-rV fall.PST.H against ground

PN PN V V PREP CN

'It is Azari Ozo pushed down.'
(146) *Ízè ṣ́ré Ózó dé-rè ré.  

*Ízè ṣ́ré Ózó dé-rè ré.  
Rice FOC Ozo buy.PST-rV eat.PST.H  
CN PN V V  
'It is rice Ozo bought and ate.'

(147) *Èbò ṣ́ré Ózógá-rè mién òkán.  

*Èbò ṣ́ré Ózó gá-rè mién òkán.  
Gods FOC Ozo serve.PST-rV receive.PST.H distress  
CN PN V V CN  
'It is gods Ozo served and got trouble as his reward.'

The non-licensing of –rV cannot be attributed to Ross’s (1968) co-ordinate structure constraint. (148) to (151) show that direct object NPs can in principle be extracted for focus out of a multi-verb construction while (152) shows that Ross’s co-ordinated structure constraint holds for overt co-ordination in Èdó. As shown in (144 iii.) above, an empty value for objects of type np-synsem for COMPS is a necessary condition for –rV suffixation.

(148) Àzàrí ṣ́ré Ózó suá dé.  

Àzàrí ṣ́ré Ózó suá dé.  
Azari FOC Ozo push.PST.H fall.PST.H  
PN PN V V  
'It is Azari Ozo pushed down.'

(149) Ízè ṣ́ré Ozo dé ré.  

Ízè ṣ́ré Ozo dé ré.  
Rice FOC Ozo buy.PST.H eat.PST.H  
CN PN V V  
'It is rice Ozo bought and ate.'
(150) Èbò Œ̀rè Òzó gá mièn òkán. (negative resultative.)
Èbò Œ̀rè Òzó gá mièn òkán.
Gods FOC Ozo serve.PST.H receive.PST.H distress
CN PN V V CN
'It is gods Ozo served and got trouble as his reward.'

(151) Ìyán Œ̀rè Òzó dè èmiłòwó lé. (covert co-ordination)
Ìyán Œ̀rè Òzó dè èmiłòwó lé.
Yam FOC Ozo buy.PST.H meat cook.PST.H
CN PN V CN V
'It is yam Ozo bought meat and cooked.'

(152) * Ìyán Œ̀rè Òzó dè èmiłòwó vbé lé. (overt coordination)
* Ìyán Œ̀rè Òzó dè èmiłòwó vbé lé.
Yam FOC Ozo buy.PST.H meat and cook.PST.H
CN PN V CN CONJ V
'It is yam Ozo bought meat and cooked.'

In covert co-ordination V1 is also transitive. As in (145) to (147), -rV suffixation is not licensed on V1:

(153) * Ízè Œ̀rè Òzó dè-rè ré. (covert co-ordination)
* Ízè Œ̀rè Òzó dè-rè ré.
Rice FOC Ozo buy.PST-rV, eat.PST.H
CN PN V V
'It is rice Ozo bought and ate it.'

Here also, the co-ordinate structure constraint does not explain the non licensing of –
rV in (148) to (151).
Examples (148) to (151) show that resultatives, negative resultatives, consequentials and covert co-ordination do not have co-ordinate structures. Why then are examples (145) to (147) and (153) ungrammatical? A comparison of examples (145)-(147) and examples (133) & (142) repeated below as (154) & (155) for ease of exposition, raises further questions.

(154)  Àlimóí  òré  íràn  mîn-rën  kpá!án.  (purposive)

Àlimóí  òré  íràn  mîn-rën  kpá!án.

Orange  FOC  3.PL  see.PST-rV  pluck

CN  PRON  V  V

'It is an orange that they have found to pluck.'

(155)  Èhò  òré  Òzô  rhié-rè  fián  àlimóí.  (instrumental)

Èhò  òré  Òzô  rhié-rè  fián  àlimóí.

Knife  FOC  Ozo  take.PST-rV  cut  orange

CN  PN  V  V  CN

'It is a knife Ozo used in cutting the orange.'

The verbs rhié and mîn are transitive and their objects have been extracted for focus. This licenses the occurrence of the rV suffix. Why then is the rV suffix licensed in (154) & (155) but not in (145)-(147)?

In (145) to (147), there is no empirical evidence to show that any of the verbs have undergone lexical re-analysis. Also, we will see in 4.2.5 that V1 does not subcategorize for infinitival complements. In addition, tonal marking on the verbs in series show that there is no fixed tone on V2 in these constructions. The verbs in series in (148) to (150) are tone marked for past tense. In (156) to (158) below, they are tone marked for present tense.
In (148) to (151) and (156) to (158) we see that tense is represented on both verbs through the same tonal marking on the verb in series, an indication that the tam values of the verb in series are token identical. In (159) below, we see that it is not possible to have different tone marking on the verbs in series:

(159) *Òzó dè izè ré.  (consequential)

*Òzó dè izè ré.

'Ozo buys rice and eats.'

Baker and Stewart (2002) suggest that the parameter that makes SVCs possible have something to do with the relationship between tense and the verb. The analysis presented above provides partial support for this assertion. Tone marking have shown
that the *tam* values of the verbs in series in resultatives, negative resultatives and consequential constructions are token identical, but this is not conclusive as an identification for the class of “true” SVCs, as covert co-ordination has the same characteristics. Also, token identity of *tam* values explain the non-licensing of the $-rV$ suffix in examples (145) to (147) and (153) above. This is represented in the revised conditions for $-rV$ licensing below:

(160) The conditions for $-rV$ suffixation

*General conditions*

i. The value for tense must be past and,

ii. The tone on the final syllable of the verb stem is a high tone and,

iii. The COMPS list of the verb must have an empty value for objects of type np-synsem.

*Construction specific conditions*

vi. One of the verbs in series have been lexically reanalyzed as in $V+$modifier constructions.

or

v. The values for the TAM attribute for V1 and V2 must not be token identical as $V+infinitival$ and $V+mood$ constructions.

I now discuss briefly $-rV$ suffixation in light verb constructions. A comparison shows that in multi-verb constructions, the verbs in series are independent verbs and so $-rV$ attaches to V1 where applicable whereas in light verb construction, a verb complex is formed and $-rV$ attaches to V2 in the complex. Thus, the suffix as we have discussed in chapter 2 and above is licensed by the combinatory potentials and interpretation of the verb stem it attaches to as well as the *tam* values.

### 4.2.4.5. Light verbs and the $-rV$ suffix

In this section, I discuss the light verb construction. The aim here is to show that though they appear superficially like consequential constructions they differ with respect to the distribution of the $-rV$ suffix. In particular, the claim made earlier in this chapter that some verbs undergo lexical re-analysis resulting in the licensing of
\(-rV\) suffixation in some multi-verb constructions, is buttressed: in light verb constructions, \(-rV\) is licensed on V2, an indication that the verbs in series form a single syntactic predicate and that V2 has verbal properties as opposed to where V2 is a reanalyzed verb.

Hook (1991) represents the relationship between main and light verb pairs in Urdu/Hindi as that of grammaticalization with light verbs being analyzed as aspectual markers. Grammaticalization is defined by Kurylowicz (1965) as involving the increase of the range of a morpheme advancing from a lexical to a grammatical or a less grammatical to a more grammatical status. The phenomenon is usually associated with diachronic semantic bleaching accompanied by phonological reduction. With respect to light verbs, a verb may move from being a full verb to a light verb and further to an auxiliary, then to a clitic. This point of view is represented in the following grammaticalization cline by (Hopper and Traugott 1993).

(161)

**Grammaticalization cline**

Full verb > (light verb) > auxiliary > clitic > affix

Butt and Geuder (2001) working on Urdu argue that there is no strong synchronic or diachronic evidence to support the above cline. Rather diachronic evidence points to light verbs and auxiliary verbs as having developed along side. Also synchronically, light verbs are shown to exhibit differences in formal behavior from auxiliaries. According to them, auxiliaries may be formed through the process of grammaticalization while light verbs bear a polysemy relationship with their full verb counterparts. They conclude that light verbs should be taken out of the grammaticalization cline.

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69 The term grammaticalization was introduced by Meillet (1912) as meaning the attribution of a grammatical character to a formerly independent word.
Harris and Cambell (1995) propose three basic mechanisms for syntactic change: re-analysis, extension and borrowing. For them, other mechanisms such as grammaticalization found in the literature are only instances or a consequence of one or a combination of these mechanisms. They define re-analysis as a process which changes the underlying structure of a syntactic pattern and which does not involve any intrinsic or immediate modification of its surface manifestation. By underlying structure they mean information regarding (i) constituency (ii) hierarchical structure (iii) category label (iv) grammatical relations and (v) cohesion.

Following Timberlake (1977), they propose that re-analysis may be followed by actualization. Actualization is defined as the gradual mapping out of the consequences of re-analysis. Thus actualization may result in changes in meaning or in form. Furthermore on the relationship between grammaticalization and re-analysis, Harris (1997) points out that re-analysis, phonological and semantic change may occur independently of grammaticalization.

Agheyisi (1986) working on Èdó, presents an analysis similar to Butt and Geuder (2001). Affixal morphemes are derived historically from verbs which have undergone grammaticalization and lexical re-analysis in contexts including serial verbs. According to her, these processes entail a reduction in the original content and scope of the re-analyzed verb and/or a syntactic loss of distributional independence to become affixes and particles. Agheyisi does not discuss light verbs but I assume they should be analyzed as bearing a polysemous relationship with their full verb counterparts as in Butt and Geuder (2001). I now discuss light verbs in Èdó below.
Light verb constructions in Èdò consist of a full lexical verb and a semantically weak light verb. The contribution of the light verb to the meaning of the resulting predication is elusive. The verbs in (163a) and (163b) below function as main verbs, while in (163c) V1 is a light verb and V2 a full verb.

(163) a. Òzó mú ómómó.

Òzó mú ómómó.

Ozo carry.PST.H baby
PN V CN

'Ozo carried a baby.'

b. Òmómó vbóvbó.

Òmómó vbóvbó.

Child back a child.PST.H (carry on back)
CN V

'The baby was on the back (of a person).'

c. Òzó mú ómómó vbóvbó.

Òzó mú ómómó vbóvbó.

Ozo carry.PST.H baby back a child.PST.H
PN V CN V

'Ozo backed the baby.'

In addition to contributing shades of meanings to a predication, light verbs may also license an additional argument as shown in (164e) below.

(164) a. Òzó mú ízè.

Òzó mú ízè.

Ozo carry.PST.H rice
PN V CN

'Ozo carried the rice.'
b. Ōzó lèré-rè.

Ōzó lèré-rè.

\begin{tabular}{ll}
Ozo & hide.PST-rV \\
PN & V \\
\end{tabular}

'Ozo hid.'

c. *Ízè lèré-rè.

*Ízè lèré-rè.

\begin{tabular}{ll}
Rice & hide.PST-rV \\
\end{tabular}

'Rice hid.'

d. *Ōzó lèré ízè.

*Ōzó lèré ízè.

\begin{tabular}{ll}
Ozo & hide.PST rice \\
PN & V CN \\
\end{tabular}

'Ozo hid the rice.'

e. Ōzó mú ízè lèré.

Ōzó mú ízè lèré.

\begin{tabular}{llll}
Ozo & ?carry.PST.H & rice & hide.PST.H \\
PN & V & CN & V \\
\end{tabular}

'Ozo hid the rice.'

In (164a) mú subcategorizes for an agent and a theme while in (164b) lèré subcategorizes for an animate theme NP. (164c) shows that lèré cannot subcategorize for an inanimate theme and (164d) shows that it cannot license an agent NP as subject. In (164e) the light verb mú is needed to license the agent Ōzó and the shared inanimate NP ízè.

Finally, some light verbs make visible contribution to the meaning of the predication as in (165).
(165) a. Òzó fí úkpòn gbé Èméri.

Òzó fí úkpòn gbé Èméri.

Ozo throw.PST.H cloth against Mary
PN V CN PREP CN

'Ozo threw the cloth on Mary.'

b. Òzó wèrríé èbélí úkpòn lá ọwá.

Òzó wèrríé èbélí úkpòn lá ọwá.

Ozo roll.over.PST.H bale cloth into house
PN V CN CN PREP CN

'Ozo rolled the bale of cloth into the house.'

c. Òzó fí úkpòn wèrríé.

Òzó fí úkpòn wèrríé.

Ozo ?throw.PST-rV cloth roll.over.PST.H
PN V CN V

'Ozo changed his clothes.'

In (165c) fí ‘throw’ is a light verb and wèrríé ‘rollover’ is a full verb. It is the combination of the semantics of the full verb and the light verb that gives the new meaning ‘to change’. In (165a) and (165b), fí and wèrríé are full verbs.

Turning now to the distribution of light verbs with respect to –rV suffixation, in (163c), (164e) and (165c), extraction of the shared object results in the licensing of –rV on V2:

(166) Òmómó ọrè Òzó mú vbóvbó-rò.

Òmómó ọrè Òzó mú vbóvbó-rò.

Baby FOC Ozo ?carry back a child.PST-rV
CN PN V V

'It is a child Ozo backed.'
(167) Ìzè ôré Ózó mú lêré-rè.

\[
\begin{array}{llll}
\text{Ízè} & \text{ôré} & \text{Ózó} & \text{mú} \\
\text{Rice} & \text{FOC} & \text{Ozo} & \text{?carry.} \\
\text{CN} & \text{PN} & \text{V} & \text{V}
\end{array}
\]

'It is rice Ozo hid.'

(168) Úkpòn ôré Ózó fí wèrriè-rè.

\[
\begin{array}{llll}
\text{Úkpòn} & \text{ôré} & \text{Ózó} & \text{fí} \\
\text{Clothe} & \text{FOC} & \text{Ozo} & \text{?throw.} \\
\text{CN} & \text{PN} & \text{V} & \text{V}
\end{array}
\]

'It is clothes Ozo changed.'

Examples (164) to (168) show that the verbs in light verb series form a constituent. –rV is thus licensed on the verb complex as a whole. Another condition for –rV licensing then is that the verbs in series must form a single syntactic predicate that is constrained by one TAM attribute and value. I include this condition in the summary in (172) below.

That the verbs in series form a single syntactic predicate is buttressed by their behavior with respect to nominal derivation. Some of these verb complexes can form a base for nominal derivation as with simple verbs in Èdó. For instance in (168), the verb complex fí+wèrriè may be nominalized as in (169) below:

(169) á (nominal prefix) + fí wèrriè → áfìwèrriè (change)

Multi-verb constructions do not license such nominal derivation. A similar phenomenon is discussed by Ameka (2005:6-7) in Ewe whereby grammaticalized verbs can be the input for a reduplication process while full verbs do not. He discusses the process of grammaticalization and re-analysis for West African languages and their application to three kinds of multi-verb constructions: mono clausal serial verb construction, bi-clausal overlapping constructions and multi clausal consecutive constructions. These constructions can serve as base for lexicalization where verbs or
VPs develop into fixed collocations or verb plus satellite constructions. He defines a satellite as a lexical item which is a sister to a verb but not a verb in itself. For example, in Attie or Baule spoken in Cote d’Ivoire the verbs translated as ‘buy’ and ‘sell’ colexicalise the concept of ‘sell’. Also, in Ewe, the verbal concept of ‘taste (active experience)’ is expressed using the verb àbó ‘cover’ and a satellite kpó ‘see’ or se ‘hear’. Verbs may also grammaticalize into functional markers such as aspectuals, modals, prepositions etc. through multi-verb constructions. In Gbe, Ga and Dangme for example, preverbs are grammaticalized verbs (I discuss representations from Hellan 2007 and Dakubu 2002, 2003 in chapter 5).

Turning now to the reduplication process in Ewe mentioned above, the verb kpó ‘see’ may also be grammaticalized into an adverbial that marks experiential perfective aspect via consecutive constructions and a preverb with an interpretation of a contra expectation modal marker via an SVC structure. Interestingly, similar to the Èdó example in (169), the verb kpó ‘see’ in Ewe as a grammaticalized experiential perfective marker may be triplicated while the main verb counterpart may not. Example (170) below illustrates this:

(170) **Nye-mé-se-e kpó-kpóó-kpó o.**

<table>
<thead>
<tr>
<th>Nye-mé-se-e</th>
<th>kpó-kpóó-kpó</th>
<th>o.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG-NEG</td>
<td>hear-3SG</td>
<td>TRIP-TRIP-PTV NEG</td>
</tr>
<tr>
<td>PRON-V-PRON</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

'I have never, never heard it.'

Table 18 below represents multi-verb constructions and their outcomes (Ameka 2003:3)
Table 18

<table>
<thead>
<tr>
<th>No marker of syntactic Dependency</th>
<th>No connector is used as a linker</th>
<th>A linker may be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share one tense value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share one mood value</td>
<td></td>
<td>Semantically compatible mood values e.g. imperative and subjunctive</td>
</tr>
<tr>
<td>Can have different but semantically compatible aspect and modality values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same syntactic subject for all verbs or VPs in the series but expressed only once on V1</td>
<td>Subject of first verb is different from subject of subsequent verb</td>
<td>Subject of verbs may be different</td>
</tr>
<tr>
<td></td>
<td>Subject argument of subsequent verb must be obligatorily expressed</td>
<td>Subject of verbs may be different</td>
</tr>
<tr>
<td></td>
<td>Subject argument of subsequent verb is coreferential with a non-subject argument of the situation characterized by the first verb</td>
<td>Subject may be same or different</td>
</tr>
<tr>
<td>Verbs cannot be formally Independently negated</td>
<td>Verbs can be independently Negated</td>
<td>Verbs can be independently Negated</td>
</tr>
<tr>
<td>Each verb may occur with its own complement and/or adjunct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbs can function in the same form in a monoverbal clause</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**mono-clausal** | **bicausal** | **multi-clausal**
--- | --- | ---
serial verb construction | overlapping clauses | consecutive clauses

---

LEXICALIZATION | GRAMMATICALIZATION
--- | ---
Fixed verb-verb collocation | modal constructions; aspect constructions; verbid (prepositional) constructions
Verb-satellite collocation |
With the exception of the criteria that each verb may have its own complement and must have one mood value, Ameka’s serial verb constructions in column 1 correspond to resultative, consequential and purpose construction. According to him, his bi-clausal overlapping constructions in column 2 correspond to Êdó covert co-ordination. However, Êdó covert co-ordination is different in that the verbs in series have one overt subject and as will be shown below, the subject of V2 has covert reference and its index is identified with the index of the overt subject of V1. Also, the events in series are non-overlapping. In addition the verbs in series cannot be independently negated. This observation applies also to V+infinitival complement constructions which may be classified as overlapping constructions. Êdó does not have multi-clausal consecutive constructions as defined in column 3. Lastly, the v+modifier construction is under the class of grammaticalized constructions while the light verb construction is under the class of lexicalized constructions.

Table 18 shows an interesting interaction between the nature of tense, aspect and negation and the type of multi-verb construction available in West African languages. Mono clausal clauses must share one tense, mood and negation marker, verbs in series in bi-clausal clauses and multi-clausal clauses may each have their own value for tense, mood and negation indicating that each verb reside in a full clause.
4.2.4.6. SUMMARY

In summary, the multi-verb constructions identified in this chapter exhibit distinct patterning with respect to tense, aspect and mood. This is represented in (171) below.

(171)

<table>
<thead>
<tr>
<th>V(P)+V(P)</th>
<th>V+mood</th>
<th>V+infinitival complement</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1&amp;V2 <em>tam</em> values are token identified.</td>
<td>V1&amp;V2 <em>tam</em> values are not token identified.</td>
<td>V2 is nonfinite.</td>
</tr>
<tr>
<td></td>
<td>V2 has positive value for Mood.</td>
<td>An optional infinitival marker <em>yá</em> before V2.</td>
</tr>
<tr>
<td>[-rV-] Resultative</td>
<td>[-rV+] Purpose construction</td>
<td>[-rV+] Comitative</td>
</tr>
<tr>
<td>Negative resultative</td>
<td></td>
<td>Instrumental</td>
</tr>
<tr>
<td>Consequential Covert co-ordination Constructions</td>
<td></td>
<td>Constructions</td>
</tr>
</tbody>
</table>

In (171), for the *V(P)+V(P)* constructions, there is token identity of *tam* features for the verbs in series and *–rV* is not licensed, while *V+mood* and *V+infinitival complement* constructions have different values for *tam* features for the verbs in series and *–rV* is licensed.

I have left out the *V+modifier* construction in (171) above. The facts from lexical re-analysis discussed earlier show that they are not multi-verb constructions. They are simple single verb constructions with adverbial modifiers.

The above representation is summarized in (172) below showing the revised criteria for the licensing of the *–rV* suffix:

(172) conditions for *–rV* suffixation.

*General conditions*

i. The value for tense must be *past* and,

ii. The tone on the final syllable of the verb stem is a high tone and,

iii. The COMPS list of the verb must have an empty value for objects of type *np-synsem*.
**Construction specific conditions**

vi. One of the verbs in series have been lexically reanalyzed as in $V+modifer$ constructions.

or

v. The values for the TAM attribute for V1 and V2 must not be token identical as $V+infinitival$ and $V+mood$ constructions.

or

vi. The verbs in series must form a single syntactic predicate that is constrained by one TAM attribute and value as in *light verb* constructions.

**4.2.5 The functional status of V2**

Three criteria will be used in the determination of the status of V2. They are:

(173.1) The distribution of the infinitival marker yá in Èdó.

(173.2) The distribution of a floating anaphor tëbôrè ‘by pronoun self’ in Èdó.

(173.3) The distribution of adverbial elements.

The distribution of the infinitival marker yá in (173.1) is used to determine if V (P) 2 is an infinitival complement to V (P) 1. In (173.2) the distribution of the floating anaphor determines the nature of subject sharing between V (P) 1 and V (P) 2. The distribution of adverbials in (173.3) determines the structural relationship between V (P) 1 and V (P) 2: complementation or adjunction.

With respect to the distribution of the floating anaphor in (173.2), Stewart (1998) and Baker and Stewart (1999) use the distribution of the tëbôrè anaphor, to distinguish between resultatives, consequentials, and covert co-ordination. Stewart (1998) further uses the distribution of yá to establish the infinitival status of modal aspectual verb constructions (desiderative constructions) and instrumental constructions. My analysis here differs from Stewart (1998) and Baker and Stewart (1999, 2002) with respect to the floating anaphor. For them the fact that the anaphor may right adjoin to overt NPs is used as argumentation for an $NP$ trace (covert co-ordination), $pro$ (object of V2 in consequential constructions) or $PRO$ (modal aspectual verb constructions and instrumental constructions) where the anaphor occurs alone in an argument position.
Also, for them, the anaphor may have either a subject or an object NP as its antecedent when it occurs after the verb and its complement. With this background assumption, V2 in covert co-ordination, modal aspectual and the instrumental constructions are analyzed by Stewart (1998) as having an NP trace in subject position for the former and PRO for the latter two while the consequential construction is analyzed as having pro as object of V2. In my analysis below, I show that the floating anaphor only has the subject NP as antecedent irrespective of its distribution in a sentence. Also, I show that when the anaphor is licensed before V2 in a multi-verb construction, it only serves to identify covert reference sharing between the unsaturated subject of V2 and the overt subject of V1. This test thus identifies the V+infinitival and the covert co-ordination constructions as having unsaturated VP2 phrases. For consequential constructions, I show that there is no pro in the object position of V2, rather there is token sharing of grammatical functions between the objects of V1 and V2.

My findings are crucial to the classification I have made for multi-verb constructions. In my discussion in 4.2.6.1 and in chapter 7, I show that argument sharing is of two types: reference sharing and token sharing by grammatical function. Table 19 below presents a preview of the findings in this section:

<table>
<thead>
<tr>
<th>Construction type</th>
<th>Infinitival Marker</th>
<th>Floating anaphor before V2</th>
<th>Preverbal Adverb before V1</th>
<th>Preverbal Adverb before V2</th>
<th>VP Adjuncts After VP 1</th>
<th>VP Delimiting Adverb after VP2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V+modifier</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>V(P)+V(P): Resultatives</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Consequential</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Neg.resultatives Covert-coordination</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>V+mood</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>V+infinitival complement</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

4.2.5.1 VP constructions and the infinitival marker yá

Stewart (1998:251-262) gives the following characteristics of the infinitival marker yá.
i. It is optional.

ii. It is generated in an embedded INFL.

iii. It always bears a high tone and does not vary tonally for tense like other verbs.

iv. It cannot occur in a tensed clause.

I illustrate the characteristics highlighted above with the following examples:

(175) It is optional.

a. Òzó hiá-rè rrí èvbárè.

Òzó    hiá-rè    rrí    èvbárè.

_Ozo    try.PST-rV    eat    food
PN    V    V    CN

'Ozo made effort to eat the food (and he ate it).'</n>

b. Òzó hià rrí èvbárè.

Òzó    hià    rrí    èvbárè.

_Ozo    try.PRS.L    eat    food
PN    V    V    CN

'Ozo makes efforts to eat food (regularly).'</n>

(176) It is generated in an embedded INFL and always bears a high tone.

a. Òzó hiá-rè yá rrí èvbárè.

Òzó    hiá-rè    yá    rrí    èvbárè.

_Ozo    try.PST-rV    INF    eat    food
PN    V    V    CN

'Ozo made efforts to eat the food (and he ate it).'</n>

b. Òzó hià yá rrí èvbárè.

Òzó    hià    yá    rrí    èvbárè.

_Ozo    try.PRS.L    INF    eat    food
PN    V    V    CN

'Ozo makes efforts to eat food (regularly).'</n>
It cannot occur in a tense clause.

(177) *Ózó yá hiá-rè rrí èvbárè.

Ozo INF try.PST-rV eat food
PN V V CN

'Ózo to made an effort to eat the food.'

Yá is optional and may be left out of the construction as in (175a) to (175b) but the infinitival nature of V2 is still expressed and V2 always bears a high tone irrespective of the tense marking on V1. Examples (176a) and (176b) show that yá can only occur after a tensed V1 and before an untensed V2 and the tone on V2 is always high irrespective of the tense on V1. Example (177) shows that it cannot occur before a tensed V1. This also applies in multi-verb constructions. The following examples show its distribution in multi-verb constructions:

V+modifier constructions
For this class of constructions, yá is not licensed before V2. The constructions are grammatical when it is left out but V2 cannot have an infinitival interpretation. Example (178) below is representative for this class of constructions.

(178) *Ózó rhùlé-re (yá) kpàá. (directional)

Ozo run.PST-rV (INF) go
PN V ADV

'Ozo ran to away (away from the speaker).'

V+infinitival complement construction
In (179) to (180), yá occurs before V2 because V2 resides in an infinitival subordinate clause:
(179)  Írán  kúgbé-rè (yá) (tòbírán) rří  ížè.  (comitative)

Írán  kúgbé-rè  (yá) (tòbírán) rří  ížè.
3.PL  join.together.PST-rV (INF) (by.3PL.selves) eat  rice
PRON V  PRON  V  CN

'They joined together to eat the rice by themselves.'

(180)  Èhò  èvá  òré  Òzó  rří-rè (yá) (tòbó rřè) fián  àlímójí.  (instrumental)

Èhò  èvá  òré  Òzó  rří-rè
Knife  two  FOC  Ozo  take.PST-rV
CN  NUM  PN  V
(Yá)  (tòbó rřè)  fián  àlímójí.
(INF) (by.3SG.self)  cut  orange
PRON  V  CN

'It is two knives Ozo used to cut the orange by himself.'

V+mood construction
Also in purpose constructions, yá is not licensed before V2.

(181)  *Òzó  mién  àlímójí (yá) kpá!án.  (purpose)

*Òzó  mién  àlímójí  (yá)  kpá!án.
Ozo  see.PST.H  orange  (INF)  pluck.H!H
PN  V  CN  V

'Ozo saw an orange to pluck.'

V (P) +V (P) constructions
In resultatives, negative resultatives, consequential and covert coordination constructions also yá is not licensed before V2. I use representative examples in (182)-(183) below.
(182) *Íràn suá Àzàrí (yá) dé gbé òtò. (resultatives)

*Íràn suá Àzàrí (yá)
3.PL push.PST.H Azari (INF)
PRON V PN

dé gbé òtò.
fall.PST.H against ground
V PREP CN
'They pushed Azari to. '

From examples (174) to (183) it has been shown that yá is an infinitival marker that is licensed before a non finite V2. A fixed high tone on V2 marks its non finite nature.

4.2.5.1.1 Further evidence of the non-finite nature of V2 in infinitival complement constructions.

The distribution of the auxiliary element té (used to) in Èdó brings out the non-finite nature of V2 in V+infinitival complement constructions. Té (used to 'auxiliary element which specifies past habitual aspect') has a near homophone të (nearly, already 'an adverb').
(184) Òzó té lé èvbárè

Òzó té lé èvbárè
Ozo usedto.PST.H cook.PST.H food
PN AUX V CN
'Ozo used to cook food.'

(185) Òzó tè lé èvbárè

Òzó tè lé èvbárè
Ozo already/nearly cook food
PN ADV V CN
'Ozo already/nearly cooked the food.'

Of interest is the fact that in comitative and instrumental constructions, only the
adverb tè can occur before V2. The auxiliary té cannot occur before V2:

(186) a. Íràn té kúgbé rrí ízè.

Íràn té kúgbé rrí ízè.
3.PL used.to.PST.H join.together eat rice
PRON AUX V V CN
'They used to eat the rice together.'

b. Íràn kúgbé-rè tè /*té rrí ízè.

Íràn kúgbé-rè tè /*té rrí ízè.
3.PL join.together.PST-rV nearly /*used to.PST.H eat rice
PRON V ADV/AUX V CN
'They joined together and almost ate the rice.'
'*They joined together and used to eat the rice.'

70 The realis and irrealis aspect distinctions are grammatical categories in Èdó.
Examples (186) to (187) show that the value for tense is non finite for V2 in comitative and instrumental constructions.

4.2.5.2 VP constructions and the floating anaphor \textit{tòbóré}

I begin this section with a discussion of the distribution of the \textit{tòbóré} ‘by.pronoun. self’ anaphor. Thereafter, I show its interaction with the 11 VP construction types.

4.2.5.2.1 The \textit{tòbóré} anaphor

Below is a characterization of the anaphor:

\begin{enumerate}
  \item It is used for emphasis.
  \item Its internal structure is \textit{tè ‘to urge’ +òbó ‘hand’ + pronoun} (Melzian1937: 133,191-192).
  \item Its basic use is as a subject oriented adverb.
  \item It cannot occur in object position.
\end{enumerate}

Table 20 shows the composition of the anaphor.
Table 20

<table>
<thead>
<tr>
<th></th>
<th>SING</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st PERS</td>
<td>töbó ‘by hand’ + mwén ‘me’ = töbómwén ‘by myself’</td>
<td>Töbó ‘by hand’ + ímà ‘us’ = töbímà ‘by ourselves’</td>
</tr>
<tr>
<td>2nd PERS</td>
<td>Töbó ‘by hand’ + rúé ‘you’ = töbó rúé ‘by yourself’</td>
<td>Töbó ‘by hand’ + rúá ‘you’ = töbírúà ‘by yourselves’</td>
</tr>
<tr>
<td>3rd PERS</td>
<td>Töbó ‘by hand’ + rè ‘him/ her/ it’ = töbórè ‘by him/her/it self’</td>
<td>Töbó ‘by hand’ + írán ‘us’ = töbiràn ‘by themselves’</td>
</tr>
</tbody>
</table>

Note that the pronominal form is the object personal pronoun. These anaphors never occur in object position and are used solely for emphasis.

Èdó also has reflexive pronouns that may occur as objects of verbs and prepositions:

Table 21

<table>
<thead>
<tr>
<th></th>
<th>SING</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st PERS</td>
<td>ègbé ‘body’ + mwén ‘me’ = ègbémwén ‘myself’</td>
<td>ègbé + ímà ‘us’ = ègbímà ‘ourselves’</td>
</tr>
<tr>
<td>2nd PERS</td>
<td>ègbé ‘body’ + rúé ‘you’ = ègbérúé ‘yourself’</td>
<td>ègbé + rúá ‘you’ = ègbérúá ‘yourselves’</td>
</tr>
<tr>
<td>3rd PERS</td>
<td>ègbé ‘body’ + rè ‘him/ her/ it’ = ègbérè ‘him/her/it self’</td>
<td>ègbé + írán ‘us’ = ègbéiràn ‘themselves’</td>
</tr>
</tbody>
</table>

In (189) I show that the anaphor töbórè cannot occur in object position while (190) shows that the reflexive pronoun can.

(189) *Ọsàrọ́ fián töbórè́.

*Ọsàrọ́ fián töbórè

Ọsaro cut.PST.H by.3SG.self
PN V ANA

‘Osaro cut by himself.’
The anaphor may occur after the subject or float off the subject. 

(191) \( \text{Íràni tòbírànì ghá lè ízè.} \) (subject NP) 

\[
\begin{align*}
\text{Íràni} & \quad \text{tòbírànì} \quad \text{ghá} \quad \text{lè} \quad \text{ízè}. \\
\text{3.PL} & \quad \text{by.3.PL.selves} \quad \text{FUT} \quad \text{cook} \quad \text{food} \\
\text{PRON ANA} & \quad \text{V} \quad \text{CN}
\end{align*}
\]

'\text{They themselves will cook the food}'

(They will cook the food themselves, even if no one joins them in the cooking).'

(192) \( \text{Írànì ghá tòbírànì lè ízè.} \) (auxiliary) 

\[
\begin{align*}
\text{Írànì} & \quad \text{ghá} \quad \text{tòbírànì} \quad \text{lè} \quad \text{ízè}. \\
\text{3.PL} & \quad \text{FUT} \quad \text{by.3.PL.selves} \quad \text{cook} \quad \text{food} \\
\text{PRON ANA} & \quad \text{V} \quad \text{CN}
\end{align*}
\]

'\text{They themselves will cook the food}'

(They must cook the food themselves).'

---

71 It seems that it is only when the anaphor occurs after the subject NP that it forms a constituent with it. This is seen when the subject NP is extracted:

(a) \( \text{Írànì, tòbírànì ọrè ọghá tè lè ízè.} \) 

\[
\begin{align*}
\text{Írànì} & \quad \text{tòbírànì} \quad ọrè \quad ọghá \quad tè \quad \text{lè} \quad \text{ízè} \\
\text{3.PL} & \quad \text{by.3.PL.selves} \quad \text{FOC} \quad \text{PLUG} \quad \text{AUX} \quad \text{AUX} \quad \text{cook} \quad \text{PRS} \quad \text{rice} \\
\text{PRON ANA} & \quad \text{PRON AUX AUX V} \quad \text{CN}
\end{align*}
\]

'\text{It is they themselves that should have cooked the food (and nobody else)}' 

In other positions, such realizations are not felitious. This supports a subject oriented analysis for the anaphor.
(193) Íràn, gięgię tòbíràn, lè ízè.  
Íràn, gięgię  tòbíràn, lè   ízè.  
3.PL  quickly.PRS  by.3.PL.selvess  cook.PRS  food  
PRON  ADV  ANA  V  CN  
'They themselves are quickly cooking the food  
(Someone else should have joined them).'  

In formal usage of the anaphor as shown in examples (191) to (193), it must occur preverbally. In (191) it right adjoins to the subject NP, in (192) to an auxiliary and in (193) to an adverb. However in colloquial Èdó, it may also right adjoin to object and dative NPs, post verbal advP and PPs:

(194) Íràn, lé ízè tòbíràn.  
Íràn, lé   ízè  tòbíràn.  
3.PL  cook.PST.H  rice  by.3.PL.selvess  
PRON  V  CN  ANA  
'They cooked the rice by themselves  
(Someone else should have joined in the cooking).'  

(195) Íràn, lé ízè nè ègbíràn, tòbíràn.  
Íràn, lé   ízè  nè   ègbíràn,  tòbíràn.  
3.PL  cook.PST.H  rice  for  themselves  by.3.PL.selvess  
PRON  V  CN  PREP  PROREFL  ANA  
'They cooked the rice for themselves by themselves)  
(Someone else should have joined in the cooking).'
(196) \[ \text{Íràn, lé ízè vbé ãkòni tòbírán.} \quad \text{(PP)} \]

Íràn, lé ízè vbé ãkòni tòbírán.

3.PL cook.PST.H rice in kitchen by.3.PL.selves

PRON V CN PREP CN ANA

'They cooked the rice in the kitchen by themselves

(Someone else should have joined in the cooking).'

(197) \[ \text{Íràn, lé ízè bánbánnà tòbírán.} \quad \text{(AdvP)} \]

Íràn, lé ízè bánbánnà tòbírán.

3.PL cook.PST.H rice just now by.3SG.selves

PRON V CN ADV ANA

'They cooked the rice just now by themselves

(Someone else should have joined in the cooking).'

However, the anaphor cannot occur between the verb and a NP or preposition it subcategorizes for.

(198) \[ \text{*Íràn, lé tòbírán ízè.} \quad \text{PRON V CN ANA CN} \]

*Íràn, lé tòbírán ízè.

3.PL cook.PST.H by.3.PL.selves rice

PRON V ANA CN

(199) \[ \text{*Íràn, rhié ízè tòbírán nè Òzó.} \quad \text{PRON V CN ANA PREP CN} \]

*Íràn, rhié ízè tòbírán nè Òzó.

3.PL take.PST.H rice by.3.PL.selves to Ozo

PRON V CN ANA PREP CN

*Rhié+ná in (199) forms a compound verb meaning ‘give’.

Also, it cannot occur between a verb and any adverb derived from a verb. In (200) below, mòsèmòsè ‘beautifully’ is derived from the verb mòsè ‘be beautiful’ through the process of reduplication and tonal change.

298
(200)  *Ôj bó êrè tòbórë, môsêmôsè.

*Ôj bó êrè tòbórë, môsêmôsè.
3.SG build.PST.H 3.SG by.3.SG.self beautifully
PRON V PRON ANA ADJ

'He built it by himself beautifully.'

In examples (194) to (197), the anaphor has the subject as its antecedent. Stewart (1998) and Baker and Stewart (2002:19-23) are of a different view with respect to the lexical item the anaphor modifies in (194) to (197). For them the anaphor may have either a subject (201b) or an object NP (201a) as its antecedent when it occurs after the verb and its complement. The following examples from them illustrate this (the asterisk is mine. I disagree with this view for reasons I will discuss below).

(201)  a. *Ôzó kpâán âlimóik tòbórëk.

Ôzó kpâán âlimóik tòbórëk.
Ozo pluck.PST.H orange by.3.SG.self
PN V CN ANA

'Ozo plucked the orange by itself.'

b. Ôzók kpâán âlimóî tòbórëk.

Ôzók kpâán âlimóî tòbórëk.
Ozo pluck.PST.H orange by.3.SG.self
PN V CN ANA

'Ozo plucked the orange by himself.'

The anaphor has as antecedent the object NP in (201a) and this renders the sentence ungrammatical while (201b) is grammatical where its antecedent is the subject NP.

To buttress a subject oriented interpretation for the anaphor, I show below that the anaphor must have the same number and person reference as the subject. Object oriented interpretations are ungrammatical.
A plural anaphor does not rescue the construction in (202 (ii)). The referent of the anaphor must be the subject NP:

A similar phenomenon exists also in English for the quantifiers all, both and each when used as pronouns. They may float off the subject, that is, they logically refer to the subject but are not part of it and occur after it or within the VP. I use the quantifier all as illustration (Noonan in progress):

Floating quantifiers cannot occur between a verb and its direct object ((205a)). Also, they may float off advanced IOs and DOs. With the exception of each, they cannot occur after the verb and object noun (if any) ((205b)) unless the verb itself is followed by an adverbial expression denoting some manner of similarity ((205c)). This restriction does not apply if the object NP is a pronoun as in (205d).
a. *The inmates had been eating all gruel.

b. *The warder found the inmates all.

c. The warder found the inmates all in the same place.

d. She’s got it all together.

Of interest is that a subject oriented interpretation has no restrictions while object oriented interpretation of the floating quantifiers is only permitted under certain conditions. He proposes that the quantifiers change category when they float to become adverbs which may be sisters to verbs or adjuncts to S (sentence) in simple constructions. For instance, all in (204a) would be classified as part of the VP.

In classical transformational grammar, the floating quantifier is analyzed as generated at the left edge of an NP with rightwards movement into different parts of the clause accounting for its different positions in a sentence. However following later development in the principles and parameters theory and to capture generalizations made by amongst others Sportiche (1988), the distribution of the quantifier was used as a justification for the VP-internal subject hypothesis with [Q NP] forming a single constituent and generated in spec VP. On this account, quantifiers may appear in NP initial positions and it is the NP that moves leftwards to the spec of IP.

Related to this, Farrell (2001) in his review of Sag and Wasow (1999) points out that the traditional classification of floating quantifiers as modifying a subject DP and moving with it under movement or the DP stranding the quantifier is motivated by theory internal assumptions. Linguistic facts show that floated quantifiers cannot generally appear in all the places that the trace of subjects are supposed to be and can occur in places where no trace should be.

The above then indicates that using the distribution of floating quantifiers as identification of subject positions with respect to NP traces is not an adequate criterion. I apply this argumentation to the floating anaphor. I discuss this further in section 4.2.5.2.2.2 below.

In the discussion above, in both classical transformational grammar and lexicalist based grammars, floating anaphors are assumed to modify subjects and not objects and this together with data from Èdò given above buttresses my argumentation of a subject oriented analysis for the Òbóre anaphor and a non pro based analysis for the
object for V2 in consequential constructions in Èdó as proposed by Baker and Stewart. Data from Haiti presented below also buttresses this view.

An anaphor interpretation similar to tôbôrè also exists in Haiti (Dechaine and Manfredi 1994:210):

(206)  \[Jak,_{\text{ik}} \text{ benyen } l_{\text{ik}} \text{ de } fwa \text{ pa jou.} \]

\[Jak \text{ bathe } 3sg \text{ two times per day} \]

\[\text{PN V ANA/PRON NUM CN} \]

(i)'Jak bathes himself [all by himself] twice a day.'

(ii)'OR Jak bathes her/him/it twice a day.'

(206i) is analyzed as implying an extra, instigator theta role, denoting a subject which acts contra to expectations on itself. I adopt this analysis in the discussion below.

In summary I have shown in this section that the floating anaphor has only the subject NP as antecedent. This subject-oriented interpretation of the anaphor has implication for the identification of control structures in multi verb constructions.

4.2.5.2.2 V 2 subject referent and tôbôrè distribution

Following the discussion above, those clauses in which the anaphor is not licensed before V2 are analyzed as having one token NP bearing the subject grammatical functions of the verbs in series. Clauses in which the floating anaphor can occur before V2 are analyzed as sharing referents between the subject arguments of V1 and V2 with VP2 having an unsaturated subject.

4.2.5.2.2.1 There is only one token NP for V1 and V2

In (207)-(214) below, I show that \(V+\text{modifier}, V+\text{mood}\) and \(V(P)+V(P)\) (the exception is the covert co-ordination) constructions do not license the floating anaphor before V2. With the exception of the durational and locational constructions
in V+modifier constructions where V2 is predicated of the event, the verbs in series in the other construction types share an NP token which is syntactically realized as the subject of V1 (or as in the resultative construction where the only argument of V2 is in a switch sharing relationship with an NP token which is realized as the object of V1).

**V+modifier constructions**

(207) *Özó, vié-rè tòbôrè, kpèé*.

*Özó, vié-rè tòbôrè, kpèé.*

_Ozo cry.PST-rV by.3SG.self be long_

PN V ANA ADV

'Ozo cried by himself for a long time.'

(208) *Özó, rhúlé-rè tòbôrè, kpàá.*

*Özó, rhúlé-rè tòbôrè, kpàá.*

_Ozo run.PST-rV by.3SG.self go_

PN V ANA ADV

'Ozo ran by himself away (away from the speaker).'

(209) *Özó, diгиén-rèn tòbôrèlè èvbàré.*

*Özó, diгиén-rèn tòbôrèlè èvbàré.*

_Ozo stoop.PST-rV by.3SG.self cook food_

PN V ANA V CN

'Ozo bent by himself while cooking.'

(210) *Özó, rhúlé-rè tòbôrè, lâá òwà.*

*Özó, rhúlé-rè tòbôrè, lâá òwà.*

_Ozo run.PST-rV by.3SG.self enter house_

PN V ANA PREP CN

'Ozo ran by himself into the house.'
**V+mood construction**

(211)  *Ôzó_{k} mién älimóí tòbòrèk kpá!án.*  

*Ôzó_{k} mién älimóí tòbòrèk kpá!án.

Ozo see.PST.H orange by.3SG.self pluck

PN V CN ANA V

'Ozo saw an orange by himself to pluck.'

**V(P)+V(P) constructions**

(212)  *Írànk suá Àzârí tòbírân_{k} dé gbé òtò.*  

*Írànk suá Àzârí tòbírân_{k}

3.PL push.PST.H Azari by.3PL.selves_{k}

PRON V CN ANA

dé gbé òtò.

fall.PST.H against ground

V PREP CN

'They pushed Azari by themselves down.'

(213)  *Írànk gá ébò tòbírân_{k} miénòkán.*  

*Írànk gá ébò tòbírân_{k}

3.PL serve.PST.H juju by.3PL.selves

PRON V CN ANA

mién òkán.

receive.PST.H distress

V CN

'They got trouble by themselves as their reward for serving gods.'
Interestingly, we saw in 4.2.5.1 that these constructions also do not allow the intrusion of *yá* the infinitival subordination marker, which is an indication that V2 does not have a covert subject: we conclude therefore that V1 and V2 share an NP token.

Following our discussion in the previous section, the anaphor can be right adjoined to the overt subject of V1 or an auxiliary element occurring before V1, and has scope over the whole situation depicted by V1-Vn. This further buttresses its status as a subject oriented anaphor and the fact that its non licensing before V2 in (207-214) is due to the absence of covert reference sharing in these constructions. I illustrate with examples where it is right adjoined to the NP subject of V1.

(214) *Íránk sá âmè töbiràn̩k wón.  

*Iránk sá âmè töbiràn̩k wón.*

3.PL fetch.PST.H water by.3PL.selves drink.PST.H

PRON V CN ANA V

'They fetched water by themselves and drank.'

(215) Ózóti töbôrɛ̀ rhûlɛ̀-rɛ̀ kpâá.  

*Ózóti töbôrɛ̀ rhûlɛ̀-rɛ̀ kpâá.*

Ozo by.3SG.self run.PST-rV go

PN ANA V ADV

'Ozo ran away by himself (away from the speaker).'</n

(216) Ózók töbôrɛ̀k mièn ̩àlimóí kpâlàn.  

*Ózók töbôrɛ̀k mièn ̩àlimóí kpâlàn.*

Ozo by.3SG.self see.PST.H orange pluck

PN ANA V CN V

'Ozo saw an orange to pluck by himself.'
(217) Íránk tòbíránk sá àmè wón. \quad (V(P) + V(P))

Íránk tòbíránk sá àmè wón.

3.PL by.3PL.selfs fetch.PST.H water drink.PST.H

PRON ANA V CN V

'They fetched water and drank by themselves.'

4.2.5.2.2.2 V2 shares subject referent with V1

In $V$+infinitival complement ((218) & (219)) and covert co-ordination constructions ((220) & (221)), the anaphor is licensed before V2. I analyze both constructions as having unsaturated subjects for VP2 that share referential index with the NP realized as the subject of VP1. By unsaturated subjects I mean that the element that bears the grammatical function of subject to V2 is not realized in its valence list but shares its referential index with the overt subject of V1. V2 assigns this element a theta role. However, VP2 in the former is an infinitival complement and the anaphor has scope over the whole situation depicted by the verbs in series.

For the covert co-ordination, the verbs in series are both finite and the events depicted by them may or may not be related and the scope of the anaphor is restricted to the VP it is contained in reflecting this fact.

(218) Íránk kùgbé-rè tòbíránk rrí ízè. \quad (comitative)

Íránk kùgbé-rè tòbíránk rrí ízè.

3.PL join.together.PST-rV by.3PL.selfs eat rice

PRON V ANA V CN

'They ate the rice together by themselves.'

(219) Èhò èvá óré Òzók rhié-rè tòbòrék fián èlimóí. \quad (instrumental)

Èhò èvá óré Òzók rhié-rè tòbòrék fián èlimóí.

Knife two FOC Ozo take.PST-rV by.3SG.self cut orange

CN NUM PN V ANA V CN

'It is two knives Ozo used in cutting the orange by himself.'
(220)  Òzók dé ízè, tòbóřèk rří ďré.  (covert co-ordination)

Òzók dé ízè, tòbóřèk rří ďré.

Ozo buy.PST.H rice, by.3SG.self eat.PST.H 3.SG
PN V CN ANA V PRON

'Ozo bought rice and ate it by himself.'

In (220), tòbóřè has the subject NP Òzó as its antecedent. The object NP ízè is not the antecedent of the anaphor. That this is so is immediately clear when we change the subject to a plural NP. For the resulting sentence to be grammatical, the number value for the anaphor must also be changed to plural.

(221)  a. Írànk dé ízè, tòbírànk rří ďré.

Írànk dé ízè, tòbírànk rří ďré

3.PL buy.PST.H rice, by.3PL.selfs eat.PST.H 3.SG
PRON V CN ANA V PRON

'They bought rice and ate it by themselves.'

b. *Írànk dé ízè, tòbóřèk rří ďré.

*Írànk dé ízè, tòbóřèk rří ďré

3.PL buy.PST.H rice, by.3SG.self eat.PST.H 3.SG
PRON V CN ANA V PRON

'They bought rice and ate it by himself.'

c. *Íràn dé ízèk, tòbóřèk rří ďré.

*Íràn dé ízèk, tòbóřèk rří ďré.

3.PL buy.PST.H rice, by.3SG.self eat.PST.H 3.SG
PRON V CN ANA V PRON

'They bought rice and ate it by itself.'

The examples in (218) to (221) show that the antecedent of the floating anaphor is the subject NP. This accounts for the grammaticality of (221a). The ungrammaticality of (221b) shows that the anaphor and the subject NP must agree in person and number. In (221c), the anaphor is predicated of the object and even though they agree in
number and person, the sentence is ungrammatical. The ungrammaticality can therefore only be accounted for by the non identity between the number and person features of the subject and the anaphor.

Stewart (1998) analyzes V2 in covert co-ordination as containing a subject position that is occupied by the trace of an Across the Board Movement (ATB) to which the anaphor adjoins. Stewart (1998) claims further that an overt pronoun subject may occur before V2 as in (222) below.

(222) a. Òzó dé ížè, ò rrí õré.
   Òzó dé ížè, Ò rrí õré
   Ozo buy.PST.H rice, 3.SG eat.PST.H 3.SG
   PN V CN PRON V PRON
   'Ozo bought rice and he ate it.'

b. Òzó ghí dé ížè, Ò ná rrí õré.
   Òzó ghí dé ížè, Ò ná rrí õré
   Ozo TM buy.PST.H rice, 3.SG TM eat.PST.H 3.SG
   'After Ozo bought rice, he ate it.'

(222a) is felicitous in our opinion only when it contains the temporal markers(TM) ghí and ná as in (222b).

Also the covert co-ordination has a corresponding counterpart were the verbs in series may occur with the overt conjunction marker vbé “also, as well as” (Agheyisi 1986:159) which may occur before V1 or V2 or both together as in (223). Such constructions are better when the verbs have different objects.

(223) Òzó (vbé) dé ížè, Ò (vbé) lé iyán.
   Òzó (vbé) dé ížè, Ò (vbé) lé iyán.
   Ozo also buy.PST.H rice, 3.SG also cook.PST.H yam
   PN CONJ V CN PRON CONJ V CN
   'Ozo (also) bought rice, he (also) cooked yam.'
In addition, negation shows that the structure in (222a) is not equivalent to (220) and (221a). Negation markers may occur before V2 in (222a) as in (224). I have shown in this chapter that the covert co-ordination and other multi-verb constructions do not license negation markers before V2.

(224) Ôzó dé ízè, Ô má (vbé) rří ñrë.

Ôzó dé ízè, Ô má (vbé) rří ñrë.
Ozo buy.PST.H rice, 3.SG NEG.PST also eat.PST.H 3.SG
PN V CN PRON CONJ V PRON

'Ozo bought rice and he did not also eat it.'

Turning now to the nature of the subject of VP2, an across the board movement analysis for the subject of VP2 in covert co-ordination is not supported by the tonal marking patterns on disyllabic verbs in covert co-ordination. Recall from the discussion in 4.2.2 that when objects in covert co-ordination are extracted, the extraction is marked on the subcategorizing verb as a high-downstepped-high tone. In disyllabic verbs where the overt subject NP of V1 is realized canonically, the verbs do not show any registration of extraction and this rules out an across the board analysis and an NP trace as a candidate for the subject NP position for V2. Also, positing a trace in the subject position involves the adoption of a theory internal assumption, that is, that subjects are generated inside the VP and raised to the spec, TP position.

Other candidates are pro and PRO. Èdó, is not a pro-drop language and this rules out pro as a possible candidate as the subject of VP2, also PRO is ruled out because VP2 resides in a tensed clause. The only option then is that VP2 has an unsaturated subject.

Evidence supporting my analysis of an unsaturated subject for VP2 above can be seen in the distribution of the anaphor in imperative constructions in Èdó. Imperatives in Èdó may have NPs with singular or plural references occurring optionally in appositive sentence initial positions. However when such NPs are absent, the imperative is understood as subcategorizing for an unexpressed subject NP with a second person singular referent. Importantly in Èdó, the second person reflexive
anaphor may occur in the surface subject position of an imperative. In such a position, it does not right adjoin to any covert subject neither is it in an appositive relation in the imperative construction. Example (225a) suggests that occurrence of the anaphor in \( V^{+}\text{infinitival} \) and covert co-ordination before VP2 only signal that the VPs have unsaturated subjects. A further support for this analysis comes from negative imperative constructions with a pre-verbal auxiliary particle \( \text{ghé} \). Here, the anaphor must occur after the marker as in (225b) and (225c).

(225) a. \( \text{Tòbóruè dé ízè, lé òré}. \)

\[
\begin{array}{llll}
\text{Tòbóruè} & \text{dé} & \text{ízè,} & \text{lé} & \text{òré.} \\
\text{By.2SG.self} & \text{buy.PST.H} & \text{rice,} & \text{cook.PST.H} & \text{3.SG} \\
\text{EMPH.ANA} & \text{V} & \text{CN} & \text{V} & \text{PRON} \\
\end{array}
\]

‘Buy rice and cook it by yourself.’

b. \( \text{Ghé tòbóruè dé ízè, lé òré}. \)

\[
\begin{array}{llll}
\text{Ghé} & \text{tòbóruè} & \text{dé} & \text{ízè,} & \text{lé} & \text{òré.} \\
\text{NEG.IMP} & \text{By.2SG.self} & \text{buy.PST.H} & \text{rice,} & \text{cook.PST.H} & \text{3.SG} \\
\text{AUX} & \text{EMPH.ANA} & \text{V} & \text{CN} & \text{V} & \text{PRON} \\
\end{array}
\]

‘Don’t buy rice and cook it by yourself.’

c. \( \text{*Tòbóruè ghé dé ízè, lé òré}. \)

\[
\begin{array}{llll}
\text{*Tòbóruè} & \text{ghé} & \text{dé} & \text{ízè,} & \text{lé} & \text{òré.} \\
\text{By.2SG.self} & \text{NEG.IMP} & \text{buy.PST.H} & \text{rice,} & \text{cook.PST.H} & \text{3.SG} \\
\text{EMPH.ANA} & \text{AUX} & \text{V} & \text{CN} & \text{V} & \text{PRON} \\
\end{array}
\]

‘Don’t buy rice and cook it by yourself.’

The above also buttresses our argument in section 4.2.5.2.1 that using the distribution of floating quantifiers as identification of subject positions with respect to NP traces is not an adequate criterion.

Returning now to the scope of the floating anaphor in the examples so far, it occurs before V2 in covert co-ordination and has scope only over it. The anaphor may also occur right adjoined to the subject NP and other preverbal elements before V1. As with when it occurs before V2, for \( V^{+}\text{infinitival complement} \) constructions it has
scope over the whole situation (226) and for covert co-ordination it has scope only over VP1 (227):

(226) Íràn k tóbírán k kùgbé-rè rrí ízè.  
Írán k tóbírán k kùgbé-rè rrí ízè.  
3.PL by.3PL.selves join.together.PST-rV eat rice 
PRON ANA V V CN  
'They eat the rice together by themselves.'

(227) Òzók tóbó rêk dé ízè, rrí óré.  
Òzó k tóbó rêk dé ízè, rrí óré.  
Ozo by.3SG.self buy.PST.H rice, ate.PST.H 3.SG 
PN ANA V CN V PRON  
'Ozo by himself bought rice and ate it.'

These constructions also differ with respect to post verbal adverb distribution.

In V+ infinitival complement constructions, adverbs demarcating VP boundaries are not licensed after V1 while for covert co-ordination they are licensed. I discuss immediately below adverb distribution in multi-verb constructions.

The distribution of the floating anaphor in this section has been used to identify the nature of subject argument sharing between the verbs in series. In particular, it was shown that subject argument sharing in the verbs in series in V+ infinitival complement constructions and the covert co-ordination constructions is covert subject sharing. For the directional, manner, resultative, consequential, negative resultative and the purpose constructions subject argument sharing is by token sharing. Argument sharing is discussed further in 4.2.6 below. I now discuss adverb distribution.

4.2.5.3 Multi-verb constructions and adverb distribution

The 11 multi-verb constructions discussed so far reveal different patterning with respect to adverb distribution. In the following I first examine how they pattern with respect to the preverbal adverbs giègiè “quickly” and gèlé “truly” and then examine the patterning with respect to the VP delimiting adverb ègiègiè “quickly”. The
patterns observed for the distribution of VP delimiting adverbials point to a complementation structure for resultative constructions and $V^{+}$ infinitival complement construction. For the other $V(P)+V(P)$ and $V^{+}$ mood construction, the distribution point to the existence of a VP boundary between VP1 and VP2. I begin the discussion with preverbal adverb distribution.

4.2.5.3.1 Preverbal adverbs distribution

In sections 4.1.1 and 4.2.4.1, I discussed the distribution of preverbal adverbs modifying V1 in $V^{+}$ modifier constructions. Recapitulating briefly, they are licensed before V1 and for manner construction, they undergo adverb stacking with the reanalyzed V1 verb while for the durational, directional and locational constructions such permutations are not licensed. The adverb has scope over the over-all event. I illustrate briefly with the directional construction (228a). Preverbal adverbs are not licensed before V2, an indication of its grammaticalized status (228b).

\[(228)\]

a. Özó gié!gié rhú!lé kpàá. (V+modifier)

Özó gié!gié  rhú!lé  kpàá.

\(Ozo\) quickly\(\) PST.\(H\)!H  run.PST.\(H\)!H  go\n
PN  ADV  V  V

'Ozo quickly ran away (away from the speaker).'

b.*Özó rhú!lé gié!gié kpàá. (V+modifier)

*Özó  rhú!lé  gié!gié  kpàá.

\(Ozo\)  run.PST.\(H\)!H  quickly.PST.\(H\)!H  go\n
PN  V  ADV  V

'Ozo ran quickly away (away from the speaker).'

I now discuss the distribution in $V(P)+V(P)$, $V^{+}$ infinitival and $V^{+}$ mood constructions. Stewart (1998) and Baker and Stewart (1999) discuss the distribution of preverbal adverbs in resultative, consequential and covert co-ordination constructions. Resultative constructions do not license such adverbs before the second verb while they are licensed before consequential and covert co-ordination. Licensing of such adverbs before the second verb is an indication that there are two separate events
which constitute the overall situation while the non-licensing implies that the verbs in series constitute one event. I agree with this view.

Also, for the constructions that license such adverbs before V2, the verbs in series may each be modified by an adverb. For the covert co-ordination, the same adverb form may modify each verb ((232b)). The resultative construction does not license adverbs before V2 ((229)). For the negative resultative ((234)) and consequential ((230)) constructions, when each verb is modified by an adverb, the adverbs must be different. This is related to adverbial scope. For the covert co-ordination, each adverb has scope only over the VP it is contained in, while for the resultative, negative resultative and consequential construction, an adverb has scope over the macro event depicted by the verbs in series.

According to Baker and Stewart (1999), the scope an adverb has in a construction is also reflected in the tonal patterning in covert co-ordination. Preverbal disyllabic verbs have a high-downstepped-high tone in the past tense. This tone is only copied on the verb heading the VP the adverb is contained in (232a). For the consequential construction, the tone is copied on the verbs in series ((231)). The following examples are from Baker and Stewart.

(229) Adverb not licensed before V2

*Íràn gié!gié suá Àzàrí géllé dé gbé òtò. (resultative)

*Íràn gié!gié suá Àzàrí

3.PL quickly.PST.!H push.PST.H Azari

PRON ADV V PN

géllé dé gbé òtò.

truly.PST.!H fall.PST.H against ground

ADV V PREP CN

'They quickly pushed Azari truly down'
(230) V1 and V2 must be modified by different adverbs:

Íràn gié!gié sá àmè gé!lé wòn. (consequential)

Íràn gié!gié sá àmè gé!lé wòn.
3.PL quickly.PST.!H fetch.PST.H water truly.PST.!H drink.PST.H
PRON ADV V CN ADV V

'They quickly fetched water and truly drank (it).'

(231) Only V1 is modified and the high-downstepped-high tone on the adverb spreads to V2:

Òzó gié!gié lè ọká , bó!ló ré. (consequential)

Òzó gié!gié lè ọká , bó!ló ré.
Ozo quickly.PST.!H cook.PST.H corn, peel.PST.!H eat.PST.H
PN ADV V CN V V

'Ozo quickly cooked the corn, peeled and ate it.'

(232) Only V1 is modified and the high-downstepped-high tone on the adverb spreads does not spread to V2:

a. Òzó gié!gié gbó!ló ívin, bolo ọká. (covert co-ordination)

Òzó gié!gié gbó!ló ívin, bolo ọká.
Ozo quickly.PST.!H plant.PST.H coconut, peel.PST.H corn
PN ADV V CN V CN

'Ozo quickly planted the coconut and [he] peeled the corn.'

b. V1 and V2 may be modified by the same adverb:

Òzó gié!gié gbó!ló ívin, gié!gié bó!ló ọká.

Òzó gié!gié gbó!ló ívin, gié!gié bó!ló ọká
Ozo quickly.PST.!H plant.PST.H coconut, quickly.PST.!H peel.PST.!H corn
PN ADV V CN ADV V CN

'Ozo quickly planted the coconut and [he] quickly peeled the corn.'
Extending their analysis to \(V+\)infinitival complement, the \(V+mood\) and the negative resultative constructions, preverbal adverbs are not licensed before V2 in the first but licensed in the latter two:

(233) Adverb not licensed before V2:

\[
*Irán gié!gié kú!gbé gélélé rri ízè.* \quad \text{(comitative)}
\]

\[
*Irán gié!gié kú!gbé gélélé rri ízè.
\]

3.PL quickly.PST.!H join.PST.!H truly.PST.!H eat.PST.H rice

PRON ADV V ADV V CN

'They quickly joined together to truly eat the rice.'

(234) V1 and V2 must be modified by different adverbs:

\[
Írán gié!gié gá ébô gélélé mién ìkán. \quad \text{(neg. resultative)}
\]

Írán gié!gié gá ébô gélélé.

3.PL quickly.PST.!H serve.PST.H juju truly.PST.!H

PRON ADV V CN ADV

mién ìkán.

receive.PST.H distress

V CN

'They quickly served the gods and truly got trouble as their reward '

(235) V1 and V2 must be modified by different adverbs:

\[
Ózó gié!gié mién àlimói gélélé kpálán. \quad \text{\((V+mood)\)}
\]

Ózó gié!gié mién àlimói gélélé kpálán.

Ozo quickly.PST.!H see.PST.H orange truly.PST.!H pluck

PN ADV V CN ADV V

'Ozo quickly saw an orange to pluck truly.'

As with the consequential construction, different adverbs must modify V1-Vn in negative resultatives and \(V+mood\) constructions if each verb has its own adverb (234) & (235) respectively.
Summarizing, the non-licensing of pre-verbal adverbials before V2 suggests a complementation structure for the resultative construction and the $V+\text{infinitival complement construction}$. They are licensed in the consequential, negative resultatives covert co-ordination and purpose constructions and this suggests an adjunction structure for these constructions. I show immediately below that this assumption is buttressed by the distribution of VP delimiting adverbs.

### 4.2.5.3.2 VP delimiting adverb distribution

I now consider adverbs that adjoin to the right of the VP. As discussed earlier, some adverbs have different forms when used as preverbal or post verbal adverbs. The adverb $\text{giégié}$ “quickly” belongs to this class. When right adjoined to a VP it takes the form $\text{égiégié}$ “quickly”. This adverb then, is very crucial in the identification of VP boundaries. Crucially, being a post verbal adverb and being nominal in form (remember that all nominals are vowel initial), it does not inflect for tense and has no implication for the tonal patterning of the verbs in series. In line with our discussion in the previous section, $V+\text{modifier}$ (236a), resultative (237a) and $V+\text{infinitival complement}$ (238a) constructions do not license the adverb after VP1. For it to be licensed, it must occur adjoined to VP2 (236b), (237b) and (238b).

(236) a. *Ôzo rhùlé-rè $\text{égiégié}$ kpàá. (V+modifier)

- *Ôzo
- rhùlé-rè
- $\text{égiégié}$
- kpàá.

Ôzo run.PST-rV quickly go
PN V ADV ADV

‘Ôzo ran quickly away (away from the speaker).’

b. Ôzo rhùlé-rè kpàá $\text{égiégié}$.

Ôzo run.PST-rV go quickly
PN V ADV ADV

‘Ôzo ran away quickly (away from the speaker).’
(237) a. "Íràn suá Àzàrì èghiègiè dé gbé òtò. (resultative)

*Irán suá Àzàrì èghiègiè
3.PL push.PST.H Azari quickly
PRON V CN ADV
dé gbé òtò.
fall.PST.H against ground
V PREP CN
'They pushed quickly Azari down.'

b. Íràn suá Àzàrì dé gbé òtò èghiègiè. (resultative)

Íràn suá Àzàrì
3.PL push.PST.H Azari
PRON V PN
dé gbé òtò èghiègiè.
fall.PST.H against ground quickly
V PREP CN ADV
'They pushed Azari down quickly.'

(238) a. *Íràn kùgbé-rè èghiègiè rrí ízè (comitative)

*Irán kùgbé-rè èghiègiè rrí ízè
3.PL join.PST-rV quickly eat.PST.H rice
PRON V ADV V CN
'They joined together quickly to eat the rice'

b. Íràn kùgbé-rè rrí ízè èghiègiè. (comitative)

Íràn kùgbé-rè rrí ízè èghiègiè.
3.PL join.PST-rV eat.PST.H rice quickly
PRON V V CN ADV
'They joined together to eat the rice quickly.'

Turning now to $V\ (P) + V\ (P)$ that is consequential, negative resultative, $V+mood$ and covert co-ordination constructions, they all license èghiègiè after VP1 or after VP2.
Unlike with the preverbal adverb counterpart $giégíé$, the scope of the adverb is limited to the VP it modifies for all of the constructions.

(239) a. Íràn sá àmè $giégíé$ wón.  
Íràn  sá  àmè  $giégíé$  wón.  
3.PL  fetch.PST.H  water  quickly  drink.PST.H  
PRON  V  CN  ADV  V  
'They fetched water quickly and drank (it).'</n>

b. Íràn sá àmè wón $giégíé$.  
Íràn  sá  àmè  wón  $giégíé$.  
3.PL  fetch.PST.H  water  drink.PST.H  quickly  
PRON  V  CN  V  ADV  
'They fetched water and drank (it) quickly.'</n>

(240) a. Íràn gá èbò $giégíé$ mién òkán.  
Íràn  gá  èbò  $giégíé$  mién  òkán.  
3.PL  serve.PST.H  juju  quickly  
PRON  V  CN  ADV  
mién  òkán.  
receive.PST.H  distress  
V  CN  
'They served the gods quickly and got trouble as their reward.'
b. Íràn gá ébò mién òkán ègiègiè. (neg. resultative)

Íràn  gá  ébò
3.PL  serve.PST.H  juju
PRON  V  CN

mién  òkán  ègiègiè.
receive.PST.H  distress  quickly
V  CN  ADV

'They served the gods and quickly got trouble as their reward.'

(241) a. Òzó gbòó ivìn ègiègiè, bolo òká. (covert co-ordination)

Òzó  gbòó  ivìn  ègiègiè, bolo  òká
Ozo  plant.PST.H  coconut  quickly, peel.PST.H  corn
PN  V  CN  ADV  V  CN

'Ozo planted the coconut quickly and [he] peeled the corn'

b. Òzó gbòó ivìn, bóló òká ègiègiè. (covert co-ordination)

Òzó  gbòó  ivìn,  bóló  òká  ègiègiè.
Ozo  plant.PST.H  coconut, peel.PST.H  corn  quickly
PN  V  CN  V  CN  ADV

'Ozo planted the coconut and [he] peeled the corn quickly.'

The licensing of VP delimiting adverbials for the $V(P) + V(P)$ that is consequential, negative resultative, $V+mood$ and covert co-ordination constructions supports an adjunction structure for these constructions. The non-licensing in $V+infinitival$ and the resultative constructions support a complementation structure for these constructions.

In table 22 below, I present a summary of this section showing in addition to the facts already presented in table 19, the structural types the constructions belong to:
Table 22

<table>
<thead>
<tr>
<th>Construction type</th>
<th>Structure</th>
<th>Infinitival Marker</th>
<th>Floating anaphor</th>
<th>Preverbal Adverb Before V1</th>
<th>Preverbal Adverb Before V2</th>
<th>VP Adjuncts After VP 1</th>
<th>VP Delimiting Adverb after VP2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V+modifier</td>
<td>Adjunction</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>V(P)+V(P); Resultatives</td>
<td>Adjunction</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Consequential</td>
<td>Adjunction</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Neg.resultatives</td>
<td>Adjunction</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Covert-coordination</td>
<td>Adjunction</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>V+mood</td>
<td>Adjunction</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>V+infinitival complement</td>
<td>Complementation</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

4.2.6 Argument sharing in multi-verb constructions.

So far, my main focus has been on identifying the range of multi-verb constructions found in Èdó. The literature on argument sharing in multi-verb construction is mainly concerned with types of argument sharing in SVCs. I begin this section with a discussion on argument sharing in SVCs and then expand the discussions to the other constructions identified so far. The term serial verb construction has been used to refer to different construction types in different serializing languages. Two schools of thought exist:


Baker (1989) asserts that the true SVC involves object sharing. According to him (1989:521) “Descriptively, we want to say that the NP between the two verbs is the argument of both verbs, whereas the phrase that occurs after V2 is only the argument of V2”.

320
Baker makes the distinction between SVCs, overt co-ordination and covert co-ordination constructions. SVCs are distinguished from overt co-ordination by the fact that the latter may have a co-ordination particle, as well as the V2 having an object that is coreferential with the object of V1. Covert co-ordination constructions, in contrast, have no overt co-ordination particle. An additional characteristic is the non-object sharing nature of covert co-ordination. Furthermore, true SVCs are perceived as single events by native speakers while covert co-ordination constructions are seen as a sequence of distinct events. Lastly, a slight comma pause may precede the V2 of a covert conjunction.

Collins (1997) agrees with Baker (1989) on internal argument sharing SVCs being true SVCs. For him, internal argument sharing is mediated by an empty category pro. The distinguishing criteria for SVCs and covert co-ordination may be different in different languages. In Ewe according to Collins, the distribution of the future marker distinguishes the two construction types. In SVCs, the future marker occurs only before the first verb while it occurs after both verbs in covert co-ordination constructions.

For Stewart (1998), the true SVC is the type that involves “object sharing”. He recognizes two types of SVCs in Èdó: the resultative and the consequential SVC. He deviates from the stand of Baker (1989, 1991) and Collins (1997) in that he does not recognize the SVC as having one uniform structure. For him, the resultative SVC has a complementation structure somewhat akin to the structure proposed in Baker (1989), that is the verbs in series share the NP which occurs as the syntactic object of V1. The consequential SVC has an adjunction structure with object sharing mediated by pro, while the covert co-ordination structure is analyzed as an adjunction of EPs (Event Phrases) with each verb projecting its own object. This analysis is supported in essence by Baker and Stewart (1999). Baker and Stewart (2002:3-4) develop this analysis further to encompass a third kind of “true SVC”, the purpose construction. I give a summary of their proposal for argument sharing and structure for these construction types in table 23 below.
Table 23

<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 *complementation structure* with a single structural NP as the object of two verbs the second of which is unaccusative.

Consequent Serial Verb Construction (CSVC) is represented as *a VP adjunction structure* with object sharing represented as reference sharing. The theme of V2 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) distinguishes between modal-aspectual verb constructions and Instrumental verb construction. They are analyzed as re-analyzed structures involving *subordination of VP2*.

The discussion so far in this chapter has shown that object sharing in multi-verb construction is mediated by token sharing of grammatical functions and overt reference sharing. I discuss this further below and in chapter 7.

For Law and Veenstra (1992) citing examples from Sranan Tongo and Saramaccan, argument sharing is not a distinguishing factor for the SVC. SVCs may involve no sharing of arguments. True SVCs have a one event interpretation.

Using data from a wide range of languages (Jeh, Yoruba; Sranan, Igbo, Kalam, Paamese, white Hmong etc.), Durie (1997) also shows that argument sharing is not a distinguishing characteristic for SVCs. In addition to other characteristics listed by him, true SVCs consist of a single event. Furthermore, SVCs share at least one and possibly more arguments.

From the viewpoint of role sharing, Durie (1997) asserts that a serial complex as a whole cannot contain duplicate roles. That is, there cannot be two agents, two patients, two instruments etc (but an NP can bear two roles). Serialization like [I hit Bill kill John] is impossible because there are two patients. Durie discusses cases
where an argument shares different roles from two verbs and suggests two possible strategies for such phenomena:

(243)

i. Permit multiple roles and say nothing.

ii. Fuse the argument structures, allowing for an integrated set of

semantic roles.

He adopts the argument fusion approach (using Jackendoff’s conceptual semantics model) for the following reasons:

(244)

i. The constraints against role doubling only make sense at the level of a
fused argument structure for the whole serial complex.

ii. The linking problem requires a fused argument structure

Beermann Sahoo and Hellan (2002) working on Oriya (spoken in India), show that argument sharing (in the sense of Baker 1989) is not obligatory. Each of the verbs in series may select its own set of complements. According to them, in the structure \[NP_A V1 NP_B V2\], the subject or object of \(V1\) may be interpreted as the subject or object of \(V2\) but they need not be coreferential.

The notion of argument sharing is interpreted in three different ways by them.

(245)

i. ARGUMENT SHARING SENSE 1

A token occurrence of an NP serves for a set of consecutive verb \(V1, V2…Vn\) as the only overt NP which instantiates a given argument function \(AF\) relative to each of the verbs.

I have represented this sense of argument sharing in the tree diagram below. Here there can be in addition a covert NP:
ii. ARGUMENT SHARING SENSE 2
A token occurrence NP serves for a set of consecutive verbs V1, V2...Vn as the only NP which instantiates a given argument function (AF) relative to each of the verbs. Sense two is equivalent to token sharing and there is no covert NP.

iii. ARGUMENT SHARING SENSE 3
This refers to function sharing. Function sharing generalizes over sense 1 and 2. It reflects over parts of the shared information. This information may be semantic, syntactic or pragmatic. They also point out the possibility of there being no sharing of functions. An argument may have one reference in common throughout the relations it bears to all of the arguments.
Beermann, Sahoo and Hellan distinguish between different kinds of token sharing:

(246)

i. Token Sharing - this applies only to sense ii/2. Each verb directly stands in a grammatical function/role assigning relation to the NP token in question.

ii. Overt token sharing - this is a combination of sense i/1 and sense ii/2.

iii. Non-token sharing.

In Oriya, sharing may also be “kept on hold”. This is illustrated by the structure $[V_1 \text{[TRANS]} \ NP_2 \ V_2 \text{[INTRANS]} \ V_3 \text{[TRANS]}]$. NP2 is the object of V1 and the understood object of V3 despite the intervening intransitive V2 between them. The sharing kept on hold phenomenon they claim, suggests that sense two of argument sharing may not be the right analysis of such construction types in Oriya.

Hellan, Beermann and Sætherø (2003:5) present a related analysis as shown in (247) below:

(247)

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

In the following, I adopt Hellan, Sætherø and Beermann’s construal of coreference for the argument sharing patterns in Èdó multi-verb constructions.
4.2.6.1 Argument sharing patterns in Èdó multi-verb constructions

With the assumptions in (245) and (247) as foundation and based on the discussion in section 4.2.5, I now discuss argument sharing patterns in Èdó multi-verb constructions using the distribution of the floating anaphor as argument.

Subject sharing

Token sharing of subjects by grammatical function; In $V(P)+V(P)$; consequential and negative resultatives, and $V+mood$ constructions, the verbs in series share an NP token which is syntactically realized as the subject of $V_1$. A test confirming this is the non-licensing of the floating anaphor before $V_2$. I illustrate this below:

(248) *Özókvié-rè tóbó rèk fóó. (V+modifier: durational)

*Özók vié-rè tóbó rèk fóó.

Ozo cry.PST-rV by. 3SG.self finish
PN V ANA ADV
'Ozo finished crying by himself.'

(249) *Özo rhúlé-rè tóbó rè lág ọwá. (directional)

*Özói rhúlé-rè tóbó rè lág ọwá.

Ozo run.PST-rV by. 3SG.self enter house
PN V ADV CN
'Ozo ran into the house by himself.'

(250) *Özók lé èvbárè tóbó rèk ré. (V (P)+V (P): CSVC)

*Özók lé èvbárè tóbó rèk ré.

Ozo cook.PST.H food by.3SG.self eat.PST.H
PN V CN ANA V
In example (248) V2 is reanalyzed to an adverb and predicated of the event of V1. Argument sharing does not apply here. For example (249), V2 is predicated of the subject of V1 and these token share this subject.

**Covert reference sharing of subjects**

The NP which bears the grammatical function of subject to V1 shares referential index with the unsaturated subject argument of VP2 in \( V+ \) infinitival complement and covert coordination constructions. Thus the floating anaphor is licensed before V2:

\[
\begin{align*}
(252) \quad \text{Írán}_k \, \text{kùgbé-rè \ tòbíràn}_k \, \text{rrí \ ízè.} & \quad \text{(comitative)} \\
\text{Írán}_k \, \text{kùgbé-rè} & \quad \text{tòbíràn}_k & \quad \text{rrí} & \quad \text{ízè.} \\
3\text{.PL} & \quad \text{join. together.PST-rV} & \quad \text{by.3.PL.selves} & \quad \text{eat} & \quad \text{rice} \\
\text{PRON} & \quad \text{V} & \quad \text{ANA} & \quad \text{V} & \quad \text{CN} \\
\end{align*}
\]

>'They ate the rice together by themselves.'

(253)  Ózók, \dé \ ízè, \ tòbó rá \ rrí \ órè.  \quad \text{(covert co-ordination)}

\[
\begin{align*}
\text{Ózók} & \quad \text{dé} & \quad \text{ízè,} & \quad \text{tòbórá} & \quad \text{rrí} & \quad \text{órè.} \\
\text{Ozo} & \quad \text{buy.PST.H} & \quad \text{rice,} & \quad \text{by.3SG.self} & \quad \text{ate.PST.H} & \quad \text{3.SG} \\
\text{PN} & \quad \text{V} & \quad \text{CN} & \quad \text{ANA} & \quad \text{V} & \quad \text{PRON} \\
\end{align*}
\]

>'Ozo bought rice and ate it by himself.'

**Switch sharing**

In regulative 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:
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 participant role in question (Hellan, Beermann and Sætherø 2003:12-13).

Consequential constructions and $V+mood$ constructions exhibit token sharing of objects. I illustrate with (255) below:

(255) Ọzó dé iyán dùnmwún.  
Ọzo  dé  iyán  dùnmwún.  
'Ọzo bought the yam and pounded it.'

Overt reference sharing/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. Instances where they share referent are overt reference sharing:

(256) Ọzó dé ịzèk rrí ọrék.  
Ọzo  dé  ịzèk  rrí  ọrék.  
'Ozo bought rice and ate it.'
(257) Òzó lé ízè₁ kpòló ówák.

Òzó lé ízè₁ kpòló ówák.

Ozo cook.PST.H rice sweep.PST.H house

PN V CN V CN

‘Ozo cooked rice and swept the house.’

Also, in \( V^+ \) infinitival complement (where \( V2 \) projects an object) and negative resultative constructions objects are not shared (if any).

In table 24 below, I present a summary of the discussion in section 4.2.5 and 4.2.6. In chapter 7, I present a formal analysis.

### Table 24

<table>
<thead>
<tr>
<th>Construction type</th>
<th>Infinitival Marker yá Before ( V2 )</th>
<th>Floating anaphor before ( V2 )</th>
<th>( V^+ ) Adjuncts After ( VP ) 1</th>
<th>Token Sharing of subjects</th>
<th>Switch Sharing</th>
<th>Covert reference sharing of subjects</th>
<th>Token Sharing of objects</th>
<th>Overt Reference Sharing of objects</th>
<th>Objects are not shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V^+ ) modifier: durational Locational</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Not Applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>No</td>
</tr>
<tr>
<td>Directional Manner</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>( V(P)^+ V(P) ): Resultatives Consequential Neg.resultatives Covert-coordination</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>( V^+ ) mood</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>( V^+ ) infinitival complement</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### 4.3 Conclusion

In this chapter, my aim has been to identify the different types of multi-verb constructions in Èdó using language internal behavioral patterns. The discussion above shows that the multi-verb constructions found in the language interact with the nature of inflection in the language.

I have introduced 14 types of VP constructions and characterized them in semantic terms based on event semantics. Of the 14, 11 are identified as multi-verb constructions.
Based on their behavior with respect to inflection, in particular the \(-rV\) suffix, the distribution of the infinitival marker \(yà\), the floating anaphor \( tôbôrê \text{ ‘by pronoun self’}\) and adverbial elements I have classified them into four structural types:

(258)

i. \(V+\text{modifier}\); durational, directional, manner and locational constructions.

ii. \(V(P)+V(P)\); resultative, consequential, negative resultative and covert co-ordination constructions.

iii. \(V+\text{mood}\); purpose construction.

iv. \(V+\text{infinitival}\); comitative and instrumental constructions.

With respect to \(-rV\) suffixation, it is not licensed when there is total identity of \(t\)am features for \(V_1\) and \(V_2\). It is licensed when \(V_2\) bears a different value either with respect to the value for mood or it is non finite as in \(V+\text{mood}\) and \(V+\text{infinitival complement}\) construction. It is also licensed when \(V_2\) is reanalyzed as an adverb as in \(V+\text{modifier}\) constructions. This was discussed in section 4.2.4.

The distribution of the infinitival marker \(yà\) and pre and post verbal adverbs as discussed in section 4.2.5 have shown that \(V+\text{modifier}\), \(V(P)+V(P)\) and \(V+\text{mood}\) constructions have an adjunction structure while the \(V+\text{infinitival complement}\) and a subtype of the \(V(P)+V(P)\) construction: the resultative construction are identified as having a complementation structure.

I have shown, based on the distribution of the floating anaphor \( tôbôrê \text{ ‘by pronoun self’}\) in section 4.2.5, that \(VP_2\) in \(V+\text{infinitival complement}\) and covert co-ordination constructions have unsatured subjects whose referential indices are identified with the referential indices of the overt subjects of \(V_1\), while the verbs in series in the \(V+\text{mood}\) and the other sub-types of \(V(P)+V(P)\) constructions token-share the overt subject \(NP\).

In section 4.2.6, three types of subject sharing patterns have been identified: token sharing by grammatical function, covert reference sharing and switch sharing. For objects, three kinds are identified: object sharing by grammatical function, overt reference sharing and different objects.
In chapter 5, I discuss a typology for multi-verb constructions in the following languages of the Volta-Congo:72

(259)

(i) Benue-Congo: Èdó, Igbo and Yoruba
(ii) Gur: Gurene
(iii) Kwa: Ga, Baule and Akan

---

72 The classification used is as in Gordon, Raymong G. Jr.(ed). 2005.
CHAPTER FIVE
A SURVEY OF MULTI-VERB CONSTRUCTIONS IN SOME
LANGUAGES OF THE VOLTA-CONGO

5.0 Introduction

In this section, I discuss multi-verb constructions mainly in the following languages of the Niger-Congo: Atlantic-Congo: Volta-Congo,\(^{73}\) and situate the properties of Èdó multi-verb constructions discussed in chapter 4, within observed typology common to these languages:

3. Kwa: Nyo: Ga, Baule, Akan and,

In the course of the discussion, I will also make references to other languages of the Volta-Congo from the Kwa: Nyo subgroup such as Likpe and the Kwa: left-bank: Gbe group such as Fon.

Ameka (2005) examines languages along the West African Coast: Kwa (as in (1iii) above) and Benue-Congo especially Akan, Ewe, Likpe, Fon and Yoruba from an areal perspective showing how they pattern with respect to multi-verb construction types. He discusses consecutive constructions, bi-clausal constructions and SVCs. He focuses on SVCs with respect to argument sharing patterns, focusing and tense, aspect, and mood and negation patterns. He states that these are areal features.

Manfredi (2005a) has a different classification. Akan is classified as belonging to a sub language family BK1 (Benue-Kwa) together with Igbo and Bantoid. Yoruba is classified as belonging to BK2. Benue-Kwa in his classification corresponds roughly to Volta-Congo but without Mandekan, Atlantic, Gur, Izon and some other clasters. He states categorically that his classification “for history: neither BK1 nor BK2 is

\(^{73}\) The classification used is as in Gordon, Raymond G. Jr.(ed). 2005.
contained in either New Kwa or New Benue-Congo. BK2 being geographically contiguous, it could be the innovation, with BK1 the archaic remnant” (2005a:2). Under his classification Èdó, Igbo and Akan share common criteria with respect to tense and inflection and lexicalization of events, while Yoruba exhibit different patterning from these languages.

In the following, I have extended the range of languages to include a broader spectrum of the Volta-Congo languages which includes data from Kwa, North and Benue-Congo. I have also extended my analysis to account for a broader class of multi-verb types.

The discussion below focuses mainly on the following:

(2) Identification strategies used in the different languages to demarcate types of multi-verb constructions.

(3) to (5) below are related to (2) above:

(3) The distribution of tense, aspect and mood in multi-verb constructions.
(4) Argument sharing patterns in multi-verb constructions.
(5) Classification of multi-verb constructions into structural types.

Identification strategies include: presence or absence of co-ordination/consecutive markers, extraction, argument/subject realization patterns, and ability of the verbs in series to occur independently as well as patterning of tense, aspect, mood and negation. I discuss how they relate and differ in the languages under study.

With respect to tense, aspect and mood, I show that the types of multi-verb constructions found in the different languages reflect the typological profiles of these languages. Languages with rich inflectional systems seem to exhibit a wider range of multi-verb constructions than those without. In relation to this, Manfredi (2005a) observes that languages that have suffixation/tonal pattern as minimal inflection will license multi-events in a single clause while languages that do not have such inflectional pattern do not. However as Manfredi (2005a:7-11) observes, while
inflection may demarcate multi-verb types within a language, the patterns found in a language do not necessarily map on to other languages within the same language family.

Interestingly, argument quantification pattern may also influence tense interpretation patterns in a given language and illuminate different types of serialization within a language (Manfredi 2005a).

Argument sharing patterns reveal that languages with rich verbal agreement features that allow recoverability of unexpressed arguments tend to license null subjects and objects. Related to this is that such languages do not seem to license switch sharing and tend to favour reference sharing of arguments as opposed to token sharing. Related to a rich morphological marking on verbs is the presence of resumptive pronoun markers in such languages. Such languages may license switch function sharing, if they do then, switch sharing may not licensed. Manfredi (2005a) points out that argument realization patterns do not map on uniformly in Benue-Kwa languages.

In line with the general discussion in the literature as to the licensing patterns in multi-verb constructions, a distinction is found between either a right adjunction analysis or a complementation analysis or both in a given language. In the languages discussed, Baule is the exception, the multi-verb construction being licensed through conjunction. Tests such as the ability of interspersable adjuncts to occur in between the verbs in series, negation, and predicate cleft have been used as empirical support for these structures.

The discussion in this chapter is patterned as follows: I begin with identification strategies, and then discuss each type identified with respect to (3) to (5) above and show how they correlate with the construction types identified in chapter 4.
5.1. Identification

As discussed in chapter 4, multi-verb constructions are classified along four dichotomies by Ameka (2005):

(6) Multi-verb constructions: verbs in series must function as independent verbs in simple constructions.

The criterion in (6) identifies the following multi-verb constructions: serial verb constructions (SVC) (7), overlapping constructions, covert co-ordination (8), and consecutive constructions (9). It excludes complex predicates such as light verb constructions and splitting verbs which are found in some Benue-Congo languages.

(7) Serial verb constructions (SVC): No marker of syntactic dependency.
(8) Overlapping constructions, covert co-ordination: no connector is used as a linker.
(9) Consecutive constructions: a linker may be used.

However, Lord (1992:2) points out that languages with multi-verb constructions with connectives have comparable meanings in languages without overt connectives in multi-verbs. This makes characterization in terms of surface syntactic form not too informative as I have shown in chapter 4. Related to this, there is another criterion in the literature usually cited as a distinguishing characteristic for covert co-ordination, that of a pause existing between the verbs in series. Manfredi (2005a:22) argues however that presences of overt conjuncts or pauses in a multi-verb construction are not sufficient criteria for differentiating between serial verb constructions and constructions such as covert co-ordination and consecutive constructions.

Relating this to the classification of consecutive constructions, covert co-ordination and a third kind of multi-verb construction identified in the literature on SVCs in Kwa namely the clause-chaining construction, it would seem that it is a fuzzy distinction which is made between these construction types in the literature.
I begin with the dichotomy between consecutive constructions and clause-chaining constructions. The former are differentiated from the latter by the presence of an optional connector in the former and no connectors in the latter. Consecutive constructions, in addition, may be made up of two or more verbal clauses and need not share arguments (Ameka 2005:3).

Andrews and Manning (1999:92) classify chaining constructions as consecutive clause constructions but differs from Ameka’s classification in obligatory subject sharing. According to them “here each clause in the series refers to a distinct, independent event, and perhaps apart from subject sharing behaves as an independent unit”.

Kroeger (2004:242) describes clause-chaining along the lines of Andrews and Manning (1999) however with the possibility of no subject sharing. According to them, “In languages which allow this pattern, a single sentence may consist of many clauses strung together in a “chain” with none of them necessarily subordinate to any of the other…clause chains involves sequences of clauses. In particular each clause in the chain may potentially contain its own subject”.

Hellan, Beermann and Sætherø (2003:1) have a similar classification for clause chaining SVCs (CCSVC) in Akan. They are characterized as a number of ordered VPs in a sequence with no upwards bound, containing verbs with full meaning with each VP expressing a completed event distinct from its successor. Akan CCSVCs describe an overall event which consist of a chain of non-overlapping events (Hellan, Beermann and Sætherø 2003:8) Similar to Andrews and Manning, Subject-sharing is obligatory and of the type covert reference sharing.

Turning now to covert co-ordination, the trend has been to distinguish this type from other types of serialization. The main test used is extraction and predicate cleft (Baker 1989, Baker and Stewart 1999, Hellan, Beermann and Sætherø 2003). In general, constructions that do not permit extraction out of them are classified as covert co-ordination while those that do are classified as either consecutive constructions or SVCs. Using this parameter Hellan, Beermann and Sætherø (2003) classify clause chaining constructions in Akan as a kind of SVC. They do not discuss covert co-ordination in Akan.
With respect to subject sharing, the subject of both clauses can be the same for covert co-ordinations and in such cases can be omitted (Ameka 2005:5). For Èdó as discussed in chapter 4, subject sharing patterns distinguish between covert co-ordination and multi-verb constructions classified in the literature as SVCs. For Èdó covert co-ordination, the subject of V2 is unexpressed and shares referential index with the subject of V1. Similarly, for Akan clause chaining constructions, the verbs in series share the same referential index with the NP bearing the index realized as overt subject of V1. In addition for Èdó as discussed in chapter 4, the distribution of a floating anaphor tòbòrè 'by.pron.self', tonal pattern and adverb scope clearly distinguish the covert co-ordination from other kinds of multi-verb constructions.

Object sharing patterns and intonational patterns are also used to distinguish covert co-ordination from SVCs (Baker 1989, Sebba 1987). Sebba (1987) (cf Kroeger 2004:232) describes covert co-ordination as “when a co-referential pronoun does occur…the sentence is not a serial construction but rather a special type of co-ordinate structure which does not contain any overt conjunction. This coordinate structure must be interpreted as describing two separate events and the two verbs may be separated by a pause”.

Ameka (2005:17) gives examples from Yoruba and Fon and states that predicate cleft is a possible defining characteristic for SVCs. Baker (1989:549) citing examples from Yoruba is also of this view. However, predicate cleft and NP extraction do not distinguish covert co-ordination from SVCs and other kinds of multi-verb constructions in Èdó (Baker and Stewart 1999). Different from Èdó, in Igbo, extraction out of a covert co-ordination is not licensed. In addition to each verb having its own object, it may involve verb doubling (Dechaine 1993:811). Stewart (1998:184) and Dechaine (1993) do not distinguish covert co-ordination from consecutive constructions in Igbo.

A further demarcation is made by Stewart (1998) between languages that have SVCs and those that do not with respect to inflection. Working within the Principles and Parameters theory, they posit that verbs in languages with a strong tense feature need to move to INFL to check tense and so do not license SVCs, while verbs in languages
with weak tense features do license SVCs. Igbo is cited as belonging to the former while Èdó and Yoruba is cited as belonging to the latter. Thus for Stewart instances cited as multi-event serialization in Igbo are actually covert co-ordination. Manfredi (2005) differs from Stewart’s demarcation between covert co-ordination/consecutive constructions and serial-verb constructions. He argues that inflectional and argument sharing patterns found in both construction types do not support a bifurcation of these constructions. Instead he recognizes two kinds of serialization: single event and multi-event serializations with the consecutive/covert coordination constructions belonging to the latter type. This he extends also to Èdó covert co-ordination. Based on the fact that NP extraction is not possible in Igbo covert co-ordination, I agree with Stewart’s (1999) and Dechaine’s (1993) classification of such construction types as covert co-ordination and I use this classification for my Igbo data.

Larsen (2002:92) employing NP extraction distinguishes clause-chaining from covert co-ordination. The former a SVC does not allow NP extraction while the latter does. However, Larsen (2005:3) deviates from the above view, and constructions formally identified as clause-chaining constructions are classified as a type of covert co-ordination which she labels Empty Subject Constructions (ESC). NP focus in ESCs may be licensed and are posited to be base generated. Cases (there may be resumptive pronouns at extraction site) where they are not licensed are explained as not being due to violation of Ross ’s (1967) island constraint but due to factors such as argument sharing properties (2005:155) and possibly principles of sentence processing (2005:150). In these constructions, the subject of V2 is a null subject.

Lastly, tense, aspect, mood and negation have been used in the literature to identify SVCs from consecutive and covert co-ordination constructions. SVCs generally have one marking for these features while consecutive constructions and covert co-ordination may have different markings in the verbs (VPs) in series.

Above, I have demarcated SVCs from other kinds of multi verb constructions. I now discuss more the issue of event interpretation and the demarcation between “true SVCs” and other kinds of serialization in the literature. Baker (1989:847) identifies “true SVCs” as being perceived by native speakers as a single related event while
covert co-ordination is perceived as a sequence of distinct events. Related to this is the constraint on internal argument sharing on “true” SVCs as opposed to different objects for the verbs in series in covert co-ordination which may or may not be coreferential. He notes however that it is legitimate to use the term serialization in a broad sense, referring to both “true serialization” and “covert conjunction” since the same principles and parameters make both structures possible (Baker 1989:549 footnote 27). Dechaine (1993), Hellan, Beermann and Sætherø (2003) and Manfredi (2005a) take a different view, for them SVCs may or may not have object sharing.

Particularly Dechaine (1993) makes a distinction between single event serialization and multi-event serialization. Single event serialization expresses an over-all composite event while multi-event serialization consists of separate events which may be aspectually unrelated (Igbo (pages 810-811) or related (Yoruba (pages 808-809)). Object sharing seems to be a constraint on the Yoruba examples and they correspond with Baker’s (1989:149) examples of “true” SVCs in Yoruba. Kroeger (2004) classifies some of Dechaine’s (1993) multi-event serialization data as single event serialization showing the disagreement in the literature as to what is a single or multi-event.

Manfredi (2005a:3) also makes a distinction between single event SVCs and multi-event SVCs. Different from Dechaine, some constructions classified as covert co-ordination and consecutive constructions in the literature belong to this group. For him, multi-event constructions share a single subject predicated over random consecutive events and he states that they are not licensed in Yoruba but licensed in Òdó, Akan and Igbo.

Relating the above discussion to my classification of multi-verb constructions in chapter 4, the resultative constructions and the consequential construction (sub-types of $V(P)+V(P)$ construction), and the purpose construction have been identified as “true SVCs” in the literature as opposed to covert co-ordination (Stewart 1998, Baker and Stewart 1999 and Baker and Stewart 2002). The first three are single event serialization. For covert co-ordination, series of events are also involved but with random relationships.
From the above, I recognize two kinds of serialization: the single event serialization and the multi-event serialization. For multi-events, I adopt Manfredi’s (2005a) definition.

My classification of single event serialization is based on Kroeger’s (2004) definition. A single event serialization has the following characteristics:

(10). i. The serialized verbs consist of closely related actions which together are viewed as making up a single event (micro/macro\textsuperscript{74}).

ii. It must be possible for speakers of a given language to interpret the various actions as a single coherent event (Durie 1997).

From the above discussion the following criteria in addition to (6) to (9) above are relevant for distinguishing the different types of multi-verb constructions:

(11) Argument sharing:

i. Not obligatory (covert co-ordination).

ii. Subject sharing (language dependent for Clause Chaining).

iii. Co-referential objects (covert-coordination).

(12) NP extraction:

i. Extraction not licensed (language dependent for covert co-ordination).

ii. Extraction licensed (SVCs).

(13) Predicate Cleft:

i. Licensed (SVCs).

ii. Not licensed (language dependent for covert co-ordination).

\textsuperscript{74} The micro/macro distinction can be likened to the distinction between essential and accidental SVCs in the literature (Christaller 1875). The macro relationship is best described as a precedence consequence relationship (cf Stewart 1998 and Baker and Stewart 1999).
Based on the above discussion the following constructions are discussed below: consecutive constructions, covert co-ordination and SVCs. I give examples of each type stating in what language group they commonly occur.

**Consecutive Constructions**
Only Ewe meets the characterization of consecutive constructions and they consist of two or more verbal clauses which may be linked by a connector. The state of affairs represented may be successive, simultaneous or alternating in time, and an intonational break is used for separate events, while a single intonation unit is used for related events.

(15) Ewe (Ameka 2005).

```
Ame síáa ame né míá nkú né mí-dó gbe ñá.
```

```
Person  INT  person  JUSS  close  eye  CONSEC 1.PL-put  voice  DIR
CN       CN       V       CN       PRON-V       V
```

'Everybody should close their eyes and let's pray.'

**Covert Co-ordination constructions**
Covert co-ordination constructions (CCs) consist of two or more verbal clauses with no connectors and an intonational break between the VPs in series. As with consecutive constructions, the state of affairs represented may be successive or alternating in time.

CCs are found in Èdó, Igbo, Ewe and Baule. Yoruba lacks CC (cf Manfredi 2005, Baker 1989, Dechaine 1993). Akan also seems to lack CC (Hellan, Beermann and Sætherø 2003). Below are examples:
(16) a. Èdó.

Òzó lé izè, rrígré.

Òzó lé izè, rrí ôré.

Ozo cook.PST.H rice, eat.PST.H it
PN V CN V CN
'Ozo cooked rice and ate it.'

b. Igbo (Dechaine 1993).

Àdhá shì-ri jí shìri édè.

Àdhá shì-ri jí shìri édè.

Adha boil-Øasp yam boil-Øasp cocoyam
PN V CN V CN
'Adha cooked both yam and cocoyam (in water).'</n

c. Ewe (Ameka 2005).

É-yó-m nye-mé-tò o.

É-yó-m nye-mé-tò o.

3.SG.call-1.SG 1.SG-NEG-respond NEG
PRON-call-PRON PRON V
'He/she called me, I did not respond.'

d. Baule (Larsen 2005).

ṣ o si-li alié-’n (o) sòkò-li tro’n.

ṣ o si-li alié-’n

3.SG .SUBJ pound-COMPL food-DEF
PRON V CN

(ṣ) sòkò-li tro’n.

(3.SG.OBJ) prepare-COMPL sause-DEF
PRON V CN
'S/he pounded the futu and prepared the sause.'
Serial verb constructions
SVCs are a series of verbs in one clause sharing one grammatical subject, one/harmonizing negation marker(s) and one tense value. They may be single events or multi-events.

(17) **Single events:**

i. Resultative constructions (RSVC): Èdó & Yoruba.

ii. Consequential constructions (CSVC): Èdó, Yoruba.

iii. Purpose constructions (PSVC): Èdó.

iv. Integrated SVCs (ISVC) and clause chaining SVCs (CCSCV): Akan, Ewe and Ga.

v. Instrumental (INST), manner (MAN), benefactive and comitative (COM) constructions: Igbo and Yoruba. (realized as Integrated SVCs in Akan and in Èdó as either $V+$modifier or $V+$INFcomplement).

Below are some examples:

(18) **Single events:**

**Igbo** Commitative SVC (Dechaine 1993).

a. Ó wè-re ite byá.

<table>
<thead>
<tr>
<th>Ó</th>
<th>wè-re</th>
<th>ite</th>
<th>byá.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.SG</td>
<td>take-Øasp</td>
<td>pot</td>
<td>come.Asp</td>
</tr>
<tr>
<td>PRON</td>
<td>V</td>
<td>CN</td>
<td>V</td>
</tr>
</tbody>
</table>

'S/he came with a pot.'

**Yoruba** Resultative SVC (Baker 1989).

b. Olú ti ọmọ náà ṣubú.

| Olú ti ọmọ náà ṣubú. |
|---|---|---|---|
| Olu pushed child the fall |
| PN | V | CN | V |

'Olu pushed the child down.'
Ewe Resultative SVC (Agbedor 1994).

c. **Kofi tutu devia dze anyi.**

Kofi tutu devia dze anyi.

*Kofi push child-the fall down*

PN V CN V

‘Kofi pushed the child and he fell down.’


d. **ơ-de no fəm-m me.**

ơ-de no fəm-m me.

3.SG-take 3.SG (animate) lend-PST 1.SG

PRON-V PRON V PRON

‘He lent me it.’

Èdó resultative constructions.

e. **Ọzó suá Àzàrí dé gbé òtò.**

Ọzó suá Àzàrí dé gbé òtò.

*Ozo push.PST.H Azari fall.PST.H against ground*

PN V PN V PREP CN

‘Ozo pushed Azari down.’

Gurene Theme SVC (Dakubu 2003).

f. ** Bà diki mà tá’asi zi’à ná.**

Bà diki mà tá’asi zi’à ná.

3.PL take 1.SG send place DEF

PRON V PRON V CN

‘They sent me to that place.’
Ga ISVC (Dakubu 2003).

g. Akwele hó-ọ nílí há-à àmẹ.

Akwele hó-ọ nílí há-à àmẹ.

Akwele cook-HAB things give-HAB 3.PL
PN V CN V PRON

'Akwele cooks for them.'

Multi-events:


M rè-re jí (wè-è) bya.
M rè-re jí (wè-è) bya.
I.SG sell-AFF yam take-AFF come.AFF
PRON V CN V V

'I sold [the] yams and (then) came.'

A word about the micro/macro event distinction as applied to Akan. The ISVC in Akan is made up of integrated events that express a clearly identifiable situation and is equivalent to Christaller’s (1875) essential combination constructions. For CCSVCs as already defined above, they describe an overall event made up of a chain of non-overlapping individual events and equivalent to Christaller’s accidental combination. The difference between such macro single events and multi-event constructions lies in the fact that for multi-events, distinct individual events are also involved but they do not make an overall event.

Extending the distinction between single and multi events to other multi-verb constructions, the consecutive constructions and the covert co-ordination have multi-events interpretation.

I now discuss the distribution of tense aspect and mood in the multi-verbs constructions identified in this section.
5.2 Tense, aspect, mood and negation

Manfredi (2005a:2) as said above, subcategorizes Benue-Kwa into two: BK1 (Benue-Kwa1) consisting of amongst other languages Akan, Èdó, Igbo and Bantu and BK2 (Benue-Kwa2) consisting of amongst other languages Gbè and Yoruba. In (20) below, these languages are classified with respect to the relationship between inflectional patterns they exhibit and how the patterns relate to aspectual types of the verbs in series in a serialization.

(20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>-</td>
<td>A finite eventive predicate with minimal inflection allows a present perfect reading in addition to a past one</td>
</tr>
<tr>
<td>b</td>
<td>-</td>
<td>Aspectually unrelated events are excluded from a single clause</td>
</tr>
<tr>
<td>c</td>
<td>-</td>
<td>Minimal finite inflection is an aux/proclitic particle (as opposed to a suffix or root-borne tone pattern)</td>
</tr>
<tr>
<td>d</td>
<td>-</td>
<td>At least three surface tones contrast on roots of the same category (as opposed to two tones plus downstep)</td>
</tr>
</tbody>
</table>

According to him the type of serialization found in these languages is dependent mainly on the interaction of (b) and (c) above. Summarizing briefly, in languages where the minimal inflection licensed on a verb root is a suffix or a root-borne tone pattern, the type of SVC licensed will allow aspectually unrelated events in a single clause, while languages where minimal inflection is an auxiliary/proclitic particle would disallow aspectually unrelated event in a single clause. Thus an example like (19) above is licensed in Igbo by (20b) and (20c) but disallowed in Yoruba. Based on the above classification, he arrives at two classes of serial verbs: single event serialization (aspectually related events) and multi-event serialization, which consists of a single subject predicated over random consecutive events. Manfredi (2005a:13) expresses this generalization for serial verbs in the following constraints:

(21) i. A (quantized) event must be tensemarked.
   ii. Nonlocal tensemarking must be overt (morphological head-marking).
   iii. A complex event is tensemarked if any of its segments is.

Non-local tense marking refers to instances where the verbs in series do not share the same tense domain, that is, tense is non-shared and local tense marking refers to
instances where they do. In (21iii), a complex event is tensed marked if any of the verbs in series (segments) expressing the event is tense marked.

(22) A sequence of aspectually unrelated events cannot be expressed in a single clause (i.e. as a Stahlkean (Stahlke 1970) serial construction) unless each root is either local to tense or audibly tensed marked.

For him as discussed above, covert co-ordination and consecutive constructions are types of serialization belonging to the class of multi-event SVCs. Thus constructions classified as covert co-ordination and consecutive constructions in languages like Èdó and Igbo are SVCs in his classification. Arguments supporting this classification come from prosodic properties as well as information from argument processing.

For single event serialization, the option lies between an obligatory double suffix -\textit{V-rV} as in (23a) or no affix on the first verb root, while the second verb root has the open vowel suffix (OVS). The OVS does not occur with a long list of eventive verbs but when it does, it occurs obligatorily when the verb is non-initial in an SVC (cf Dechaine 1993). In multi-event serialization only single \textit{rV} is possible. The following examples from Igbo illustrate this:

Single event serialization.
(23) a. Ò gbá-a-ra òsó bia.
Ó gbá-a-ra òsó bia.
3.SG move-SF-SF escape come.INFL
PRON V CN V
'S/he came running and is still here [idiomatically: s/he is here as a refugee].'

Multi event serialization.

b. Ò gbá (*a)-ra òsó bia.
Ó gbá (*a)-ra òsó bia.
3.SG move-SF-SF escape come.INFL
PRON V CN V
'S/he ran [somewhere] and [then] came [here].'
The –rV suffix is epenthetic in nature and attaches to a verb root in the absence of any overt aspect morpheme in Igbo. In this instance it is similar to Manfredi’s classification of Èdó –rV suffix as discussed in chapter 4. Manfredi (2005a: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 Èdó, the suffix in Igbo is licensed in all multi-verb constructions. Also, the suffix in Igbo is a pronominal clitic licensed by the verb’s aktionsart that shifts information prominence over to the complement while the Èdó counterpart ensures phrasal realization of the pitch accent (sw or HL) just in case no syntactic complement is present. Also in Igbo, the suffix has no inherent tense value. The following simple sentence examples illustrate this:

(24) a. Ó nwè-re jí.
    Ó nwè-re jí.
    3.SG hold-AFF yam
    PRON V CN

’S/he has or owns yams’

b. Ó nwè jí ndi à
    Ó nwè jí ndi à
    3.SG hold yam pro.3.PL this
    PRON V CN PRON Det

’S/he has or owns these yams’

According to Manfredi (2005a:17) the appearance of segmental inflection in (24a) depends on the lack of a definite or overtly referential object as in (24b). Furthermore, these examples show that the presence of inflectional material in the syntax and in particular the segmental content of –AFF in Igbo is epenthetically based on the interpretation of the direct object and lies outside the domain of affixation.

Manfredi’s analysis of Igbo in the discussion above shows how inflection is reflected in different kinds of serialization. Multi-verb constructions which include
constructions classified as serial verbs in the literature in Òdó as I have already discussed in chapter 4 also exhibit different inflection patterns. Summarizing briefly, in \( V+\text{modifier} \) and \( V+\text{infinitival complement} \) constructions, the tone on V2 is always high irrespective of the tense interpretation of the sentence and for \( V+\text{mood} \) construction, V2 if disyllabic has a high-down-stepped-high tone. For \( VP+VP \) constructions the tones on the verbs in series are uniform. However, when a complement is focused in covert co-ordination constructions, unlike in the other \( VP+VP \) constructions which have single event interpretation, a high-down-stepped-high tone marks the subcategorizing verb. In this way the covert co-ordination shows that each event in series is a distinct event. I illustrate with the following examples. Example (25b) is a consequential construction with a single event interpretation while example (25a) is a covert co-ordination:

(25) a. Ìyán ọrẹ Òzó kó!kó dúń!mwún. (covert co-ordination)

\[
\begin{array}{lllll}
\text{Íyán} & \text{FOC} & \text{Ozo} & \text{gather.PST.H!H} & \text{pound.PST.H!H} \\
\text{CN} & \text{PN} & \text{V} & \text{V}
\end{array}
\]

'It is yams Ozo gathered and pounded.'

b. Òwé ọrẹ Òzó gbè-lé khièn-né. (consequential construction)

\[
\begin{array}{lllll}
\text{Goat} & \text{FOC} & \text{Ozo} & \text{kill-PL.PST.H} & \text{sell-PL.PST.H} \\
\text{CN} & \text{PN} & \text{V} & \text{V}
\end{array}
\]

'It is goats Ozo killed and sold.'

The above inflectional distinction observed between single event SVC and constructions with multi event interpretation is as far as I know valid only for Òdó and Igbo.

However, common to all the languages under study in this chapter (with the exception of Ga), is the fact that for SVCs there is only one/uniform marking(s) for tense, mood, aspect and negation. The distribution is shown in table 25 below. Òdó, Igbo, Akan, Ewe, Ga ,Gurene and Baule all belong to Manfredi’s BK1 langauge family and minimal inflection on a verb root is a suffix or a root borne tone pattern.
Following the definition of simple and multi-events above, SVCs in these languages consist of only aspectually related events and belong to the class of single events while aspectually unrelated events belong to the class of multi-events and consist of consecutive constructions and CCs. With the exception of Baule that has only CCs that have single event interpretation, all the languages have SVCs.

Akan and Ga have only SVCs and have in common that they mark aspect and modality but not tense (Hellan, Beermann and Sæther 2004:3, Dakubu 2004:6). Gurene has a number of preverbal and post verbal particles that express negation, tense, aspect and modality. Also aspeccual verbal suffixes exist in the language. Thus Gurene seems to use both particles and suffixation in its inflection system (Dakubu 2003:1). Perhaps this may account for the fact that in some Gurene SVCs aspect agreement does not apply for the verbs in series as in examples (26a), (26b) and (26c) below (Dakubu 2003:13).

(26) Gurene single event SVC (Dakubu 2003).
   a. Ingressive/inchoative.
   \[
   \text{Fú?iŋe lâ ŋwâni wú-n –à} \\
   Fú?iŋe lâ ŋwâni wú-n –à?
   \]
   You do.COMPL AFF what hear-IMPF-HAB
   PRON V CN V
   'How did you learn it[a language]?'

   b. Theme-goal.
   \[
   \text{A ta-r-i ba bia la waʔ-am na.} \\
   A ta-r-i ba bia la waʔ-am na.
   \]
   3.SG have-IMPF-PROG 3.PL child DEF come-ST LOC
   PRON V PRON CN V
   'He brought their child.'
Some languages in addition to SVCs have also CCs (Èdó and Igbo). Èdó marks tense, aspect and mood while Igbo has elaborate aspect morphology but generally lacks verbal affixes with temporal reference (Dechaine 1993:816). Their distribution and interpretation interact with event structure to yield patterning of past and non past references (Manfred 2005a:1). Ewe has SVCs, CCs and consecutive constructions. Data from Ewe in the literature only show tense marking with respect to the future tense, which is a lexical item and occurs before V1 in SVCs and before each verb in a covert co-ordination (Collins 1993:464). Also with respect to consecutive constructions Ameka (2005:3) mentions that each verb may have different markings for aspect and modality in Ewe.

Baule marks tense, aspect and mood tonally. Also tonal marking on the subject reflects the tense marking on the subcategorizing verb and before v2-vn indicates that these verbs project a null subject as shown in example (27) below.


\[ \text{'He's giving cloth to kouadio.'} \]
For this reason Larson (2005:69) calls the construction Empty Subject Construction (ESC) and states categorically that they are CCs. However CCs in Baule are related to SVCs in the other languages in that they express single events.

Yoruba belongs to the BK2 language family and has as auxiliaries/proclitics as minimal inflection in a clause. Yoruba has a subject high tone (glossed as (AGR) EMENT) that occurs only once before V1 as shown in example (28i) below and this also ties in with negation distribution in Yoruba. Negation is marked only once before V1 as in (28 ii).


\[Jìmò \, ò \, ra \, èwù \, bùn \, mì.\]

\[Jìmò \, ó \, ra \, èwù \, bùn \, mì.\]

\[Jìmò \, Agr \, buy \, garmet \, present \, 1.SG\]

\[PN \, V \, CN \, V \, PRON\]

'Jimo bought me a garment.'

b. Yoruba single event: manner (Dechaine 1993).

\[Jìmò \, kò \, Jókòó \, jeun.\]

\[Jìmò \, kò \, [Jókòó \, [jeun]].\]

\[Jìmò \, NEG \, sit.down \, eat.thing\]

\[PN \, V \, V\]

'Jimo didn’t s eat sitting down,

or

He ate, but not while sitting down.'

Interestingly, CCs are not attested in Yoruba unlike in the other BK1 languages.

Interestingly in Ewe, a structural difference exists between SVCs (a single event) and CCs and consecutive constructions (multi-event), with the former consisting of a single clause while the latter two are multi-clausal. As shown in example (29a) and (29b) below, the negation marker in Ewe is bipartite, the first part of which occurs before V1 in SVCs as in (29b) and the second part occurring at the end of the clause but before any utterance final particle. For the consecutive construction each component can be independently negated. In (29a) below, the first part of the negation maker occurs before V2 and the second sentence finally.

É-yó -m nye-mé-tə.

É-yó-m 
3.SG-call
nyme-mé-tə 
1.SG-NEG-respond 
PRON-V-PRON
o. 
PRON
NEG

'He/she called me, I did not respond.'

(29) b. Ewe single event SVC (Agbedo 1993).

Nye me šle agbala na Ama o.

Nye 
1.SG
me 
NEG
šle 
buy 
agbala 
book 
na 
give 
Ama 
NEG
PRON 
V 
CN 
V 
PN

'I did not buy a book for Ama.'

In Baule CCs, each verb in the series must have harmonizing negation markers as in (30) below. This together with the marking of a tonal prefix before V2 ((27)), indicate that CCs in Baule are multiple clauses. This tonal marking unlike the Yoruba subject high tone in SVCs occurs before each verb in series in the Baule CC.

(30) Baule single event CC: negation (Larsen 2005:84).

○ fa-man agba man-man Yao.

○ fa-man 
3.SG
agba 
take-NEG
man-man 
cassava 
give-NEG
Yao 
PRON 
V 
CN 
V 
CN

'He doesn’t give any cassava to Yao.'

The distribution of negation in Ewe and Baule is not surprising, as the distribution of negation is used as a cross linguistically applicable test for the clausehood of a construction. In Èdó ((31)) and Igbo ((32)) CCs on the other hand, negation is expressed once indicating that CCs in these languages are single clauses.
(31) Edo multi-event: CC.

Ôzó ghá/i dé iyán lè èré.
Ôzó ghá/i dé iyán lè èré.

Ozo FUT/PRS.NEG buy yam cook it
PN V CN V PRON
'Ozo will buy yam and cook it/ Ozo is not buying yams and cooking it.'

(32) Igbo single event: comitative (Dechaine 1993).

Ô wè-re ìte byá.
Ô wè-re ìte byá.

3.SG take-Øasp pot come.Asp
PRON V CN V
'S/he came with a pot.'

Table 25 Tense, aspect, mood and negation

<table>
<thead>
<tr>
<th>LANGUAGE FAMILY</th>
<th>CONSTRUCTION TYPE</th>
<th>SINGLE MICRO/MACRO EVENT</th>
<th>MULTI (DISTINCT) EVENT</th>
<th>INFLECTION PATTERN ENCODES DIFFERENCE BETWEEN SINGLE/MULTI EVENT</th>
<th>VI-VN MUST HAVE ONE/HARMONIZING TAM FEATURES</th>
<th>VI-VN MUST HAVE SAME POLARITY FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDO</td>
<td>SVC</td>
<td>YES</td>
<td>NO</td>
<td>YES (25b)</td>
<td>YES (33)</td>
<td>YES (33)</td>
</tr>
<tr>
<td></td>
<td>CC</td>
<td>NO</td>
<td>YES</td>
<td>YES (25a)</td>
<td>YES (31)</td>
<td>YES (31)</td>
</tr>
<tr>
<td>IGBO</td>
<td>SVC</td>
<td>YES</td>
<td>NO</td>
<td>YES (23a)</td>
<td>YES(23a)</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>CC</td>
<td>NO</td>
<td>YES</td>
<td>YES (23b)</td>
<td>NO(32)</td>
<td>YES(32)</td>
</tr>
<tr>
<td>YORUBA</td>
<td>SVC</td>
<td>YES</td>
<td>NO</td>
<td>YES (28b)</td>
<td>YES (28b)</td>
<td>YES (28b)</td>
</tr>
<tr>
<td>AKAN</td>
<td>SVC</td>
<td>YES</td>
<td>NO</td>
<td>YES (35)</td>
<td>YES (35)</td>
<td>YES (35)</td>
</tr>
<tr>
<td>EWÉ</td>
<td>CONSEC CONST</td>
<td>NO</td>
<td>YES</td>
<td>NO (36b)</td>
<td>NO (36a)</td>
<td>NO (36a)</td>
</tr>
<tr>
<td></td>
<td>CC</td>
<td>NO</td>
<td>YES</td>
<td>YES (29a)</td>
<td>NO (29a)</td>
<td>NO (29a)</td>
</tr>
<tr>
<td></td>
<td>SVC</td>
<td>YES</td>
<td>NO</td>
<td>YES (29b)</td>
<td>YES (29b)</td>
<td>YES (29b)</td>
</tr>
<tr>
<td>GA</td>
<td>SVC</td>
<td>YES</td>
<td>NO</td>
<td>YES (37)</td>
<td>YES (37)</td>
<td>YES (37)</td>
</tr>
<tr>
<td>GURENNE</td>
<td>SVC:</td>
<td>YES</td>
<td>NO</td>
<td>YES (38a)</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Pluractionality</td>
<td></td>
<td></td>
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<td></td>
<td>Ingressive/inchoative</td>
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<td></td>
<td>Theme-goal</td>
<td></td>
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<tr>
<td></td>
<td>nyaηa'can'/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ta?am'possibility'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAULE</td>
<td>CC</td>
<td>YES</td>
<td>NO</td>
<td>YES (30)</td>
<td>YES (30)</td>
<td>YES (30)</td>
</tr>
</tbody>
</table>
Below are more examples from Èdó, Igbo, Akan, Ewe and Gurene exemplifying the discussion above:

(33) Èdó single event: consequential construction.

Òzó ghá/i dè iyán lè.

Òzó ghá/i dè iyán lè.

Ozo FUT/NEG.PRES buy yam cook
PN V CN V

'Ozo will buy yam and cook/ Ozo is not buying yams and cooking.'

(34) Igbo multi-event (Manfredi 2005).

È- ré- ghí m ji bya.

È- ré- ghí m ji bya.

PRO- sell NEG Is yam come.AFF
PRON V PRON CN V

'I didn't sell (the) yams and (then) come.'


Ama n-tonam n-twitwa n-kye n-we.

Ama n-tó nam n-twitwa n-kye n-we.

Ama NEG-buy meat NEG-cut NEG-fry NEG-chew
PN CN V V V

'Ama will not buy meat, cut it, fry it and eat it.'


a. Tu-i né me-mé o.

Tu-i né me-mé o.

2SG-grind-3SG CONSEC 3.SG-NEG-fine NEG
PRON V PRON PRON V

'Grind it and let it not be fine.'
b. Mí-nyi-yi-m má-vá.
Mí-n

yi-yi-m

má-vá.

2.PL-be.at.NPRES

RED-go

1SG.POT-come

PRON-V

V

PRON

V

'You be going (and) I will come (i.e. follow).'
(37)

Ga single event ISVC (Dakubu 2004).
Àmε1-he é-!tswá-aa !shí t1 kὲ- tsú –uu ní!í.
Àmε1-he é-!tswá-aa

!shí t1

3.PL- self NEG-strike-NEG.IMP

down

Pron

V

CN

kὲ-

tsú -uu

move.NEG-

send-NEGIMP

ní!í.
things

V

CN

'They didn`t /don`t hurry to work.'
(38)

Gurene single event SVC (Dakubu 2003).
a. Pluractionality.
A wá kiin –a la toogb k-s –a.
A

wá

kiin

–a

la

toogb

k-s -a.

3.SG INGR fry.IMP-HAB AFF

doughnuts

sell-ITER-HAB

PRON

CN

CN

V

'She [in those days] fried doughnuts for sale.'
b. Theme-goal (negation).
Ắ ká tári fárifari yù'urε pá'asε?
Ắ

ká

tári

fárifari

yù'urε pá'asε?

3.SG NEG have

frafra

name add

PRON

CN

CN

V

'Doesn`t he also have a Frafra name?'

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c. Nyaŋ'e can'/ Taʔam' possibility'

ti tu nyaŋ'e taʔ -am daa tom toonə wa.

Another construction which Ameka (2005) calls a bi-clausal construction and likens to the covert co-ordination in Èdó also exist in Ewe. Unlike the Ewe consecutive construction, it has no overt linker and the subject of the second clause is coreferential with the object of the first clause or it indexes the spatio-temporal features of the situation expressed by the first clause. Importantly, unlike in the covert co-ordination in Èdó but similar to the Ewe covert co-ordination, each clause can be independently negated. Also, each clause can have its own aspect and modality value but unlike the consecutive construction in Ewe, they should share the same temporal frame or time reference. Example (39) below illustrates this:

(39) Ê-yọ-m nye-mė-tọ o.

'She called me, I did not respond.'

So far, I have discussed constructions parallel with the $V(P)+V(P)$ and the $V+mood$ constructions in Èdó that are SVCs and CCs in the other languages. At this point let me mention that the $V+infinitival$ constructions as found in Èdó also exist in Yoruba. Manfredi (2005a:21) calls them pseudo-infinitive and excludes them from the class of serialization. According to him (40) does not entail that the action depicted by V2 has taken place.
However, while the Èdó *V+infinitival* construction has comitative and instrumental functions, the Yoruba example in (40) seem closer to a desiderative function.

In summary from the discussion in this section, it would seem that the kind of multi-event constructions found in a language is related to the type of inflection attested in the language.

We find that languages with mainly aspectual and mood inflection have only SVCs (Akan\(^{75}\) and Ga), this also applies to Yoruba, a language with aspect and one or more future marker. Languages with tense, aspect and mood distinctions have both SVCs and CCs (Èdó and Igbo). A language like Baule with tense, aspect and mood reflected tonally on the subject and verb has only CCs. Also, a language like Ewe that seems to have little tense, aspect and mood distinction has all four ranges: consecutive constructions, SVCs, CCs as well as bi-clausal constructions.

### 5.3 Argument sharing patterns

In this section, I examine different argument sharing patterns in the languages under study. First, I discuss subject sharing, then switch sharing and then object sharing. Lastly, I discuss situations where there are no sharing of objects.

Let me point out immediately that argument sharing patterns discussed in this section support the null subject/pro drop parameter. The parameter states that languages with rich verbal agreement features allow recoverability of unexpressed arguments and tend to license null subjects and objects (Taraldsen 1978 cf. Haung 2000). Thus the Benue-Congo languages with little or no verbal morphology that allow recoverability

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\(^{75}\) Clause chaining constructions are analyzed as SVCs in Akan by Hellan, Beermann and Sætherø (2003).
of unexpressed arguments prefer a token sharing pattern with covert reference sharing of subjects only attested for Èdó CCs, while the Kwa and North languages with rich verbal inflection make use of both token sharing patterning and reference sharing both overt and covert.

Related to this is that languages with rich verbal inflection as well as a system of resumptive pronouns do not seem to license switch-sharing. Indeed Switch sharing is only attested in Akan for the Kwa and North language families.

The argument sharing patterns are presented further below in table 26 for the Niger-Congo family and table 27 for the Kwa and North language families together with examples exemplifying each type of sharing. Indexing is used to show coreference where relevant. I have labeled relevant columns alphabetically for ease of reference.

As discussed in the last chapter, token sharing of arguments resides in the verbs in series each assigning a grammatical function/role to the same NP.

For reference sharing, there are two types: overt and covert reference sharing. Overt reference sharing is when two syntactic arguments, one of which is an anaphoric argument of a non preceding verb share the same referential index. However overt reference sharing also occurs in situations where an argument of a non initial verb is realized as a pronoun without phonetic matrix whose distribution is conditioned by semantic factors but which can be “seen” by syntactic principles such as linear ordering. For example, Akan makes a distinction between realization of animate and inanimate 3rd person pronouns in certain environments (cf. Stewart 1963). For instances where they are not “seen”, Hellan, Beermann and Sætherø (2003) treat them as phonetically present and labels them as instances of overt reference sharing.

Covert reference sharing on the other hand is when the referential index of an unexpressed argument of a non initial verb is identified with the referential index of an overt argument of a preceding verb. In theories based on the principles and parameters theory, this is realized as a null pronoun argument for the non initial verb.
For switch sharing, the object of the first verb serves as the subject of the second verb. Switch sharing may be by token sharing or reference sharing. Hellan, Beermann and Sætherø (2003) classifies switch sharing in Akan CCs as instances of covert reference sharing while for the de+location ISVC they leave open the issue of what type of sharing it represents.

The patterning discussed above is presented in tables 26 and 27 below.

Table 26 Argument sharing patterns in Benue-Congo

<table>
<thead>
<tr>
<th>Language family</th>
<th>construction type</th>
<th>single micro/ macro event</th>
<th>multi (distinct event)</th>
<th>token sharing of subjects</th>
<th>Switch sharing</th>
<th>Overt reference sharing of subjects</th>
<th>Covert reference sharing of subjects</th>
<th>Token sharing of objects</th>
<th>Overt Reference sharing of objects</th>
<th>Covert sharing of objects</th>
<th>Objects are not Shared (if any)</th>
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<tr>
<td>EDO</td>
<td>SVC: Resultative</td>
<td>YES</td>
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<td>YES</td>
<td>NO(41)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Consequential</td>
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<td>NO</td>
<td>YES</td>
<td>YES (47a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NO</td>
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<tr>
<td></td>
<td>Purpose</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES (47b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Negative resultative</td>
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<td>YES</td>
<td>YES (47c)</td>
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<td></td>
<td></td>
<td></td>
<td>YES (47c)</td>
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<td>YES (47d &amp;e)</td>
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<td></td>
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<tr>
<td>IGBO</td>
<td>SVC: Instrumental</td>
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<td>Yes</td>
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<td></td>
<td>Yes(48a)</td>
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<tr>
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<td>YES</td>
<td>YES (32)</td>
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<td>Yes (34)</td>
</tr>
<tr>
<td></td>
<td>Manner</td>
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<td>NO</td>
<td>YES</td>
<td>YES (48b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes (48b)</td>
</tr>
<tr>
<td></td>
<td>CC</td>
<td>NO</td>
<td>YES</td>
<td>YES (48c)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes (48c)</td>
</tr>
<tr>
<td>YORUBA</td>
<td>SVC: Resultative</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td>YES (42)</td>
<td></td>
<td></td>
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<td>YES (42)</td>
</tr>
<tr>
<td></td>
<td>Consequential</td>
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<td>NO</td>
<td>YES</td>
<td>YES (49a)</td>
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</tr>
<tr>
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<td>Comitative</td>
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<td>NO</td>
<td>YES</td>
<td>YES (49b)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>YES (49b)</td>
</tr>
<tr>
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<td>Benefactive</td>
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<td>YES</td>
<td>YES (49c)</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>Instrument</td>
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<td>NO</td>
<td>YES</td>
<td>YES (49d)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>YES (49d)</td>
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Table 27 Argument sharing patterns in Kwa and North.

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<th>Language Family</th>
<th>Construction Type</th>
<th>Single Micro/Macro Event</th>
<th>Multi (Distinct) Event</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
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<td>AKAN</td>
<td>ISVC:</td>
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<td>NO</td>
<td>YES(50a)</td>
<td>YES(50b)</td>
<td>YES(50c)</td>
<td>YES(50a &amp; b)</td>
<td>YES(50d &amp; 50e)</td>
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<tr>
<td></td>
<td>De+ditrans verb</td>
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<tr>
<td></td>
<td>Take-as-instrument</td>
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<td>De+location verb</td>
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<td>CCSVC</td>
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<td>YES(50d)</td>
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<td>EWE</td>
<td>CONSEC CONST</td>
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<td></td>
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<td>YES(52b)</td>
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<tr>
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<td>CC</td>
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<td></td>
<td>NO</td>
<td>YES</td>
<td></td>
<td>YES(52c)</td>
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<td>SVC:</td>
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<td>NO</td>
<td></td>
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<td>Instrumental</td>
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<td>Resultative</td>
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<td>YES(52i)</td>
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<td>GA</td>
<td>ISVC:</td>
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<td>Non Resumptive</td>
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<td></td>
<td>YES(53c)</td>
<td></td>
<td></td>
<td>YES(53c)</td>
</tr>
<tr>
<td>GURENNE</td>
<td>SVC</td>
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<td></td>
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<td>NO</td>
<td>YES(51a)</td>
<td>YES(51b)</td>
<td>YES(51c)</td>
<td>YES(51a)</td>
<td>YES(51b)</td>
<td>YES(51c)</td>
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<td></td>
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<td>YES(51c)</td>
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<tr>
<td></td>
<td>Ingressive/Inchoative</td>
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<td></td>
<td></td>
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<td>YES(51b)</td>
<td></td>
<td>YES(51c)</td>
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<tr>
<td></td>
<td>Theme-goal</td>
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<td>YES(51c)</td>
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<tr>
<td></td>
<td>Nyapı'e 'can'/ Taţam 'possibility'</td>
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<td>YES(37)</td>
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<td>YES(51c)</td>
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<tr>
<td>BAULE</td>
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<td>YES(54a)</td>
<td>YES(54b)</td>
<td>YES(54c)</td>
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<td>NO</td>
<td>YES(54a)</td>
<td>YES(54b)</td>
<td>YES(54c)</td>
<td></td>
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Having given an over-view of the issues to be discussed in this section, I now begin my discussion with subject sharing.

**Subject sharing**

I examine patterning of subject arguments with respect to token sharing and reference sharing: overt and covert.

I begin with token sharing of subjects. From table 26 column A, we see that token sharing of subjects is restricted to SVCs. SVCs (with the exception of the resultative) in the Benue-Congo languages under study all exhibit token sharing of subjects. Table 27 column I, shows that in the Kwa and North languages, it is also an attested phenomenon. In Akan, verbs in series in the ISVC construction with the exception of the \(de+\)locative construction also share subject tokens (Hellan, Beermann and Sætherø 2003) Also, in Ewe all verbs in series in SVCs share subject tokens (Collins 1997, Dzameshie 2005). Also in Ga, only the non resumptive ISVC exhibit token subject sharing (Dakubu and Hellan 2007). For Gurene, all the SVCs share subject tokens.

For reference sharing of subjects, the Benue-Congo languages generally do not use this strategy for argument sharing in multi-verb constructions. Only Èdô has covert sharing of subjects and it is restricted to the multi-event covert co-ordination construction. This is illustrated in table 26 column D. SVCs on the other hand do not employ this strategy.

All the Kwa and North languages with the exception of Ewe make use of covert reference subject sharing. For Akan, this is restricted to CCSVCs and for Ga the Non Resumptive ISVC makes use of both covert reference sharing and token sharing of subjects. Baule also has covert reference sharing of subjects between the non initial verb and the preceding verb for Empty Subject Constructions (ESCs) (Larsen 2005). Table 27 column L shows this distribution. In line with the assertion made above, that rich verbal morphology allowing for recoverability and identification licenses null pronouns Larsen (2005:120) states that formal licensing in Baule is inherently satisfied by agreement features of number and animacy on verbs with the
identification condition satisfied by these features together with an additional noun class feature.

Overt reference sharing of subjects is attested for CCs in Ewe and the resumptive ISVC in Ga. Larson (2005) discusses a second type of multi-verb construction with respect to argument sharing which she calls the Resumed Subject Construction (RSC). The RSC differs from the ECS in that it allows overt reference sharing of subjects with anaphoric subjects for V2. These pronouns may or may not have obviate reference depending on the kind of construction. Larson (2005) identifies two kinds of RSCs the Essential-combination RSC and the Accidental-combination RSC. Table 27 column K shows the list of examples in these languages.

The patterning revealed by subject sharing buttresses the generalization made that presence of a rich verbal inflection system that allows for argument recoverability as well as the licensing of resumptive pronouns in multi-verb constructions determine the kind of argument sharing patterns in multi-verb constructions.

**Switch sharing**

I now discuss switch sharing. Switch sharing seems to be licensed in the languages that do not have overt reference sharing of subjects. Exceptions are Igbo and Gurene that have no overt reference sharing of subjects but at the same time do not attest switch sharing.

Switch sharing is attested in Èdó, Yoruba and Akan. Again the type of switch sharing attested reflects the general pattern of argument sharing found in these languages. Èdó and Yoruba have switch token sharing as shown in examples (41) and (42) respectively. Akan has switch covert reference sharing as shown in (43). This is shown in table 26 column B and table 27 column J respectively. Ewe, Ga and Baule have overt reference sharing of subjects amongst other options and do not license switch sharing. This buttresses the claim that if there are resumptive pronouns in a language, switch sharing is not usually attested in that language.
(41) Èdó Resultative SVC (switch sharing).

Òzó suá Àzàrí dé gbé ò tô.

Òzó suá Àzàrí dé gbé ò tô.

Ozo push.PST.H Azari fall.PST.H against ground

PN V CN V PREP CN

'Ozo pushed Azari down.'

(42) Yoruba Resultative SVCs (switch sharing) (Baker 1989).

Olú ti ọmọ náà șubú.

Olú ti ọmọ náà șubú.

Olu pushed child the fall

PN V CN V

'Olu pushed the child down.'

(43) AKAN CCSVC: covert reference subject sharing/ switch sharing.

Ama twe-e Kofi hwe-e fam.

Ama twe-e Kofi hwe-e fam.

Ama pull-COMPL Kofi fall-COMPL under (down)

PN V PN V

'Ama pulled kofi and he(Kofi) fell (Switch sharing).'

'Ama pulled kofi and fell (Ama fell) (covert reference subject sharing).'

Related to switch sharing is switch function sharing. Switch function is the mechanism that tracks the reference of an NP across clauses in a discourse by means of verbal morphology indicating the semantic function of that NP in each clause (Hauang 2000). The languages I have examined in this chapter do not have switch function as an argument sharing mechanism in multi-verb constructions, except for Ewe that uses it to distinguish between three different types of constructions: the complement/embedded clause (44a), the overlapping clause (44c) and the SVC (44b) (Ameka 2005). In fact the resultative SVC example in (44b) when compared to the Èdó and Yoruba examples in (41) and (42) respectively show an interesting parallel. V2 in the Ewe example shares the subject of V1 while in the Èdó
and Yoruba examples the object of V1 and the subject of V2 are in a switch sharing relationship.

(44) **EWE**

a. Switch Function: complement/embedded clause. Subject of V2 (wÔ) has the form of dependent Pronoun (Ameka 2005).

\[ \text{Kofi ná (bé) wÔ-ɖu nú-á.} \]

Kofi give COMP 3.SG-eat thing-DEF

PN V PRON-V N

'Kofi made him/her eat the thing.'

b. Resultative SVC: token subject sharing and covert reference object sharing.

(Ameka 2005).

\[ \text{Kofi fo-e fú anyí.} \]

Kofi strike-3.SG hit ground

PN V-PRON V

'Kofi struck him/her down.'

c. Switch Function: overlapping clause. Subject of V2 (wÔ) has the form of dependent Pronoun (Ameka 2005).

\[ \text{Kofi fo-e wÔ-dze anyí.} \]

Kofi strike-3.SG 3.SG-contact ground

PN V-PRON PRON-V

'Kofi struck him/her s/he fall down.'

Likpe, a closely related language to Baule has switch function sharing as well as overt reference sharing (46)). Also, Attie, a Kwa language, has switch function sharing ((45)) (cf Ameka 2005).
Likpe makes use only of overt reference sharing mechanism for subjects and so does not have switch sharing. Instead resumptive pronouns are used as a tracking device resulting in switch function sharing.

(45) Attie (Ameka 2005)
  a. Ô vi kɛ tsà la.

Ô vi kɛ tsà la.
3.SG.PERF push 3.SG.OBJ touch.PERF LOC
PRON V PRON V

'He pushed him and he fell.'

b. Bà vi kɛ tsà la.

Bà vi kɛ tsà la.
3.PL.PERF push 3.SG.OBJ touch.PERF LOC
PRON V PRON V

'They pushed him and he fell.'

c. Ô vi bá tfà la.

Ô vi bá tfà la.
3.SG.PERF push 3.PL.OBJ touch.PERF LOC
PRON V PRON V

'He pushed them and they fell.'

(46) Likpe (Ameka 2005)
  a. SVC: overt reference sharing of subjects (no switch function sharing).

Ú-fi háma ọ-sɔ a-klotiabí nyã-mɔ o-bia-sə.
Ú-i-fi háma ọ-sɔ a-klotiabí nyã-mɔ o-i-bia-sə.
3.SG-take hammer 3.SG-hit CMPL-banana AGR-DET 3.SG-spoil-CAUS
PRON-V CN PRON-V CN PRON-V

'He hit the banana with a hammer and spoilt it (NOT and he spoilt it).'
b. Switch function sharing: theme participant knife of verb put is understood object of verb wound and marked on it by morphological marker CM.

Ú-taka le-bo na-ma le-siabi léfo le-fabé.

Ú-taka le-bo na-ma le-siabi léfo le-fabé.

3.SG-put CM-pumpkin AGR-DET CM-knife ANAPH-doCM-wound
PRON-V CN CN V V

'He put the knife on the watermelon and it was wounded a little.'

Object sharing

Object sharing patterns follow the general pattern described so far. Èdó, Igbo and Yoruba do not have covert reference sharing of objects but they differ with respect to the strategy employed. Object sharing patterns are displayed in table 26 columns E to H and table 27 columns M to P.

Èdó employs token sharing for SVCs ((47a) & (47b)) with the exception of the negative resultative (47c) where the verbs in series each have their own objects. For CCs the strategy employed is both overt reference sharing (47d) and different objects (47e).

(47) Èdó SVCs

a. Consequential (token subject and object sharing).

Òzó lé ìzè ré.

Òzó lé ìzè ré.

Ozo cook.PST.H rice eat.PST.H
PN V CN V

'Ozo cooked rice and ate.'
b. Purpose (token subject and object sharing).

Ọzo mién àlimói kpáán.

Ọzo mién àlimói kpáán.

*Ozo see.PST.H orange pluck.PST!H*

PN V CN V

'Ozo saw an orange to pluck.'

c. Negative resultative (token subject sharing and different objects).

Ọzo gá ébó mién ọkán.

Ọzo gá ébó mién ọkán.

*Ozo serve.PST.H juju receive.PST.H distress*

PN V CN V CN

'Ozo got trouble as his reward for serving gods.'

d. Covert Co-ordination (covert reference subject sharing and overt reference object sharing).

Ọzo dé ịzè, rrí ọré.

Ọzo dé ịzè, rrí ọré.

*Ozo buy.PST.H rice , eat.PST.H it*

PN V CN V PRON

'Ozo bought rice and ate it.'

e. Covert Co-ordination (covert reference subject sharing and different objects).

Ọzo lé ịzè, kpóló ọwá.

Ọzo lé ịzè, kpóló ọwá.

*Ozo cook.PST.H rice sweep.PST.H house*

PN V CN V CN

'Ozo cooked rice and swept the house.'

For Igbo multi-verb constructions where V1 and V2 are transitive, each verb projects its own object ((48a), (48b) & (48c)).
(48)  IGBO:

Single event.

a. Instrumental (Dechaine 1993).
Token subject sharing and different objects.

O wè-re ãkwụ  gà-á ahyá.

3.SG take-ØASP leg go-Asp market.Gen

'S/he went to [the] market on foot.'

b. Manner (Dechaine 1993).
Token subject sharing and different objects.

Ó ji-rí  ọhụ́hụ́ ri-e ihé.

3.SG use-ØASP hurry eat-ASP thing.Gen

'S/he hurriedly ate.'

c. Multi-event constructions (Dechaine 1993).
Token subject sharing and different objects.

Ó kwùru ókwu kụwa-a akhwá.

3.SG speak-ØASP word cry-ASP crying.Gen

'S/he spoke and cried.'

Yoruba employs a token object sharing strategy as shown in examples (49a) to (49c).
Also objects may not be shared as in (49d).
(49) **Yoruba SVCs**

Token subject and object sharing.

*Bólà sè gran tà.*

*Bóla sè gran tà.
Bola cook meat sell
PN V CN V
'Bola cooked some meat and sold it.'

b. Comitative (Baker 1989).
Token subject and object sharing.

*Ó mú iwé wá.*

Ó mú iwé wá.
He take book come
PRON V CN V
'He brought the book.'

c. Benefactive (Dechaine 1993).
Token subject and object sharing.

*Jímò ó ra èwùbùn mi.*

Jímò ó ra èwù bùn mi.
Jimo AGR buy garmet present 1.SG
PN V CN V PRON
'Jimo bought me a garment.'

d. Instrumental (Dechaine 1993).
Token subject sharing and different objects.

*Jímò ó fì òbe gé isu.*

Jímò ó fì òbe gé isu.
Jimo AGR use knife cut yam
PN V CN V CN
'Jimo cut [the] yam with [a] knife.'
Akan has covert reference sharing for subjects of CCSVCs but the opposite applies for object sharing where CCSVCs employ both overt reference sharing ((43) above & (50d) below) and no sharing of objects ((50d)) for transitive verbs in series. For the ISVCs, the \(de\)-transitive ISVC (50a) employs token sharing of objects. The same applies for the verbs in series in the take-as-instrument ISCV (50b). For the \(de\)-location verb ISVC (50c) objects are not shared. Akan like Èdò, Yoruba and Igbo does not have covert sharing of objects.

(50) **Akan SVCs** (Hellan, Beermann and Sætherø 2003).

**ISVCs:**

a. \(De\)-ditransitive verb ISVC.

Token subject and object sharing.

\[\text{\(\_de\) no \(\text{f\_m-m me.}\)}\]

\(3.\text{SG-take} 3.\text{SG(animate)}\text{\(lend\)-PAST} 1.\text{SG}\)

\(\text{PRON-take PRON V PRON}\)

'He lent me it.'

b. Take-as-instrument type.

Token subject and object sharing.

\[\text{\(\_de \text{ enkrante tya duabasa.}\)}\]

\(he-take \text{ sword cut branch}\)

\(\text{PRON-V CN V CN}\)

'He cut off a branch with a sword.'
c. De+location (motion) verb.
Switch sharing and objects are not shared.

Kofi de atadeη no sη-n daewa so.
Kofi de atadeη no sη-n daewa so.
Kofi take dress DEF hang-COMPL nail on
PN V CN V CN

'Kofi hung the dress on a nail.'

d. CCSVC: covert reference subject sharing and overt reference object sharing for inanimate object.

Ama tu-u bayerε twitwa noa di-i.
Ama tu-u bayerε twitwa noa di-i.
Ama uproot-COMPL yam cut cook eat-COMPL
PN V CN V V V

'Ama uprooted (tuber of) yam, cut it in pieces, boiled them (and) ate'

e. CCSVC: Animate object.
Covert reference subject sharing and overt reference object sharing.

Ama ṭo-ọ adanko dware-e no yẹn-n no
Ama ṭo-ọ adanko dware-e no yẹn-n no
Ama buy-COMPL rabbit bath-COMPL 3.SG rear-COMPL 3.SG
PN V N V PRON V PRON

'Ama bought a rabbit, bathed it (and) reared it.'

f. Different objects.

Gyasibi nya-a sika si-i dan tọn-ee.
Gyasibi nya-a sika si-i dan tọn-ee.
Gyasiba get-COMPL money buy-COMPL house sell-COMPL
PN V CN V CN V

'Gyasibi got the money, bought a house and sold it.'

Gurene also does not have covert object sharing and uses two strategies: token sharing of objects and no sharing of objects for transitive verbs. All SVCs have token sharing
of objects (51a), (51b) & (51d). In addition to token sharing of objects (51b), the Ingressive/Inchoative SVC also has no object sharing for some verbs in series (51c).

(51) Gurene (Dakubu 2003).

a. Pluractionality.

Token subject and object sharing.

A wá kiin –a la toogbɛɛ ƙɔ-ɔs -a

A  wá  kiin  –a  la  toogbɛɛ ƙɔ-ɔs  -a

3.SG INGR fry.IMP-HAB AFF doughnuts sell-ITER-HAB
PRON V CN CN

'She [in those days] fried doughnuts for sale'

b. Ingressive/inchoative.

token subject and object sharing.

Fú?iŋe là ɲwàni wù-n –a?

Fú  ʔiŋe  là  ɲwàni wù-n –a?

You do.COMPL AFF what hear-IMPF-HAB
PRON V CN V

'How did you learn it [a language]?'

c. Ingressive/inchoative.

overt reference and different objects.

ʔi-ŋa mè à kiŋe sùkurì zìʔ-ir –i là kòmọ ɛtràs pà-asè.

ʔi-ŋa  mè  à  i  kiŋe  sùkurì

3.SG-DEM too 3.SG go.COMPL school
PRON PRON V CN

zìʔ-ir –i  là  kòmọ  ɛtràs  pà-asè

sit-IMPF-PROGR AFF common entrance pass-ITER
V CN V

'He too went to school, sat common entrance and passed.'
d. Theme-goal.

Token subject and object sharing.

**A ta-r-i ba bia la waʔ-am na.**

A ta-r-i ba bia la waʔ-am na.

3.SG have-IMPF-PROGR 3.PL child DEF come-ST LOC

PRON V PRON CN V

‘He brought their child.’

For consecutive constructions in Ewe, objects are not shared if any. The same applies for CCs (52b). For SVCs, the most used method is covert sharing of objects. This applies to the instrumental (52e), the resultative (52f) and the CCSVC (52g). In addition, the CCSVC also makes use of overt reference sharing of objects (52h) and no object sharing (52i). Different from the others, the ISVC makes use of token sharing of objects (52c) and no object sharing (52d). Thus, Ewe seems to be the only language that employs all object sharing options in multi-verb constructions. This may account for the wide range of multi-verb constructions found in the language.

(52) **Ewe**


Different subjects.

**Mí-nɔ yi-yi-m má-vá.**

Mí-nɔ yi-yi-m má-vá.

2.PL-be.at:NPRES RED-go 1SG.POT-come

PRON-V V PRON V

‘You be going (and) I will come (i.e. follow).’
b. CC (Ameka 2005).
Overt reference sharing.

É-y -m nye-mé-təo.

É-yé-mi nye-mé-tə o.

PRON-V-PRON PRON V

'He/she called me, I did not respond.'

c. ISVC object sharing (Dzameshie 2005, also Agbedo 1993).
Token subject and object sharing.

Ama de Adzofia.

Ama de Adzo fia.

PRN V PN V

'Ama introduced Adzo.'

d. ISVC different objects (V1 has inherent complement) (Dzameshie 2005).
Token subject sharing and objects not shared.

Ama do γii yọ Kofi.

Ama ICV scream call Kofi

PRN V CN V PN

'Ama screamed, calling Kofi.'

e. Instrumental (Collins 1997).
Token subject sharing and covert reference object sharing.

Kofi a tsọ ati-ẹ fo Yao.

Kofi FUT take stick-DEF hit Yao

PRN V CN V PN

'Kofi will take the stick and hit Yao'
f. Resultative (Collins 1997).
Token subject sharing and covert reference object sharing.

**Me fo kaɗęgbę gba.**

Me fo kaɗęgbę gba.

*I hit lamp break*

PRON V CN V

'I hit the lamp and broke it.'

CCSVC: (Dzameshie 2005).

g. Token subject sharing and covert reference object sharing CCSVCs.

**Aku fle ablazdo da du.**

Aku fle ablazdo da du.

Aku buy plantain cook eat
PN V CN V V

'Aku bought some plantain, cooked it and ate it.'

h. Token subject sharing and overt reference object sharing CCSVCs

**Kɔ dzo kɔbibli-a, uu-I he-dze xexle go me.**

Kɔdzo kɔ bibli-a, uu-i he-dze xexle go me.

Kɔdzo lift bible-DEF open-3.SG se.Con-startreading bottom
PN V CN V-PRON V V

'Kodzo took the bible, opened it and started reading it.'

i. Token subject sharing and no object sharing CCs.

**Agbeko wo do, kpọga fle afe.**

Agbeko wo do, kpọga fle afe.

Agbeko do work see money buy house
PN V CN V CN V CN

'Agbeko worked, got money and bought a house.'
Ga makes use primarily of covert sharing of objects for both the resumptive and non resumptive ISVC as seen in examples (53b) and (53c) respectively. In addition the non resumptive ISVC also makes use of token sharing of objects (53a).

(53) **Ga** (Dakubu 2003).

ISVC (token subject/theme argument sharing).

a. **Akwele hó-ọ nìlì hà-à àmè.**

Akwele hó-ọ nìlì hà-à àmè.

*Akwele cooks for them.*

b. Overt reference subject sharing and covert reference object sharing.

**E-tao adeka e-ba-ha mi.**

E₁-tao adeka e₁- ba-ha mi.

'S/he looked for a box for me.'

c. Covert reference subject sharing and covert reference object sharing.

**E₁-tao adeka₂ t₁kɛ t₂ -ba-ha mi.**

E₁-tao adeka₂ t₁kɛ t₂ -ba-ha mi

'S/he looked for a box for me.'

For Baule CCs, both overt and covert sharing of objects, and no sharing of objects strategies are used as shown in examples (54a), (54b) and (54c) respectively. For the RSC, both covert sharing of objects (54d) and no sharing of objects (54e) methods are used. Token sharing of objects does not occur in Baule.
ESC

a. Covert reference subject sharing and overt object reference sharing.

\[\text{o fa ba-'n wunzin i kpe}\text{kpe}\text{i.}\]

\[\text{o fa ba-}\text{'n}_i \text{ wunzin}_i \text{ kpe}\text{kpe}_i \text{ I}_i\]

3.SG.SUBJ take child-DEF wash 3.S.OBJ anoint 3.S.OBJ

PRON V CN V PRON V PRON

'S/he takes the child, washes it and anoints it.'

b. Covert reference subject sharing and covert reference object sharing.

\[\text{B-'a sanzue a non.}\]

3.PL.SUBJ-PERF draw water PERF drink

PRON V CN V

'They have drawn water and drunk it.'

c. Covert reference subject sharing and different objects.

\[\text{o si-}\text{li ale-'n sok-o-li tro'n.}\]

\[\text{o si-li ale-}'n sok-o-li tro'n\]

3.SG.SUBJ pound-COMPL food-DEF prepare-COMPL sause-DEF

PRON V CN V CN

'S/he pounded the futu and prepared the sause.'

RSC

d. Essential-combination RSC-coreferent overt subjects.

\[\text{B-'a sa nzue a non.}\]

3.PL.SUBJ-PERF draw water (3ps) PERF drink

PRON V CN PRON V

'They have drawn water and drunk it.'

(54) **Baule** (Larsen 2005).
e. Accidental-combination ESC and different objects.

ô si-li aliè-̀n (ô) sòkò-li tròn.

ô si-li aliè-̀n
3.SG.SUBJ pound-COMPL food-DEF
PRON V CN

(ô) sòkò-li tròn.
(3.SG.SUBJ) prepare-COMPL sause-DEF
PRON V CN

'S/he pounded the futu and prepared the sause.'

Ewe, Ga and Baule as we have seen have no switch sharing and common to all is also that they amongst the other object sharing methods, have covert sharing of objects.

The discussion of the argument patterns above shows the following patterning. For the Benue-Congo languages, argument sharing in Èdò multi-verb constructions with the exception of the covert co-ordination, is achieved through token subject and object sharing as well as switch sharing. Covert co-ordination makes use of covert reference sharing of subjects. Igbo makes use of token sharing of subjects and objects in both the single event and multi-event serialization. Yoruba has switch sharing for the resultative construction and for the other SVCs, token sharing of subjects and objects.

For the Kwa and North languages, Akan ISVCs have token sharing of subjects and objects, with the exception of the de+location that has switch sharing. The CCSVC has covert reference sharing of subjects as well as switch sharing and overt reference sharing for objects.

Turning now to Ewe, Ewe has consecutive constructions and covert co-ordination and where argument sharing occurs it is overt reference sharing (Ameka 2005). For ISVCs subject sharing is token sharing, and object sharing where applicable is also token sharing (Dzameshie 2005). For the instrumental and resultative, subject sharing is token sharing and object sharing is covert reference sharing (Collins 1997). For the CCSVC, subject sharing is token sharing and object sharing is reference sharing (Dzameshie 2005). Ewe also has switch function sharing for the resultative and
overlapping clause (Ameka 2005). Ga has ISVCs with token sharing of subjects and objects, overt/covert reference subject sharing and covert reference sharing of objects. Gurene has token subject and object sharing as well as overt reference subject sharing. For Baule where argument sharing applies, for ESCs, subject sharing is covert reference sharing, and for RSCs, it is overt reference subject sharing. Object sharing is reference sharing.

Summarizing this section, object sharing patterns show a symmetry in the languages discussed in this chapter with respect to switch sharing and reference sharing. Languages that have overt reference subject sharing patterns do not have switch sharing while those that do not, tend to employ token sharing of subjects and switch sharing. This is buttressed by data from Attie and Likpe, closely related languages to the languages discussed in this chapter. With respect to object sharing, these languages that do not have switch sharing all have covert sharing of objects, while those that have switch sharing, do not have covert sharing of objects. Èdó belongs to the type that does not have overt reference sharing of subjects and tends to employ token sharing of subjects and switch reference. For object sharing, Èdó does not have covert sharing of objects and employs mainly token sharing of objects.

5.4 Structural types

In the languages under study in this section, three main structures have been proposed for mainly SVCs and covert co-ordination: complementation, adjunction and conjunction.

(55)

i. Complementation: Èdó RSVC (Baker and Stewart 1999 and 2002),
   Yoruba SVC (Baker 1989), Ewe SVC (Collins 1997).

ii. Adjunction: Èdó CSVC and CC (Baker and Stewart 1999 and 2002),
    Yoruba SVC (Dechaine 1993), Igbo SVC (Dechaine 1993),
    Akan ISVC and CCSVC (Hellan, Beermann and Sætherø 2003),
Ewe CC (Collins 1997) and Ga ISVC (Hellan and Dakubu 2007).

iii. Conjunction: Baule ESC (Larson 2005).

Theories aside, empirical facts have been used to support these structures for some of the languages under study. They include the following:

(56)

i. Interspesable adverb distribution (Èdó and Baule).

ii. The distribution of a floating anaphor (Èdó).

iii. Distribution of a future marker (Ewe).

iv. Wh-extraction (Akan).

v. Headedness and inflection marking (Igbo).

vi. Predicate cleft (Èdó), (Yoruba) and (Ga).

vii. Negation (Baule).

The overview in this section buttresses Ameka (2005:19) claim that:

“Characteristics of the construction types that are found in individual languages correlate with the overall typological profile of the language”.

I now discuss the different structures proposed and the empirical analysis supporting them. First, I give an overview of the issues with reference to examples illustrating them and then go on to discuss each in details in the following.

For Èdó, adverb distribution ((59)), the distribution of the floating anaphor (60) and predicate cleft ((61)) serves to distinguish between complementation structures and adjunction structures. Examples (65) to (69) give further illustrations of these distributions. VP adverb distribution is also used in Baule by Larson (2005) to show that the complements of each verb in series do not c-command one another and sentence adverbs are used to distinguish between ESCs and overt co-ordination (examples (83) to (87)). For Ewe the distribution of the future marker ((82)) is used to distinguish between SVCs and covert co-ordination by Collins (1997). VP- extraction ((73)) is used in Ga to distinguish between SVCs and a construction type Dakubu
(2003) calls the *verbid*, and in Akan wh-extraction ((79)) is used by Hellan, Beermann and Sætherø (2003) to distinguish between CCSVCs and overt co-ordination. Headedness, predicate cleft and inflection are used to support an adjunction structure for Yoruba ((72)) to ((73)), Igbo and Haitan by Dechaine (1993). Predicate cleft has also been used to distinguish between complementation and adjunction structures for Èdó (Baker and Stewart 1999). Negation ((88)) is used by Larson (2005) to support a multi-clausal analysis for Baule.

**Complementation**

I begin the discussion with Baker’s (1989) proposal for SVCs as involving double headed VP.

The SVC is analyzed as having a complementation structure. He proposes the following schema to account for the object sharing phenomena using Sranan as illustration.

(57)

Both *naki* and *kiri* are heads of the VP projection and both theta mark the shared object *Amba*, *naki* by direct theta marking and *kiri* by indirect theta marking. A criticism about this structure is that it is ternary branching. Baker and Stewart (1999, 2002) proposes a binary complementation structure for instances of token sharing of objects. The following is from Baker and Stewart (1999):
Evidence from adverb distribution (59) and the distribution of the floating anaphor tòbòrè 'by his/her/it self' (60) is used to buttress this claim by them:

(59)  *Ôzó fi àkhé giégié guòghó.

*Ôzó fi àkhé giégié guòghó.

'Ozo threw the pot so that it quickly broke.'
(60) *Òzó kòkó Àdésúwà mòsé tòbórè.

*Òzó kòkó Àdésúwà mòsé (-- tòbórè.

Ozo raise.PST.H Adesuwa be.beautiful.PST.H by.3.SG.self

PN V PN V ANA

'Ozo raised Adesuwa to be beautiful by herself.'

(61) a. ??Ú-fi-mwè ò ré Ò fí akhe giégie guòghó. (V1 focus)

?? Ú-fi-mwè èré Ò fí àkhé ghuó!ghó.

NOM-throw-NOM FOC he throw.PST.H pot break.PST.!H GERUND CN V CN V

'It's by throwing that he made the pot break (not by striking it)'

b. *Ú-ghuó!ghó-mwèn ò ré Òzó fí akhe giégie guòghó. (V2 focus)

* Ú- ghuó!ghó -mwèn èré Òzó fí àkhé ghuó!ghó.

NOM-break-NOM FOC Ozo throw.PST.H pot break.PST.!H GERUND PN V N V

'It's breaking that Ozo threw the pot and it did.'

In (59) the adverb giégie 'quickly' cannot occur between the verbs in series indicating that they are in a complementation relationship. In (60) the anaphor cannot occur after V2 indicating that V2 does not have a pro object. I have discussed these claims in chapter 4. In (61b) V2 is clefted and the sentence is not ungrammatical. Predicate cleft in Èdó is derived through the affixation of a circumfix U-mwen to the clefted verb.

Collins (1997) working within the Principles and Parameters framework adopts a complementation structure and rejects an adjunction structure in his account of the licensing of the pro complement of V2-Vn. Pro requires a c-commanding antecedent and an adjunction relationship between V1 and V2-Vn precludes this. Just like the distribution of the tòbórè anaphor after V2 is used by Baker and Stewart (1999, 2002) to determine the nature of argument structure, Collins uses the distribution of a preposition yi to support the claim of a pro object for V2. Example (62) below illustrates this:
(62) a. Me nga ðevi-ε dzo (yi).

Me nga ðevi-ε dzo (yi).

I chase child-DEF leave P
PRON V CN V

'I chased the child away.'

b.

Adjunction

For Èdó CSVCs, PSVCs and covert co-ordination, Stewart (1998) and Baker and
Stewart (1999 and 2002) adopt an adjunction structure. Argument sharing is
represented as mediated by pro for the two former and reference sharing or no sharing
of objects for the covert co-ordination. The level of adjunction differs for each
construction type. For CSVC, adjunction is at the level of little v (vP), for PSVC it is
at the level of Asp/MoodP, and for covert co-ordination, it is at the level of VoiceP.
As with RSVCs, the distribution of adverbs, the floating anaphor and predicate cleft
are used to distinguish between the levels of adjunction. I use a partial tree
representation for the purpose of illustration of the CSVC and the covert
co-ordination.
The difference in structure also yields different interpretations according to them. In (63) there is only one active voice head, so the subject is the agent of the macro event depicted by the cooking and eating events. In (64) each verb has its own voice head and so the subject is the direct agent of each distinct event. Also, the distribution of adverbs and the anaphor supports the structure. Preverbal adverbs have scope over the macro event when they occur before V1 in (63), but in (64), scope is restricted to...
the VP the adverb is situated in. However for both, unlike in the resultative construction above, preverbal adverbs are licensed before V2, also and has scope over the VP it is contained in as shown in examples (65) and (66) below. In addition, as shown in the structures, in (63) the floating anaphor may occur only with the overt subject and has scope over the whole macro event as illustrated in example (67). For (64), each VoiceP may have a floating anaphor and the anaphor has scope only over the VoiceP it is contained in as in (68). I have discussed this in chapter 4.

(65) CSCV (adverb before V2).

\[ \text{Òzó lé èvbárè rhé! rhé ré.} \]

\[ \text{Ozo cook.PST.H food quickly.PST.H eat.PST.H} \]

PN V CN ADV V

'Ozo cooked the food and quickly ate it.'

(66) Covert Co-ordination (adverb before V2).

\[ \text{Òzó gié!gié gbó!ó ívin gié!gié gbó!ó òká.} \]

\[ \text{Ozo quickly!PST.H plant.PST!H coco-nut} \]

PN ADV V CN

gié!gié gbó!ó òká.

quickly.PST!H plant.PST!H corn

ADV V CN

'Ozo quickly planted the coconut and [he] quickly peeled corn.'
(67) CSVC

(floating anaphor not licensed before V2).

a. *Ôzó lé èvbárè tòbórè ré.

Ôzó lé èvbárè tòbórè ré.

'Ozo cooked some food and by himself ate it.'

(b. Ôzó dë iyánì dùnmwún (-- tòbőrèì.

Ôzó dë iyánì dùnmwún (-- tòbőrèì.

'Ozo bought the yam and pounded it by itself.'

For predicate cleft, the distinction between an adjunction structure and a complementation structure is shown in that in CSVCs, either of the verbs may be clotted, unlike in the RSVC examples above where V2 cannot be clefted.
Ameka (2005) observes that West African languages have two distinct strategies for verb focusing. One is by copying the verb and fronting it with a focus particle linking it to the sentence. The other is by nominalizing the verb and placing it in sentence initial position with a focus particle also linking it to the sentence. Èdó uses the second strategy as we have seen above. Yoruba also nominalizes the clefted verb in a serial construction. I discuss further structural representations for Èdó multi-verb constructions in chapter 7.

I now discuss Dechaine (1993) adjunction structure for Yoruba and Igbo. I leave Haitian out of the discussion.

Using the scope of negation, predicate cleft and focusing, the following classification in table 28 below is arrived at:

Table 28 Headedness and SVC types

<table>
<thead>
<tr>
<th>Construction type</th>
<th>HEAD=V1</th>
<th>HEAD=V2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haitan</td>
<td>Dative</td>
<td>Instrumental</td>
</tr>
<tr>
<td></td>
<td>Benefactive</td>
<td>Manner</td>
</tr>
<tr>
<td></td>
<td>Resultatives</td>
<td>Comitative</td>
</tr>
<tr>
<td>Igbo</td>
<td>Serial construction</td>
<td>-</td>
</tr>
<tr>
<td>Yoruba</td>
<td>V-V compound</td>
<td>V-V compound</td>
</tr>
<tr>
<td></td>
<td>Serial construction</td>
<td>Serial construction</td>
</tr>
<tr>
<td></td>
<td>Serial Construction</td>
<td>Serial Construction</td>
</tr>
</tbody>
</table>

(69) CSVC

a. Ú-le -mwèn òré Úyi lé èvbàrè khièn (V1 focus).

Ú-le -mwèn òré Úyi lé èvbàrè khièn.
NOM-sell-NOM FOC Uyi cook.PST.H food sell.PST.H
GERUND PN V CN V

'It's cooking that Ozo did to the food and sold it.'

b. Ú-khièn-mwèn òré Úyi lé èvbàrè khièn (V2 focus).

Ú-khièn-mwèn òré Úyi lé èvbàrè khièn.
NOM-sell-NOM FOC Uyi cook.PST.H food sell.PST.H
GERUND PN V CN V

'It's selling that Uyi cooked the food and did to it.'
According to her the structural types are also determined by the nature of INFL. When INFL is a word it occurs only once as in Yoruba, if it is an affix each verb may be individually negated (with harmonizing markers) as in Igbo. For these two languages either V1 or V2 can head the adjunction structure depending on predicate cleft and negation scope. In (70) and (71) below I give a partial tree representation for Yoruba and Igbo respectively (Dechaine 1993).

(70) Yoruba

(71) Igbo

Predicate cleft is licensed in all serialization types in the languages examined by Dechaine (1993). I illustrate with predicate cleft for dative serialization (72) and Instrumental (73) types in Yoruba, for the former only V1 can be clefted while for the latter all the verbs in series can be clefted.

---

76 In Haitain INFL is empty and only V1 can head the adjunction structure.
(72) Yoruba Dative construction.

a. [Mí-mú] ní Jímò ó mú àpótí fún mì. (V1 focus)
   Nom-take FOC Jimo AGR take box give me
   GERUND PN V CN V PRON
   Translation difficult

b. *[Fí-fún] ní Jímò ó mú àpótí fún mì. (V2 focus)
   [Fí-fún] ní Jímò ó mú àpótí fún mì.
   Nom-give FOC Jimo AGR take box give me
   GERUND PN V CN V PRON

(73) Yoruba Instrumental construction.

a. [Fí-fi] ní Jimò ó fi ọbẹ gé iṣu. (V1 focus)
   [Fí-fi] ní Jimò ó fi ọbẹ gé iṣu.
   Nom-use FOC Jimo Agr use knife cut yam
   GERUND PN V CN V CN
   Translation difficult

b. [Gí-gé] ní Jimò ó fi ọbẹ gé iṣu. (V2 focus)
   Nom-cut FOC Jimo AGR use knife cut yam
   GERUND PN V CN V CN
   Translation difficult

The assumption is that if V2 can be clefted then V1 can also be clefted and V2 is primary head. In table 28 above, the resultative construction is represented as having V1 as primary head, this then presupposes that only V1 can be clefted just as with Èdó resultatives. The dative construction also behaves like the resultative construction in Èdó in this respect. The Instrumental construction is parallel with Èdó consequential construction as each verb may be clefted. Examples of predicate cleft are not given for Igbo.

I now discuss Ga. Dakubu, Hellan and Beermann (2007) propose an adjunction structure for the ISVC in Ga as follows:
a. Akwele bàáhóo nii á-há wọ.

Akwele  bàá  hóo  nii  á  há  wọ

Akwele  INGR.FUT  cook  thing.PL  SBJV  give  1.PL
PN   V  CN   V  PRON

’Akwele will cook for us’

b.

The adjunction structure is right branching and is motivated by the fact that VP1 is a fully saturated VP and can occur alone. Ga has a number of preverbs which may occur with main verbs to give aspectual readings, the whole functioning as one verb word. Dakubu, Hellan and Beermann call the construction an Extended Verb Complex (EVC).

VPs can be headed by Vs or EVCs. In the EVC, the leftmost structure is always the head. In (74b) the first VP contains such a sequence and is represented by the nodes Vdeictic and Vmain. Such preverbs do not bear inherent tones but acquire the tone of the following verb and are analyzed as taking the accompanying verb as a complement. Thus VP1 consists of a preverb bà together with the transitive verb hóo as main verb. The object of hóo, nii, occurs structurally outside the EVC and is not in
a direct complement relation inside of it, but to the EVS as such. VP2 is headed by há a di-transitive verb and its theme argument is coreferential with nii the object of VP1.

In the structure proposed by Dakubu, Hellan and Beermann the coreferentiality is captured by identifying the values of the DOBJECT indexes of hóo and há. Such an approach leaves open the possibility of reference sharing or token sharing of the shared object. As I have discussed earlier, argument sharing is not obligatory for ISVCs in Ga.

Predicate cleft is also used by Dakubu and Hellan (2003) to distinguish between Ga SVCs from the VP construction type called the Verbid construction. Of interest is that VPs cannot be clefted in SVCs while they can in Verbid construction. Example (75) illustrates this for SVCs with an example of VP2 focus.

(75)

a. lôle-i ε baá-to lai ké-jɛ bie.  
   lôle-i ε baá-to lai ké-jɛ bie.  
   Car-PL DEF GR.FUT-arrange line move.SUB-leave here
   N V N V N
   'The cars will line up from here'

b. *Ké-jɛ bie (nɛ) lôle-i ε baá-to lai. (VP2 focus).  
   * Ké-jɛ bie (nɛ) lôle-i ε baá-to lai.
   Move.SUB-leave here FOC Car-PL DEF GR.FUT-arrange line
   V N N V N

As mentioned above, Ga has two other construction types, the EVC consisting of a preverb and a main verb and the verbid. First, I discuss the preverb. There are four preverbs in Ga and they are as follows:
(76) Preverbs

i.  Kε 'move' (a transitive verb that must be followed by a V).

**MOVE**

ii.  ka 'not'/'neg' (must be followed by a V).

**PROHIB**

iii.  ba 'come' (must be followed by a V, but is also homophonous with a V\textsubscript{main} of similar meaning).

iv.  ya 'go’ (same subcategorization properties as ba)

**EGR**

v.  The preverbs all can occur in a single EVC in the following order:

\text{Pron-prefix} \quad V_{kε} \quad V_{neg} \quad V_{deictic} \quad V_{main}

In chapter 4 section 4.2.4.5 I discussed Ameka’s (2005) claim that verbs may also grammaticalize into functional markers such as aspectuals, modals, prepositions etc. through multi-verb constructions, and he gives Ga preverbs as example of grammaticalized verbs. Dakubu, Hellan and Beermann state that these preverbs are not independent verbs and are always followed by another verb. Kε always has an object overt or covert and in an EVC, the main verb shares this object. Unlike in (74) above this object occurs in a direct complementation structure relative to kε as shown in (77) below, where it is an instance of token sharing. The negative preverb is used mainly to express modal negation. The latter two ba and ya are deictic preverbs, specifying the direction of the event relative to the speaker. Êdó does not have such preverbs. The closest to the kε, ba and ya preverbs in Êdó is the directional construction where it is V2 that is grammaticalized and it is always intransitive. Below I give an example (77) of an EVC in Ga using kε as illustration:
(77) **EVC**

a. **E ke wolo le ha mi**

\[
\begin{align*}
E & \quad ke \quad wolo \quad le \quad ha \quad mi \\
3.&SG & MOVE & book & Det & give & 1.&SG \\
V & \quad CN & DET & V & PRON
\end{align*}
\]

'He gave me the book'

a. 

![Diagram of VP structure](image)

I now review the verbid construction. The verbid construction differs from the SVC in that there is no constraint on aspect, mood and polarity agreement between the verbs in series. They occur in VP2 position and also, they do not share the subject of V1. What is understood as the subject of the verbid is the entire situation expressed by the preceding VP. Unlike the preverb, they are full verbs and stand in an adjunction relation to VP1. Example (78a) below illustrates this with (78b) presenting a simplified structure for the verbid.

(78) **VERBID (VidP)**

a. **Akwele’-baá- hoo niyenii - ha amē.**

\[
\begin{align*}
Akwele & \quad -baá- \quad hoo \quad niyenii-\quad ha \quad amē. \\
Akwele & \quad AOR-GR.FUT \quad -cook \quad food \quad AOR-give \quad 3.&PL \\
PN & \quad V \quad CN & V & PRON
\end{align*}
\]

'Akwele will cook for them'
I now review SVCs in Akan. Hellan, Beermann and Sæthero (2003) distinguish CCSVC from overt co-ordination, using amongst other factors, the application of the wh-extraction test. CCSVC does not license wh-extraction while co-ordination does. Example (79) a CCSVC, illustrates this:

(79)  *Den na Ama noa di-i?

\[
\begin{array}{llll}
\text{Den} & \text{na} & \text{Ama} & \text{noa} & \text{di-i}?\\
\text{what} & \text{FOC} & \text{Ama} & \text{cook} & \text{eat-COMPL} \\
\text{N} & \text{N} & \text{V} & \text{V} \\
\end{array}
\]

'What did Ama cook and eat?'

Similar to Ga, they also represent serialization as a right branching adjunction structure for Akan.

CCSVC are represented formally as binary right branching adjunction structures with the left-most daughter the head and the rightmost daughter an adjunct. The latter licenses recursion and allows for the unbounded nature of CCSVCs to be represented.

Integrated serial verb constructions have a restriction of two verbs in the series, one of which must be a minimal verb and the other a full verb. ISVCs are also represented as having a right branching adjunction structure with the minimal verb as the left branching head daughter and with the full verb as the non-head right branching modifying daughter. This type does not allow for recursion therefore capturing the restriction that an ISVC has an upper bound of verbs. Examples (80) and (81) show a very simplified exemplification of a CCSVC structure and ISVC structure respectively together with examples.
Argument sharing in both instances is achieved through identity of the referential indexes of subjects and objects arguments on the $qval$ specification of verbs involved and or through identity of thematic roles on the $mrs$ list. For token sharing, the argument bearing the referential index is instantiated on the VAL list of VP1. For overt reference sharing, all arguments are instantiated on the VAL list and lastly, for covert reference sharing only the non anaphoric argument is instantiated on the VAL list of VP1. (I discuss this argument sharing further in chapter 7, section 7.2).

(80)

a.

b.  Ama noa di
    Ama noa di
    $Ama$ cook eat
    PN V V
    'Ama cooks and then eats'
I now discuss Ewe. The extraction test is not relevant for distinguishing SVCs from covert co-ordination in the Togo dialect as arguments can be extracted in both types (Collins 1997:466). It is relevant in the Ghana dialect and used to distinguish between serial verbs, coordination and purpose constructions by Agbedor (1994:116). Extraction is possible out of the first but not out of the latter two. To distinguish CCs from SVCs, the distribution of the future tense marker which occurs before each verb in series in CCs but not in SVCs leads Collins (1997) to conclude that CCs are a conjunction of IPs with no argument sharing. He proposes the following structure in (82b) for example (82a).

(82) a. Me a fo kaɗegbe a gba (yε me) tsimini.

   Me a fo kaɗegbe a gba (yε me) tsimini.

   Pron V N V pron N

   'I hit the lamp and broke it.'
b.

The covert co-ordination in Ewe differs from Èdó covert co-ordination and all multi-verb constructions types in Èdó that I have discussed in this thesis in this respect. Èdó does not have conjunctions of IPs. This applies also to Igbo, Yoruba and Akan. Baule has a structure closest to the Ewe CCs. I discuss this immediately.

Larson (2005) uses the distribution of adverbs to buttress the classification made between ESCs on the one hand and RSCs, sentence complements and overt coordination on the other hand. There are two classes of adverbs in Baule: sentence and VP adverbs. Sentential adverbs occur at the left-most periphery of an ESC and cannot occur before V2 ((83)). For sentence complements, a sentence level adverb can start it ((84)) and for RSCs, a sentence level adverb can occur preceding the subject marker of V2 ((85)).

VP adverbs occur after a verb and its complement for both ESCs and RSCs, and only one is licensed per construction. It may occur after the first verb and its complement or after the second verb and its complement. It may have scope over the conjunct it is contained in or over both conjuncts. I use an ESC example as illustration in (86). Here, the adverb occurs after the V1 object and has scope over the drawing event alone or over both the drawing and drinking event. For overt coordination, the adverb modifies only the VP it is contained in, as in (87) where it has scope only over VP2.
(83) Sentence adverbial-ESC.

Atrɛkpa be tra-li kangale-'n di-li.

Atrɛkpa  be  tra-li    kangale-'n  di-li.

Probably  3.PS  catch-COMPL  panther-DEF  eat-COMPL
ADV  PRON  V   CN   V

'Probably they caught the panther and ate it.'

(84) Sentence adverbial-sentence complement.

Kofi se-li ke atɛkpa be di-li kangale-'n.

Kofi  se-li   ke   atɛkpa    be   di-li   kangale-'n.

Kofi  say-COMPL  that  possibly  3.PL.SUBJ  eat-COMPL  panther-DEF
PN    V   COMP ADV PRON   V   CN

'Kofi said that probably they ate the panther.'

(85) Sentence adverbial-RSC.

Be tra-li kangale-'n atɛkpa be di-li.

Be  tra-li    kangale-'n  atɛkpa    be  di-li.

3.PL.SUBJ  catch-COMPL  panther-DEF  probably  3PS  eat-COMPL
PRON   V   CN   ADV   PRON   V

'They caught the panther and probably they ate it.'

(86) VP adverb- ESC (after V1 and complement).

ke nzuewe kun Aya o sa nzue ndɛndɛ non.

ke   nzuewe kun   Aya    o    sa   nzue   ndɛndɛ  non.

When  thirst  kill  Aya   3.SG.SUBJ  draw  water  quickly  drink
V   V   PN   PRON   V   N   ADV   V

'When Aya is thirsty, she draws water and drinks it quickly.'
VP adverb-overt coordination.

\[
\text{ke } \text{nzuewe } \text{kun Aya } \circ \text{ sa nzue kp\oscopic{kun }\circ \\text{n\observable{on i nd\observable{end}.}}}
\]

\[
\text{ke } \text{ nzuewe kun Aya}
\]

\[
\begin{array}{lll}
\text{V} & \text{V} & \text{PN}
\end{array}
\]

\[
\circ \text{ sa nzue kp\scopic{kun }\circ \\text{n\observable{on i nd\observable{end}.}}}
\]

\[
\begin{array}{lll}
\text{3.SG.SUBJ} & \text{draw water and} & \text{3.SG.SUBJ} \text{ drink 3.SOBJ quickly}
\end{array}
\]

\[
\begin{array}{llllllllll}
\text{PRON} & \text{V} & \text{CN} & \text{CONJ PRON} & \text{V} & \text{PRON ADV}
\end{array}
\]

'When Aya is thirsty, she draws water and drinks it quickly.'

With respect to the licensing of sentential adverbs, Èdó resultatives are closest to the ESC and RSC with only one VP adverb licensed before V1 but different from the ESC and RSC it has scope only over the whole construction. For consecutive constructions, the distribution is as with the Baule ESC with each verb capable of having its own adverb. However, the interpretation is different. For the Èdó consequential construction, a preverbal adverb occurring before V1 has scope obligatorily over the whole macro event. Also the Èdó covert co-ordination has a different interpretation with regard to VP adverb scope. The adverb may only have scope over the conjunct it is contained in. In this respect, Èdó CCs are close to Baule overt coordination.

Turning to the structure of the ESC, Larson (2005) based on the distribution of the negative marker and adverb distribution, proposes a conjunction structure for the ESC. It is proposed that Baule has two projections involving negation, one corresponding to each of the two negative markers, the first of which she calls Polar 1P and the second Polar2P. This is illustrated in (86b) which is the representation of (88a).
(88)

a. ɔ-à fa man ɔ-à man man mi.

<table>
<thead>
<tr>
<th>3.SG.SUBJ-PERF</th>
<th>take</th>
<th>NEG</th>
<th>3.SG.SUBJ-PERF</th>
<th>give</th>
<th>NEG</th>
<th>1.SG.OBJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRON</td>
<td>V</td>
<td>PRON</td>
<td>V</td>
<td>PRON</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

'S/he didn’t give me it.'

b.

The structure in (88b) above consists of two clauses with two representation of Tense/Aspect with each verb projecting its full array of complements. Crucially V2 is
not a complement of V1. She states that this ensures that the subject and object of V1
does not C-command the subject and object of V2 explaining the E-type reading for
the unexpressed object of V2. The covert reference sharing of subjects and objects
here is mediated by *pro*.

5.5. Summary
In this chapter I have examined multi-verb constructions in the following languages
Èdó, Igbo and Yoruba (Benue-congo), Gurenne (Oti-Volta), Ga, Baule, Akan and
Ewe (Kwa). The findings show that the typological features of these languages
correlate with the types and characteristics of multi-verb constructions found in the
languages as observed by Ameka (2005). Also the findings validate Manfredi’s
(2005:7-11) observation that while inflection may demarcate multi-verb types within
a language, the patterns found in a language do not necessarily map on to other
languages within the same language family.

I have discussed identificational strategies used in these languages to demarcate types
of multi-verb constructions. They are mainly tense, aspect and mood and argument
sharing patterns. Multi-verb constructions identified include SVCs in all the
languages discussed, consecutive constructions in Ewe and covert co-ordination in
Èdó, Igbo and Baule. I have also examined typological features (such as extraction,
adverb modification, the distribution of a floating anaphor, tense and polarity
marking, predicate cleft and argument sharing patterns) used as criteria for
determining the structures of SVCs and covert co-ordination in these languages. Also
examined is the issue of what a single event as opposed to a complex event is. I
recognized two kinds of serialization: the single event serialization and the multi-
event serialization. Single event serialization consists of verbs in series expressing
closely related actions which together are viewed as a single (micro/macro) event.
Multi-events consist of series of random unrelated events.

Inflection is shown to determine interpretation of multi-events in Igbo either as single
events or multi-events. Inflection is also reflected and distinguishes between
consequential SVCs and covert co-ordination in Èdó when their arguments are realized non-canonically. This pattern was found only in Igbo and Èdó.

With respect to tense, aspect and mood, all the languages with the exception of Ga, have one/harmonizing marker(s) on the verbs in series. My findings reveal that the kind of multi-event constructions found in a language is related to the type of inflection attested in the language.

I have shown that languages with mainly aspectual and mood inflection have only SVCs (Akan and Ga), this also applies to Yoruba, a language with aspect and one or more future marker. Languages with tense, aspect and mood distinctions have both SVCs and CCs (Èdó and Igbo). A language like Baule with tense, aspect and mood reflected tonally on the subject and verb has only CCs, and a language like Ewe that seems to have little tense, aspect and mood distinction has all four ranges: consecutive constructions, SVCs, CCs as well as Bi-clausal constructions.

I have shown that the type of argument sharing patterns found in the languages studied support the null subject/pro drop hypothesis that languages with rich verbal agreement features allow recoverability of unexpressed arguments and tend to license null subjects and objects. This determines the type of multi-verb constructions found. Thus the Benue-Congo languages with little or no verbal morphology that allow recoverability of unexpressed arguments prefer a token sharing pattern with covert reference sharing of subjects only attested for Èdó CCs, while the Kwa and North languages with rich verbal inflection make use of both token sharing patterning and reference sharing both overt and covert. Also the languages with rich verbal inflection as well as a system of resumptive pronouns do not seem to license switch- sharing. Indeed switch sharing is only attested in Akan for the Kwa and North language families.

Object sharing patterns I have shown to show a symmetry in the languages discussed in this chapter with respect to switch sharing and reference sharing. Languages that have overt reference subject sharing patterns do not have switch sharing (Ewe, Ga and Baule) while those that do not, tend to employ token/covert reference sharing of

404
subjects and switch sharing (Èdó, Yoruba and Akan). This is buttressed by data from Attie and Likpe, closely related languages to the languages discussed in this chapter. With respect to object sharing, these languages that do not have switch sharing all have covert sharing of objects, while those that have switch sharing, do not have covert sharing of objects. Èdó belongs to the type that does not have overt reference sharing of subjects and tend to employ token sharing of subjects and switch reference. For object sharing, Èdó does not have covert sharing of objects and employs mainly token sharing of objects.

With respect to structure, three main structures have been proposed for mainly SVCs, EVCs, Verbids and covert co-ordination: complementation, adjunction and conjunction as follows. Complementation: Èdó RSVC (Baker and Stewart 1999 and 2002), Yoruba SVC (Baker 1989), Ewe SVC (Collins 1997) and Ga EVCs (Dakubu, Hellan and Beermann 2007). Adjunction: Èdó CSVC and CC (Baker and Stewart 1999 and 2002), Yoruba SVC (Dechaine 1993), Igbo SVC (Dechaine 1993), Akan ISVC and CCSVC (Hellan, Beermann and Sætherø 2003), Ewe CC (Collins 1997), Ga ISVC (Hellan and Dakubu 2007) and Ga Verbid constructions (Dakubu and Hellan 2003) and Conjunction: Baule ESC (Larson 2005).

The empirical data used to support these structures differs from language to language. They include Interspersable adverb distribution (Èdó and Baule), the distribution of a floating anaphor (Èdó), distribution of a future marker (Ewe), wh-extraction (Akan), headedness and inflection marking (Igbo), predicate cleft (Èdó), (Yoruba) and (Ga) and lastfly negation (Baule).
CHAPTER SIX
TEMPORAL RELATIONS AND EVENT STRUCTURE

6.0 Introduction

The essence of the previous 5 chapters is to provide a semantic and syntactic description of multi-verb constructions in Êdó together with a theoretical and typological background. At the semantic level multi-verb constructions have co-occurrence restrictions determined by the aspectual properties of the verbs they license, and their argument sharing patterns are predictable from these restrictions. At the syntactic level, multi-verb constructions in Êdó have been discussed on the following basis: the nature of tense and the functional status of V2.

Based on the ability or inability of any of the verbs in series to occur with the –rV past tense suffix and with auxiliary markers (encoding tense or lack of it) and the distribution of the floating anaphor and adverbs, it was shown that some constructions that at a first glance seemed to be multi-verb constructions (MVCs) were actually verb+modifier constructions or verb+ infinitival complement constructions.

In order to describe the differences in event structure encoded in the 11 multi verb constructions described in chapters 3 and 4, I apply Pustejovsky’s (1991,1995 and 2005) work on predicate decomposition and event reification, relevant parts of which I have discussed in chapters 3 and 4. I also assume Pustejovsky’s event template analysis as presented in chapter 3 of this thesis. Events are classified into three different sorts based on their temporal characteristics: processes, states and transitions. Within an event semantics framework temporal relations are captured through how events unfolds in time (= actual time) and within the sub-eventual analysis, events can be in sequential, partial overlap or overlapping relations in composition. I discuss this immediately below in section 6.1 and in section 6.2, I use three sentential paraphrasing tests to buttress my classification of these relations. They are:

(1.1) Temporal connective test for sequential relation between events in series using the temporal connective ké 'before' (Hobbs and Pustejovsky 2005 and Passonneau 2005).
6.1 Multi-verb constructions and temporal interpretation

I begin the discussion with the representation of the co-occurrence relationships underlying combinations of multi-verb constructions which I discussed in chapters 3 and 4, and show how they pattern with respect to the temporal relations discussed in the exposition of Pustejovsky’s event semantics.

As Rappaport Horav and Levin (1999) observes for the English resultative constructions, with the exception of the covert co-ordination, co-occurrence restrictions in the combinations of verbs reveal that the verbs in series are closely connected. Related to this observation, sub-events lexicalized as single verbs or as resultative constructions in English can be expressed by some multi-verb constructions with single event interpretation in Èdó. This is illustrated in example (2) below:
(2). English/ Èdó:

```
Transition

<table>
<thead>
<tr>
<th>e1</th>
<th>e2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>State</td>
</tr>
</tbody>
</table>
```

English:

‘John hammered the nail flat’

Èdó:

Òzó  kán  isé  bigò

Ozo  nail.PST.H  nail  bent.PST.H
PN  V     CN     V

‘Ozo nailed the nail bent’

Different from the English example where e₂ is a result XP, in Èdó the result predicate is a verb, with e₁ and e₂ corresponding to a resultative multi-verb construction.

I repeat below generalizations about the temporal relations binding the events in series given in chapter 4:

(3)

i. The default temporal relation pattern for a combination of accomplishment events in a multi-verb construction is that of disjoint order. This follows from the aspeclural property of accomplishments: duration and culmination. Each event culminates giving rise to a predictable non-overlapping temporal interpretation.

ii. The default temporal relation pattern for a combination of achievement verbs following from their culminative property is also non-overlapping.

77 See chapter 3 for discussion on state verbs in Èdó.
78 Two sub-events are disjoint if they do not overlap in any way, that is, $e_1 \prec e_2 \lor e_2 \prec e_1$. and $e_1$ is sequential to $e_2$ (cf Allen and Ferguson 1994:10).
Also, due to the instantaneous property of achievements for resultatives, the temporal relation is that of *partial order*. This default value may be overridden by construction specific interpretations as with purpose constructions where the relationship is overlapping.

iii. The atelic/homogeneous properties of processes and states predict an *overlapping relationship* as the default irrespective of the aspectual class of V2.

iv. A combination of achievements and accomplishments is not so productive in the language. An achievement event in V1 position must be a verb of perception or a verb that introduces an instrument or agent. In V2 position, it is the verb expressing finality in Edo *fọ* 'finish'.

From the above, I recognize two classes of temporal relations: temporally dependent overlapping relation and temporally independent non-overlapping relations with the following sub-types:

(4) *Overlapping* relations: ‘*ordered overlap*’ and ‘*overlap*’ relations as defined by Pustejovsky (1995).

*Non-overlapping* relations: this consists of the *partial order* (Pustejovsky 1995 and Rappaport Horav and Levin 199979) and the *disjoint order* (Allen and Ferguson 1994).

With this in place I now consider *ordered overlap, overlap, partial order and disjoint order* as the relevant relations for multi-verb composition.

As discussed in chapter 4, the default aspectual type for combinations of verbs in multi-verb constructions is the same as the aspectual value for V2. The events in series in *V+modifier, V+infinitival complement, V+mood* constructions and *resultative* constructions with a degree state event as V2 are in an *overlapping*  

---

79 Rappaport Horav and Levin (1999) classify non-overlapping relation as a causative relation that may involve a sequential non-overlap relationship between events in series.
relation while those in the $V(P)+V(P)$ construction are in a non-overlapping relation. I now discuss each construction type.

**$V+MODIFIER$ CONSTRUCTIONS**

The events in series in this construction where applicable are in an overlapping relation. This applies only to directional and manner constructions.

As discussed in chapter 4 section 4.1.1, the lexical item that occupies the canonical V2 position in a $V+modifier$ construction is reanalyzed, and may be predicated of the event depicted by V1 or of the subject of V1. For the former, the reanalyzed verbs seem to serve to describe the progression of the event depicted by V1 as in (6), (8), (7), (9) & (11) below. I have not analyzed these reanalyzed items and the verbs they modify as being temporally related. For instances where the reanalyzed verb is predicated of the subject of V1 as in (13), (14) & (16), I have analyzed them as instances of overlapping relations.

(5) **Durational construction**

```
[  V1          V2   ]
[ Process     State  ]
[ Process     Achievement  ]
[ Accomplishment State ]
[ Accomplishment Achievement ]
```

(6) Ôzó vié-rè kpèég.

Ôzó vié-rè kpèég.

process state

Ozo cry.PST-rV long

PN V ADV

'Ozo cried for a long time.'
For examples (6) to (9) the reanalyzed verb modifies the event depicted by V1. The same applies for the locational construction in (11) below.

**Locational construction:**

(10)

\[
\begin{array}{c@{}c}
\text{V1} & \text{V2} \\
\text{Process} & \text{Achievement} \\
\text{Achievement} & \text{State}
\end{array}
\]
(11) Î rhié  èré yè  èvbá.

Î  rhié  èré  yè  èvbá.

achievement  state

1SG  take.PST  3SG  on  there

PRON  V  PRON  PREP  ADV

'I put it there.'

Directional construction

(12) Overlap/ordered overlap relation

<table>
<thead>
<tr>
<th>V1</th>
<th>V2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>Progressive state</td>
</tr>
<tr>
<td>Process</td>
<td>Achievement</td>
</tr>
</tbody>
</table>

(13) overlap

Òzó rhùlé dèé.

Òzó  rhùlé  dèé.

process  progressive state

Ozo  run.PRS  coming

PN  V  ADV

'Ozo is running towards me.'

(14) ordered overlap

Òzó rhùlé-rè làg  òwá.

Òzó  rhùlé-rè  làg  òwá.

process  achievement

Ozo  run.PST-rV  enter  house

PN  V  ADV  CN

'Ozo ran into the house.'

In deictic directional constructions, the events are viewed with respect to the speaker. For example in (13), the event of running is measured by the progression of the runner towards the speaker. Here, \( e_1 \) and \( e_2 \) begin and unfolds at the same rate making this an overlap relation. Example (14) is a non-deictic directional construction and the
running event is bounded off by the entering event and the two events are in an
ordered overlap relation.

**Manner construction:**

(15) **Ordered overlap**

\[
\begin{array}{c}
V1 \\
\text{State(temporal position state)} \\
V2 \\
\text{Event}
\end{array}
\]

(16) Ọzọ digièn-rèn rři èvbàrè.

\begin{tabular}{ll}
\text{state} & \text{accomplishment} \\
\end{tabular}

\textit{Ozo} \quad \text{stooP.PST-rV \ eat.PST.H \ food}

\text{PN \ V \ V \ CN}

'Ozo bent while eating.'

For manner constructions, the relation is that of ordered overlap \( e_1 \) overlaps with the
inception of \( e_2 \) with \( e_2 \) starting in the course of \( e_1 \). The bending event could have
begun before the start of the eating event but the complex event ends at the same time.

Events in series in \( V^{+}\text{infinitival complements} \) also stand in an \textit{overlapping} relation
and I discuss this immediately.

**\( V^{+}\text{INFINITIVAL COMPLEMENT CONSTRUCTIONS} \)**

For the events in series in \( V^{+}\text{infinitival complement} \) construction the relation is that of
\textit{overlap}.

(17) **Comitative construction**

**Overlap relation**

\[
\begin{array}{c}
V1 \\
\text{Process} \\
V2 \\
\text{Achievement} \\
\text{Process} \\
\text{Accomplishment}
\end{array}
\]

Examples (18) and (19) illustrate this:
(18) Íràn kòkó-rò dé ímótò.

Íràn kòkó-rò dé ímótò.

process achievement

3.PL gather.PST-rV buy car

PRON V V CN

'They bought the car together (joint ownership).'

(19) Íràn kùgbé-rè rrí ízè.

Íràn kùgbé-rè rrí ízè.

process accomplishment

3.PL gather together.PST-rV eat rice

PRON V V CN

'They eat the rice together.'

e₁ in this construction contributes temporal/aspectual information for the complex event. For (18), the events of gathering and buying express joint ownership and for (19), the gathering and eating events are performed at the same rate and time. The same observation applies for the instrumental construction below where the events in series are in an overlap relation.

(20) Instrumental construction

Overlap relation.

<table>
<thead>
<tr>
<th>V1</th>
<th>V2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>Achievement</td>
</tr>
<tr>
<td>Process</td>
<td>Accomplishment</td>
</tr>
<tr>
<td>Achievement</td>
<td>Achievement</td>
</tr>
</tbody>
</table>

(21) Ózó lòó éhò fián írrí.

Ózó lòó éhò fián írrí.

process achievement

Ozo use.PST.H knife cut rope

PN V CN V CN

'Ozo used a knife to cut the rope.'
Using example (21) as illustration, the event of using is properly included in the event of cutting. The using event begins with the cutting of the rope and ends when the rope is cut.

**V+Mood Constructions**

The events in series are in an *ordered overlap* relation. V1 is a verb of perception and this imposes an overlapping interpretation on the complex event.

(24) **Purpose construction**

**Ordered overlap relation**

\[
\begin{bmatrix}
\text{V1} & \text{V2} \\
\text{Achievement} & \text{Accomplishment} \\
\text{Achievement} & \text{Achievement}
\end{bmatrix}
\]
(25) Òzó mién iyán lé.

Òzó mién iyán lé.

achievement accomplishment

Ozo see.PST.H yam cook

PN V CN V

'Ozo saw yam to cook (and he cooked it).'

(26) Òzó mién àkhé guó!ghó.

Òzó mién àkhé guó!ghó.

achievement achievement

Ozo see.PST.H pot break

'Ozo destroyed the pot (through a deliberate action of his).'

In example (25), the successful completion of the seeing event implies the successful completion of the cooking event. While the English sentence he sees a yam to cook does not imply that he cooks the yam, (25) implies that Ozo cooks the yam. Also it is the combined interpretation of the verbs mién and lé that gives the purpose reading, the complex event being successfully completed only after the cooking event is achieved. The same applies to (26). In that sense Èdò purpose constructions can be described as having an ordered overlap event structure.

I now discuss the $V(P) + V(P)$ construction.

$V(P) + V(P)$ CONSTRUCTIONS

For $V(P) + V(P)$ constructions the default relation between the events in series is non-overlapping: a disjoint order relationship. The exception is the resultative construction where depending on the nature of V2, the events in series can either be in a partial order relation or an overlap relation. Due to the homogeneous behaviour of these constructions, I only give an example for each type as illustration.
(27) **Consequential construction**

**Disjoint order relation**

\[
\begin{bmatrix}
V1 & V2 \\
\text{Accomplishment} & \text{Achievement} \\
\text{Accomplishment} & \text{Accomplishment} \\
\text{Achievement} & \text{Accomplishment}
\end{bmatrix}
\]

(28) **Ọzó lé ízè ré.**

\[
\begin{array}{c c c c c}
\text{Ọzó} & \text{lé} & \text{ízè} & \text{ré}.\\
\text{accomplishment} & \text{accomplishment}
\end{array}
\]

\[
\begin{array}{c c c c c}
\text{Ozo} & \text{cook. PST.H} & \text{rice} & \text{eat. PST.H} \\
\text{PN} & \text{V} & \text{CN} & \text{V}
\end{array}
\]

'Ozo cooked rice and ate.'

A generalization that is immediately obvious for (27) is that the events in series in a consequential construction must be transitions. In (28), the event of cooking must be over before the event of eating begins. Here, the time span of the cooking event is sequential to the time span of the eating event.

(29) **Resultative construction**

\[
\begin{bmatrix}
V1 & V2 \\
\text{Process} & \text{State} \\
\text{Accomplishment} & \text{State} \\
\text{Achievement} & \text{Achievement}
\end{bmatrix}
\]

(30) **Resultative partial order relation**

\[
\begin{array}{c c c c c c c}
\text{Ọzó} & \text{suá} & \text{Àzàrí} & \text{dé} & \text{gbé} & \text{ôtò}.\\
\text{achievement} & \text{achievement}
\end{array}
\]

\[
\begin{array}{c c c c c c}
\text{Ozo} & \text{push. PST.H} & \text{Azari} & \text{fall. PST.H} & \text{against ground} \\
\text{PN} & \text{V} & \text{CN} & \text{PN} & \text{V}
\end{array}
\]

'Ozo pushed Azari down.'
In (30), the event of pushing must be over before the event of falling begins. There is 
no time gap between \( e_1 \) and \( e_2 \). The relation between the events in series is 
instantaneous and telic in nature and must be in a partial order relation.

(31)  **Resultative overlap relation**

\[ \text{Ôzó hò úkpōn huán.} \]

Ôzó hò úkpōn huán.

process degree state

Ozo wash.PST.H cloth clean.PST.H
PN V CN V

'Ozo washed the clothes clean.'

In example (31) the event of washing brings about the transition into the state of being 
clean with both events ending at the same time. That is the process depicted by \( e_1 \) 
brings about the state depicted by \( e_2 \). Here, \( e_1 \) is an iterated process. States that 
typically occur in V2 position in this construction are expressed by what Wechsler 
(2003:14) calls closed scale adjectives that are associated with a maximal end-point 
value. In the absence of contextual prompt the maximal value is the default with \( e_1 \) 
and \( e_2 \) unfolding at the same time and rate. Wechsler states further that the scale 
provided by the adjective defines the conceptual path of the event (2003:15). As 
discussed in chapter 3 such adjectives are realized as verbs in Êdó. These states are 
classified by Smith (1991:46) as degree predicates that refer to situations of gradual 
change as discussed in chapter 4. Thus the verb \( huán \) expresses a closed scale degree 
state with a maximal end point. I therefore classify this type as overlap.

---

80 (31) differs from (30) in the following way: In (31), the attainment of the state depicted by \( e_2 \) is 
gradual and measurable (this also applies to (2) above) while in (31), it is punctual and non-
measurable. This is illustrated below:

(a)  Ô̇ kákábó huán

3SG exceedingly.PST.H clean.PST.H

'It is extremely clean'

(b)  *Ô̇ kákábó dé

3SG exceedingly.PST.H fall.PST.H

'It fell extremely'
For Negative resultatives, V2 must be an achievement while V1 is a transition. The breaking of the pot could have been discovered days after the breaking event with Özo subsequently entering into trouble as a result.

Covert-coordination

For covert co-ordination the events in series have no co-occurrence restriction and are in a disjoint order relation.

(34) **Disjoint order relation**

<table>
<thead>
<tr>
<th>Özo</th>
<th>ìzɛ , rri òré.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Özo</td>
<td>ìzɛ , rri òré.</td>
</tr>
<tr>
<td>PN</td>
<td>V</td>
</tr>
<tr>
<td>CN</td>
<td>V</td>
</tr>
<tr>
<td>V</td>
<td>PRON</td>
</tr>
</tbody>
</table>

'Ozo bought rice and ate it.'
(35) **Disjoint order relation**

Ọzó gbé, tótà.

Ọzó gbé, tótà.

*process* *state*

*Ozo* *dance*.PST.H *sat*.PST

PN V V

'Ozo danced, and sat.'

For the two kinds of covert co-ordination constructions above, for the first type where V2 must have an object co-referent with V1 (34), the same restrictions as in consequential constructions in (28) above obtains. For the second type where there is no sharing of objects if any (35), no co-occurrence restriction holds.

I summarize the patterns discussed above as follows.81

Table 29

<table>
<thead>
<tr>
<th>ORDERED OVERLAP</th>
<th>OVERLAP</th>
<th>PARTIAL ORDER</th>
<th>DISJOINT ORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resultative construction (V2 is a degree state)</td>
<td>Resultative Constructions (V2 is achievement/individual level predicate)</td>
<td>Negative resultatives</td>
<td></td>
</tr>
<tr>
<td>Consequential Constructions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-deictic directional constructions</td>
<td>Deictic directional constructions</td>
<td></td>
<td>Covert Co-ordination</td>
</tr>
<tr>
<td>Purpose construction</td>
<td>Commitative Constructions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manner constructions</td>
<td>Instrumental Constructions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

81 At the same time that these generalizations clearly exist, there may be idiosyncrasies and exceptions.
6.2 Tests for temporal relations

I apply the following three tests to buttress my classification of temporal relations in these constructions. The tests are:

(36)

i. Temporal connective test using the temporal connective ké 'before' (Hobbs and Pustejovsky 200582 and Passonneau 2005).

ii. Contradiction test using the conjunction sòkpán 'but' (Rappaport and Levin 1999).83

iii. Causative paraphrases that identify non-overlapping relations (Rappaport and Levin 1999).84

These tests serve to demarcate between temporally connected and temporally non-connected events and confirms the classification above of temporal relations into two super-types: overlapping and non-overlapping.

I begin the discussion with temporally connected overlapping events. Following the discussion in the previous section, it is predicted that these constructions will not license the occurrence of the ké 'before' auxiliary, the use of the contradiction conjunct sòkpán 'but' and causative paraphrases. For purpose of brevity, I use representative constructions for each construction type:

**Constructions with overlapping events**

I discuss the following constructions with overlapping events; V+modifier; V+infinitival complement; V+mood and resultative (V2 is a measure of degree) constructions. I begin with the V+modifier construction.

---

82 Hobbs and Pustejovsky (2005) represents the temporal relations specified by the adverbial before as a binary predicate precede that has the reference time of the main clause as first argument and that of the subordinate clause as a second argument.

83 The contradiction test using the conjunct but as used by Rappaport and Levin (1999) creates a contradiction between two interconnected events.

84 Causative phrases are only felicitous with events in a causative relation (Rappaport and Levin 1999).
V+Modifier constructions

(37) *Òzó rhùlé-rè ò ké làó òwá.⁸⁵ (sequential test)

*Òzó rhùlé-rè ò ké làó òwá.

process achievement

Ozo run.PST-rV 3SG before enter house
PN V PRON AUX ADV CN

'Ozo ran before into the house.'

(38) *Òzó rhùlé-rè sòkpán ò má làó òwá. (contradiction test)

*Òzó rhùlé-rè sòkpán ò má làó òwá.

process achievement

Ozo run.PST-rV but 3SG NEG enter house
PN V CONJ PRON ADV CN

'Ozo ran but did not into the house.'

(39) *Òzó ọrẹ ó rhùlé-rè ózé né ó ná làó òwá. (causative test)

*Òzó ọrẹ ó rhùlé-rè

process

Ozo FOC 3.SG run.PST-rV
PN PRON V

ọzé né ó ná làó òwá.

achievement

cause COMP 3.SG SECM enter house
PRON V CN

'It is Ozo that ran that is why he entered the house.'

The above tests apply for the both the non-deictic and deictic-directional and manner constructions.

⁸⁵ This is grammatical as a covert co-ordination. Ozo ran and he may have done several other activities before entrying the house. This also applies to example (38).
**V+infinitival complement constructions**

I use the comitative construction as illustration.

(40)  *Íràn kòkó-rò íràn ké dé ímòtò.  (sequential test)

*Íràn kòkó-rò íràn ké dé ímòtò.

process achievement

3.PL gather.PST-rV 3.PL before buy car
PRON V V AUX V CN

'They gathered together before they bought the car together (joint ownership).'

(41)  *Íràn kòkó-rò sòkpán íràn má dé ímòtò.  (contradiction test)

*Íràn kòkó-rò sòkpán íràn má dé ímòtò.

process achievement

3.PL gather.PST-rV but 3.PL NEG buy car
PRON V CONJ V AUX V CN

'They gathered together but they did not buy the car together (joint ownership).'

(42)  *Íràn óré ó kòkó-rò ó zé né íràn ná dé ímòtò.  (causative test)

*Íràn óré ó kòkó-rò

process

3PL FOC 3SG buy.PST-rV
PRON PRON V

ó zé né íràn ná dé ímòtò.

3SG cause COMP 3PL SECM buy car
achievement
PRON V PRON V CN

'It is them that gathered together that is why they bought the car'
V+mood constructions

(43) *Ọzó mién iyán ọ ké lé vbó.

achievement accomplishment

Ozo see.PST.H yam 3SG before cook from.it
PN V CN PRON AUX V ADV

'Ozo saw (a tuber of) yam (to cook) before he cooked some of it.'

(44) *Ọzó mién iyán sòkpán ọ má lé vbó.

achievement accomplishment

Ozo see.PST.H yam but 3SG NEG cook from.it
PN V CN CONJ PRON V

'Ozo saw (a tuber of) yam (to cook) but he did not cook it.'

(45) *Ọzó ọrẹ ọ mién iyán ọ zé né ọ ná lé vbó.

achievement

Ozo FOC 3SG see.PST.H yam
PN PRON V CN

3SG cause COMP 3SG SECM cook from.it
PRON V PRON V

'It is Ozo that saw (a tuber of) yam that is why he cooked from it.'
Resultative construction (V2 is a measure of degree)

(46) *Ózó hóó úkpòn ọ ké huán. (sequential test)

   Ózó  hóó  úkpòn ọ  ké  huán.
   process  state

   Ozo  wash.PST.H  cloth  3SG  before  clean.PST.H
   PN   V        CN    PRON  AUX   V

'Ozo washed the cloth before it was clean.'

(47) Ózó hóó úkpòn sòkpán ọ má huán. (contradiction test)

   Ózó  hóó  úkpòn  sòkpán ọ  má  huán.
   process  state

   Ozo  wash.PST.H  cloth  but  3SG  NEG  clean.PST.H
   PN   V        CN    CONJ  PRON  V

'Ozo washed the cloth but it was not clean.'

(48) Ózó ọré ọ hóó úkpòn ọ zé ọ ná huán. (causative test)

   Ózó  ọré  ọ  hóó  úkpòn
   process

   Ozo  FOC  3SG  wash.PST.H  cloth
   PN   PRON  V        CN

   ọ  zé  nè  ọ  ná  huán.
   state

   3SG  cause  COMP 3SG  SECM  clean.PST.H
   PN   V        PRON  V

'It is Ozo that washed the cloth that is why it was clean.'

Unlike the other examples of temporal overlapping events discussed so far, the resultative construction where V2 is a degree state, licenses the contradiction and the causative tests. It is the nature of V2 that licenses this contradiction. As discussed in

86 The insertion of a measure adverb before V1 and an adverb dòó that can roughly be translated as 'become' after ké (before V2) would make the sentence grammatical. See section 6.4 examples (88) below for more discussion
the previous section it is a closed maximal scale state verb and the attainment of the
state is gradual, licensing contradiction at any point in the scale. It is possible to
contradict the state that would have obtained if the maximal value was attained. This
also applies to the causative test where the expected result state of the washing event
is achieved due to some property of the agent performing the washing event.

I now discuss temporally non-overlapping events.

**Constructions with non-overlapping events**

Here, I discuss the $V(P) + V(P)$ constructions; consequential, resultative ($V_2$ is an
achievement), negative resultatives and covert co-ordination. These constructions license the sequential, contradictory and causative tests. I begin the discussion with the consequential construction.

**Consequential construction**

(49) Ózó lé ízè ò ké ré vbó.

<table>
<thead>
<tr>
<th>accomplishment</th>
<th>accomplishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo cook.PST.H</td>
<td>rice 3SG</td>
</tr>
<tr>
<td>PRON AUX V ADV</td>
<td>V</td>
</tr>
</tbody>
</table>

'Ozo cooked (the) rice before he ate from it.'

(50) Ózó lé ízè sòkpán ò má ré vbó.

<table>
<thead>
<tr>
<th>accomplishment</th>
<th>accomplishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo cook.PST.H</td>
<td>rice but 3SG</td>
</tr>
<tr>
<td>PRON AUX V ADV</td>
<td>V</td>
</tr>
</tbody>
</table>

'Ozo cooked rice but he did not eat from it.'
(51)  Òzó ọ̀rẹ́ ọ̀ lè ịzè ọ̀ zé ọ̀ ná ré vbó.  
     accomplishment

(52)  Òzó suá Àzàrí ọ̀ kẹ́ dé gbé ọtò.

---

The validity of this test as a test for non-overlapping events is buttressed when applied to a durational construction where V2 is the achievement verb fòó 'finish' and the construction is overlapping. Here, it is not licensed as shown below:

(a)  *Òzó ọ̀rẹ́ ọ̀ lè ịzè ọ̀ zé ọ̀ ná fòó.

---

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(53) Òzó suá Àzàrí sòkpán ó má dé gbé òtò. (contradiction test)

Òzó suá Àzàrí sòkpán ó má dé gbé òtò.
achievement       achievement

Ozo push.PST.H Azari but 3.SG NEG fall.PST.H against ground
PN V PN CONJ PRON AUX V PP CN

'Ozo pushed Azari but he (Azari) did not fall down.'

(54) Òzó ìrè ó suá Àzàrí ò zé nè ó ná dé gbé òtò. (causative test)

Òzó ìrè ó suá Àzàrí
achievement

Ozo FOC 3SG push.PST.H Azari
PN PRON V PN

ò zé nè ó ná dé gbé òtò.
achievement

PN cause COMP 3SG SECM fall against ground

'It is Ozo that pushed Azari that is why he (Azari) fell down.'

A comparison of examples (52) and (46) highlight clearly the difference between the resultative construction with an achievement event as V2 in (52) and a state event V2 for (46). We find that the sequential test correctly pick out the non-overlapping nature of the former and the overlapping nature of the latter.

I now discuss the negative resultative construction.

**Negative resultative construction**

(55) Òzó guòghò úwáwà ò ké làó émwén. (sequential test)

Òzó guòghò úwáwà ò ké làó émwén.
achievement       achievement

Ozo break.PST.H pot 3.SG before enter.PST.H trouble
PN V CN PRON AUX V CN

'Ozo broke the pot before he got into trouble.'
(56) Òzó guòghó úwáwà sòkpán ò má làó ëmwén. (contradiction test)

Onu òguòghó úwáwà sòkpán ò má làó ëmwén.

achievement achievement

\[ \text{Ozo break.PST.H pot but 3.SG NEG enter.PST.H trouble} \]

PN V CN CONJ PRON V CN

'Ozo broke the pot but he did not get into trouble.'

(57) Òzó òré ò guòghó úwáwà ò zé nè ò ná làó ëmwén. (causative test)

Onu òguòghó úwáwà

achievement

\[ \text{Ozo FOC 3SG break.PST.H pot} \]

PN PRON V CN

ê zé nè ê ná làó ëmwén.

achievement

\[ \text{3.SG cause COMP 3.SG SECM enter trouble} \]

PRON V PRON V CN

'It is Ozo that broke the pot that is why he got into trouble.'

Covert co-ordination construction

(58) Òzó dé ízè, ò ké rrí òré. (sequential test)

Onu dé ízè ò ké rrí òré.

achievement accomplishment

\[ \text{Ozo buy.PST.H rice 3.SG before eat.PST.H it} \]

PN V CN PRON AUX V CN

'Ozo bought (the) rice before he ate it.'
In this section, I have applied the sequential test that shows a precedence relation between the events in series, a contradiction test that shows the impossibility of contradicting events linked by temporal overlapping relation, and the causative test that shows, following from Rappaport Horav and Levin (1999), that non-overlapping relations are causative and therefore sequential in nature. These tests have buttressed my classification of temporal relations into two super-types: overlapping and non-overlapping.

The demarcation between the types overlapping and non-overlapping relations above is further buttressed by the licensing or non-licensing of the –rV suffix on V1 which I discuss below in section 6.4. I now discuss how the temporal classification above correlate with syntactic structures of multi-verb constructions discussed in chapter 4.
6.3 Temporal event interpretation and syntactic structure

6.3.0. Introduction

In the following, I correlate the event type classification of the multi-verb constructions with the following morph-syntactic properties discussed in chapter 4: tense and tone realization, and distribution of adverbs. My aim here is to describe how temporal relations interact with morpho-syntactic properties.

There exist generalizations that correlate with the two temporal super types I have established in the sections above. I begin the discussion with temporal overlapping events.

6.3.1 Overlapping events

Constructions with temporal overlapping events - $V+$modifier, $V+$infinitival complement, $V+$mood and resultative ($V2$ is a measure of degree) constructions - license preverbal adverbs only before $V1$. With respect to tonal realization, the first three have a fixed high tone on $V2$ while the resultative has a uniform high tone on $V1$ and $V2$. The following examples illustrate this:

**Fixed high tone on $V2$**

$V+$modifier non-deictic directional construction constructions

(61)  

a. Òzó rhùlé-rè làó ówá.  

<table>
<thead>
<tr>
<th>Òzó rhùlé-rè</th>
<th>làó</th>
<th>ówá.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo run.PST-V</td>
<td>enter</td>
<td>house</td>
</tr>
<tr>
<td>PN V</td>
<td>ADV CN</td>
<td></td>
</tr>
</tbody>
</table>

'Ozo ran into the house.'

b. Òzó rhùlé làó ówá.  

<table>
<thead>
<tr>
<th>Òzó rhùlé</th>
<th>làó</th>
<th>ówá.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozo run.PRES.L</td>
<td>enter</td>
<td>house</td>
</tr>
<tr>
<td>PN V</td>
<td>ADV CN</td>
<td></td>
</tr>
</tbody>
</table>

'Ozo runs into the house.'
**V+infinitival complement instrumental constructions**

(62)  a.  Òzó lọó èhó fián èmiówò.  

Òzó lọó èhó fián èmiówò.  

*Ozo use.PRES.H knife cut meat*  

PN V CN V CN  

'Ozo used a knife to cut the meat.'

b.  Òzó lọò èhó fián èmiówò.  

Òzó lọò èhó fián èmiówò.  

*Ozo use.PRES.L knife cut meat*  

PN V CN V CN  

'Ozo uses a knife to cut the meat.'

**V+mood purpose constructions**

(63)  a.  Òzó mié àlimòí kpá!án.  

Òzó mié àlimòí kpá!án.  

*Ozo see.PST.H orange pluck*  

PN V CN V  

'Ozo saw an orange to pluck.'

b.  Òzó miè àlimòí kpá!án.  

Òzó miè àlimòí kpá!án.  

*Ozo see.PRES.L orange pluck*  

PN V CN V  

'Ozo sees an orange to pluck'
Uniform tone on V1 and V2

Resultative construction (V2 is a state)

(64) Òzó hò úkpòn huán. (ordered overlap-past)

Òzó hò úkpòn huán.

process state

Ozo wash.PST.H cloth clean.PST.H

PN V CN V

'Ozo washed the clothes clean.'

(65) Òzó hò úkpòn huàn. (ordered overlap-present)

Òzó hò úkpòn huàn.

process state

Ozo wash.PRES.L cloth clean.PRES.L

PN V CN V

'Ozo washes the clothes clean (always).'

The verbs in series in resultative constructions share the same tam values as discussed in chapter 4, with corresponding tone marking in the different tenses, while the V+modifier, V+infinitival complement and V+mood constructions have a fixed tonal pattern on V2. The patterning in the examples above show that tone marking on verbs in series in overlapping constructions while exhibiting some uniformity are dependent on the nature of the verbs in the series as well as the nature of tam for these constructions. This observation extends to the licensing of the –rV suffix. In chapters 2 and 4, I have discussed mainly syntactic criteria licensing the suffix. In section 6.4, I discuss semantic criteria that license its suffixation in overlapping constructions.

Preverbal adverb only licensed before V1

I discuss now how the constructions pattern with respect to adverb modification and temporal relations.
$V+$modifier directional constructions

(66)  a. Òzo gié!gié rhú!lé kpáá.  (adverb before V1)

  Òzo  gié!gié  rhú!lé  kpáá.
  Ozo quickly.PST.H!H  run.PST.H!H  go
  PN  ADV  V  ADV

'Ozo quickly ran away (away from the speaker).'

b. *Òzo rhú!lé gié!gié kpáá.  (adverb before V2)

  *Òzo  rhú!lé  gié!gié  kpáá.
  Ozo  run.PST.H!H  quickly.PST.H!H  go
  PN  V  ADV  ADV

'Ozo ran and quickly away (away from the speaker).'

$V+$infinitival complement constructions

Instrumental construction

(67)  a. Òzo gié!gié lòó èhó fián èmiówò.  (adverb before V1)

  Òzo  gié!gié  lòó  èhó  fián  èmiówò.
  Ozo quickly.PST.H!H  use.PRS.H  knife  cut  meat
  PN  ADV  V  CN  V  CN

'Ozo quickly used a knife to cut the meat.'

b. *Òzo lòó èhó gèlé fián èmiówò.  (adverb before V2)

  *Òzo  lòó  èhó  gèlé  fián  èmiówò.
  Ozo  use.PST.H  knife  truly  cut  meat
  PN  V  CN  ADV  V  CN

'Ozo used a knife quickly to cut the meat.'
**Resultative construction (V2 is a state)**

(68) a. **Ózó gié!gié hòó úkpòn huán.** (adverb before V1)

> Ózó gié!gié hòó úkpòn huán.

> *Ozo quickly washed the clothes clean.*

b. *Ózó hòó úkpòn gié!gié huán. (adverb before V2)

> *Ozo wash. cloth quickly clean.*

**Preverbal adverb licensed before V1 and or V2**

**V+mood constructions**

**Purpose construction**

(69) a. **Ózó gié!gié míen âlimóí kpá!án.** (adverb before V1)

> Ózó gié!gié míen âlimóí kpá!án.

> *Ozo quickly saw an orange to pluck.*

b. **Ózó míen âlimóí gié!gié kpá!án.** (adverb before V2)

> Ózó míen âlimóí gié!gié kpá!án.

> *Ozo saw an orange to quickly pluck.*

In examples (66) to (69), the adverb before V1 has scope over the events in the series. This is also true of the resultative (V2 is an achievement), and the consequential construction in 6.3.2 below. For the consequential construction as discussed in chapter 4, adverbs may also occur before V2. For the covert co-ordination, adverbs may occur before each of the verbs in series and have scope only over the VP it modifies. Adverb modification then serves to distinguish single events (micro and macro) from...
multi-events as discussed in chapter 5. I classified simple events into two types in chapter 5: micro and macro events. Micro events constructions are: \( V+mood, \ V+\text{infinitival complement}, \ V+\text{modifier} \) and \( \text{resultative} \) constructions. The first three all have overlapping events while events in series in the resultative construction depending on the nature of \( V_2 \) may be overlapping or non-overlapping. On the other hand, the events in series in macro event constructions are all non-overlapping. This also applies to the multi-event constructions-the covert co-ordination- where the events in series are non-overlapping. I present immediately below examples of non-overlapping events that I have discussed.

6.3.2. Non-overlapping events
Non-overlapping \( V(P)+V(P) \) constructions; consequential, negative resultatives and covert co-ordination where the events in series are linked by \textit{disjoint order} exhibit uniform tonal patterns on \( V_1 \) and \( V_2 \) (70) to (72) and allow preverbal adverbs before \( V_1 \) and \( V_2 \) (74) to (76).
On the other hand, non-overlapping \( V(P)+V(P) \) resultative, construction where \( V_2 \) is an achievement and the events in series are related by \textit{partial order} also have uniform tonal marking for tense on \( V_1 \) and \( V_2 \) (73) but differs from those linked by \textit{disjoint order} in licensing preverbal adverbs only before \( V_1 \) (77).

\begin{description}
\item[Uniform tone on \( V_1 \) and \( V_2 \)]
\item[Consequential construction]
\begin{enumerate}
\item \( \ Alberta \ dé \ éyàn lé. \) (past)
\begin{verbatim}
Alberta buy.PST.H yam cook.PST.H
PN V CN V
\end{verbatim}
\begin{quote}
'Alberta bought yam and cooked.'
\end{quote}
\item \( \ Alberta \ dé \ éyàn lè. \) (present)
\begin{verbatim}
Alberta buy.PRES.L yam cook.PRES.L
PN V CN V
\end{verbatim}
\begin{quote}
'Alberta buys yam and cooks.'
\end{quote}
\end{enumerate}
\end{description}
Negative resultative constructions

(71)  a. Òzó guòghó úwáwà làó êmwén.  (past)

Òzó guòghó úwáwà làó êmwén.

Ozo break.PST.H pot enter.PST.H trouble

PN V CN V CN

'Ozo broke the pot and got into trouble.'

b. Òzó guòghó úwáwà làó êmwén.  (present)

Òzó guòghó úwáwà làó êmwén.

Ozo break.PRES.L pot enter.PRES.L trouble

PN V CN V CN

'Ozo broke the pot and got into trouble.'

Covert co-ordination construction

(72)  a. Òzó dé iyán lé ëré.  (past)

Òzó dé iyán lé ëré.

Ozo buy.PST.H yam cook.PST.H 3.SG

PN V CN V PRON

'Ozo bought yam and cooked it.'

b. Òzó dé iyán lé ëré.  (present)

Òzó dé iyán lé ëré.

Ozo buy.PRES.L yam cook.PRES.L 3.SG

PN V CN V PRON

'Ozo buys yam and cooks it.'

Resultative construction (V2 is an achievement)

(73)  a. Òzó suá Àzàrí dé gbé Òtò.

Òzó suá Àzàrí dé gbé Òtò.

Ozo Push.PST.H Azari fall.PST.H against ground

PN V PN V PREP CN

'Ozo Pushed Azari down.'
b. Özó suà Àzàrí dè gbé ôtò.

Òzó suà Àzàrí dè gbé ôtò.

*Ozo Push. PRES.L Azari fall. PRES.L against ground*

PN V PN V PREP CN

'Ozo Pushes Azari down (often).'

**Preverbal adverb licensed before V1 and or V2**

**Consequential construction**

(74) Íràn gié!gié sá ėmè gê!lê wôns.

Íràn gié!gié sá ėmè gê!lê wôns.

3.PL quickly. PST.!H fetch. PST. H water truly. PST. !H drink. PST. H

PRON ADV V CN ADV V

'They quickly fetched water and truly drank (it).'

**Negative resultative construction**

(75) Òzó gié!gié guòghó úwáwà gê!lê làó ënwên.

Òzó gié!gié guòghó úwáwà gê!lê làó ënwên.

*Ozo quickly. PST. !H break. PST. H pot truly. PST. H enter. PST. H trouble*

PN ADV V CN ADV V CN

'Ozo quickly broke the pot and truly got into trouble.'

**Covert co-ordination**

(76) Özó gié!gié gbô!ô ìvin, gié!gié bó!lô ọkà.

Özó gié!gié gbô!ô ìvin, gié!gié bó!lô ọkà.

*Ozo quickly. PST. !H plant. PST. H coconut, quickly. PST. !H peel. PST. H corn*

PN ADV V CN ADV V CN

'Ozo quickly planted the coconut and [he] quickly peeled the corn'
Preverbal adverb only licensed before V1

Resultative construction (V2 is an achievement)

(77)  a. Íràn gié!gié suá Àzàrí dé gbé òtò.  (adverb before V1)

Íràn  gié!gié  suá  Àzàrí  
3.PL  quickly.PST.!H  push.PST.H  Azari  
PRON  ADV  V  PN

dé  gbé  òtò.
fall.PST.H  against  ground
V  PREP  CN
'They quickly pushed Azari down.'

b. *Íràn suá Àzàrí gié!gié dé gbé òtò.  (preverbal adverb before V2)

*Íràn  suá  Àzàrí  
3.PL  push.PST.H  Azari

gié!gié  dé  gbé  òtò.
quickly  .PST.!H  fall.PST.H  against  ground
'They pushed Azari quickly down.'

The tonal patterning on the verbs in series is uniform for all the constructions discussed in this section. However, the resultative constructions discussed in this section behave like the overlapping constructions in the licensing of preverbal adverbs only before V1. This may be accounted for, perhaps, by the fact that similar to overlapping constructions where \( e_1 \) is not bounded and the events in series are contained in the same time span, for the resultative (V2 is achievement) construction, V1 is bounded but the time spans of \( e_1 \) and \( e_2 \) are contiguous.

The consequential, negative resultatives and the covert co-ordination constructions on the other hand allow adverbs to occur either before V1 and/or V2. Here, the events are linked by disjoint order and may have a gap between the time spans of the events in the series.
In this section I have described correlations between temporal relations and morphosyntactic properties in Èdó. The following generalizations exist: overlapping events generally have a fixed tonal pattern on V2 and generally license adverbials before V1, while non-overlapping events generally have same tonal marking for V1 and V2 and may license adverbials before V1 or V2. These generalizations however do not clearly map out overlapping events from non-overlapping events. However as I have mentioned in chapter 4, the –rV suffix is licensed only in multi-verb constructions where the events in series are in an overlap relation. I discuss this below.

6.4 Temporal relations and –rV suffixation

In this section, I propose that –rV is licensed in overlapping multi-verb construction by the fact that the events in series have an uninterrupted runtime with e₁ and e₂ occurring within the same time span. V1 in these constructions is either atelic and expresses re-iterated processes or it expresses a perception event. First, I present the criteria I identified in chapters 2 and 4 as licensing the suffix, and thereafter, I discuss data that show that when the suffix is licensed in some homogenous eventualities it may impose additional meaning in terms of extending the eventuality in time, measuring the degree of performance of an eventuality or performing an inchoative function. I then discuss the nature of the events in series in constructions with overlapping and non-overlapping events. I now begin the discussion.

In chapter 4, I analyzed the –rV suffix as being licensed by the following criteria conditions for -rV suffixation

(78)

General conditions

i The value for tense must be past and,

ii. The tone on the final syllable of the verb stem is a high tone and,

iii. The COMPS list of the verb must have an empty value for objects of type np-synsem.
Construction specific conditions

vi. One of the verbs in series have been lexically reanalyzed as in \( V+\text{modifier} \) constructions

or

v. The values for the TAM attribute for V1 and V2 must not be token identical as \( V+\text{infinitival} \) and \( V+\text{mood} \) constructions.

or

vi. The verbs in series must form a single syntactic predicate that is constrained by one TAM attribute and value as in \( \text{light verb} \) constructions.

In addition to the above criteria the \(-rV\) suffix has the following properties that I discuss immediately below:

(79)

i. It serves as a measure of degree (example 80).

ii. It extends the time reference of an event (example (82)).

iii. It indicates a change of state (example (83)).

Eventualities that license \(-rV\) given conditions (79i), (79ii) and (79iii) are either process or stative intransitive verbs and both are homogeneous in nature. Events may be extended in time, that is, the time span of the event(s) in series is/are uninterrupted. First, I show how the suffix interacts with simple constructions:

(80) Measure of degree

a. Òzó vbié-rè.

\[
\begin{array}{ll}
\text{Òzó} & \text{vbié-rè.} \\
\text{PN} & \text{V} \\
\end{array}
\]

'Òzo slept well.'
b. Dé ú vbiérè.

Dé ú vbiérè.

process

QM 3.PL sleep.PST-rV

PRON V

'I hope you slept well.'

c.*Dé ú vbié.

*Dé ú vbié

process

QM 3.PL sleep.PST.H

PRON V

'I hope you slept (well).'

d. Ôzó tán-rèn.

Ôzó tán-rèn.

state

Ozo be.tall-rV

PN V

'Ozo is very tall

or

Ozo was very tall.'

In (80a) the speaker asserts that Ôzó slept and that he slept well. In (80b) the speaker wants to know how well the hearer has slept. (80b) is a habitual greeting in Ôdó when two people meet in the morning. The speaker assumes that given the normal state of the world, people one meet early in the morning have slept throughout the night. The question then is not addressed at the time reference of the sleeping event but to how well the event was performed. (80c) shows that the wellness of the sleeping event cannot be questioned without the -rV suffix (I discussed this in chapter two section 2.1.2).

Related to this, when –rV is suffixed to attributive state verbs, it also typically marks the degree or intensity of the attribute described by the verb as in (80d).

The -rV suffix as a measure of degree is only applicable to intransitive verbs that are typically atelic. Verbs with objects do not have this interpretation. Thus It is food that
Ọzó cooked in (81) below does not imply that Ọzó cooked the food well.

(81) Èvbàrè ọrè Ọzó lé-rè.
Èvbàrè ọrè Ọzó lé-rè.

achievement
Food FOC Ozo cook.PST-rV
CN PN V

'It is food that Ozo cooked
*It is food that Ozo cooked very well/ very long.'

(82) Marker of extension in time
Ọbá ghá tó kpéè-rè / *kpéè.

process state
King will live long-rV / long
PN AUX V V

'May the king live forever.'

(82) is the royal greeting one gives to the king of the Benin empire when one is in audience with him. The –rV suffix is obligatory and here it has no past tense attribute. It only marks an elongated time span.

(83) Marker of Inchoation
Èbánáná vbó-rò.

state
banana ripe-rV
CN V

'The banana has ripened.'

In (83) the –rV suffix encodes a change of state and here also it has no past tense attribute.
Based on the above I add the following property to the criteria for –rV suffixation.

(84) -rV is licensed when the events in series have a dependent time span, that is, they occur within the same time span.

I now discuss –rV suffixation in relation to temporal relations. Interestingly, we find that \( V+modifer \)- where applicable -, \( V+infinitival\ complement \), \( V+mood \) and resultative (V2 is a degree state) constructions all license –rV suffixation on V1. We have argued in section 6.2 that these constructions all have overlapping event interpretations. Related to this, V1 in these constructions is either atelic, re-iterated process or a verb of perception. For the \( V+infinitival\ complement \) construction, the temporal properties of \( e_1 \) determine the temporal properties of \( e_2 \) (Pustejovsky 1995, Klein 1994 and Passonneau 2005). For the \( V+mood \) construction where V1 is a verb of perception, the construction type imposes an overlapping interpretation on the construction as a whole, even though the verb is telic when it occurs in simple constructions. In this way it is similar to the \( V+infinitival\ complement \) construction (this is discussed in chapter 4).

The following examples illustrate this:

-\( rV \) and overlapping events

\( V+modifer\ constructions\)

Non-deictic directional construction.

(85) \( Ózó\ rhúlé-rè\ làó\ òwá \)

\( Ózó\ rhúlé-rè\ làó\ òwá \)

process achievement

\( Ozo\ run.PST-rV\ enter\ house \)

PN V ADV CN

'Ozo ran into the house'
V+infinitival complement constructions

Comitative construction

(86) Írán kókórò dé imótò.

Írán kókó-rò dé imótò.

process achievement

3.PL gather.PST-rV buy car

PRON V V CN

'They bought the car together.'

V+mood constructions

Purpose construction

(87) Ìyán òré Òzó mién-rèn lé.

Ìyán òré Òzó mién-rèn lé.

achievement achievement

yam FOC Ozo see.PST-rV cook

'It is yam Ozo saw to cook.'

Resultative construction (V2 is a degree state)

(88) Ísé òré Òzó kán-rèn dòóbigó Vbéniánà.

Ísé òré Òzó kán-rèn dòó bigó Vbéniánà.

process state

Nail FOC Ozo nail.PST-rV bend Like.this

CN PN V ADV V ADV

'Ozo ruined the nail by nailing it bent.'

---

88 Also, post verbal adverbs (e.g. bānbānnà 'just now') may occur after V1. However, it seemed to be licensed only when dòó is present:

(a) Ísé òré Òzó kánrèn bānbānnà dòó bigó Vbéniánà.

Ísé òré Òzó kánrèn bānbānnà dòó bigó Vbéniánà.

Nail focus Ozo nail+Rv adverb adverb bend

Vbéniánà

Like this

'Ozo ruined the nail just now by nailing it bent.'
-\(rV\) and non-overlapping events

\(V(P)+V(P)\) constructions on the other hand do not license this suffix on the verbs in series; resultatives (\(V2\) is an achievement), negative resultatives, consequentials and covert co-ordination belong to this syntactic group while semantically, they represent non-overlapping events. Here, \(V1\) and \(V2\) are telic and thus the events in series do not have a continuous run time and their time spans are non dependent (see also chapter 4 for relevant tests). The following examples illustrate this:

Consequential Constructions

(89) \*Ízè òrè Òzó ðè-rè ré.

\*Ízè òrè Òzó ðè-rè ré.

\begin{tabular}{ll}
achievement & accomplishment \\
\end{tabular}

\begin{tabular}{llll}
Rice & FOC & Ozo & buy.PST-rV eat.PST.H \\
\end{tabular}

'It is rice Ozo bought and ate.'

Negative resultative construction

(90) \*Èbò òrè Òzó gá-rè mièn òkán.

\*Èbò òrè Òzó gá-rè mièn òkán.

\begin{tabular}{llll}
achievement & achievement \\
\end{tabular}

\begin{tabular}{llllll}
Gods & FOC & Ozo & serve-PST-rV & receive.PST.H & distress \\
\end{tabular}

CN & PN & V & V & CN

'It is gods Ozo served and got trouble as his reward.'

Resultative construction (\(V2\) is an achievement)
In (89) to (91), though the object NPs are extracted, \(-rV\) is not licensed on V1. Observe that in (86) - (88) above, the object NP is also extracted and \(-rV\) is licensed on V1. I attribute this distribution of the suffix to the differences in temporal event structure. Multi-verb constructions with overlapping event structure have atelic V1 events or the construction as a whole imposes an overlapping reading on the events in series and license \(-rV\), while those with non-overlapping event structures have telic V1 events and do not license the suffix.

This is further buttressed through a comparison of example (88) and example (91). The ungrammaticality of (91) a non-overlapping resultative construction, is attributed to two factors: the suffixation of \(-rV\) to V1 and the insertion of the preverbal adverb \(dòò\) before V2. \(Dòò\) functions as a marker of change of state or location /accompaniment.

On the other hand, (88) an overlapping resultative construction, licenses the suffix and permits the insertion of the preverbal adverb \(dòò\) between the verbs in series. This suggests also that (88) and (91) have different syntactic structures (as proposed in figure 2). In the former, the verb \(bìgò\) is an XP that stand in a adjunction relationship to \(kán\) while in the latter, the verb \(dè\) stands in a complementation relation to V1.

Figure 2 summarizes the discussion so far:
Figure 2 is an informal representation of the combination of the syntactic and semantic specifications of signs.

6.5 A type hierarchy for temporal relations
To account for temporal relations within an HPSG framework, I adopt Hellan, Beermann and Sætherø (2003:10) analysis that captures relations between events in series expressing an over-all macro event by an attribute SIT(uation)PAIR-COND (tions) constraining mrs. The type sitpair-cond is constrained by the attributes PREREQ and DEPEND with values of type index. The prerequisite event is that event which must hold for the dependent event to obtain and also expresses a sequential relation between the two events. These attributes pertain only to non-overlapping events. I have modified the SITPAIR-COND to allow for temporal relations to capture both overlapping and non-overlapping relations. The PREREQ and DEPENDENT attributes are replaced by the attributes EVENT1 and EVENT2 with values of type eventstruc-relation. I have made their values of type relation instead of index to allow me to account for the ordering relations between the events in series.
and to do this, I have introduced two attributes TEMP-REL with value temporal-relation as an additional constraint on sitpair-cond and TEMPORAL with value time-span that expresses the progression of the event along a time line. The attribute TEMPORAL allows me to explain the licensing of the –rV suffix in overlapping constructions. I now propose the following type hierarchy for temporal relations for Èdó:

(92)

Mrs

\[
\begin{array}{c}
\text{SITPAIR-COND} < \\
\text{EVENT1 eventstruc-relation} \\
\text{EVENT2 eventstruc-relation} \\
\text{TEMP-REL temporal-relation} \\
\text{TEMPORAL time-span}
\end{array}
\]

The attribute SITPAIR-COND takes a list as value to allow for the recursive nature of events in consequential constructions (and for the clause-chaining construction in a language like Akan).

(93)

\[
\text{avm}
\]

\[
\begin{array}{c}
mrs \\
role \\
sort
\end{array}
\]

\[
\text{temporal-relation}
\]

\[
\begin{array}{c}
\text{non-overlapping} \\
\text{overlapping}
\end{array}
\]

\[
\begin{array}{c}
\text{partial-order} \\
\text{disjoint-order} \\
\text{ordered overlap} \\
\text{overlap}
\end{array}
\]
The type *line* is the domain of the progression of events along a timeline. The type *temporal* has two subtypes: *time entity* that anchors an event in time (I do not discuss this) and *time-span*. *Time-span* is defined as the domain of reference and boundaries of an event along a time axis (cf. Pastor 2003).

Time span boundaries are structured in terms of minutes, days, seasons, years etc. Two types *dependent* and *non-dependent* inherit from the type *time-span*. The type *dependent* specifies events in series that are temporally dependent and with an unbroken time span. By temporal dependent I mean that the progression of the second event is dependent on the progression of the first event, that is, the events are interconnected. It may also be causative but this is not a necessary condition. The type *non-dependent* specifies events in series that are temporally independent, that is the events are not co-extensive and involves sequential non-overlap. Also here, the relation may be causative but this is not a necessarily condition. Thus *time-span* situates temporal relations between events in time.
Applying this analysis, I show a partial \textit{mrs} avm for overlapping and non-overlapping events in (95b) and (96b) for examples (95a) and (96a) respectively below:

(95) a. **Ordered overlap relation**

\begin{verbatim}
Ôzó rhűlé-rè làgp òwá. (V+modifier construction)
Ôzó rhűlé-rè làgp òwá.
process achievement
Ozo run.PST-rV enter house
PN V ADV CN
'Ozo ran into the house.'
\end{verbatim}

\begin{verbatim}
\[ mrs \quad \left[ \begin{array}{l}
\text{sitpair-cond} \\
\text{EVENT1 eventstruc-relation} \\
\text{EVENT2 eventstruc-relation} \\
\text{TEMP-REL ordered overlap} \\
\text{TEMPORAL dependent}
\end{array} \right] \]
\end{verbatim}

(96) a. Ôzó léízè ré. (V (P) + V (P) constructions)

\begin{verbatim}
Ôzó léízè ré.
accomplishment accomplishment
Ozo cook.PST.H rice eat.PST.H
PN V CN V
'Ozo cooked rice and ate.'
\end{verbatim}

\begin{verbatim}
\[ mrs \quad \left[ \begin{array}{l}
\text{sitpair-cond} \\
\text{EVENT1 eventstruc-relation} \\
\text{EVENT2 eventstruc-relation} \\
\text{TEMP-REL disjoint order} \\
\text{TEMPORAL non-dependent}
\end{array} \right] \]
\end{verbatim}

In (95a &b), EVENT1 is in an \textit{ordered overlap} relation with EVENT2 and there is no time span between the two situations, that is, the event depicted by V2 begins during the course of the event depicted by V1. For (96a &b), EVENT1 is telic and has \textit{non-dependent} as value for the attribute TEMPORAL and the events in series are in a \textit{disjoint order} relation.
The types *dependent* and *non-dependent* that are values for the attribute TEMPORAL in (95b) and (96b) respectively are the semantic properties that determines the licensing of \(-rV\) suffix by verbs. The suffix is licensed in events with a *dependent* value for the attribute TEMPORAL.\(^{89}\)

Applying the above to the licensing of the \(-rV\) suffix in multi-verb constructions, the constraint that \(-rV\) only licenses suffixation to overlapping events will be stated as a constraint on the attributes SITPAIR-COND.TEMPORAL with value *dependent* on *mrs* in the type *past-rV-infl_rule* I discuss this in chapter 7 below.

In this chapter, I have discussed the temporal relations licensing combinations of verbs in multi-verb constructions and shown how temporal relations can be identified through tests such as the sequential test, the contradictory test and the causative expression tests. I have shown that generalizations exist in the correlation between temporal relations and morpho-syntactic properties in multi-verb constructions. In particular, the \(-rV\) suffix is licensed in events with *overlapping* temporal relations.

\(^{89}\)An alternative is to eliminate the attribute TEMPORAL and have the \(-rV\) suffix licensed by the type *overlapping* which is the super-type for *ordered overlap* and *overlap* respectively. However, this cannot be stated as a constraint on the *past-rV-infl_rule*. The approach I have taken above that states this constraint as of type *dependent* on events as well as the on the *past-rv-infl_rule* in section 7.3, allows me to represent the fact that the suffix selects for events with an unbroken time line and that it situates the events in time.
CHAPTER SEVEN
A FORMAL REPRESENTATION OF MULTI-VERB CONSTRUCTIONS IN ÈDÓ

7.0 Introduction

I have discussed in chapter 1, the HPSG formalism and the addition to the categorical information on signs by Hellan (2003:16-23) that introduces representation of grammatical information through an attribute QVAL constraining the type cat.

In chapters 2 to 6, four structural types of multi-verb construction in Èdó are shown to display different patterning with respect to the distribution of a past tense suffix –rV, a floating anaphor tòbò̀rè ‘by him/her/it self’, VP adverbs and argument sharing patterns:

(1)

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

In the following, I draw my main background assumptions from an implemented Head-Driven Phrase Structure Grammars for Norwegian (Hellan 2003) and Ga (Hellan 2007, Dakubu, Hellan and Beermann 2007), a Kwa language spoken in Accra, Ghana. Two schemas are posited:

---

90 As discussed in the previous chapters, the V+modifier constructions are not multi-verb constructions since one of the verbs in series has been reanalyzed. However their properties with respect to typological features compared with multi-verb constructions make them relevant in the thesis.
(2)

i. **Verb-serial-compl (ement)-phrase** with a complementation structure for the \( V(P) + V(P) \) resultative and \( V+\text{infinitival complement} \) constructions.

ii. **Serial-mod-phrase** with an adjunction structure for \( V+mood \) constructions, \( V+\text{modifier constructions} \) and \( V(P) + V(P) \); consequential, purpose, and negative resultative constructions.

The two schemas license types that are subsumed under them by a type hierarchy.

Below, I discuss first aspects of Baker and Stewart’s (2002) analysis of Èdó SVCs, and thereafter I discuss approaches to analysis of multi-verb constructions within HPSG, and finally, I present my analysis.

### 7.1 Previous analyses of Èdó SVCs

In chapter 5 section 5.4, I discussed two main syntactic structures proposed for Èdó:

(3)

i. Complementation: Resultative serial verb construction (RSVC)  
   (Baker and Stewarts 1999 and 2002).

ii. Adjunction: Consequential serial verb construction (CSVC) and Covert co-ordination (CC) (Baker and Stewart 1999 and 2002).

I now discuss further Baker and Stewart’s (2002:3-4) analysis. In particular, I discuss their proposal for the levels of adjunction for the CSVC and Purpose serial verb construction (PSVC). Table 23 from chapter 4 repeated below as table 30 presents a summary.
Resultative serial verb constructions (RSVC) are represented as complementation structure with a single structural NP as the object of two verbs, the second of which is unaccusative. VerbP2 of an RSVC is a complement of Verb1.

Consequential serial verb construction (CSVC) is represented as a VP adjunction structure with object sharing represented as reference sharing. The theme of V2 is assigned to pro. The verbP2 is structurally adjoined to vP1.

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. I agree with them, and I have shown in chapter 4 that RSVCs have a complementation structure while the CSVC and PSVC have adjunction structures.

In chapter 4, I have discussed evidence from the distribution of the tòbórè anaphor that shows that argument sharing in CSVCs is token sharing of arguments. In table 29 above, the object of VP2 of a PSVC is represented as a trace, that is, PSVCs are formed by operator movement and are islands for further extraction. I discuss this claim below.

Criteria used to support the claim of a wh-trace include preposition stranding, that is, VP2 is an island for further wh-extraction for PSVCs and not CSVCs. The following examples illustrate this (Baker and Stewart 2002:28).

<table>
<thead>
<tr>
<th>Type</th>
<th>Size of VP2</th>
<th>Object of VP2</th>
<th>Attachment site</th>
<th>NP analogue</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>

Table 30
(4) CSVC

Èkpétin òrè Òzò dé àkhé mú yì.

Èkpétin òrè Òzò dé àkhé mú yì.

Box FOC Ozo buy.PST.H pot carry.PST.H into

'It's a box that Ozo bought a pot and put into.'

(5) PSVC

*Èmió!wó nà òrè Òzò mién ékítà rhié ná.

*Èmió!wó nà òrè Òzò mién ékítà rhié ná.

Meat that FOC Ozo find.PST.H dog take to

In (5) the theme argument of rhié cannot undergo wh-extraction and this is explained (Baker and Stewart 2002) by PSVCs and not CSVCs being formed by null operator movement. Wh-traces create an island which acts as a barrier to further movement.

Baker and Stewart draw a parallel between relative clauses in English and PSVCs and CSVCs. English relative clauses are represented in the following examples (Baker and Stewart 2002:39).

(6) a. Ordinary tensed relative clause

(The management just fired)[the[ man [OPt I saw ti]].]

b. Participial and infinitival relative clause

(The management just fired)[the [man[PRO sitting over there]]].

Example (6a) contains a phonologically null operator in the specifier of its CP that binds a trace inside the relative clause, making it an island for further extraction. The operator is also co-indexed to the head NP through R-binding. For example (6b), no wh-movement is involved. The subject of the relative clause is a null pronominal PRO that is co-indexed with the head NP and thus extraction is licensed.

PSVCs are analyzed as parallel to ordinary relative clauses and the CSVC as parallel to participial and infinitival relatives.
Further, evidence that vP2 of a CSVC adjoins to vP1 and the AspP2 of a PSVC to AspP1 is drawn from Nupe through the distribution of a verb particle *zi* in a purposive construction in which a verb of motion selects a clause-like element. When the complement is a transitive verb, its object is preposed to a position before the embedded verb and *zi* occurs after the verb as in example (7) below (Baker and Stewart 2002:53).

(7)    **Musa bé etsi (yin) du zi.**

Musa bé etsi (yin) du zi.

*Musa come yam PRT cook PURP*

PN V CN V

*Musa came to cook the yam.*

In Nupe CSVCs, the particle occurs after the VP2 as in (7) above as shown in example (8) below. In PSVCs on the other hand, VP2 must occur after the particle, an indication that it adjoins at a position higher than vP1 as shown in example (9) below.

(8)    **CSVC**

Musa bé etsi (yin) du kun zi.

*Musa come yam PRT cook sell PURP*

PN V CN V V

*Musa came to cook the yam and sell it.*

(9)    **PSVC**

?Músabé nangi wan zi ya tsigbè.

?Musa bé nangi wan zi ya tsigbè.

*Musa come goat catch PURP give medicine*

PN V CN V V CN

*Musa came to catch a goat to give it medicine.*
The above observation is extended to account for the Èdó data by them. How then, is the distribution in (4) and (5) above explained within the HPSG account I apply for my analysis? A difference between (4) and (5) lies is in the nature of argument sharing. In (4) there is token sharing of the theme argument àkhé 'pot' of dé 'buy' and the compound verb mú yì 'put (carry+into)', and it is the locative argument èkpétin 'box' of the compound verb that is realized non-locally. In (5) the theme argument of mién 'find' is token shared with the goal argument of the compound verb rhié ná 'give (take+to)' and the compound verb’s theme argument is realized in a non-local environment. In (10) below, I give a PSVC example that is parallel with (4), a CSVC, above and where extraction and preposition stranding is licensed (contrary to Baker and Stewart’s claim).

(10) PSVC

Èkpétin òré Òzó àkhé mién mú yì.

Èkpétin òré Òzó mién àkhé mú yì.
Box FOC Ozo find.PST.H pot carry into
CN PN V CN V PREP

'It’s a box that Ozo found a pot and put into.'

In example (10) mién and mú yì both share the theme argument token àkhé, and extraction of the locative argument of the compound verb is licensed as in the CSVC example in (4) above. Similarly in a CSVC, when V1 token shares its theme argument with the goal argument of V2, as with the PSVC example in (5), extraction of the theme argument is not licensed. Example (11) illustrates this.

(11) CSVC

*Èbé òré Òzó tié Àzàrí rhié ná.

*Èbé òré Òzó tié Àzàrí rhié ná.
Book FOC Ozo call.PST.H Azari take.PST.H to
CN PN V PN V PREP

'It is a book Ozo called Azari and gave to.'
Nupe also exhibits the above pattern (Baker and Stewart 2002:28). Example (12) below illustrates this.

(12) **PSVC**

Éwò Musa dzin kpati la dan o.

*Éwò Musa dzin kpati la dan o.*

Garment Musa make box put in FOC

CN PN V CN V PREP

'It’s the shirt that Musa made a box to put into.'

Here as with examples (5) and (11), V1 token shares its theme argument with V2’s locative argument and extraction of the theme argument of V2 is not licensed. Also as with examples (4) and (10), in Nupe when V1 and V2 token share their theme argument, then extraction of the locative argument is licensed as in (13) below.

(13) **PSVC**

Kpati bo Musa dzin èwò lá dan o.

Kpati bo Musa dzin èwò lá dan o.

Box LOC Musa make shirt take be.in FOC

CN PN V CN V PREP

'It’s a box that Musa made a shirt and put it in.'

From the above, it would seem that there is a constraint on extraction of theme objects of V2 out of PSVCs and CSVCs where V2 is ditransitive and it is not token shared with V1. A descriptive statement of this constraint is given below in (14).

(14)

i. If V1 (transitive) and V2 (ditransitive) share theme arguments then extraction of the unshared goal /locative argument of V2 is licensed.

ii. If V1(transitive) shares its theme argument with the goal/locative argument of V2 (ditransitive) then extraction of the unshared theme argument of V2 is not licensed.
In (15) below I give a partial representation of the verb *mién* 'find' and the compound verb *múyi* 'put' as in example (10) above.

\[
\text{HEAD-DTR.SYNSEM.LOCAL.CAT} \\
\text{QVAL} \\
\text{SUBJECT \{1\} [np-synsem \ LOCAL.CONT.HOOK.INDEX \ ref-ind]} \\
\text{DOBJ \{2\} [np-synsem \ LOCAL.CONT.HOOK.INDEX \ ref-ind]} \\
\text{HEAD} \text{\{\textit{múyi}\} \verb} \\
\text{QVAL} \\
\text{SUBJECT\{1\}} \\
\text{DOBJ \{2\} \verb \ synsem \ goal} \\
\text{NON-HEAD-DTR.SYNSEM.LOCAL.CAT} \\
\]

In (15) the SUBJECT and D(IRECT)OBJ(ECT ) values of the head-daughter and non-head-daughter are token identified while the oblique argument of the non-head-daughter is not, and extraction of the oblique argument is licensed. In (16) below, I present a partial avm of the verbs *mién* 'find' and the compound verb *rhé ná* in example (5) above.

\[
\text{HEA-DTR.SYNSEM.LOCAL.CAT} \\
\text{QVAL} \\
\text{SUBJECT \{1\} [np-synsem \ LOCAL.CONT.HOOK.INDEX \ ref-ind]} \\
\text{DOBJ \{2\} [np-synsem \ LOCAL.CONT.HOOK.INDEX \ ref-ind]} \\
\text{HEAD} \text{\{\textit{rhé ná}\} \verb} \\
\text{QVAL} \\
\text{SUBJECT\{1\}} \\
\text{DOBJ \{2\} \verb \ synsem \ affected} \\
\text{NON-HEAD-DTR.SYNSEM.LOCAL.CAT} \\
\]

Here, the values of the SUBJECT attributes of the head-daughter and non-head-daughter are token identified. For the DOBJ value of the head-daughter, it is token
identified with the OBLOBJ of the non-head-daughter but the DOBJ value of the non-head-daughter is not token shared. This contrast may be critical for the lack of extraction in this case. In my analysis in section 7.3 below, I have analyzed all instances of argument sharing in purpose constructions as that of token sharing by grammatical function. The above phenomenon seems to bear a close correlation with island constraints in co-ordinate structure. Generally, co-ordinate structures are islands to extraction but there are exceptions when there is a gap across-the-board (where a GAP is an element that fails to be realized in the syntax and not a phonetically empty phrase (trace)) as in (17) below (cf Sag and Wasow 1999: 351-354):

(17) This is the dancer; that [we bought [a portrait of__, and two photos of__]].

Sag and Wasow (1999: 351-354) account for the licensing of the extraction of the phrase *the dancer* in (17) above by the circumstance that the values for GAP is non-empty and token identified in the conjuncts.

While the examples in (15) and (16) are not co-ordinate structures, extraction is only licensed when the values of the DOBJ attributes are token identified as in (15), whereas in (16) where there is non-identity between the values of the DOBJ attributes and only 'partial' identity between function sharing of the DOBJ and OBLOBJ values of the verbs in series, extraction is not licensed.

Related to the above discussion is another phenomenon discussed by Baker and Stewart (2002), the E-type reading in CSVCs. Recall that they propose *pro* as the object of V2. They observe that this 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):
In (18) it is true Ozo bought a few books in total and read them all while in (19), 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 Èdó lacks.

The PSVC also has the same interpretation as the CSVC when the shared object is a quantified NP as in (20) below (my example):

Example (20) implies that Øzó found a few books and that he read all the books he found. Recall that Baker and Stewart do not posit pro as the object of V2 for the PSVC, thus the E-type reading found in CSVCs does not motivate positing a pro object for V2 since this reading also applies for PSVCs.
Of interest is that Baker and Stewart (2002:24) states that the interpretation of the CSVC in (18) is parallel to an English conjunct with a pronoun, while that of the RSVC is equivalent to an English resultative construction. Referring back to examples (15) and (16), the conjunctive interpretation then may also contribute to the licensing or non-licensing of extraction as I discussed above.

Turning now to the E-type reading, within an HPSG framework I account for the E-type reading of shared quantified NPs in the constructions above by the nature of object sharing: token sharing by grammatical function. This ensures that all properties of the NP are shared including scope resolution with V2 in an adjunction relation to V1.

For the resultative construction the sharing pattern is that of switch sharing with different grammatical functions involved and V2 is in a complementation relation to V1. This may be important for the lack of E-type reading for this construction. This then accounts for the E-type reading in (18) and (20) and the lack of it in (19), and eliminates the need to posit an empty category as the object of V2 in CSVCs (as we have shown also with example (20)). A general account of E-type pronouns in the HPSG framework is beyond the scope of this thesis. My modest proposal is a mere start of a possible approach and so far matches only the issues discussed by Baker and Stewart (2002).

I now discuss some analyses of multi-verb constructions within the HPSG framework.

### 7.2. Formal HPSG approaches to multi-verb constructions

I discuss two approaches that have been applied to the analysis of multi-verb constructions:

(21)

i. Append operations on ARG-ST with content sharing of the CONT values of the verbs in series (Wechsler 2003).

In chapter 4, I discussed Wechsler’s (2003) analysis of motion serial verbs in Thai. Three interpretation options (23) were discussed for a sentence like (22).

(22) **Piti den khân (pay nay) roŋrian**
    
    Piti walk enter go in school
    PN V V V PREP CN
    
    'Piti walked into the school'

Wechsler (2003:6-7) adopts (23iii) as the default interpretation.

(23)

i. Serial interpretation: A walk event followed by an entering event: *Piti walked, and then entered the school.*

ii. Goal interpretation. A walking event along a path whose end-point is located inside the school: *Piti walked to a place within the school.*

iii. Coextensive interpretation. An event involving simultaneous, co-extensive walking and entering: *Piti entered, walking.*

He adopts Weschler’s (1995, 1997) analysis of optional PP complements whereby they are appended to the ARG-ST of the verb. They are not part of the argument structure but they must be compatible with the semantic selection properties of the verb. Applied to SVCs, the semantics CONTENTs of verbs are unified. 'Walk enter' in (22) above has the following representation (2003:19).
According to him, the lexical entry for khåw “enter” specifies the position of the endpoint of the motion and crucially the min–path length.

Unification of the content values of "walk" and "enter" gives the semantic of the verb "walk enter"

This approach in principle may account for resultatives in Èdó with complementation of V2 represented as an append operation to the argument structure of V1. However following principles of economy and to capture generalizations (also, the matrix 0.6 at present does not make use of ARG-ST for linking purposes), I use schemata and type subsumption to account for both complementation and adjunction in multi-verb construction. Also, it accounts better for the argument sharing patterns observed as well as temporal relations relating events in series in multi-verb constructions.

Beermann, Hellan and Sætherø (2003:8) propose two schemata for SVCs in Akan; clause chaining schemata and ISVC schemata. ISVC schemata have the following subtypes: take-NP-give-NP, take-as-instrument and de+location (motion) verb. A
schema or statement declares in conjunction with other schemata, actual configurations as grammatical when construed with other schemata. They adopt a right-ward branching binary structure analysis.

I discuss clause chaining schema below. Two types of verb phrase types are posited the single-verbphrase and clause-chain, with the latter licensing recursion. Examples (25) and (26) below illustrate this type.

(25)  **Ama to-ơ adanko dware-e no yen-n no.**

\[
\text{Ama } \text{to-ơ adanko}_1 \text{ dware-e } \text{no}_1 \text{ yen-n } \text{no}_i.
\]

\[
\text{Ama buy-COMPL rabbit bath-COMPL 3sg rear-COMPL 3sg}
\]

PN V N V PRON V PRON

'Ama bought a rabbit, bathed it (and) reared it.'

(26) (Hellan, Beermann and Sætherø 2003:9).
In the schema in (26), the head is the single-verbphrase and the clause-chain is an adjunct, a relationship that is established through the selection of the single-verbphrase as a value for the MOD feature of clause-chain. Identity between feature specifications is done through re-entrancy. To account for the recursive sequential nature of clause-chain, the SITPAIR-COND is introduced as a constraint on its CONT attribute. The situation expressed by the first VP in the pair is prerequisite for the situation expressed by the second VP. The recursion in the type clause-chain is binary in nature and is accumulated from right to left with all the constituents temporally ordered. In chapter 6, I proposed a modification that took into account overlapping events in multi-verb constructions.

The attribute CUL(minative) INDEX constraining CONT is only present in CCs and is a situational index comprising the whole macro event.

ISVC schemata also represent the relation between V1 and V2 as that of adjunction. However, the types of VP daughters are different; min-verb and full-verb. They are mutually exclusive and distinct from the mother VP which is of type isvc. Thus, recursion is not possible in ISVCs. Also constraints on the CONT attribute are modified to include a RELS list for each verb type and the CULINDEX and SITPAIR-CONDITION are not included. Object sharing in this type is that of participant roles and this is represented by re-entrancy though the use of tags. In (27) below, I show the schemata for the take-NP-give-NP ISCV (Beermann, Hellan and Sætherø 2003: 14).
Example (28) below exemplifies the schema in (27)

(28) ɔ-de no fem-m me.

ɔ-de  no  fem-m  me.

3sg-take 3sg(animate) lend-PAST 1sg
Pron-V  pron  V  pron

'He lent me it.'

The principles outlined above are in essence that adopted for the analysis for Ga multi-verb constructions by Dakubu, Hellan and Beermann (2007), relevant aspects of which I have discussed in chapter 5.

Hellan (2007) implemented Head Driven Phrase Structure for Ga analyzes serial verbs in Ga into two schemas with subtypes inheriting from them.
(29)

i. Basic-head-ICOMPS-phrase with the following sub-types inheriting from it;
   head-verb-isvc-subjshare-objshare-phrase; head-verb-isvc-subjshare-phrase;
   head-verb-isvc-switchshare-phrase.

ii. Verb-serial-mod-phrase with the following sub-types inheriting from it;
    verb-serial-mod-tr-tr-phrase; verb-serial-mod-tr-intr-phrase;
    verb-serial-mod-intr-tr-phrase; verb-serial-mod-intra-intr-phrase.

The sub-types represent different argument sharing patterns constraining these structures. Relevant to my analysis is the head-verb-isvc-switchshare-phrase and the verb-serial-mod-phrase schemas. I give a description in (30) below.

(30)

i. Head-verb-isvc-switchsharing-phrase with a complementation structure:
   the referential index value of the NP subject of the 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.

ii. 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.

Different from Hellan (2007), in my analysis the head-verb-isvc-switchsharing-phrase (my resultative1-verb-serial-compl-phrase) inherits from the type basic-head-COMP-phrase. As distributional facts from table 30 below shows, interspersable right adjuncts cannot occur between the head-daughter and non-head-daughter.

I now discuss schemata for Èdò multi-verb constructions.
7.3. Formal representation: Èdó multi-verb constructions

I begin my discussion with table 31 below (based on figure 1 and table 24 in sections 4.2.4.6 and 4.2.6.1 respectively), below presenting the empirical background for my analysis.

Table 31 shows the properties of the multi-verb constructions with respect to adverbial distribution, the floating anaphor tòbýrè, the –rV suffix and argument distribution patterns.

<table>
<thead>
<tr>
<th>Construction type</th>
<th>Structure</th>
<th>-rV Suffix Licensed</th>
<th>Infinitival Marker ya Before V2</th>
<th>Floating anaphor before V2</th>
<th>VP Adjuncts After VP 1</th>
<th>Token Sharing of subjects</th>
<th>Switch Sharing</th>
<th>Covert reference sharing of subjects</th>
<th>Token Sharing of objects</th>
<th>Overt Reference Sharing of objects</th>
<th>Objects are not shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>V+modifier:</td>
<td>Adjunction</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>V(P)+V(P):</td>
<td>Compl.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Resultatives</td>
<td>Adjunction</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Neg.result.</td>
<td>Adjunction</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Covert-coordination</td>
<td>Adjunction</td>
<td>No</td>
<td>Yes</td>
<td>Yes</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>V=mood</td>
<td>Adjunction</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>V=infinitival complement</td>
<td>Compl.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

My analysis consists of the following:

(31)  a. A type hierarchy system encoding the relation types constraining combinations of multi-verb constructions and attributes constraining them.
       b. Schemata licensing compositions of words into phrases and phrases into larger phrases.

In chapter 3 section 3.4, a type hierarchy of subtypes of the type event was discussed. I introduced a type event-struc encoding aktionsart information that inherits from event and the following types inherit from it.
The semantic properties constraining the eventstruc-rel types in (32) need to be accessible to constrain selection of appropriate prepositions, adverbs and verbs. This is achieved by an attribute SORT with value sort constraining the type individual, the super type for the type event. SORT is a feature inside the path of index allowing for further semantic specification of an item. Below is a hierarchy of sort relevant for the aktionsart properties of verbs in Èdó.

(33)

```
    sort
   /   \
semsort /    \
   |     |
 process state result cause transition-achievement
   |     |
 transition-inchoation transition-cause
```

Using the type process and cause as illustration, for the former its semantic property includes atelic, dynamic and duration. Thus it can combine with elements that are telic. For the type cause its semantic properties includes atelic, dynamic, duration and cause. This ensures that it combines with a predicate with the semantic property of result. Relating this to the type hierarchy in (34) below for example, in a multi-verb construction, where the head-daughter has semantics of type process-eventstruc-rel, the value for the attribute SORT is of the type process and can combine with verb signs with value telic for the attribute SORT as the non-head-daughter. Multi-verb constructions where the head-daughter has semantics of type transition-cause-eventstruc-rel have the type cause as value for the attribute SORT and they combine with verb signs with the type result as value for the attribute SORT as non-head-daughter.

Linking to arguments was described in a partial hierarchy of relations (examples (103) to (114), chapter 3).
In the hierarchy in (34) below, I expand on how the relation types relate to the subtypes of *eventstruc* that encode aktionsart information.

(34) Hierarchy of Relation types

I repeat example (104) from chapter 3 as (35) below to illustrate the linking pattern.

(35) \[
\begin{array}{c}
\text{arg1-process-eventstruc-rel} \\
\text{ARG1 ref-ind}
\end{array}
\]

As discussed in chapter 3, an intransitive process verb would inherit from the following types. This is represented in the partial Hierarchy below:
Example (35) states that the type `arg1-process-eventstruc-rel` has only one participant. The type `arg1-subject-lex-item` in (36) states that the KEY argument must be identified with the value of the SUBJECT attribute constraining QVAL and the type `arg1-process-subject-lex-item` inherits from it with the additional constraint that the RELS list contain an element of type `arg1-process-eventstruc-rel`. The type `intrans-process-verb-lxm` is thus constrained to have the only participant lexicalized as value for its QVAL.SUBJECT attribute. In addition, it is constrained to have semantics of type `arg1-process-eventstruc-rel`.

Next in my analysis is a description of the constructional rules governing the combinations of words into phrases in general and multi-verb combinations in particular. In chapter 1 sections 1.4.6.3.1, I stated constraints linking arguments on the RELS list to values of attributes constraining the type `val`. Also stated are constraints on the linking to values of grammatical function attributes constraining the type `qval` through co-indexation to the KEY values.

The rules for constituent combinations are as stated in 1.4.6.5 except for the head complement rule. Recapitulating briefly, the head-complement-rule constrains its non-head-daughter (a sign of type `phrase`) to be realized as value for the head-daughter’s (a lexical sign) COMPS attribute constraining the type `val` ensuring that the mother’s COMPS list is an empty list. I have incorporated Hellan’s (2003) topological field
distinction for valence information that is the COMPS and ICOMPS.\textsuperscript{91} The basic-head-COMPS-phrase is exactly as stated by the head complement rule (except of course modification to include \textit{qval} information). However, different from standard Matrix 0.6 and HPSG assumptions, object rules constraining values of \textit{qval} that are identified with values of attributes on the COMPS list inherit from the head-COMPS-phrase. The head-COMPS-phrase also inherits from the type head-initial ensuring that the head-daughter is realized first (this is not shown in the hierarchy below). The partial hierarchy in (37) below illustrates this.

(37) Partial hierarchy of object rules

These rules identify the INDEX values on the relevant attributes of the head-daughters \textit{qval} with INDEX values of the non-head-daughters, the arguments are realized as values on arguments on the COMPS list through the Head-COMPS-phrase-rule that they inherit from.

A comment on the types head-obl-object1-phrase and head-obl-object2-phrase. For the head-obl-object1-phrase the non-head-daughter has HEAD value of type \textit{prep} and for the head-obl-object2-phrase, the HEAD value is of type \textit{pronoun}.

I have described above the compositional semantics for phrasal combinations. I now discuss the schemata for multi-verb constructions in Êdó:

\footnote{\textsuperscript{91} I make use only of the COMPS in my analysis in this thesis. However, ICOMPS is applicable in Êdó for verbs subcategorizing for PPs that allow non subcategorized right adjuncts to occur between them and the subcategorized PPs.}
i. *Head-COMPS-phrase* with a complementation structure:
The event index value of the non-head-daughter is identified with the event index value of the *vp-synsem* on the COMPS list that is, the non-head-daughter is realized as a complement of the head-daughter. The SUBJECT value of the *qval* of the head-daughter is realized on its VAL list. The SUBJECT value of the non-head-daughter is not token identified with that of the head-daughter to allow for inheritance from either the *resultative1-verb-serial-compl-phrase* or the *INF-complement-verb-serial-compl-phrase*.

In (41ii) below, a type hierarchy is given for *head-COMPS-phrase* and the sub-types that inherit from it.

ii. Type hierarchy for *Head-COMPS-phrase*

```
           Basic-head-COMP-phrase
             |                  
             Head-COMP-phrase
             |                  
             Verb-serial-compl-phrase
       |                          |
Resultative1-verb-serial-compl-phrase   INF-complement-verb-serial-compl-phrase
```

Immediately below, I show schemata constraining the *Verb-serial-compl-phrase* (example (39)) *resultative1-verb-serial-compl-phrase* (example (40)) and the *INF-complement-verb-serial-compl-phrase* (example (41)).
Example (40b) below is a schema for a resultative construction as in (40a) with two arguments.
(40) a. Partial order relation

Ôzó suá Àzàrí dé.

Ôzó suá Àzàrí dé.

achievement achievement

'Ozo pushed Azari down.'
The schema in (40b) the *resultative-verb-serial-compl-phrase* schema applies to resultative constructions, where V2 is an achievement as in (40a) above. The values of the mother and head-daughter *qval* attributes are token identified and the SUBJECT value of the head-daughter is re-entered with the value of its SUBJ
attribute and that of the mother. From table 30 it is shown that argument sharing between the events in series is that of switch sharing. This is represented in (40b) by identity of the referential index of the non-head-daughter SUBJECT value with the value of the head-daughter’s DOBJ’s referential index. The head-daughter’s DOBJ value is realized on its COMPS list (the head-daughter is of type phrase and this ensures that the DOBJ value is saturated and thus not represented in (40b) above. However, the qval attribute allows us to read this information). The non-head-daughter is in a complementation relation to the head-daughter and this is represented by the re-entrancy through the tag [9] on the head-daughter’s COMPS list. The events in series are non-overlapping and this is represented by the values partial-order and non-dependent for the attributes TEMP-REL and TEMPORAL constraining sitpair-cond respectively.

I now discuss the INF-complement-verb-serial-compl-phrase in example (41) below. From table 30, we see that argument sharing between the events in series is that of covert reference sharing with V2 having an unsaturated subject and that the tense value for tam is non-finite. My analysis is similar to that proposed for subject-equi verbs by Flickinger, Bender and Oepen (2003:34). The lexical entry for the verb kòkò in (41a) below identifies its VPs complement’s XARG value with its subject’s semantic index and then identifies the index with the ARG1 value on its RELS list. The VPs complement’s XARG value is also identified with the SUBJECT value of the non-head-daughter. The events in series are overlapping and this is represented by the values overlap and dependent for the attributes TEMP-REL and TEMPORAL constraining sitpair-cond respectively. Example (41b) illustrates this.

(41) a. **Overlap relation**

Íran kòkò-rô dé ímótô.

Íran kòkò-rô dé ímótô.

process achievement

3.PL gather.PST-rV buy car

PRON V V CN

'They bought the car together (joint ownership).’
INF–complement–verb–serial–compl–phrase

\[
\begin{align*}
\text{CAT} & \quad \text{subj} < [4] > \\
\text{val} & \quad \text{comp} < [4] > \\
\text{qval} & \quad \text{obj} [5]
\end{align*}
\]

SYNSEM.LOCAL

\[
\begin{align*}
\text{axx} & \quad \text{hook-index} [2] > \\
\text{rel} & \quad \text{cont} \quad \text{event} [6] > \\
\text{sitmap-con} & \quad \text{temp-rel} \quad \text{overlap} > \\
\text{temporal-dependency} & \quad \text{date} [5]
\end{align*}
\]

HEAD-DTR.SYNSEM.LOCAL

\[
\begin{align*}
\text{axx} & \quad \text{hook-index} [2] \quad \text{temp} > \\
\text{CONT} & \quad \text{rel} \quad \text{sort} \quad \text{process} > \\
\text{sitmap-con} & \quad \text{arg1} \quad \text{arg2} \quad \text{arg3} >
\end{align*}
\]

NON-HEAD-DTR.SYNSEM.LOCAL

\[
\begin{align*}
\text{axx} & \quad \text{hook-index} [3] \quad \text{sort} > \\
\text{temporal-dependency} & \quad \text{date} [5]
\end{align*}
\]

(41b)
I now discuss the *Verb-serial-mod-phrase*. In (42i) I present a description of the schema and in (42ii) I present a hierarchy of the types that inherit from it. In (42iii), I present the schema.

(42)

i. *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. I have left the relation type underspecified to be of the type *eventstruc-rel* for both the head-daughter and the non-head-daughter to allow for all event-relations. Also, the value for TEMP-REL and TEMPORAL are underspecified to allow for both overlapping and non-overlapping temporal relations.

ii. *Verb-serial-mod-phrase*
Example (43b) below is a schema for consequential-verb-serial-mod-phrase for consequential constructions as in example (43a) below.

(43) a. **Disjoint order relation**

Ôzô lé ̀izè ré.

Ôzô lé ̀izè ré.

accomplishment accomplishment

Ozo cook.PST.H rice eat.PST.H
PN V CN V

'Ozo cooked rice and ate.'
The argument sharing pattern is that of token sharing of grammatical functions for the subjects and objects of the verbs in series as seen in table 30. This is represented as identity between the QVAL values of the head-daughter and non-head-daughter with the token being instantiated on the VAL list of the head-daughter. The verbs in example (43a) above are transitive and this is reflected in the relation types.
constraining mrs as \textit{arg12-transition-canonical-cause-eventstruc-rel} for both verbs.
The events in series are in a non-overlapping relation and this is expressed by the values \textit{disjoint} and \textit{non-dependent} constraining TEMP-REL and TEMPORAL respectively.

Another type that inherits from \textit{verb-serial-mod-phrase} is the \textit{V+modifier-serial-mod-phrase} defined in (44b) below.

In the schema in (44b) for the directional construction, I have analyzed the non-head-daughter as an adverb to account for lexical re-analysis discussed in chapter 4. The type of relation for the non-head-daughter is stated as of type \textit{arg12-transition-achievement-eventstruc-rel} while that of the head-daughter is of type \textit{arg1-process-eventstruc-relation}. Here, the V2 is predicated of the ARG1 of V1 and this is represented by token identity of the SUBJECT value for V1 and V2 respectively with the subject value of V1 realized in its valence list. Also here, as discussed in chapter 6 V1 and V2 are in an ordered overlap relation and this is represented by the SITPAIR-COND.

(44) a. \textbf{Ordered overlap relation}

\begin{tabular}{l}
\textit{\'Ozo run.} \\
\textit{PST-rV} \\
\textit{enter} \\
\textit{process} \\
\textit{achievement} \\
\textit{subject} \\
\end{tabular}

\begin{tabular}{l}
\textit{\'Ozo ran into the house.}'
\end{tabular}
Example (45b) below is a schema for \textit{V+mood construction}. I use the purpose construction in (45a) below as illustration.
(45a) **Ordered overlap relation**

Ôzó mién iyán lé.

Ôzó mién iyán lé.

achievement accomplishment

\[ Ozo \quad \text{see.PST.H} \quad \text{yam cook} \]

PN V CN V

'Ozo saw yam to cook (and he cooked it).'

As discussed in chapter 4, the purpose construction in Èdó is asserted and this is realized as a fixed high tone on V2 if monosyllabic and a high downstepped high tone if disyllabic. I have introduced a type `assert`\(^{92}\) that inherits from the type `sort` as a value for the attribute `MOOD` constraining the type `tam`.\(^{93}\)

As with the consequential construction, the argument sharing pattern is that of token sharing of grammatical functions for the subjects and objects of the verbs in series as seen in table 30, and is represented as identity between the QVAL values of the head-daughter and non-head-daughter with the token being instantiated on the VAL list of the head-daughter. The verbs are transitive and this is reflected in the relation types constraining `mrs` as `arg12-transition-achievement-eventstruc-rel` for V1 and `arg12-transition-cause-eventstruc-rel` for V2. The events in series are in an overlapping relation and this is expressed by the values `ordered-overlap` and `dependent` constraining `TEMP-REL` and `TEMPORAL` respectively.

---

\(^{92}\) I assume the definition given in Ginzburg and Sag (2000:76)

\(^{93}\) Apart from the purpose construction, I do not discuss mood in the other multi-verb constructions as it has no implication for the analysis.
The covert co-ordination also inherits from *verb-serial-mod-phrase*. Argument sharing is that of overt reference sharing for objects and covert reference sharing for subjects. The subject of V2 is unexpressed and the analysis below in (46b) is similar to that for infinitival clause. The lexical entry for the verb *dé* identifies the value for its SUBJECT attribute with the XARG value for the non-head-daughter. The non-
head-daughter’s XARG value is in turn identified with its SUBJECT’s INDEX value. Overt reference sharing of objects is represented through identity of referential index of the head-daughter and non-head-daughter’s DOBJ values. However they are not token identified since each verb lexicalizes its direct object in its COMPS list and the forms are not identical. The events in series are non-overlapping and this is represented by the values disjoint-order and non-dependent for the attributes TEMP-REL and TEMPORAL constraining sitpair-cond respectively: Example (50a) is an example of a covert co-ordination.

(46) a. **Disjoint order relation**

Òzó dé izè , rri ôré.

Òzó dé izè , rri ôré.

achievement accomplishment

Ozo buy.PST.H rice , eat.PST.H it

PN V CN V PRON

'Ozo bought rice and ate it.'
**(46b) covert-co-ordination-verb-serial-mod-phrase**

<table>
<thead>
<tr>
<th>Element</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>covert-co-ordination-verb-serial-mod-phrase</strong></td>
<td></td>
</tr>
<tr>
<td><strong>cat</strong></td>
<td></td>
</tr>
<tr>
<td><strong>HEAD</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>TONEN</strong></td>
<td>[high]</td>
</tr>
<tr>
<td><strong>VAL</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SUBJ</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>&lt; [4] &gt;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>COMPS</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>&lt; &gt;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>QVAL</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SUBJECT</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>[4]</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DOB1</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>SYNSEM.LOCAL.CAT.VAL.COMP</strong></td>
<td>[5]</td>
</tr>
<tr>
<td><strong>mrs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>HOOK.INDEX</strong></td>
<td>[3]</td>
</tr>
<tr>
<td><strong>RELSE[6, 7]</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CONT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SITPAIR-COND</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EVENT1</strong></td>
<td>[6]</td>
</tr>
<tr>
<td><strong>EVENT2</strong></td>
<td>[7]</td>
</tr>
<tr>
<td><strong>TEMP-REL</strong></td>
<td></td>
</tr>
<tr>
<td><strong>disjoint-order</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TEMPORAL</strong></td>
<td></td>
</tr>
<tr>
<td><strong>non-dependent</strong></td>
<td></td>
</tr>
<tr>
<td><strong>cat</strong></td>
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</tr>
<tr>
<td><strong>HEAD</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>9</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TONEN</strong></td>
<td>[high]</td>
</tr>
<tr>
<td><strong>VAL</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SUBJ</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>&lt; [4] &gt;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>COMPS</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>&lt; &gt;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>QVAL</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SUBJECT</strong></td>
<td>[verb]</td>
</tr>
<tr>
<td><strong>[4]</strong></td>
<td></td>
</tr>
<tr>
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<td>[verb]</td>
</tr>
<tr>
<td><strong>SYNSEM.LOCAL.HOOK.INDEX</strong></td>
<td>[1 &amp; ref-ind]</td>
</tr>
<tr>
<td><strong>LOCAL.CONT.HOOK.INDEX</strong></td>
<td>[2 &amp; ref-ind]</td>
</tr>
<tr>
<td><strong>mrs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>hook</strong></td>
<td></td>
</tr>
<tr>
<td><strong>INDEX</strong></td>
<td>[3]</td>
</tr>
<tr>
<td><strong>&amp; event</strong></td>
<td></td>
</tr>
<tr>
<td><strong>[E TENSE past]</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SORT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>transition-cause</strong></td>
<td></td>
</tr>
<tr>
<td><strong>cat</strong></td>
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</tr>
<tr>
<td><strong>HEAD</strong></td>
<td>[verb]</td>
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<td><strong>MOD</strong></td>
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</tr>
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<td><strong>SYNSEM.LOCAL.CAT.HEAD</strong></td>
<td>[9]</td>
</tr>
<tr>
<td><strong>SYNSEM.LOCAL.CONT.HOOK.INDEX</strong></td>
<td>[3]</td>
</tr>
<tr>
<td><strong>mrs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>hook</strong></td>
<td></td>
</tr>
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<td><strong>INDEX</strong></td>
<td>[10]</td>
</tr>
<tr>
<td><strong>&amp; event</strong></td>
<td></td>
</tr>
<tr>
<td><strong>[E TENSE past]</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SORT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>transition-cause</strong></td>
<td></td>
</tr>
</tbody>
</table>

490
Finally, in (47) below, I present a modification of the `past-rV-infl_irule` to account for licensing of the suffix in overlapping multi-verb constructions that I discussed in chapter 6. This is stated as a constraint on the attributes SITPAIR-COND.TEMPORAL with value dependent on `mrs` below. This ensures that the rule will apply only to those multi-verb constructions with a dependent value for the attribute TEMPORAL constraining their `mrs`. The COMPS list of the verb that is the daughter value of the rule has an optional `vp-synsem` to account for suffixation in the `v+infinitival complement` construction, where V2 is a complement of V1. Complements of type `np-synsem` are not licensed by this rule on the COMPS list. In addition the value for the attribute constraining the attribute TONE that constrains the type `head` must be `high` and the value for the attribute TENSE constraining the type `tam` is `past`.\(^\text{94}\) Inflectional rules and their constraints are discussed in chapter 2 section 2.5.

(47) Past-rV-infl_irule

---

\(^\text{94}\)For inchoation examples such as that discussed in chapter 6 section 6.4 and repeated below, I assume that a positive value for the attribute INCHOATION may over-ride the default past interpretation of the suffix.

(i)  
\begin{tabular}{lll}
\text{Ébánáná} & \text{vbó-rò.} & \\
\text{state} & \text{ripe-rV} & \\
\text{banana} & \text{CN} & \text{V} \\
\end{tabular}

'The banana has ripened.'
7.4 Conclusion

I have discussed Baker and Stewart’s (2002) analysis for PSVCs and CSVs and shown that their analysis of the object of V2 for the former as a trace and that of the latter as pro are actually instances of token sharing by grammatical function. Also discussed are two types of analyses in the literature for SVCs. The first is through an append operation on the ARG-ST of the head verb, appending the non-head verb and unification of the CONT value of the two verbs (Weschler 2003). The second approach is the use of schematas that constrain composition of the verbs in series (Beermann, Hellan and Sæthero 2003, Dakubu, Beermann and Hellan 2007 and Hellan 2007). Lastly, I presented two schemas to account for multi-verb constructions in Èdó:

(48)

i. *Head-COMPS-phrase* with a complementation structure and subtypes *resultative 1-verb-serial-compl-phrase* and *INF-complement-verb-serial-compl-phrase* that inherit from it.

CHAPTER EIGHT
CONCLUSION

This chapter gives a brief summary of findings in this thesis. In this study I have used the Head-driven Phrase Structure Grammar, Minimal Recursion Semantics (MRS), the Norsource Grammar (Hellan 2003, Hellan and Haugereid 2004, Beermann and Hellan 2005) based on the HPSG Grammar Matrix (Matrix 0.6) (Oepen et al 2002) and a sub-eventual templates analysis for events (Pustejovsky 1991, 1995 and 2005) as analytical tool in my analysis of multi-verb constructions in Èdó (a Benue-Congo language).

11 multi-verb constructions in Èdó are shown to pattern into four structural types with respect to the distribution of the past tense suffix –rV, an infinitival marker yá, a floating anaphor tòbórè 'by him/her/it self', interspersable VP adverbs and argument sharing patterns:

(i) \( V^+ \) modifier constructions Durational, directional, locational, manner constructions: \(-rV\) is here licensed, infinitival yá not licensed. One verb in the series is reanalyzed as adverb.

(ii) \( V(P) + V(P) \) constructions Resultatives negative resultative, consequential and covert co-ordination constructions: \(-rV\) is not licensed, infinitival yá is not licensed. The verbs in series have the same values for Tense, Aspect and Mood (TAM).

(iii) \( V + mood \) constructions Purpose constructions. \(-rV\) is licensed, infinitival yá is not licensed. V2 has a positive value for MOOD

(iv) \( V + infinitival complement \) constructions Comitative and instrumental constructions, \(-rV\) is licensed, infinitival yá is licensed. V2 is non-finite.

The \(-rV\) suffix also interacts in an interesting way with the temporal structures of multi-verb constructions. Overlapping events license \(-rV\) while non-overlapping events do not. This is formally stated as a constraint on semantic combination on \textit{mrs}.
constraining the suffix to affix only to multi-verb constructions with unbounded temporal time span.

To account for the interaction between tense, tone, inflection and argument selection, I introduced an attribute TONE technically specified with value tone constraining the type head. Tone is in turn constrained by the attributes LEX-TONE with value high-or-low, REL-TONE also with value high-or-low and CONST with value Boolean. These constraints capture the nature of Èdó tone distribution. Tones in Èdó are either Lexical (LEX-TONE) and constant (CONST+) or grammatical (REL-TONE) and (CONST-). Also, inflectional rules that map Èdó verb lexemes to words were discussed, mainly, the past-rV_infl_rule, the past-const_rule, and the pres-const_rule.


Semantic properties constraining the eventstruc-rel types in verbal combinations is stated as a constraint on the attribute SORT with value sort, constraining the type individual, the super type of event. Sub-types of sort include process, state, transition-achievement, transition-inchoative, result and transition-cause, cause. Verb in series in multi-verb constructions have compatible values for the feature SORT.

Temporal relations between events in series are also discussed based on Pustejovsky’s (1995) extended event structure template. Temporal relations are licensed between the head-daughter VP(1) and the non-head-daughter VP(2) by a constraint SIT-PAIR with attributes EVENT1 and EVENT2, both with values eventstruc-relation, TEMP-REL.
with value *temporal-relation* and TEMPORAL with value *time-span* constraining *mrs*.

The study also examines multi-verb constructions in the following languages of the Niger-Congo: Igbo and Yoruba (Benue-Congo), Gurenne (Oti-Volta), Ga, Baule, Akan and Ewe (Kwa), and situate properties of Èdó multi-verb constructions within a typology common to these languages. Multi-verbs identified include SVCs in all the languages discussed, consecutive constructions and overlapping constructions in Ewe and covert co-ordination in Èdó, Igbo and Baule. Typological features used for identification include: tense, mood, aspect, negation, adverb distribution, predicate cleft and argument sharing patterns. The findings show that the typological features of a language determine the type of multi-verb construction it licenses. Also, while inflection may demarcate multi-verb types within a language, the pattern observed for a language may not map onto another language.

With respect to tense, aspect and mood, all the languages with the exception of Ga, have one/harmonizing marker(s) on the verbs in series. My findings reveal that the kind of multi-event constructions found in a language is related to the type of inflection attested in the language. Languages with mainly aspectual and mood inflection have only SVCs (Akan and Ga), this also applies to Yoruba, a language with aspect and one or more future marker. Languages with tense, aspect and mood distinctions have both SVCs and CCs (Èdó and Igbo), a language like Baule with tense, aspect and mood reflected tonally on the subject and verb has only CCs and a language like Ewe that seems to have little tense, aspect and mood distinction has all three ranges: consecutive constructions, SVCs, CCs as well as bi-clausal constructions.

Argument sharing patterns found in the languages studied support the null subject/pro drop parameter that languages with rich verbal agreement features allow recoverability of unexpressed arguments and tend to license null subjects and objects. Object sharing patterns show symmetry with respect to switch sharing and reference sharing. Languages that have overt reference subject sharing patterns do not have switch sharing (Ewe, Ga and Baule), while those that do not, tend to employ
token/covert reference sharing of subjects and switch sharing (Èdò, Yoruba and Akan). This is buttressed by data from Attie and Likpe, closely related languages to the languages discussed. With respect to object sharing, these languages that do not license switch sharing all have covert sharing of objects, while those that license it, do not have covert sharing of objects. Èdò belongs to the type that does not license overt reference sharing of subjects, and tends to employ token sharing of subjects and switch sharing. For object sharing, Èdò does not have covert sharing of objects and employs mainly token sharing of objects.

In particular, object sharing in multi-verb constructions in Èdò is analyzed as token sharing by grammatical function (with the exception of the covert co-ordination where object sharing – where applicable - is overt reference sharing).

Two schemas are posited to account for Èdò multi-verb constructions:

- **Verb-serial-compl (ement)-phrase** with a complementation structure for the $V (P) + V (P)$ resultative and $V + \text{infinitival complement}$ constructions.
- **Serial-mod-phrase** with an adjunction structure for $V + \text{mood constructions}$, $V + \text{modifier constructions}$ and $V (P) + V (P)$ -that is- consequential, purpose, and negative resultative constructions.

These schemas employ the QVAL attribute that specifies grammatical function (Hellan 2003), as enrichment to the standard HPSG framework which has not focussed much on multi-verb constructions. Also, I mentioned, how the QVAL attribute is needed to capture non-local realization of arguments and how grammatical functions keep track of the argument functions of these lexical items. The attribute has been a powerful tool in my analysis of multi-verb constructions and has been useful in the presentation of an integrated syntactic-semantic analysis.
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