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Multi-Verb Constructions in ẸDÓ

Thesis for the degree of Philosophiae Doctor

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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.

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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 '*Èhi*' 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 *Èhi*'.

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Ùrúèsé 'thank you'

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Abbreviations

The following orthographic conventions are used to represent the following vowels

Orthography	Phonetic symbols
/e̲/	[ɛ]
/o̲/	[ɔ]
/in/	[ĩ]
/un/	[ũ]
/e̲n/	[ɛ̃]
/o̲n/	[ɔ̃]
/an/	[ã]

Tags	Tag Description
ISG	1st person singular
1PL	1st person plural
2SG	2nd person singular
2PL	2nd person plural
3SG	3rd person singular
3PL	3rd person plural
SUBJ	Subject
OBJ	Object
OBL	Oblique object
IOBJ	Indirect object
FOC	Focus
COMP	Complementizer
PST	Past
PRES	Present
H	High tone
!H	Downstepped high tone
L	Low tone
SECM	Sequential marker
IMP	Imperative

PRON	Pronoun
CN	Common noun
PN	Proper noun
ADV	Adverb
PREP	Preposition
ADJ	Adjective
DEM	Demonstrative
NUM	Number
PL	Plural
SG	Singular
POSS	Possessive
REL	Relativization
DET	Determiner
-rV	Past suffix
INTRANS	Intransitive
TRANS	Transitive
UNISYLL	Unisyllabic
DISYLL	Disyllabic
DST	Downstep tone
QPRT	Question particle
AUX	Auxiliary
QUANT	Quantifier
IMPERF	Imperfective
PURP	Purpose
PRT	Particle
Compl	Complementation
Neg.result.	Negative resultative
Conseq.	Consequential
EMP.ANA	Emphatic Anaphor
BEN	Benefactive
AGT	Agent
AFF	Affected
LOC	Location
UN-ASP	Unfulfilled aspect

INCOMPL	Incomplete
NOM	Nominalizer
CONSEC	Consecutive
NPRES	Nonpresent
POT	Potential
RED	Reduplication
ITER	Iterative
HAB	Habitual
INGR	Ingressive
ØASP	Zero aspect
GEN	Genitive
ANA	Anaphor
PROREFL	Pronounreflexive
NEG	Negative
TM	Tense marker

CHAPTER ONE
INTRODUCTION: EMPIRICAL AND THEORETICAL DOMAIN

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 Ẹ̀dó (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 èvbàré rè.**

Òzó	lè	èvbàré	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 Ẹ̀dó 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 Ẹ̀dó are shown to display different patterning with respect to the distribution of a past tense suffix *–rV*, a floating anaphor *tòbọ́rè* '*by him/her/it self*', VP adverbs and argument sharing patterns: *V+modifier*: durational, directional, manner, locational and resultaive (V2 is a degree state); *V(P)+V(P)*: resultative (V2 is an achievement/ individual level predicate), consequential, negative-resultatives and covert-co-ordination; *V+mood*: purpose construction and *V+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 Ẹ̀dó: 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 Ẹ̀dó 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 Ẹ̀dó. 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: Ẹ̀dó, 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 Ẹ̀dó multi-verb constructions:

(4)

i. *Verb-serial-compl (ement)-phrase* with a complementation structure for the *V (P) +V (P)* resultative and *V+infinitival complement* constructions.

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

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 Ẹ̀dó people can be found in the Oredo, Orhiomwon, Uhunmwode and Ovia north-east and south-west local government areas of Ẹ̀dó state. This region lies in the rain forest belt of South Central Nigeria. The immediate neighbours of the Ẹ̀dó 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 Ẹ̀dó and together with 17 other languages spoken in Ẹ̀dó and Delta states of Nigeria form the Edoid language group (Elugbe 1979).

Ẹ̀dó 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 Ẹ̀dó 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.

Ẹ̀dó appears in the literature under three different labels. These are: Benin, Ẹ̀dó 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 Ẹ̀dó. 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 Ẹ̀dó. The term Ẹ̀dó is sometimes used in the literature to refer to both the Ẹ̀dó 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 Ẹ̀dó people as Ẹ̀dó while the historically related languages are classified as Edoid in line with the fact that native speakers have always called the language Ẹ̀dó. Ẹ̀dó language is spoken by over one and a half million speakers (1991 census).

1.3 Ẹ̀dó – some basic facts

Ẹ̀dó is a tone language with an SVO structure. There are two basic tones in Ẹ̀dó: high (˝) and low (`). Nominal heads bear constant tones while verbal heads bear relative tones. By relative tones, I mean grammatically and lexically constrained tonal realization. Tense in Ẹ̀dó may be realized as tones: past tense ( ˝) and present tense ( `) or (˝), a suffix: past *–rV*, or a lexical item: future tense *ghá*.[1] With respect to syllabic structure Ẹ̀dó has an open syllable system with no consonant clusters. All nouns begin with vowels and all verbs with consonants:[2]

(5) **Íràn dẹ́ èbé.**

Íràn	dẹ́	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 Ẹ̀dó orthographic system to distinguish between oral and nasal vowels, the letter -n- is placed after the nasal vowel as in Iran [irã] in example 5 above.

1.3.1 The structure of the noun phrase

In Ẹ̀dó, 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. $\left[(\text{DET})\ \text{N}\,(\text{NOMINAL})\ (\text{POSS})\left\{\begin{Bmatrix}\text{QUANTIFIER}\\ \text{NUMERAL}\end{Bmatrix}\right\},(\text{DEM}),(\text{ADJ}),(\text{MODIFYING CLAUSE})\right]$ [5].

b. **[Nèné ùgbòo̱ká mwé nìí no̱dígbà nè ì yàáéṉ] rré èvbá.**

[Nèné	ùgbò	o̱ká	mwéṉ	nìí	no̱dígbà
The	*farm*	*corn*	1SG.POSS		*big*
DET	CN	CN	PRON	DEM.ADJ	ADJ

nè	ì	yàáéṉ]	rré	èvbá.
REL	3SG	own.PRES.H.EMPH	be.PRES.H	there
PRON	PRON	V	V	ADV

'*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.

c. **[*Nèné ùgbò mwé̱ o̱ká nìí no̱dígbà nè ì yàáén] rré èvbá.**

[*Nèné ùgbò mwé̱ o̱ká nìí no̱dígbà

The farm 3SG.POSS *corn* *big*

DET CN PRON CN DEM.PRON ADJ

nè ì yàáéṉ] rré èvbá.

REL 3SG own.PRES.H.EMPH be.PRES.H there

PRON PRON V V ADV

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

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 È̱dó common nouns are interpreted as singular or plural from the context of usage:

(7) **Òtié̱n rré èmwá.**

Òtié̱n 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 òtié̱n rré èmwá.**

Àvbé òtié̱n rré èmwá.

PL.SPEC *cherries* *be.*PRES.H *here*

DET CN V ADV

'The cherries are here.'

b. **Òtiẹ́n èvá rré èmwá.**

Òtiẹ́n	èvá	rré	èmwá.
Cherrie	*two*	*be.*PRES.H	*here*
CN	NUM	V	ADV

'Two cherries are here.'

c. **Òtiẹ́n èsó rré èmwá.**

Òtiẹ́n	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	**PLURAL**
Òkhuò (woman)	Ìkhuò (women)
Ọ̀mọ̀ (child)	Èmọ́ (children)
Ògiè (king)	Ìgiè (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 Ẹ̀dó 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) **Ọ̀ gbé mẹ̀/ *mwẹ̀n.**

Ọ̀	gbé	mẹ̀/	*mwẹ̀n.
3SG.SUBJ	*dance*.PST.H	1SG.OBL/	* 1SG.OBJ
PRON	V	PRON	PRON

'He/She danced for me.'

(12) **Ọ̀ gbé mwèn̰ /* mẹ̀.**

Ọ̀	gbé	mwèn̰ /	* mẹ̀.
3SG.SUBJ	beat.PST.H	1SG.OBJ	*1SG.OBL

'*He/She beat me.'*

(13) **Ọ̀ rhié èbé nẹ́rẹ̀n/ *ẹ̀ré.**

Ọ̀	rhié	èbé	nẹ́rẹ̀n	/	*ẹ̀ré.
3SG.SUBJ	*take*	*book*	3SG.OBL		*3SG.OBJ

'He gave a book to him/her.'

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

Table 1 Basic Pronouns in Ẹ̀dó.

	Singular			**Plural**		
Person	**1st**	**2nd**	**3rd**	**1st**	**2nd**	**3rd**
Subject	Ì	Ù	Ọ̀	Mà	Wà	Íràn
Direct object	Mwẹ̀n	Ùwẹ́	Ẹ̀ré	Ímà	Úwà	Íràn
Oblique[6] object	Mẹ́	Nùẹ́	Nẹ́rẹ̀n	Nìmà	Núwà	Níràn

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

[6] 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 *nùẹ́* as illustration, it is composed of the preposition *nè* (for) and the direct object pronoun *ùwé* (you).

1.3.2 Structure of the simple verb phrase

As stated above, all verbs in Ẹ̀dó have open syllables. The basic syllabic structures for Ẹ̀dó 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*[7] 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 Ẹ̀dó verbs. I give a detailed discussion in chapter 3. Below are examples:

(14) **Òzó kiè ẹ̀khú.**

Òzó	kiè	ẹ̀khú.
Ozo	*open*.PRES.L	*door*
PN	V	CN

'Ozo opens the door.'

(15) **Ẹ̀khú kié-rè.**

Ẹ̀khú	kié-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.

Ẹ̀dó 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 Ẹ̀dó, events can co-occur with the impefective markers *ghá* (16) and *ghá!á* while states do not license them (17):

(16) **Òzó ghá kiè ɛ̀khú.**

Òzó	ghá	kiè	ɛ̀khú.
Ozo	PRES.PROG	*open*	*door*
PN	AUX	V	CN

'Ozo is opening the door.'

(17) *** Ɛ̀khú ghá kié.**

* Ɛ̀khú	ghá	kié.
Door	PRES.PROG	*open*
CN	AUX	V

'The door is opening.'

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

EVENTS[8]	**TELICITY**	**DURATION**
Activities	[-]	[+]
Accomplishment	[+]	[+]
Achievement	[+]	[-]

1.3.2.2 Verb morphology

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

(18). **Òzó dẹ̀-lẹ́ èbé.**

Òzó	dẹ̀-lẹ́	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 (Pustejovsky 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.

(19) **Òzó gbè-lé níràn.**

Òzó	gbè-lé	níràn.
Ozo	*dance*.PST-PL	3PL.OBL
PN	V	PRON

'Ozo danced for them.'

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) **Òtiẹ́n dè-lé-rè.**

Òtiẹ́n	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/, /lẹ̄/, /lo/, /lọ̄/, /nẹ̄/ and /nọ̄/. However, each allomorph has different tonal patterns in the past (´) and present (`) tense respectively. I illustrate the mapping paradigm in table 3 below:

Table 3

Verb	**Plural-past suffix**	**Plural-present suffix**
Dẹ̀ (buy)	Lẹ́	Lẹ̀
Dè (fall)	Lé	Lè
Sò (cry)	Ló	Lò
Tìn (fly)	Nó	Nò
Sọ̀ (tear)	Lọ́	Lọ̀
Gbẹ̀n (write)	Nẹ́	Nẹ̀

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 else where 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[9] 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:

(21)

$$\begin{bmatrix} \textit{sign} \\ \text{STEM } \textit{list} \\ \text{SYNSEM} \begin{bmatrix} \textit{synsem} \\ \text{LOCAL} \begin{bmatrix} \textit{local} \\ \text{CAT } \textit{cat} \\ \text{CONT } \textit{mrs} \end{bmatrix} \\ \text{NON - LOCAL} \end{bmatrix} \\ \text{ARGS } \textit{list} \\ \text{INFLECTED } \textit{boolean} \\ \text{ROOT } \textit{boolean} \end{bmatrix}$$

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 *sign*. Examples (22) and (23) illustrate this:

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

Word-or-lexrule inherits all constraints of the parent type *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 *lex-item* is a parent for the type *lexeme*. *Lexeme* inherits ARG-ST information from *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:

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

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

The type *word* is also a subtype of *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:

(24) $\begin{bmatrix} word \\ \text{ROOT -} \end{bmatrix}$

In addition to inheriting constraints on the super types *sign* and *word-or-lexrule*, the value for the feature ROOT is declared on *word* as having the value -. This differentiates the type *word* from the type *phrase*.

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

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

Phrase is different from the type *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.

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

The constraint on a type must be consistent and monotonic.[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.

[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)

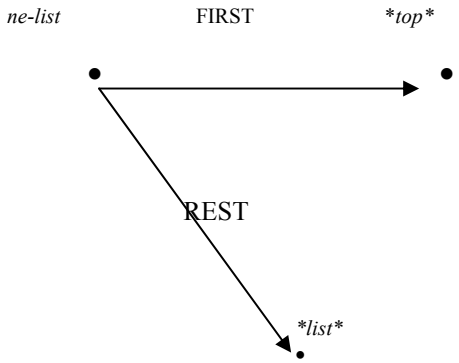
i. A type hierarchy that indicate specialization and consistency of types.
ii. A set of constraints which indicate which features are well-formed as well as features that are licensed for a particular type.

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,[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.

(28)

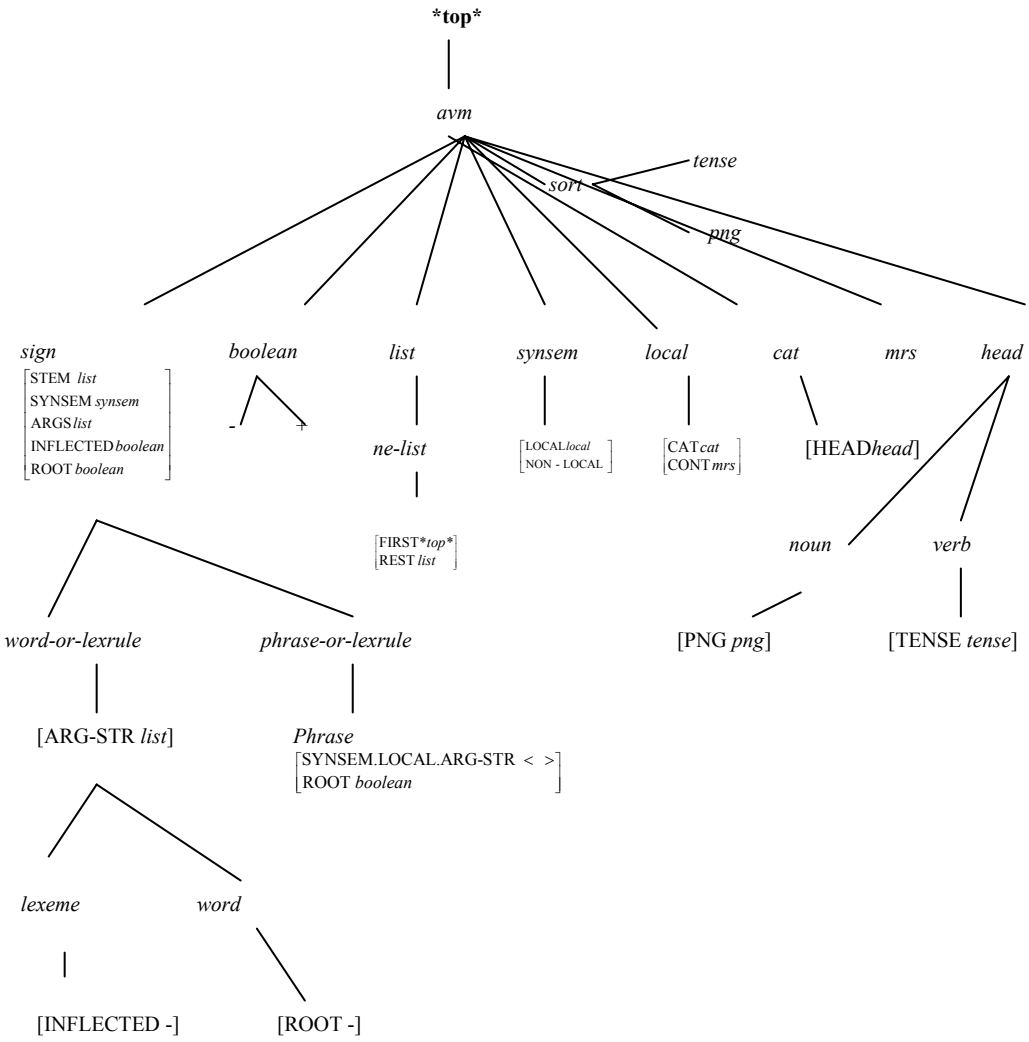


In (28) above, the three nodes with types *ne-list,* ****top**** and *list* are connected by directed arcs with labels FIRST and REST that are referred to as features. Arcs map the path into a structure. As discussed above features descriptions are also represented by AVMs thus (28) above can be represented as (29):

(29) $\begin{bmatrix} ne-list \\ \text{FIRST} \ *top* \\ \text{REST} \ list \end{bmatrix}$

The type *ne-list* has the type *list* as super type. *List* is a subtype of the type *avm***.**
A type hierarchy consists of a unique most general type called ***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 *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:

(30)



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:

(31)
$$\begin{bmatrix} phrase \\ \text{STEM}\ list\ of\ phonemes \\ \text{SYNSEM}\begin{bmatrix} synsem \\ \text{LOCAL}\begin{bmatrix} local \\ \text{CAT}\begin{bmatrix} cat \\ \text{HEAD}\ head \end{bmatrix} \\ \text{CONT}\ mrs \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

(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):

(32)
$$\begin{bmatrix} sign \\ \text{CAT}\ vp \\ \text{ARGS}\begin{bmatrix} ne-list \\ \text{FIRST}\begin{bmatrix} synsem \\ \text{CAT}\ *top* \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

(33)
$$\begin{bmatrix} phrase \\ \text{ARGS}\begin{bmatrix} ne-list \\ \text{FIRST}\begin{bmatrix} phrase \\ \text{CAT}\ vp \end{bmatrix} \\ \text{REST}\ word \end{bmatrix} \end{bmatrix}$$

(34)
$$\begin{bmatrix} phrase \\ \text{CAT } vp \\ \text{ARGS} \begin{bmatrix} ne-list \\ \text{FIRST} \begin{bmatrix} phrase \\ \text{CAT } vp \end{bmatrix} \\ \text{REST } word \end{bmatrix} \end{bmatrix}$$

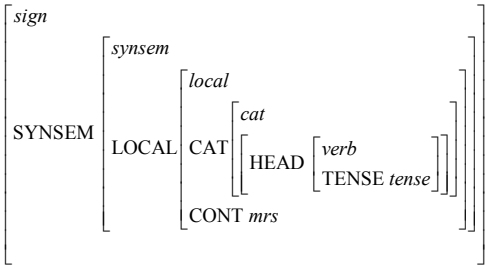
In (32) *ne-list* has the feature declaration FIRST.SYNSEM.CAT **top**. As mentioned earlier, the most general TFS of all is [***top***] and the result of unifying this with an arbitrary TFS [F]will always be [F]. In (33) *ne-list* has the feature declaration FIRST.SYNSEM.CAT *vp*, thus the result of 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*.

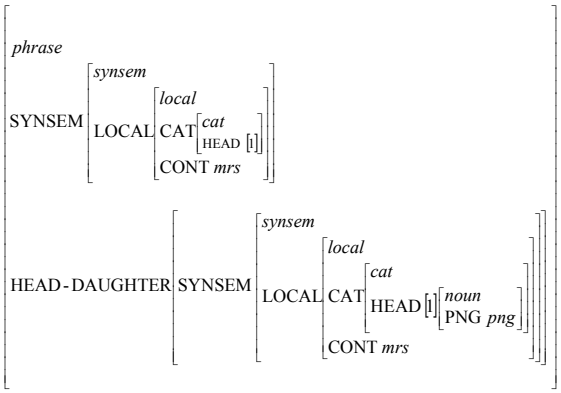
(35)
$$\begin{bmatrix} sign \\ \text{SYNSEM} \begin{bmatrix} synsem \\ \text{LOCAL} \begin{bmatrix} local \\ \text{CAT} \begin{bmatrix} cat \\ \text{HEAD} \begin{bmatrix} noun \\ \text{PNG } 3\text{sin } g \end{bmatrix} \end{bmatrix} \\ \text{CONT } mrs \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

(36)
$$\begin{bmatrix} sign \\ \text{SYNSEM} \begin{bmatrix} synsem \\ \text{LOCAL} \begin{bmatrix} local \\ \text{CAT} \begin{bmatrix} cat \\ \begin{bmatrix} \text{HEAD} \begin{bmatrix} noun \\ \text{PNG non3sin } g \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{CONT } mrs \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

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.

(37)


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):

(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:

(39)
$$\begin{bmatrix} \textit{phrase} \\ \text{SYNSEM.LOCAL.CAT.HEAD } [1] \\ \text{HEAD-DAUGHTER} \begin{bmatrix} \text{SYNSEM.LOCAL} \begin{bmatrix} \text{CAT.HEAD } [1] \begin{bmatrix} \textit{noun} \\ \text{PNG } \textit{png} \end{bmatrix} \\ \text{CONT } \textit{mrs} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

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:

(40) $\begin{bmatrix} verb \\ \text{VFORM} vform \\ \text{IC } boolean \end{bmatrix}$.

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

(41) $\begin{bmatrix} word \\ \text{STEM } reads \\ \text{SYNSEM} \begin{bmatrix} synsem \\ \text{LOCAL} \begin{bmatrix} local \\ \text{CAT} \begin{bmatrix} cat \\ \text{HEAD} \begin{bmatrix} verb \\ \text{VFORM } finite \\ \text{IC } + \end{bmatrix} \\ \text{VAL } val \end{bmatrix} \\ \text{CONT } mrs \end{bmatrix} \end{bmatrix} \end{bmatrix}$

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:

(42) $\begin{bmatrix} noun \\ \text{PNG } png \end{bmatrix}$

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:

(43)
$$\begin{bmatrix} \textit{noun} \\ \text{PNG } \textit{png} \\ \text{CASE } \textit{case} \end{bmatrix}$$

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

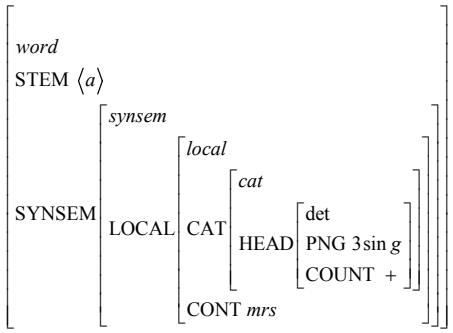
(44)
$$\begin{bmatrix} \textit{word} \\ \text{STEM } \langle \textit{she} \rangle \\ \text{SYNSEM} \begin{bmatrix} \textit{synsem} \\ \text{LOCAL} \begin{bmatrix} \textit{local} \\ \text{CAT} \begin{bmatrix} \textit{cat} \\ \text{HEAD} \begin{bmatrix} \textit{noun} \\ \text{PNG } 3\text{sin}\,g \\ \text{CASE } \textit{nom} \end{bmatrix} \end{bmatrix} \\ \text{CONT } \textit{mrs} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

(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.

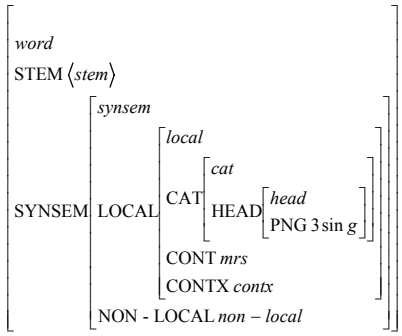
A further exemplification of a feature analysis description of categories is the *head* type *determiner (det)*. Common to determiners in languages like English is the fact that they may encode information about the nature of *nouns* they can combine with. The feature COUNT with value *boolean* captures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

(45)
$$\begin{bmatrix} \text{det} \\ \text{PNG } \textit{png} \\ \text{COUNT } \textit{boolean} \end{bmatrix}$$

A determiner like '*a*' would have the constraints in (46):

(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 *3sing* without reference to their parts of speech. I exemplify this in (47) below:

(47)


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

1.4.4.1.2 Valence features

In Standard HPSG, a second feature that constrains the type *cat* is VALENCE (VAL) with value *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 *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:

(48)
$$\begin{bmatrix} val \\ \text{SUBJ list} \\ \text{SPR list} \\ \text{SPEC list} \\ \text{COMPS list} \end{bmatrix}$$

The feature SUBJ captures the grammatical relation subject that was formally specified in the SUBCAT list (Pollard and Sag1994). 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.

(49)
$$\begin{bmatrix} word \\ \text{STEM } reads \\ \text{SYNSEM} \begin{bmatrix} synsem \\ \text{LOCAL} \begin{bmatrix} local \\ \text{CAT} \begin{bmatrix} cat \\ \text{HEAD} \begin{bmatrix} head \\ \text{VFORM } finite \\ \text{IC} + \end{bmatrix} \\ \text{VAL} \left[\text{SUBJ} < [\,] > \right] \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

(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.

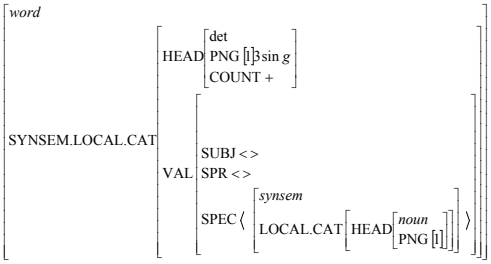
The feature SPR allows a sign to select an element that specifies it. Nouns, adjectives, prepositions, adverbs and other specifiers may select an element that specifies them.

[12] In Sag and Wasow (1999) subjects and determiners form a class referred to as SPECIFER (SPR). The subject is not encoded by a separate SUBJ feature but treated as the first element in an ordered ARG-ST list.

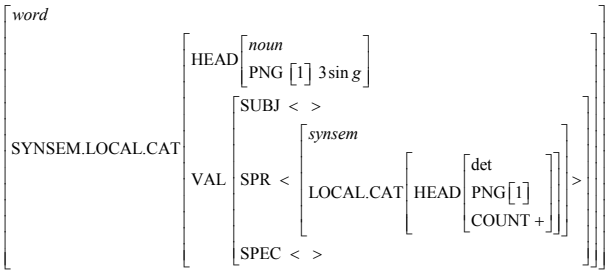
The selection between the specifier and the element it specifies is that of mutual selection. This is done through the SPEC feature constraining the specifier and the SPR feature constraining the specified element. I explain this immediately below.

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 *a* and the noun *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.

(50)



(51)



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 *noun*]. It must combine with a synsem of type *noun*. The PNG features of *det* and the *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.[13]

[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 *det* and *noun.*

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 *3sing*. 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.

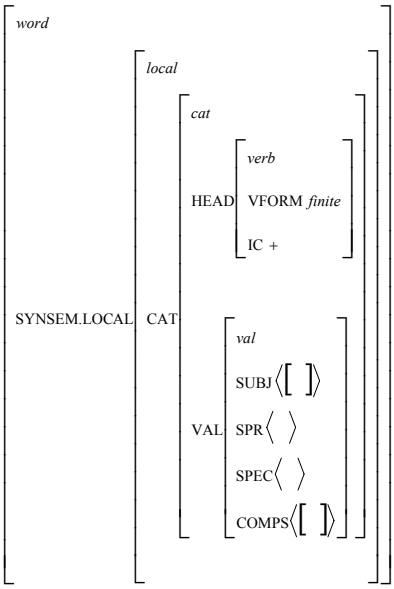
Hellan and Beermann (2006) discuss the theoretical status of the specifier in NPs. The standard assumption that every NP is represented by just one variable and one quantifier binding that variable is represented as a uniqueness constraint which generalizes across all languages. It can be interpreted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


(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:

(54)
$$\begin{bmatrix} cat \\ \text{HEAD } head \\ \text{VAL } val \\ \text{QVAL } qval \end{bmatrix}$$

The feature VAL is redefined as follows as relevant for verbs:

(55)
$$\begin{bmatrix} val \\ \text{SUBJ } list \\ \text{COMPS } list \\ \text{ICOMPS} list \end{bmatrix}$$

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 *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) **Per fortalte <u>Marit</u> igar <u>om Jon</u>**

Per	fortalte	<u>Marit</u>	igar	<u>om Jon</u>
		COMPS		ICOMPS
Per	*told*	*Marit*	*yesterday*	*about Jon*
PN	V	PN	ADV	PREP PN

'*Per told Marit Yesterday about Jon*'

Grammatical function constraints are captured by the following constraints on the type *qval*:

(57)
$$\begin{bmatrix} qval \\ \text{SUBJECT } synsem \\ \text{DOBJ } synsem \\ \text{IOBJ } synsem \\ \text{OBL } synsem \\ \text{PREDIC } synsem \end{bmatrix}$$

The SUBJECT, DOBJ, IOBJ, OBL and PREDIC features are constrained to have values of type *synsem.* The value of IOBJ is further constrained to be a sub-type of synsem *np- synsem*.

The verb *beundre*'admire' in (58) below shows the mapping between VAL and QVAL values:

(58)
$$\begin{bmatrix} lexeme \\ \text{SYNSEM.LOC AL.CAT} \begin{bmatrix} cat \\ \text{HEAD } verb \\ \text{VAL} \begin{bmatrix} \text{SUBJ } \langle [1] \rangle \\ \text{COMPS } \langle [2] \rangle \\ \text{ICOMPS } \langle\ \rangle \\ \text{ACOMPS } \langle\ \rangle \end{bmatrix} \\ \text{QVAL} \begin{bmatrix} qval \\ \text{SUBJECT } [1] \\ \text{DOBJ } [2] \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

In (58) the verb *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)[14] gives the following classification explaining the mapping relationship between the attributes and the fields they can occur in.

[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

ATTRIBUTE	**CHARACTERIZATION AND EXAMPLE**	**FIELD**
Subject SUBJECT		SUBJ COMPS
Indirect object IOBJECT	An NP with experiencer, benefactive or recipient role and always occurs in a position preceding the direct object	COMPS
Direct object 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.	COMPS
Oblique OBL	A PP whose governee expresses a participant of the situation introduced by the verb	ICOMPS
Predicative PREDIC	A constituent that ascribes a property to the referent of the subject or direct object	COMPS

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.*

(59)
$$\begin{bmatrix} sign \\ \text{STEM}\ list \\ \text{SYNSEM} \begin{bmatrix} synsem \\ \text{LOCAL} \begin{bmatrix} local \\ \text{CAT}\ cat \\ \text{CONT}\ mrs \end{bmatrix} \\ \text{NON-LOCAL} \end{bmatrix} \\ \text{ARGS}\ list \\ \text{INFLECTED}\ boolean \\ \text{ROOT}\ boolean \end{bmatrix}$$

Minimal Recursion Semantics (MRS) is an "a notational system for semantics suited for computational processing" proposed by Copestake et al (1995), Copestake (1999, 2001 and Copestake et al 2005).

The type *mrs* is declared as an *avm* with four features constraints:

(60)
$$\begin{bmatrix} mrs \\ \text{HOOK}\,hook \\ \text{RELS}\,\langle !! \rangle \\ \text{HCONS}\,\langle !! \rangle \\ \text{MSG}\,basic\_message \end{bmatrix}$$

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

Before discussing how linking is done in matrix grammar, I discuss how it is achieved in a lexicalist grammar like LFG, Jackendoff's Lexical Conceptual Semantics (1983, 1987, 1990, 1997) and give a brief introduction to James Pustejovsky's (1989b, 1991a &b, 1995, 2005) Event Structure (ES) templates. In my analysis in subsequent chapters, I borrow from Pustejovsky's event structure templates.

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,[15] LMT analyzes grammatical functions in terms of the features [± r] (thematically restricted or not)and [± 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 ± r (restricted) and ±o (objective) classifies the grammatical functions subject (SUBJ), object (OBJ), restricted object (OBJθ) and oblique (OBL) as in (62) below:

(62)

	-r	+r
-o	SUBJ	OBL
+o	OBJ	OBJθ

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. OBJθ 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 OBJθ 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):

[15] A syntactic hierarchy such as: subject > first object > second object > oblique.

(63)

i. 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].

ii. 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).

iii. 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)

a.

	<ag	pt>
IC	-o	-r
Default	-r	+o
	SUBJ	OBJ

b.

	<ag	pt>
IC	-o	-r
Passive	∅	
Default		-o
		SUBJ

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

$[_{s}[_{NP}$ John $[_{VP}$ ran$[_{PP}$ into $[_{NP}$ [the room]]]]].

Conceptual Structure

$[_{event}$ GO $([_{thing}$ John$],[_{path}$ TO $[_{Place}$ IN $([_{thing}$ ROOM$])]]])]$.

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

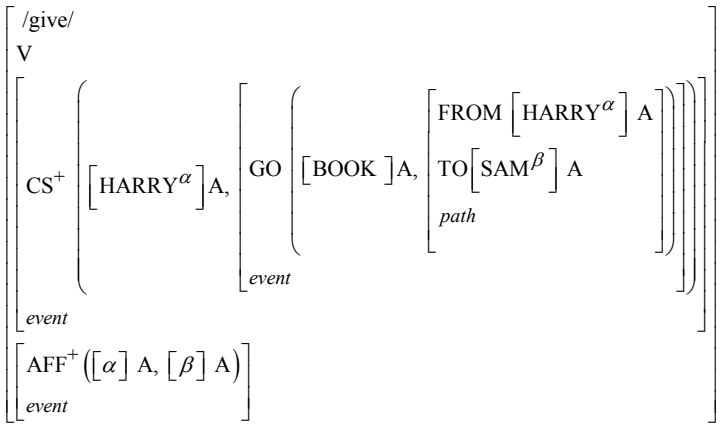
In order to capture generalizations about semantic fields and theta roles, Jackendoff posits three TIERS: action tier, thematic tier and temporal tier. The temporal tier links events and states in the action and thematic tiers.

The action tier consists of conceptual functions such as ACT, AFF (AFFECT) and 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 GO, STAY, CS (cause + force), MOVE and 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 GO is represented as $GO_{spatial}$ versus GO_{poss} versus GO_{ident} versus $GO_{temp.}$

Below in (66b) is the conceptual structure for *give* a double object verb.

(66) a. Harry gave Sam a book.

b. 

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^{u}). This function takes two arguments: a *thing* Harry and an *event* GO which in turn has two arguments: a *thing* Book and a *path*, which in turn is composite in nature with two conceptual functions FROM with a *thing* Harry argument and TO with a *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

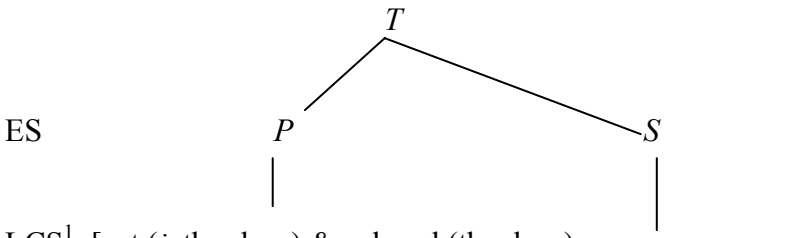
argument of GO, BE, STAY and ORIENT, Goal is the argument of TO while Source in the argument of FROM. Priority is given to the action tier with the first argument linked to the subject position and the second to the object position. The subject and the NP canonically following the verb are the canonical 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)



LCS^1: [act (*j*, the-door) &¬closed (the door)
[closed the door]

LCS: cause ([act (*j*, the-door),become ([closed (the-door)])])

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].

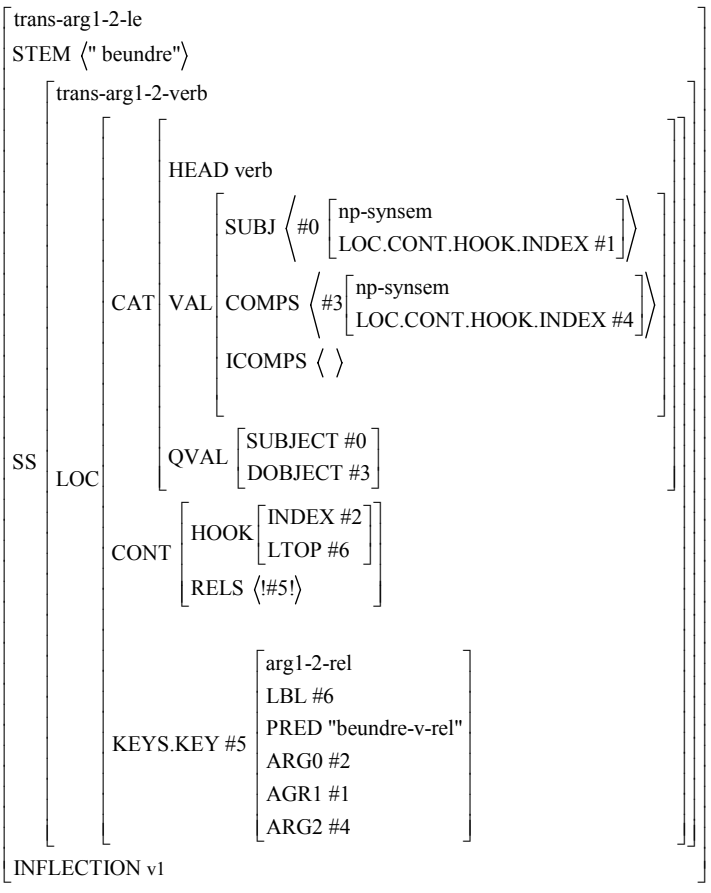
ii. arg2-dobject
[LOC [CAT.QVAL.DOBECT.LOCAL.CONT.HOOK.INDEX #1]
KEYS.KEY.ARG2 #1].

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):

(69)

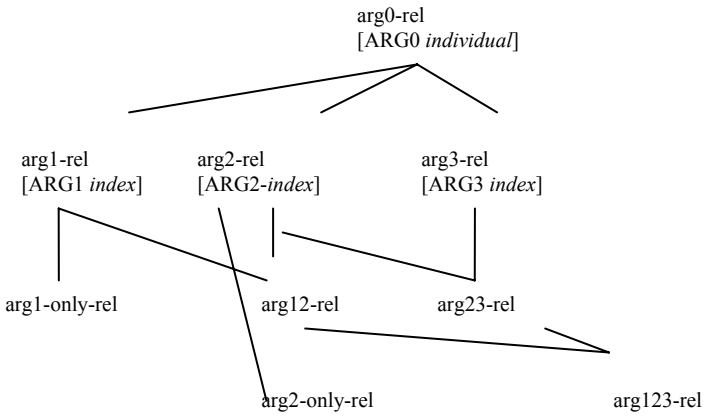


In example (69), the INDEX values of the elements on the valence, qualitative valence lists are identified with the participants' values of the lexical item *beundre*, with constraints on linking as in (68i) and (68ii) for subjects and direct objects

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.

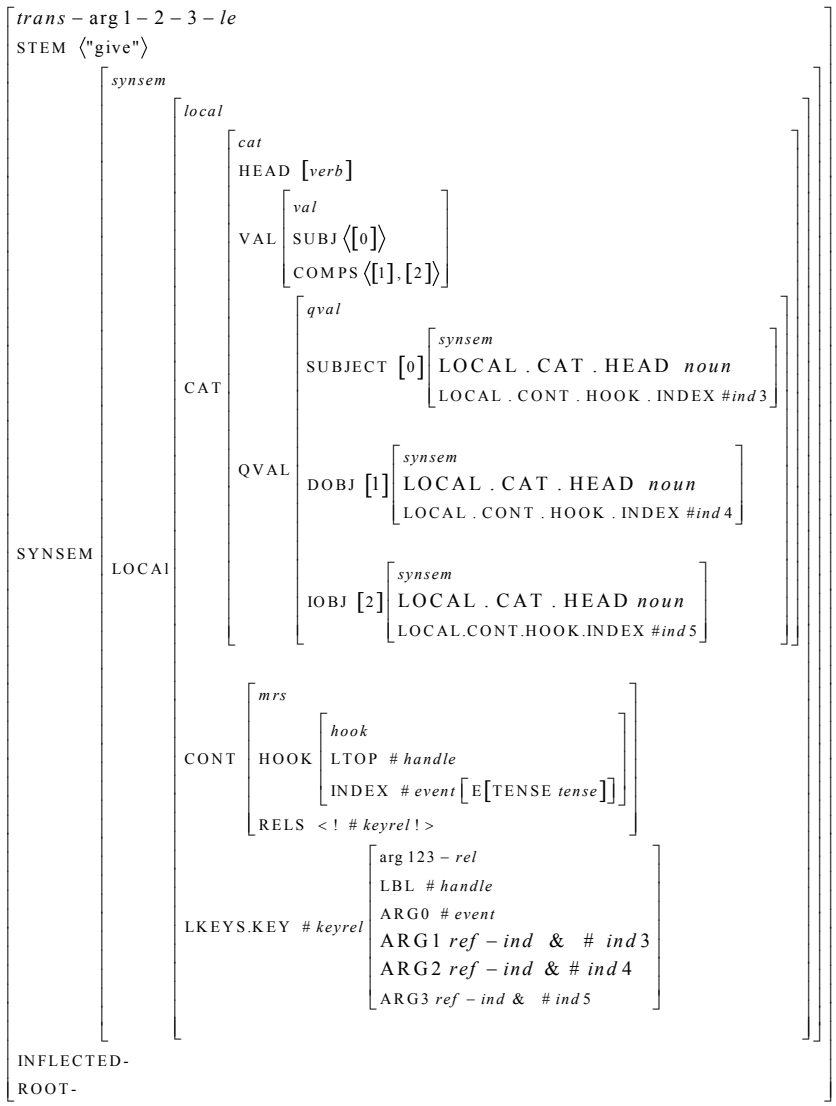
In the RELS list, all heads are constrained to have a distinguished element which is its ARG0. Subtypes of ARG0 are: *quant-relation*, *noun-relation* and *event-relation*. A verb like *beundre* has as part of its meaning that it has an entity that is predicated of the *beundre* event (ARG0) and an entity 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:

(70)



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 *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:

(71)



The linking assumptions discussed above are applied to my analysis in the thesis. These assumptions accounts for argument lexicalization in the following examples from Ẹ̀dó with a slight modification for a type that I label *arg4-obl (ique)-lexical-item*. I discuss this immediately below.

1.4.6.4. Ẹ̀dó 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 Ẹ̀dó. 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 decompostional 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) **Òtà gbé.**

Òtà gbé.

Ota *dance*.PRES.H

AGT

PN V

'Ota dances (everyday)

or

Ota is dancing.'

(74) **Òzó mòsé.**

Òzó mòsé.

Ozo *beautiful*.PRES.H

AFF

PN V

'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):

(75) **Òtà gbé-rè.**

Òtà gbé-rè.

Ota *dance*.PST-rV

AGT

PN V

'Ota danced.'

Linking for the one argument verb is as in (68i) above and (69) accept that there is no value for the grammatical function DOBJ and an empty COMPS list. Also the KEY relation is of type *arg1-only-rel*.

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 Ẹ̀dó. 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 Ẹ̀dó, 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) **Ọ̀ gbè mwẹ̀n.**

Ọ̀	gbè	mwẹ̀n.
3SG.SUBJ	*beat*.PRES.L	1SG.OBJ
AGT		AFF
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 Ẹ̀dó 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) **Ọ̀ gbè nuẹ̀**.

Ọ̀	gbè	nuẹ̀.
3SG	*dance*.PRES.L	PREP.2SG.OBL
AGT		BEN
PRON	V	PRON

'He/She dances for you.'

Here, the pronoun *nuẹ̀* consists of two morphemes: the preposition *nè* 'for' and the 2nd person object pronoun *ruẹ̀*. 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. Ẹ̀dó 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 Ẹ̀dó 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. ***Òzó gbé-rè mwé̱n.** (v + direct object pronoun)

*Òzó	gbé-rè	mwé̱n.
Ozo	*beat*.PST-rV	1SG.OBJ
AGT		AFF
PN	V	PRON

'Ozo beat me.'

b. ***Òzó gbé-rè mé̱/nù é̱.** (v + oblique pronoun)

*Òzó	gbé-rè	mé̱/nù é̱.
Ozo	*dance*.PST-rV	1SG.OBL /2SG.OBL
AGT		BEN
PN	V	PRON PRON

'*Ozo danced for me*/you.'

c. **Òzó gbé-rè è̱sé̱sè̱/zàízàí.** (v+ adverb)

Òzó	gbé-rè	è̱sé̱sè̱/zàízàí.
Ozo	*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) **Ìmè̱ ò̱ré ò̱ gbé.**

Ìmè̱	ò̱ré	ò̱	gbé.
1SG.EMPH	FOC	3SG.SUBJ	*beat*.PRES.H
AFF		AGT	
PRON		PRON	V

'It is me he/she beat.'

(81) *** Ìmè̱ ò̱ré ò̱ gbé.**

* Ìmè̱	ò̱ré	ò̱	gbé.
1SG.EMPH	FOC	3SG.SUBJ	*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) **Ọ̀ gbè nè Òzó.**

Ọ̀	gbè	nè	Òzó.
3SG.SUBJ	*dance*.PRES.L	*for*	Ozo
AGT			BEN
PRON	V	PREP	PN

'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) **Ọ̀ gbè nímẹ̀.**[16]

Ọ̀	gbè	nímẹ̀.
3SG.SUBJ	*dance*.PRES.L	1SG.EMPH
AGT		BEN
PRON	V	PRON

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

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) **Ìmẹ̀ ọ̀ré ọ̀ gbé ná.**

Ìmẹ̀	ọ̀ré	ọ̀	gbé	ná.
1SG.EMPH	FOC	3SG.SUBJ	dance.PRES.H	for
GOAL.BEN		AGT		
PRON		PRON	V	PREP

'It is me he/she dance for.'

[16] As shown in table1, 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 *íràn*.

In summary direct objects and oblique objects in Ẹ̀dó 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)

$$\begin{bmatrix} \text{arg 4} - \textit{obl} - \textit{lex} - \textit{item} \\ \text{LOCAL}\left[\text{CAT.QVAL.OBL.CONT.HOOK.INDEX \#1}\right] \\ \text{KEYS.KEY.ARG4 \#1} \end{bmatrix}$$

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 Ẹ̀dó. 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 ARG1corresponds 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) **Òzó há rùẹ́/*nuẹ́ ìghó.**

Òzó	há	rùẹ́/	ìghó.
Ozo	*pay*.PST.H	2SG.OBJ/	*money*
AGT		BEN	THEME
PN	V	PRON	CN

'*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 ẹ̀wé nuẹ́.**

Òzó	gbé	ẹ̀wé	nuẹ́.
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 ọ̀ré Òzó gbé ẹ̀wé ná.**

Ùwè	ọ̀ré	Òzó	gbé	ẹ̀wé	ná.
2SG.EMPH	FOC	Ozo	kill.PST.H	goat	for
GOAL.BEN		AGT		AFF	
PRON		PN	V	CN	PREP

'It is you Ozo killed a goat for.'

(89) a. **Òzó gbé ẹ̀wé vbé òwá.**

Òzó	gbé	ẹ̀wé	vbé	òwá.
Ozo	*kill*.PST.H	*goat*	*in*	*house*
AGT		AFF		LOC
PN	V	CN	PREP	CN

'Ozo killed a goat at home.'

b. ***Òwá ọ̀ré Òzó gbé ẹ̀wé vbé.**

*Òwá	ọ̀ré	Òzó	gbé	ẹ̀wé	vbé
House	FOC	*Ozo*	*kill*.PST.H	*goat*	*in*
LOC		AGT		AFF	
CN		PN	V	CN	PREP

'It is at home Ozo killed a goat.'

c. (**Vbé) òwá ọ̀ré Òzó ná gbé ẹ̀wé.**

(Vbé)	òwá	ọ̀ré	Òzó	ná	gbé	ẹ̀wé.
In	*home*	FOC	*Ozo*	SEQM	*kill*.PST.H	*goat*
LOC			AGT			AFF

'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) **Òzó há ìghó mẹ́/*mwẹ̀n.**

Òzó	há	ìghó	mẹ́/*mwẹ̀n.	
Ozo	*pay*.PST.H	*money*	1SG.OBL/*1SG.OBJ	
AGT		THEME	GOAL.BEN/*BEN	
PN	V	CN	PRON	PRON

'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.

(91) **Òzó há mwẹ̀n/*mẹ́ ìghó.**

Òzó	há	mwẹ̀n/*mẹ́		ìghó.
Ozo	*pay*.PST.H	1SG.OBJ/*1.SG.OBL		*money*
AGT		BEN/*GOAL.BEN		THEME
PN	V	PRON	PRON	CN

'Ozo paid me money.'

Example (91) above shows that Ẹ̀dó 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 mwẹ̀n ìghó né ì yá bọ̀ òwáné Àtìtí.**

?Òzó	há	mwẹ̀n			ìghó	
Ozo	*pay*.PST.H	1SG.OBJ			*money*	
PN	V	PRON			CN	
AGT		BEN			THEME	
Né	ì	yá	bọ̀	òwá	né	Àtìtí.
for	1SG.SUBJ	INFL	*build*	*house*	*for*	*Atiti*
	AGT			AFFECTED		BEN
PREP	PRON	V	CN	PREP	CN	

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

(93) **Òzó há ìghó mẹ́ né ì yá bọ̀ òwá né Àtìtí.**

Òzó	há	ìghó	mẹ́
Ozo	*pay*.PST.H	*money*	1SG.OBL
PN	V	CN	PRON
AGT		THEME	GOAL

Né	ì	yá	bọ̀	òwá	né	Àtìtí.
for	1SG.SUBJ	INFL	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:

Òzó gú mwẹ́n há íràn íghó.

Òzó	gú	mwẹ́n	há	íràn	íghó.
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 ìghó mẹ́.**

*Òzó	há	íràn	ìghó	mẹ́.
Ozo	*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 ìràn.**

Òzó	rhiè	èbé	bànbànnà	nè	ìràn.
Ozo	*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 ìràn bànbànnà.**

Òzó	rhiè	èbé	nè	ìràn	bànbànnà.
Ozo	*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.**

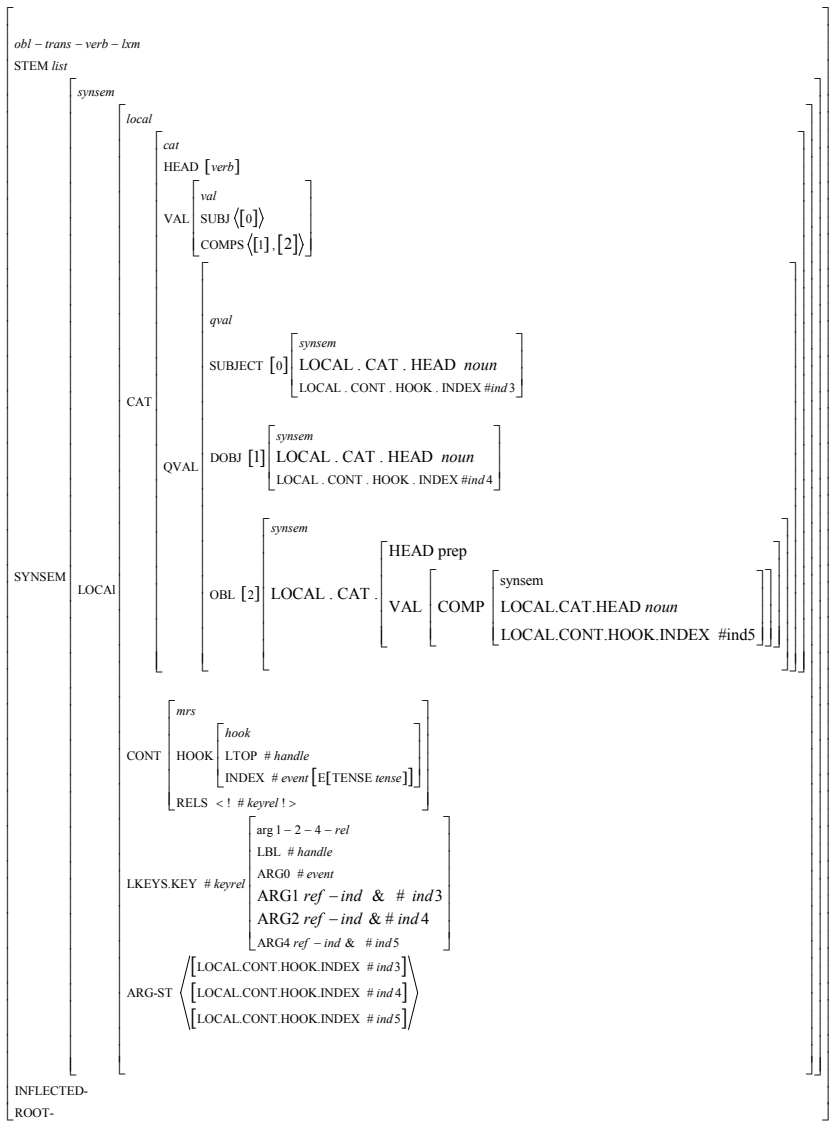
*Òzó	rhiè	èbé	bànbànnà	nué.
Ozo	*take*.PRES.L	*book*	*just now*	2SG.OBL
AGT		THEME		BEN
PN	V	CN	ADV	PRON

'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:

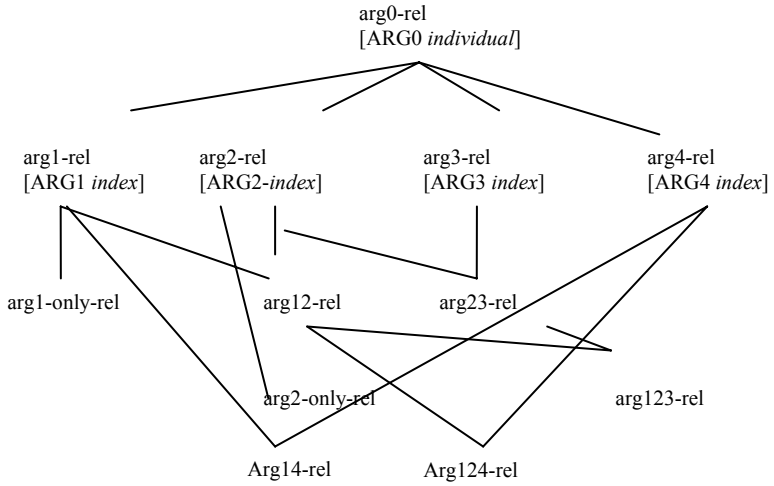
(96)



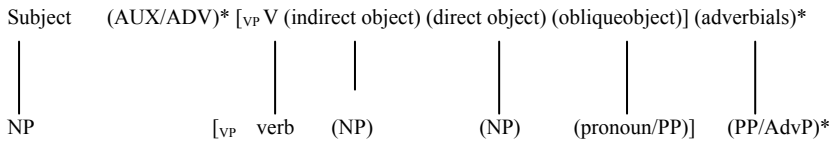
In (96), the values of ARG1, ARG2 and ARG4 attributes are re-entrant with the INDEX values for SUBJECT, DOBJ and OBL attributes of *qval* respectively. The value for SUBJ on the valence list is re-entrant with SUBJECT and the values for the first and second elements on the COMPS list are re-entrant with the DOBJ and OBL values of *qval* respectively. Here the key relation is of type *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 *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 Ẹ̀dó:

(97)



(98)



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) **Òzó gié!gié gbén èbé vbé èsúkú.**

Òzó	gié!gié	gbén	èbé	vbé	èsúkú.
Ozo	*quickly*.PST.!H	*write*.PST.H	*book*	*in*	*school*
PN	ADV	V	CN	PREP	CN

'Ozo quickly wrote a book in school.'

The description so far represents the basic linking types for my analysis in the thesis. The types are *lexeme* level signs and as such uninflected (INFLECTION -) and serves as a base for all word form derivations such as the distinction between *rhiè* (take: present-transitive) and *rhié* (take: past-transitive). Words that undergo overt inflection

are constrained by the type *infl-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 *infl-ltow-verb-word* inherits from the super-types *verb-word* and *infl-ltow-rule* and describes the verb being inflected but with inflectional category yet unspecified. I illustrate this with the partial description in (100):

(100)
$$\begin{bmatrix} word \\ \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT.HEAD}\ verb \\ \text{CONT.HOOK.INDEX}\ event\left[\text{E.TENSE}\ tense\right] \end{bmatrix} \end{bmatrix}$$

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

(101)
$$\begin{bmatrix} word \\ \\ \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT.HEAD}\ verb \\ \\ \text{CONT.HOOK.INDEX}\ event\left[\text{E.TENSE}\ present\right] \end{bmatrix} \end{bmatrix}$$

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):

(102)
$$\begin{bmatrix} \textit{headed-phrase} \\ \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT.HEAD}\#\textit{head} \\ \text{AGR}\#\textit{agr} \end{bmatrix} \\ \text{DTR } \textit{daughter}\begin{bmatrix} \text{HEAD-DTR}\begin{bmatrix} \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT}\begin{bmatrix} \textit{cat} \\ \text{HEAD}\#\textit{head} \end{bmatrix} \\ \text{AGR}\#\textit{agr} \end{bmatrix} \end{bmatrix} \\ \text{NON-HEAD-DTR } \textit{non-head-daughter} \end{bmatrix} \end{bmatrix}$$

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*.

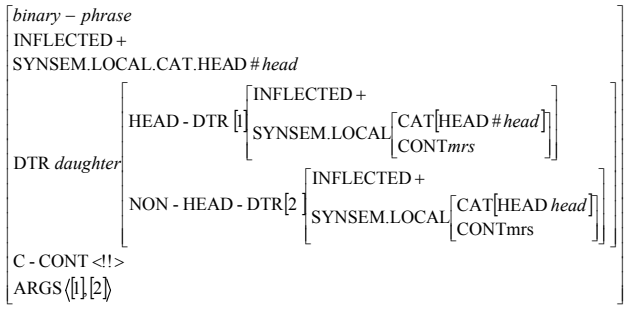
A unary-rule constrains a phrase to have its NON-HEAD-DTR to be an empty-list and the head daughter to be the only element on its ARGS list as in (103):

(103)
$$\begin{bmatrix} \textit{unary-phrase} \\ \text{SYNSEM.LOCAL.CAT.HEAD}\#\textit{head} \\ \text{DTR } \textit{daughter}\begin{bmatrix} \text{HEAD-DTR}\boxed{1}\begin{bmatrix} \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT}\begin{bmatrix} \text{HEAD}\#\textit{head} \end{bmatrix} \\ \text{CONT mrs} \end{bmatrix} \end{bmatrix} \\ \text{NON-HEAD-DTR} <> \end{bmatrix} \\ \text{C-CONT} <!!> \\ \text{ARGS}\langle\boxed{1}\rangle \end{bmatrix}$$

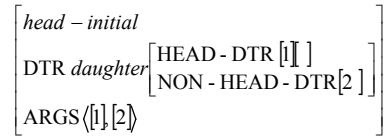
Unary rules are applicable to cases where a phrasal category consists of only one constituent (as in an intransitive Verb Phrase).[18] It is an input output mechanism where the input is the daughter constituent and the output the mother constituent.

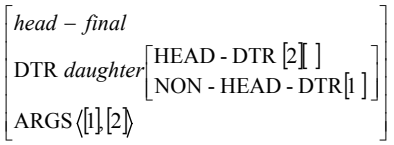
A binary-rule constrains - when head-initial - the first daughter on the ARGS list to be re-entrant with the value for head-daughter and the value for the second daughter on the list to be re-entrant with that of the non-head-daughter as in (104) below:

[18] It is also applicable to lexeme-to-word-rules which I discuss in the next section.

(104)


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)


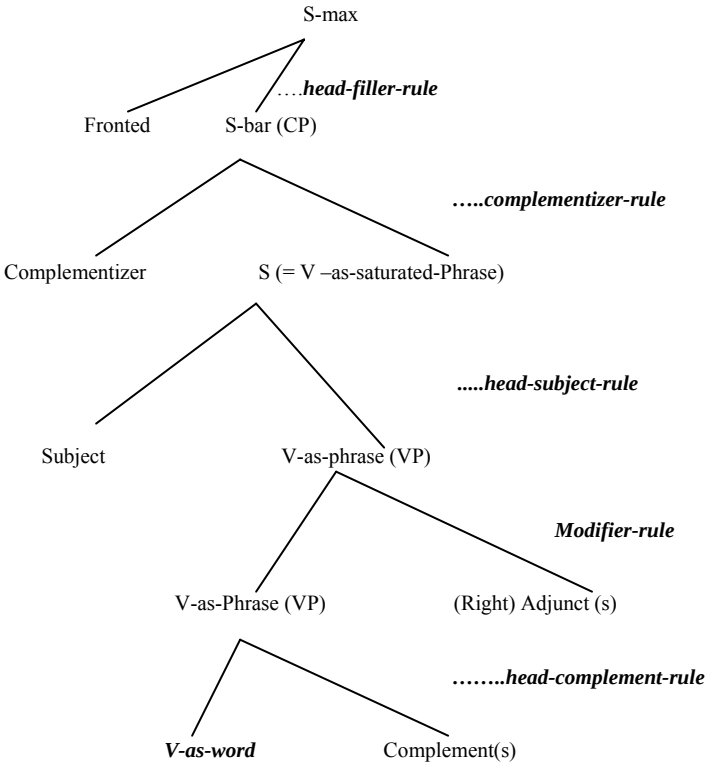
(106)


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):

(107)

i.



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.

ii.

$$\left[\begin{array}{l} \textit{head - comps - rule} \\ \text{SYNSEM.LOCAL}\left[\begin{array}{l}\text{CAT}\left[\begin{array}{l}\text{HEAD}\,\#\,\textit{head}\\ \text{VAL}\left[\begin{array}{l}\text{SUBJ}\,\langle [1] \rangle\\ \text{COMPS}\,\langle\ \rangle\end{array}\right]\end{array}\right]\\ \text{CONT}\,\#\,\textit{mrs}\end{array}\right] \\ \text{HEAD - DTR}\left[\text{SYNSEM.LOCAL}\left[\begin{array}{l}\text{CAT}\left[\begin{array}{l}\text{HEAD}\,\#\,\textit{head}\\ \text{VAL}\left[\begin{array}{l}\text{SUBJ}\,\langle [1] \rangle\\ \text{COMPS}\,\langle [2] \rangle \oplus \ldots \oplus \langle [n] \rangle\end{array}\right]\end{array}\right]\\ \text{CONT}\,\#\,\textit{mrs}\end{array}\right]\right] \\ \text{NON - HEAD - DTR}\,\langle [\text{SYNSEM}[2]], \ldots, [\text{SYNSEM}[n]] \rangle \end{array}\right]$$

In (107ii), the symbol ⊕ 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:

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

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

iv. $$\begin{bmatrix} head\ -\ subj\ -\ rule \\ \text{SYNSEM.LOCAL}\left[\begin{bmatrix} \text{CAT}\left[\begin{bmatrix} \text{HEAD}\,\#\ head \\ \text{VAL}\left[\begin{bmatrix} \text{SUBJ}\left\langle\ \right\rangle \\ \text{COMPS}\left\langle\ \right\rangle \end{bmatrix}\right] \end{bmatrix}\right] \\ \text{CONT}\,\#\ mrs \end{bmatrix}\right] \\ \text{HEAD - DTR}\left[\text{SYNSEM.LOCAL}\left[\begin{bmatrix} \text{CAT}\left[\begin{bmatrix} \text{HEAD}\,\#\ head \\ \text{VAL}\left[\begin{bmatrix} \text{SUBJ}\left\langle\left[1\right]\right\rangle \\ \text{COMPS}\left\langle\ \right\rangle \end{bmatrix}\right] \end{bmatrix}\right] \\ \text{CONT}\,\#\ mrs \end{bmatrix}\right]\right] \\ \text{NON - HEAD - DTR}\left\langle\text{SYNSEM}\left[1\right]\right\rangle \end{bmatrix}$$

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)).

v.
$$\begin{bmatrix} \textit{head}-\textit{complementizer}-\textit{rule} \\ \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT}\begin{bmatrix} \text{HEAD}\,\#\,\textit{head} \\ \text{VAL}\begin{bmatrix} \text{SUBJ}\langle\,\rangle \\ \text{COMPS}\langle\,\rangle \end{bmatrix} \end{bmatrix} \\ \text{CONT}\,\#\,\textit{mrs} \end{bmatrix} \\ \text{HEAD - DTR}\begin{bmatrix} \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT}\begin{bmatrix} \text{HEAD}\,\#\,\textit{head}\ \&\ \textit{complementizer} \\ \text{VAL}\begin{bmatrix} \text{SUBJ}\langle\,\rangle \\ \text{COMPS}\langle \text{nelist}[1]\rangle \end{bmatrix} \end{bmatrix} \\ \text{CONT}\,\#\,\textit{mrs} \end{bmatrix} \end{bmatrix} \\ \text{NON - HEAD - DTR}\left\langle \text{SYNSEM}[1]\begin{bmatrix} \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT.SUBJ}\langle\,\rangle \\ \text{CONT}\,\#\,\textit{mrs} \end{bmatrix} \end{bmatrix} \right\rangle \end{bmatrix}$$

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).

vi.
$$\begin{bmatrix} \textit{head}\ -\ \textit{filler}\ -\ \textit{rule} \\ \text{SYNSEM.NONLOCAL.SLASH}\boxed{1} \cup \boxed{3} \\ \text{HEAD - DTR}\begin{bmatrix} \text{SYNSEM.LOCAL}\begin{bmatrix} \text{CAT}\begin{bmatrix} \text{HEAD}\,\#\,\textit{head} \\ \text{VAL}\begin{bmatrix} \text{SUBJ}\langle\ \rangle \\ \text{COMPS}\langle\ \rangle \end{bmatrix} \end{bmatrix} \\ \text{CONT}\,\#\,\textit{mrs} \end{bmatrix} \\ \text{SYNSEM.NONLOCAL}\left[\text{SLASH}\boxed{1} \cup \left\{\boxed{2}\right\}\right] \end{bmatrix} \\ \text{NON - HEAD - DTR}\left\langle \begin{bmatrix} \text{SYNSEM}\begin{bmatrix} \text{LOCAL}\boxed{2} \\ \text{NONLOCAL.SLASH}\boxed{3} \end{bmatrix} \end{bmatrix} \right\rangle \end{bmatrix}$$

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:

vii.
$$\begin{bmatrix} \textit{head}-\textit{compositional} \\ \text{C - CONT.HOOK}\,\#\,\textit{hook} \\ \text{HEAD - DTR.SYNSEM.LOCAL.CONT.HOOK}\,\#\,\textit{hook} \end{bmatrix}$$

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 Ẹ̀dó 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 Ẹ̀dó in Chapter 2.

CHAPTER TWO

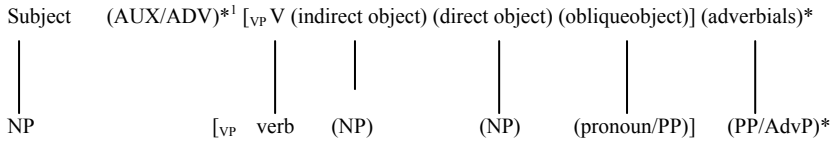
TENSE, ASPECT AND MOOD IN ẸDÓ

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 Ẹdó. I give an empirical description of these categories in general and thereafter, an analytical representation of the type *tense* in Ẹdó.

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

(1)



Ẹdó 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 Ẹdó, 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 Ẹdó 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 Ẹdó 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 Ẹ̀dó verbs do not have particular inflection patterns with respect to the participles. In particular, Ẹ̀dó does not have passivisation. I discuss only finite markers in this chapter.

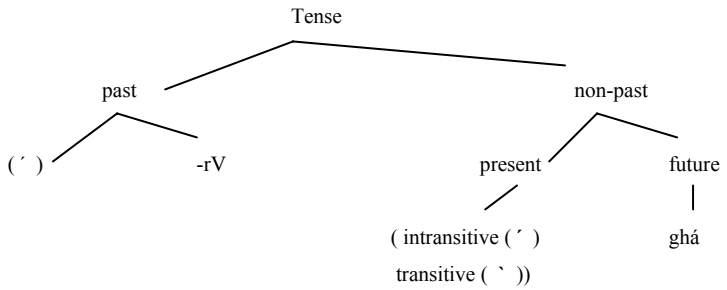
With respect to the category mood, Dunn (1968:216) (cf. Omoruyi 1991) states that there are at least six modals in Ẹ̀dó: 'will (want to)', 'necessity', 'intensity', 'used to', 'going to' and 'about to'. Omoruyi (1991) discusses them under Modality Auxiliary Markers (MAM) along with aspectual elements 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 Ẹ̀dó are grammatical categories. Verb categories in Ẹ̀dó 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 Ẹ̀dó 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 Ẹ̀dó 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 Ẹ̀dó.

(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 Ẹ̀dó (cf Manfredi 2005):

(3)

		One syllable verb so 'cry'		two syllable verb (*so* 'cry' + lo 'plural')	
i.	simple past	só	(H)	sò-ló	(L-H)
ii.	present (habitual)	sò	(L)	sò-lò	(L-L)
iii.	simple future	ghá sò	(HL)	ghá só-!ló	(HH-!H)
		'will cry'		*'will cry-PL'*	
iv.	past perfective	só-rò	(H-L)	sò-ló-rò	(L-H-L)
		'will.PST-rV'		*'will-PL-PST-rV'*	

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".

From (2) above, it is clear that this is not a sufficient description of tense in Ẹ̀dó. 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.[19] 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 gbẹ̀n èbé.**

Òtà	gbẹ̀n	èbé.
Ota	*write*.PRES.L	*book*
PN	V	CN

'Ota writes a book.'

Present intransitive

(5) a. **Òtà gbẹ́n.**

Òtà	gbẹ́n.
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. ***Òtà gbẹ̀n.**

*Òtà gbẹ̀n.

Ota *write*.PRES.L

PN V

'Ota writes.'

Past transitive

(6) a. **Òtà gbẹ́n èbé.**

Òtà gbẹ́n èbé.

Ota *write*.PST.H *book*

PN V CN

'Ota wrote a book.'

Past intransitive

b. **Òtà gbẹ́n-rẹ̀n.**

Òtà gbẹ́n-rẹ̀n.

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

SYLLABIC STRUCTURE	**INTRANS OR EXTRACTED DIRECT-OBJECT OR IMPLICIT OBJECT**	**TRANS (OBJECT PRESENT IN CANONICAL OBJECT POSITION)**
UNISYLL	High tone (cv́) (example(7), (11b))	Low tone (cv̀) (example (8), (11a))
DISYLL	Low+ high tones (cv̀cv́) (example (9a) , (9b) and (12b))	All low tones (cv̀cv̀) (example (10), (12a))

Monosyllabic verbs

(7) **Òtà gbé.** (intransitive)

Òtà gbé.

Ota dance.PRES.H

PN V

'Ota dances (everyday)

or

Ota is dancing.'

(8) **Òtà gbè̱n èbé.** (transitive)

Òtà	gbè̱n	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 rrì ìyán.**

Í	rrì	ìyán.
1SG	*eat*.PRES.L	*yam*
PRON	V	CN

'I eat yams' or *'I am eating yam.'*

b. **Ìyán e̲ré Ì ré.**

Ìyán	e̲ré	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 o̲gó.**

Òzó	kòkò	o̲gó.
Ozo	*gather*.PRES.L	*bottle*
PN	V	CN

'Ozo gathers bottles.'

b. **Ọ̀gó o̲ré Òzó kòkó.**

Ọ̀gó	o̲ré	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

SYLLABIC STRUCTURE	**INTRANS OR EXTRACTED DIRECT-OBJECT OR IMPLICIT OBJECT**	**TRANS (OBJECT PRESENT IN CANONICAL OBJECT POSITION)**
UNISYLL	High tone on verb stem +rV suffix (cv́+ rV̀) (examples (16), ,(19b))	High tone on the verb stem (cv́) (examples ((13), (19a))
DISYLL	High tone on final syllable of verb stem +rV suffix (cvcv́+rV̀) (examples ((14), (19c))	High tone on final syllable of verb stem (cvcv́) (example (15))

(13) **Òtà gbé̲n èbé.**

Òtà gbé̲n èbé.

Ota *write.*PST.H *books*

PN V CN

'Ota wrote books.'

(14) **Òzó kùú-rù.**

Òzó kùú-rù.

Ozo *play*.PST-rV

PN V

'Ozo played.'

(15) **Íràn guò̲ghó̲ íké̲ké̲ Òsàró̲.**

Íràn guò̲ghó̲ íké̲ké̲ Òsàró̲.

3PL *destroy.*PST.H *bicycle Osaro*

PRON V CN PN

'They destroyed Osaro's bicycle.'

(16) **Òtà gbẹ́n-rẹ̀n.**

Ota *write*.PST-rV

PN V

'*Ota wrote.*'

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:

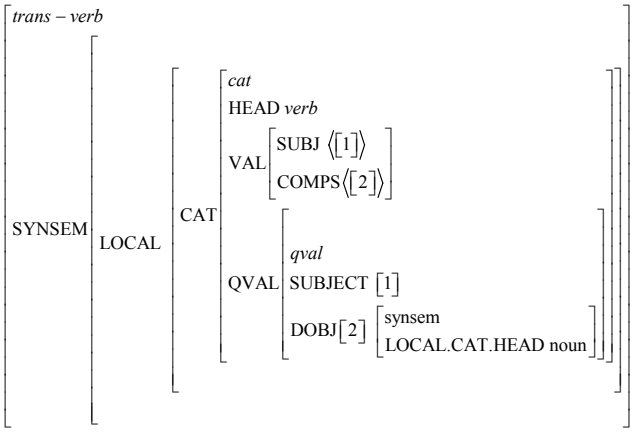
(17) ***Òsàgié tié-rè rùé.**

*Òsàgié	tié-rè	rùé.
Osagie	*call*.PST-rV	2SG
PN	V	PRON

'Osagie called you.'

The constellation in (18) is thus one which does not allow –rV:

(18)



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 rùẹ́.**

Òsàgié	tié	rùẹ́.
Osagie	*call*.PST.H	2SG
PN	V	PRON

'Osagie called you.'

b. **Wẹ̀ ẹ̀ré Òsàgié tié-rè.**

Wẹ̀	ẹ̀ré	Òsàgié	tié-rè.
2SG.EMPH	FOC	*Osagie*	*call*.PST-rV
PRON	PN		V

'It is you that Osagie called.'

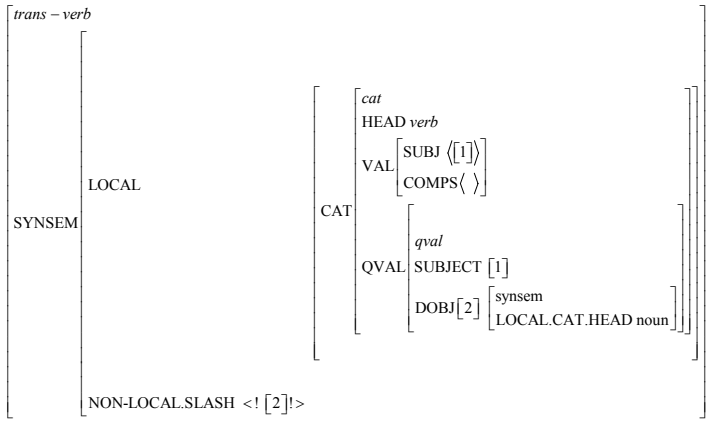
c. **Íkẹ̀kẹ́ Òsàrọ́ ẹ̀ré íràn ghuọ̀ghọ́-rè.**

Íkẹ̀kẹ́	Òsàrọ́	ẹ̀ré	íràn	ghuọ̀ghọ́-rè.
Bicycle	Osaro	FOC	3PL	destroy.PST-rV
CN	PN		PRON	V

'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:

(20)



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. **Òzó gbé mé̱/ nù é̱.**

Òzó	gbé	mé̱/ nù é̱.	
Ozo	*dance*.PST.H	1SG.OBL /PREP.2SG.OBL	
PN	V	PRON	PRON

'*Ozo danced for me/you.*'

b.***Òzó gbé-rè mé̲/nù̲é̲.**

*Òzó	gbé-rè	mé̲/nù̲é̲.	
Ozo	*dance*.PST-rV	1SG.OBL	/PREP.2SG.OBL
PN	V	PRON	PRON

'Ozo danced for me/you.*'*

c. **Òzó gbé-rè nè ìmè̲.**

Òzó	gbé-rè	nè	ìmè̲.
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:

(23)
$$\left[\begin{array}{l} obl-\text{int}\,rans-verb \\ \text{SYNSEM.LOCAL}\left[\text{CAT}\left[\begin{array}{l} cat \\ \text{HEAD}\ verb \\ \text{VAL}\left[\begin{array}{l}\text{SUBJ}\ \langle[1]\rangle \\ \text{COMPS}\langle[2]\rangle\end{array}\right] \\ \text{QVAL}\left[\begin{array}{l} qval \\ \text{SUBJECT}\ [1] \\ \text{OBLOBJ}\ [2]\end{array}\right]\end{array}\right]\right]\end{array}\right]$$

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 gi̲è̲!gi̲é̲ mé̲/ nù̲é̲.**

*Òzó	gbé	gi̲è̲!gi̲é̲	mé̲/ nù̲é̲.	
Ozo	*dance*.PST.H	*quickly*	1SG.OBL	/PREP.2SG.OBL
PN	V	ADV	PRON	PRON

'Ozo danced quickly for me/you.'

(25) a. **Òtà gbɛ́n èbé mɛ́/ nùɛ́.**

Òtà	gbɛ́n	èbé	mɛ́/ nùɛ́.	
Ota	write.PST.H	books	1SG.OBL /PREP.2SG.OBL	
PN	V	CN	PRON	PRON

'Ota wrote books for me/you.'

b. ***Òtà gbɛ́n èbé giè!giɛ́ mɛ́/ nùɛ́.**

*Òtà	gbɛ́n	èbé	giè!giɛ́	mɛ́/ nùɛ́.		
Ota	write.PST.H	books	quickly	1SG.OBL	/PREP.2SG.OBL	
PN	V	CN	ADV	PRON	PRON	

'Ota wrote books 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. **Òzó gbé èsɛ́sè/zàízàí.**

Òzó	gbé	èsɛ́sè/zàízàí.	
Ozo	*dance*.PRES.H	*well/smartly*	
PN	V	ADV	ADV

'Ozo dances well/smartly.'

b. **Òzó gbé-rè èsɛ́sè/zàízàí.**

Òzó	gbé-rè	èsɛ́sè/zàízàí.	
Ozo	*dance*.PST-rV	*well/smartly*	
PN	V	ADV	ADV

'Ozo danced well/smartly.'

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[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:

(27) **Òzó dé! èbé.**

Òzó	dé	!	èbé.
Ozo	*buy*.PST.H	DST	*book*
PN	V		CN

'Ozo bought a book.'

Manfredi[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.[23]

[21] PTM = Past Tense Marker
[22] Personal communication
[23] Omoruyi (1990) also states the above view.

(28) **Òzó dẹ́ ódó.**

Òzó	dẹ́	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 (Ẹ̀dó): 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 Ẹ̀dó *–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.

The view presented so far is of *–rV* as a past tense suffix marker for eventive verbs (Agheyisi 1990, Omoruyi 1991, Ogie 2001, Beermann, Hellan and Ogie 2002, Ogie 2004).

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. **Òzó vbi̱é là ífuánrò ìgbé.**

Òzó	vbi̱é	là	ífuánrò	ìgbé.
Ozo	*sleep*.PST.H	*for*	*minute*	*ten*
PN	V	PREP	CN	NUM

'Ozo slept for ten minutes.'

b. **Òzó vbé̱-rè là ífuánrò ìgbé.**

Òzó	vbi̱é-rè	là	ífuánrò	ìgbé.
Ozo	*sleep*.PST-rV	*for*	*minute*	*ten*
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 *vbi̱é (sleep)*. Example (31) below, buttresses this view:

(31) a. Morning greeting: lávbézè ‘goodmorning’.

b. Reply:

Éè.	Dé	ú	vbi̱è-rè	sé?
?	Q. PART	2SG	*sleep*.PST-rV	*well*
		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 vbi̱é là ífuánrò ìgbé Í ké dòó hué̱n ó̱nrè̱n.**

Òzó	vbi̱é	là	ífuánrò	ìgbé
Ozo	*sleep*.PST.H	*for*	*minute*	*ten*
PN	V	PREP	CN	NUM

Í	ké	dòó	hué̱n	ó̱nrè̱n.
1SG	SEQM	SEQM	*wake*	3SG
PRON			V	PRON

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

b. **Òzó vbi̱é-rè là ífuánrò ìgbé Í ké dòó hué̱n ó̱nrè̱n.**

Òzó	vbi̱é-rè	là	ífuánrò	ìgbé
Ozo	*sleep*.PST-rV	*for*	*minute*	*ten*
PN	V	PREP	CN	NUM

Í	ké	dòó	hué̱n	ó̱nrè̱n.
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 *vbié* 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-r̲ẹ̀n zàízàí.**

Òzó	khián-r̲ẹ̀n	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 verbs[24] (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. **Òzó mòsé.**

Òzó mòsé.

Ozo *beautiful*.PRES.H

PN V

'Ozo is beautiful.'

b. **Òzó mòsé-rè.**

Òzó mòsé-rè.

Ozo *beautiful*.PST-rV

PN V

'Ozo was/ became beautiful.'

c. **Òzó mòsé nódè̲.**

Òzó	mòsé	nódè̲.
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. **Ò̲ gó̲.**

Ò̲	gó̲.
3SG	*bend*.PRES.H
PRON	V

'It is bending'

b. **Ọ̀ gọ́-rè.**

Ọ̀	gọ́-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!lẹ́.**

Òzó ghá rhú!lẹ́.

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 Ẹ̀dó:

Table 7

TENSE	**UNISYLL**	**DISYLL**
past: Transitive	*dẹ́* 'buy' + (H) *'bought'*	*guọ̀ghọ́* 'break' + (H on final vowel) *'broke'*
Intransitive	*só-rò* 'cry' + (H.PST-rV) *'cried'*	*rhùlẹ́-rè* 'run' + (H on final vowel.past-rV) *'ran'*
Present : Transitive	*dẹ̀* 'buy' + (L) *'buy'*	*Guọ̀ghọ̀* 'break' + (L-L) *'break'*
Intransitive	*só* 'cry' +(H) *'cry'*	*Rhùlẹ́* 'run'+ (H-L) *'run'*
Future	*Ghá* + H 'will' + *sò* + L 'cry' *' will cry'*	*Ghá* + H 'will' + *rhú!lẹ́* + H!H 'run' *'will run'*

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): *gèlé* 'truly', *sàbá* 'can', *bá* 'deliberately'.
ii. The negative particle (Auxiliary): *í* 'present negative', *má* 'past negative' and *ghé* 'imperative'.
iii. Adverbial pre-modifiers (Adverb): *rhùlẹ́* 'quickly' (the verbal counterpart means run), *gìègìẹ́* 'quickly', *fẹ̀kó* 'gently'.

iv. Adverbial clitic element (auxiliary): *ná* 'sequential marker', *yá* 'sequential marker'.

v. Aspectual markers (auxiliary): *ghà- ghá* 'unfulfiled aspect', *té* '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 Ẹ̀dó, 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 8

Auxiliary /ADV	**Present tense on AUX elements**	**Past tense on AUX elements**	**Imperative**
CV	low tone (example (49))	High tone (examples (50), (55), (56))	
CV (NEG)	High tone (example (58))	High tone (example (59))	High tone (example (57))
CVCV	Low-low (example (43))	High-down-step-high (examples (40), (41a), (46),(47), (51))	

(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 rhùl̲é.** (past tense)

Òzó	gé!lé	rhùl̲é
Ozo	*truly*.PST.!H	*run*
PN	AUX	V

'Ozo truly ran.'

b. ***Òzó gèlé rhùl̲é-rè.** (past tense)

*Òzó	gèlé	rhùl̲é-rè.
Ozo	*truly*	*run*.PST-rV
PN	AUX	V

'Ozo truly ran.'

c. **Òzó fèkó-rò rhùl̲é.** (past tense)

Òzó	fèkó-rò	rhùl̲é.
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 *rhùl̲é* 'run'. In (41c), the first verbal element *f̲èkó* 'gently' licenses the *–rV* suffix. *F̲èkó* 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):

(42)

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 gi̱ègi̱é rè.** (MAM) (Stewart 1998:41)

Íràn	gèlè	lè	èvbàré	gi̱ègi̱é	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 Agheyisi (1990) differ from Stewart (1998) in this respect. They mark non-past tense on a CVCV auxiliary element by a low-high tone pattern:

(44) **Íràn gèlé bọ̀ òwá.** (MAM) (Omoruyi 1991:6)

Íràn	gèlé	bọ̀	òwá.	(present tense)
3PL	*really*.PRES.H	*build*	*house*	
PRON	AUX	V	CN	

'They really build/ are building a house.'

(45) **Òzó sàbá lè èvbàré.** (MAM) (Agheyisi 1990:75)

Òzó	sàbá	lè	èvbàré.	(present tense)
Ozo	*can*.PRES.H	*cook*	*food*	
PN	AUX	V	CN	

'Ozo is able to cook food.'

Examples (43)-(45) above and (46) -(47) below show that irrespective of the tone patterning on the auxiliary element adopted by the Ẹ̀dó 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) **Íràn gé!lé lé èvbàré gié!gié ré.** (MAM) (Stewart 1998)

Íràn	gé!lé	lé	èvbàré	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 sá!bá lé èvbàré.**

Òzó	sá!bá	lé	èvbàré.	(MAM) (Agheyisi 1990)
Ozo	*can*.PST.!H	*cook*	*food*	(past tense)
PN	AUX	V	CN	

'Ozo was able to cook food. '

Taking into consideration the observed general pattern for tense marking in Ẹ̀dó 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 èvbàré.**

Òzó	bà	lè	èvbàré. (MAM)	(present tense)
Ozo	*deliberately*.PRES.L	*cook*	*food*	
PN	AUX	V	CN	

'Ozo is deliberately cooking the food.'

(50) **Òzó bá lé èvbàré.** (past tense)

Òzó	bá	lé	èvbàré. (MAM)
Ozo	*deliberately*.PST.H	*cook*	*food*
PN	AUX	V	CN

'Ozo deliberately cooked the food.'

(51) **Òzó /gié!gié gbé.** (past tense)

Òzó	rhú!lé/gié!gié[25]	gbé.
Ozo	*quickly*.PST.!H	*dance*
PN	ADV	V

'Ozo quickly danced.'

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) **Ósàró ghà tiè èbé.**

Ósàró	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 *ègiégié* as in (a) :

(a) **Òzó gbé-rè ègiégié.**

Òzó	gbé-rè	ègiégié.
Ozo	*dance*.PST.rV	*quickly*
PN	V	ADV

'Ozo danced quickly.'

(53) **Òzó ghà rré mà ghá tiè ẹ́rè.** (UN-ASP (unfulfilled aspect))

Òzó	ghà	rré	mà	ghá	tiè	ẹ́rè.
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 *rré* 'come' bears a high tone while the transitivity of the second part is reflected by the low tone on the second verb *tiè* '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 *té* 'almost'. The verb it modifies usually bears a low tone (Omoruyi 1991).

(54) **Òzó té dè.** (incomplete aspect)

Òzó	té	dè.
Ozo	INCOMPL	*fall*
PN	AUX	V

'Ozo almost fell.'

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

Adverbial 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 *ná* 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 *yá* (a Time Sequence Marker (TSM)) that is in complementary distribution with *ná*.

(55) **Ẹ̀kì ẹ̀ré Òzó ná gbé.**

Ẹ̀kì	ẹ̀ré	Òzó	ná	gbé.	(past tense)
Market	FOC	*Ozo*	SECM	*dance*	
CN		PN		V	

'It is in the market, Ozo danced.'

(56) **Òwiẹ́ ẹ̀ré Òzó ná/yá gbé.** (past tense)

Òwiẹ́	ẹ̀ré	Òzó	ná/	yá	gbé.
Morning	FOC	*Ozo*	SECM	SECM	*dance*
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 *ghé* (imperative), *í* (negation in the present tense) and *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) **Ghẹ́ rrì èvbàré èsì!** (imperative)

Ghẹ́	rrì	èvbàré	èsì!
IMP.NEG	*eat*	*food*	*good*
AUX	V	CN	

'Do not eat good food!'

(58) **Òzó í lè èvbárè.** (present tense)

Òzó	í	lè	èvbárè.
Ozo	NEG.PRES	*cook*	*food*
PN	AUX	V	CN

'Ozo does not cook/ is not cooking food.'

(59) **Ìràn má fí ímọ́tò.** (past tense)

Ìràn	má	fí	ímọ́tò.
3PL	NEG.PST	*drive*	*car*
PRON	AUX	V	CN

'They did not drive a car.'

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 Ẹ̀dó.

Research on the aspectual system of Ẹ̀dó has focused only on perfective/ imperfective and habitual aspect (Agheyisi 1990, Omoruyi 1991). The aspectual system of Ẹ̀dó 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 *nẹ*, 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

NE̲	**EVENTS**		**STATES**	
	V+ne̲	**NEG marker +V+ ne̲**	**V+ne̲**	**NEG marker+V+ne̲**
Present	Inceptive/ habitual reading (né̲) ((62))	Perfective-sequential reading. (né̲) ((64))	Perfective-inchoative Reading (né̲). ((63)), ((66a))	Positive perfective/ Inchoative reading (né̲). (((65), (66b))
Past	Perfective reading (né̲) ((60))	Positive-Perfective reading (né̲) ((67))	Perfective inchoative Reading ((61))	Positive perfective/inchoative reading ((68))

V+ne̲ combinations

(60) **Òzó dé̲ èbé né̲.** (past perfective reading)

Òzó	dé̲	èbé	nè̲.
Ozo	*buy*.PST.H	*book*	PERF
PN	V	CN	

'Ozo had bought a book.'

(61) **Òzó kpò̲ló̲ nè̲ vbé è̲ghè nèì ná ré̲n ó̲nrè̲n.** (past perfective inchoative reading)

Òzó	kpò̲ló̲	nè̲	vbé	è̲ghè	nè	ì	ná	ré̲n	ó̲nrè̲n.
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 *ne̲* 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 nɛ̱.** (present inceptive or habitual reading)

Òzó	tiè	èbé	nɛ̱.
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 *nɛ́* occurs with positive stative types, it expresses an inchoative reading:

(63) **Òzó kpɔ̀lɔ́ nɛ̱.** (present perfective inchoative reading)

Òzó	kpɔ̀lɔ́	nɛ̱.
Ozo	be.fat.PRES.H	PERF
PN	V	

'Ozo has become fat.'

NEG MARKER +V + NE̱

In event types containing the present-negative marker *í* and the perfective marker *nɛ́*, the negative marker loses its negation properties resulting in a sequential interpretation:

(64) a. **Òzó í ghí tiè èbé n̲é, ìmà ké kpàá.** (present perfective sequential reading)

Òzó	í	ghí	tiè	èbé	n̲é,	ìmà	ké	kpàá.
Ozo	NEG.PRES	AUX[26]	*read*	*book*	PERF	1PL	SEMQ	*Leave*
PN			V	CN		PRON		V

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

b. **Òzó í ghí tiè èbé n̲é.** (present perfective sequential reading)

Òzó	í	ghí	tiè	èbé	n̲é.
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 *n̲é*, gives a 'mood (ability)' interpretation. It presents a positive end state of an inchoative. Here a situation thought impossible to attain is attained:

(65) **Òzó mòsé n̲é (nìá).** (present positive inchoative reading)

Òzó	mòsé	n̲é	(nìá).
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. **Òzó í mòsé (nìá).** (present negative)

Òzó	í	mòsé	(nìá).
Ozo	NEG.PRES	*beautiful*	*(finally)*
PN		V	ADV

'Ozo is no longer beautiful.'

b. **Òzó í mòsé n̲é (nìá).** (present positive inchoative reading)

Òzó	í	mòsé	n̲é	(nìá).
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 *í* and the perfective *n̲é* 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 *n̲é* also gives a *despite all odds* interpretation. I label this a positive perfective interpretation:

(67) **Òzó má d̲é èbé n̲é (nìá).** (past positive perfective reading)

Òzó	má	d̲é	èbé	n̲é	(nìá).
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 rẹ́n èbé nẹ́ (nìá).** (past positive perfective inchoative reading)

Òzó	má	rẹ́n	èbé	nẹ́	(nìá).
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:

Table10

Imperfective	EVENTS	
	Affirmative	Negative
Present	Ghá ((69))	í + verb ((72))
Past	Ghá!á ((70))	má + ghá ((73c))

Affirmative situations

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

(69) **Íràn ghá ghè ìkù.**

Íràn	ghá	ghè	ìkù. [27]
3PL	PRES.IMPERF	*look*	*dance*
PRON	AUX	V	V

'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 ìkù.
Íràn ghè ìkù.
3PL *look* *dance*
'*They are looking at a dance.'*

(70) **Íràn ghá!á ghé ìkù.**

Íràn	ghá!á	ghé	ìkù.
3PL	PST.IMPERF	look	dance
PRON	AUX	V	V

'They were looking at a dance.'

*Ghà!*á consist of ghá and *rá.*[28] *–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. **Ìwìnnà nìí má ghá màá.**

Ìwìnnà	nìí	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. **Ìwìnnà nìí má màá.**

Ìwìnnà	nìí	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 Ẹ̀dó. 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', *vbòóró*'ripen' *zo̱o̱rè* 'grew' *and rhàárè* 'stole'.

negative marker *má* and marks past progressive aspect. Tense is marked on the first verb-like element after the subject NP (In this instance *má*). *–rV* fails therefore to attach to *ghá* as discussed in section 2.2. Consider the following:

(72) a. **Ìwìnnà nìí í màá.**

Ìwìnnà	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. ***Ìwìnnà nìí í ghá màá.**

*Ìwìnnà	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.'

c. **Òzó má ghá gbé.**

Òzó	má	ghá	gbé.[29]
Ozo	NEG.PST	IMPERF	*dance*
PN	AUX	AUX	V

'Ozo was not dancing,

**Ozo did not dance,'*

d. **Òzó má gbé.**

Òzó	má	gbé.
Ozo	NEG.PST	*dance*
PN	AUX	V

'Ozo did not dance,

** Ozo was 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:

Òzó má ghá mòsé.

Òzó	má	ghá	mòsé.
Ozo	NEG.PST	?	be beautiful
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 Ẹ̀dó

A property that constrains the head value of all parts of speech in Ẹ̀dó is tone. As discussed in chapter 1, there are two basic tones in Ẹ̀dó: high (́) and low (̀). Nominal heads in Ẹ̀dó 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 Ẹ̀dó with the attribute TONE and value *tone* constraining the type *head*. This is declared in (74) below:

(74)
$$\begin{bmatrix} \textit{head} & \\ \text{TONE} & \begin{bmatrix} \textit{tone} \\ \text{LEX-TONE high-or-low} \\ \text{REL-TONE high-or-low} \\ \text{CONST } \textit{boolean} \end{bmatrix} \end{bmatrix}$$

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) tone := avm.
high-or-low := sort.
high := high-or-low.
low := high-or-low.

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:

(76)
$$\begin{bmatrix} noun \\ \text{TONE} \begin{bmatrix} tone \\ \text{LEX-TONE } high \text{ - } or \text{ - } low \\ \text{CONST } + \end{bmatrix} \end{bmatrix}$$

(77)
$$\begin{bmatrix} verb \\ \text{TONE} \begin{bmatrix} tone \\ \text{REL-TONE } high \text{ - } or \text{ - } low \\ \text{CONST } - \end{bmatrix} \end{bmatrix}$$

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 Ẹ̀dó root verbs are toneless. Under the view I have explained above, Ẹ̀dó 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 *ghá* 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:

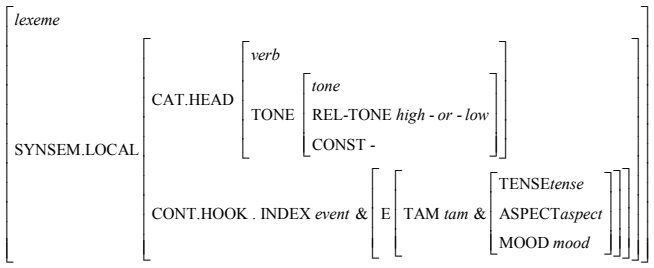
Table 11

Vowel Quality (ORAL/NASAL)	**VERB STEM WITH VOWELS ENDING IN:**	**-Rv ALLOMORPHS**
ORAL	e ,a , ẹ , ọ	-re
	i	-ri
	u	-ru
	o	-ro
NASAL	in	-rin
	un	-run
	ẹn, ọn , an	-rẹn

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:

(78)

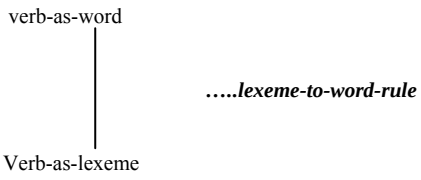


The verb sign described in (78) is of type *lexeme* and as such is underspecified for REL-TONE and inflection sub-categories for the type *tense* for Ẹ̀dó in short. It is neutral to inflectional categories. The category *tense* in Matrix grammar is not a marker of finiteness, and has *non-past, past,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

2.5 Lexeme-to-word-rule

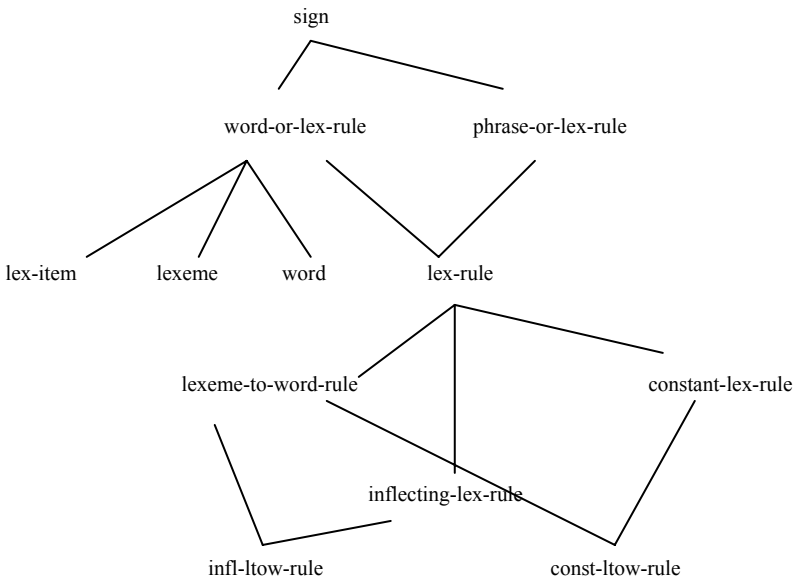
The realization of an inflectional category that transforms a lexeme to a word is achieved by a type *lexeme-to-word-rule* (a unary-rule):

(79)



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)

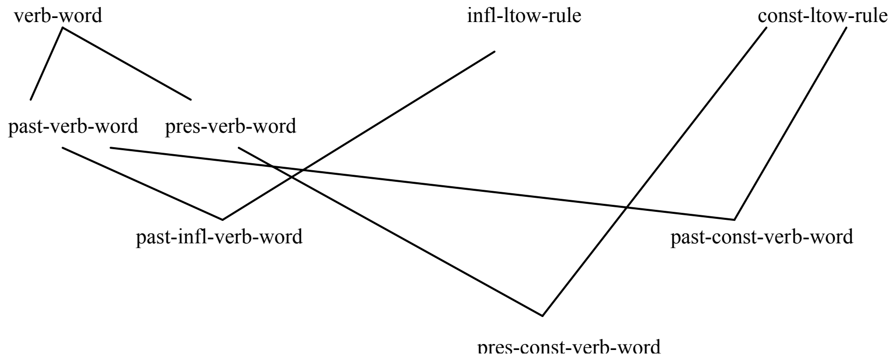


Lexeme-to-word-rule may combine with *inflecting-lex-rule* to add affixal morphology information, deriving a new sub-type called *infl-ltow-rule (inflecting-lexeme-to-word-*

rule) or they may retain their stem form under inflection by combining with *const-ltow-word-rule (constant-lexeme-to-word-rule)*.

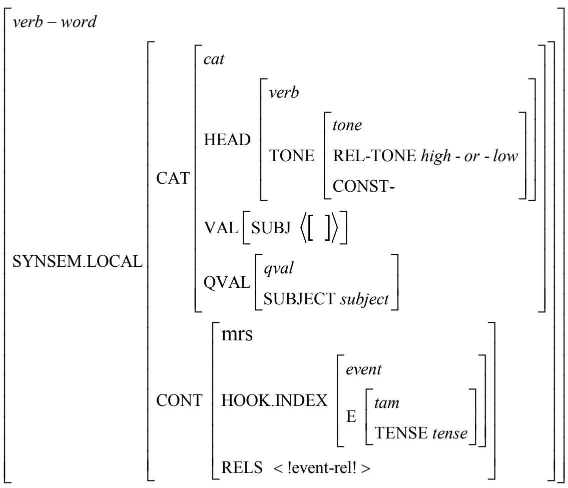
These sub-types of *lex-rule* then combine with types that specify parts-of-speech type as in the partial hierarchy in (81) below.

(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 &

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

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

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

Past-verb-word has the following specification:

(84)
$$\begin{bmatrix} \textit{past-verb-word} \\ \text{NEED-AFFIX} \textit{boolean} \\ \text{STEM} \textit{list} \\ \text{KEY-ARG } \# \textit{key} \text{ arg} \\ \text{DTR \#dtr \& word-or-lex-rule} \begin{bmatrix} \text{STEM } \textit{list} \\ \text{KEY-ARG } \# \textit{key} \text{ arg} \\ \text{SYNSEM } \# \textit{synsem} \\ \text{INFLECTED-} \\ \text{ROOT } \# \textit{root} \end{bmatrix} \\ \text{SYNSEM } \# \textit{synsem} \begin{bmatrix} \text{LOCAL} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \\ \text{TONE} \begin{bmatrix} \textit{tone} \\ \text{REL-TONE } \textit{high} \\ \text{CONST -} \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{CONT} \begin{bmatrix} \textit{mrs} \\ \text{HOOK.INDEX } \textit{event} \begin{bmatrix} \text{E} \begin{bmatrix} \text{TENSE } \textit{past} \end{bmatrix} \end{bmatrix} \\ \text{RELS} <!!> \end{bmatrix} \\ \text{AGR } \textit{individual} \\ \text{ARG-STR } \textit{list} \end{bmatrix} \end{bmatrix} \\ \text{C-CONT } <!!> \\ \text{ARGS} < \# \text{dtr} > \\ \text{INFLECTED+} \\ \text{ROOT } \# \textit{root} \end{bmatrix}$$

The type *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 *past-infl-verb-word* and *past-const-verb-word* which inherit

these constraints from *infl-ltow-rule* and *const-ltow-rule* respectively. Observe that the value for the attribute REL-TONE is *high*. This captures the generalization described in section 2.1 above that the tone on a CV verb is *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 *past-infl-verb-word* (example(85) below) which inherit from both *past-verb-word* and *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:

(85)
$$\begin{bmatrix} \textit{past} - \text{inf}\,\textit{l} - \textit{verb} - \textit{word} \\ \text{NEED-AFFIX} + \\ \text{STEM } \textit{list} \\ \text{KEY-ARG } \#\textit{key}\,\text{arg} \\ \text{DTR \#dtr \& word-or-lex-rule} \begin{bmatrix} \text{STEM } \textit{list} \\ \text{KEY-ARG } \#\textit{key}\,\text{arg} \\ \text{SYNSEM } \#\textit{synsem} \\ \text{INFLECTED-} \\ \text{ROOT } \#\textit{root} \end{bmatrix} \\ \text{SYNSEM } \#\textit{synsem} \begin{bmatrix} \text{LOCAL} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \\ \text{TONE} \begin{bmatrix} \textit{tone} \\ \text{REL-TONE } \textit{high} \\ \text{CONST -} \end{bmatrix} \end{bmatrix} \\ \text{VAL.COMPS} < \quad > \end{bmatrix} \\ \text{CONT} \begin{bmatrix} \textit{mrs} \\ \text{HOOK.INDEX } \textit{event} \begin{bmatrix} \text{E} \begin{bmatrix} \text{TENSE } \textit{past} \end{bmatrix} \end{bmatrix} \\ \text{RELS} < !\,! > \end{bmatrix} \\ \text{AGR } \textit{individual} \\ \text{ARG-STR } \textit{list} \end{bmatrix} \end{bmatrix} \\ \text{C-CONT} < !\,! > \\ \text{ARGS} < \text{\#dtr} > \\ \text{INFLECTED} + \\ \text{ROOT } \#\textit{root} \end{bmatrix}$$

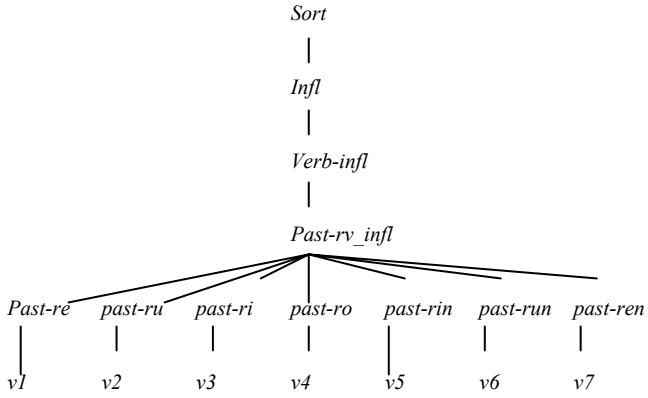
In (85), NEED-AFFIX is declared as +. The particular allomorphic variant of *past-infl-verb-word* is then supplied by an inflection rule in this case for È̲dó it is the *past-rV_infl_rule* with the following constraint:

(86) past-rV_infl_rule :=
%suffix (*rV)
Past-infl-verb-word &
[ARG < [INFLECTION past-rV]>].[30]

[30] In Chapter 6, I include constraints to account for *–rV* licensing in overlapping events.

(86) presupposes a hierarchy declaring values for the attribute INFLECTION which is the type *inflection.*[31] 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 *gbérè* (*dance*.PST-re) as illustration. (88) represents its lexical entry:

(88) gbé-v := intrans-verb-lxm &

$$\begin{bmatrix} \text{INFLECTION v1} \\ \text{STEM} < \text{"gbe'"} >, \\ \text{SYNSEM.LOCAL.CONT.RELS} <! \left[\text{PRED "gbe' "-rel "}\right] ! > \end{bmatrix}$$

In (88) the value for inflection is v1 and since v1 is a sub-type of *past-rV*, *gbé-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 *rhùlé* (run) that do not occur with plural suffixation, while allowing for *–rV* suffixation to be constrained.

(89)

intrans-past-rV_infl_rule:=

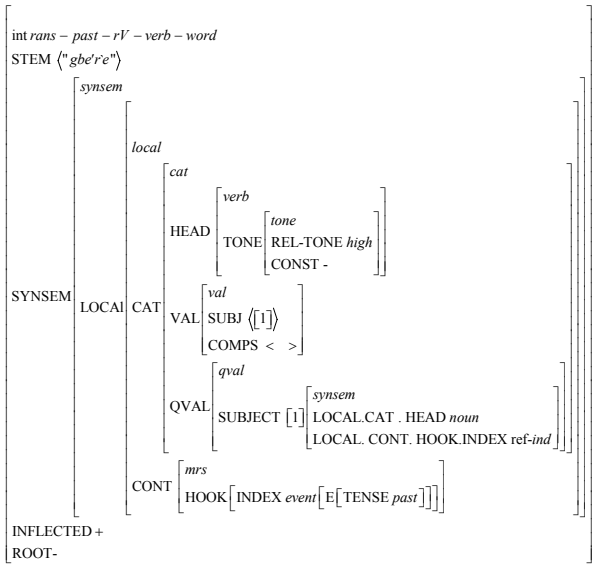
%suffix (*re)

Intrans-past-infl-verb-word &

[ARG < [INFLECTION past-re]>].

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

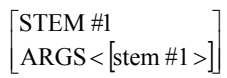
(90)



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) const-ltow-rule: = lexeme-to-word-rule & constant-lex-rule &



I use the lexical entry for the transitive verb *dẹ́-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) dẹ-v := trans-verb-lxm &

$$\begin{bmatrix} \text{INFLECTION inf } \textit{lection} \\ \text{STEM} < \text{"de"} >, \\ \text{SYNSEM.LOCAL.CONT.RELS} < ! \left[\text{PRED "de "-rel"} \right] ! > \end{bmatrix}$$

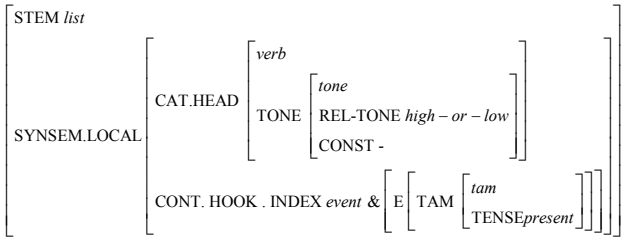
The type *past-const-verb-rule* applies only to verbs with a filled COMPS list and has the following constraint:

(93)
$$\begin{bmatrix} \textit{past-const\_verb\_rule} \\ \text{NEED-AFFIX} - \\ \text{STEM} \langle \#\textit{stem} \rangle \\ \text{KEY-ARG } \#\textit{key} \text{ arg\&} \textit{boolean} \\ \text{DTR \#dtr \& verb-lxm} \begin{bmatrix} \textit{de-v} \\ \text{STEM} \langle \text{"\#stem "} \rangle \\ \text{KEY-ARG } \#\textit{key} \text{ arg} \\ \text{SYNSEM } \#\textit{synsem} \\ \text{INFLECTED-} \\ \text{INFLECTION inf } \textit{lection} \\ \text{ROOT \#root \&-} \end{bmatrix} \\ \text{SYNSEM } \#\textit{synsem} \text{ \& verb-lxm} \begin{bmatrix} \text{LOCAL} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \\ \text{TONE} \begin{bmatrix} \textit{tone} \\ \text{REL-TONE } \textit{high} \end{bmatrix} \end{bmatrix} \\ \text{VAL} \left[\text{COMPS} < [\ ] \ldots > \right] \end{bmatrix} \\ \text{CONT} \begin{bmatrix} \textit{mrs} \\ \text{HOOK.INDEX } \textit{event} \left[\text{E} \left[\text{TENSE } \textit{past} \right] \right] \end{bmatrix} \\ \text{AGR } \textit{individual} \\ \text{ARG-STR } \textit{list} \end{bmatrix} \end{bmatrix} \\ \text{C-CONT} < ! ! > \\ \text{ARGS} < \text{\#dtr} > \\ \text{INFLECTED} + \\ \text{ROOT } \#\textit{root} \end{bmatrix}$$

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*.

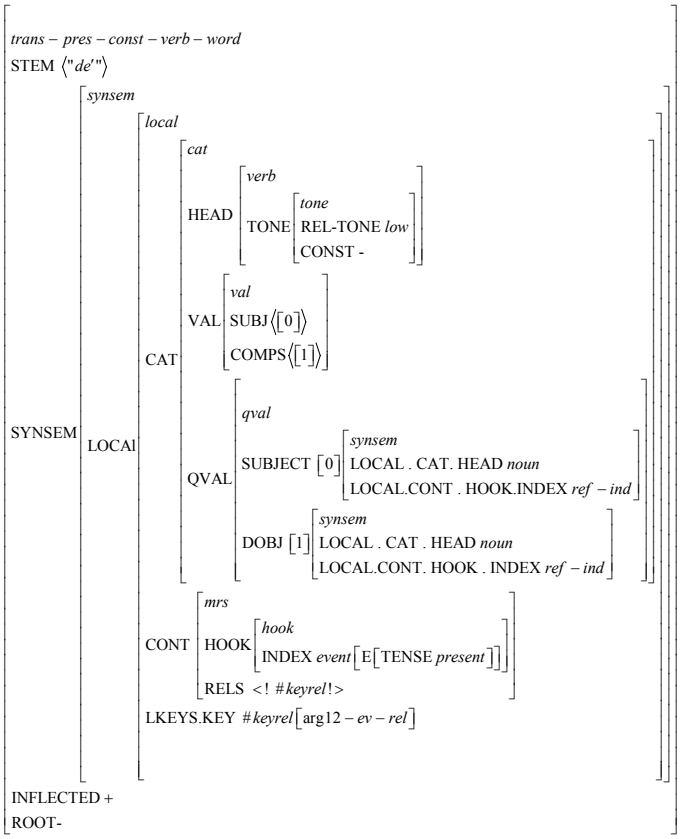
Turning now to the type *pres-const-verb-word*, it also inherits from the rule in (91) above. In addition, it inherits from the type *pres-verb-word* which places a constraint that its TENSE value be *present*. No restriction is placed on its COMPS to reflect the fact that both transitive and intransitive verbs may inherit from it. This is illustrated by the partial AVM in (94) below:

(94) pres-const-verb-word: = pres-verb-word & const-ltow-rule &



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:

(95)



2.6 Summary

In this chapter, I have given an empirical description of tense, aspect, modals and auxiliary markers in Ẹ̀dó. Tense is marked by tones (present and past tense), a lexical item *ghá* (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 Ẹ̀dó within the Matrix framework which accounts for relative tones in Ẹ̀dó. 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 Ẹ̀dó 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 *past-const-ltow-rule* with the feature REL-TONE declared as *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 *–rV* suffix, a type *past-rV_infl_rule* with the constraint that the daughter has an empty COMPS list specification and a *high* value for the feature LEX-TONE constraining the type *tone* maps the verb lexemes to words.

CHAPTER THREE
VERBAL CLASSES AND SITUATION ASPECT IN ẸDÓ

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).
ii. Interval semantics (Bennett and Partee 1972, 1978, Dowty 1977, 1979).
iii. Discourse/interval semantics (Smith1990).

(2)

Event semantics (Krifka 1989, Parsons1990, Kamp and Reyle 1993, Bach 1981/1993, Pustejovsky 1991a&b, 1995, 2005).

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.

Table12

PROPERTIES	**VERB CLASSES** **REYLE 1949**	**VERB CLASSES VENDLER 1967, KAMP AND REYLE 1993, PARSON 1990 AND PUSTEJOVSKY 1987, 2005 etc.**
NO CHANGE	State	State
CHANGE+ NO CULMINATION	Activity	Activity
CHANGE + CULMINATION WITH ASSOCIATED PROCESS	Achievement with an associated task	Accomplishment
CHANGE+ CULMINATION WITH NO OVERT PROCESS	Achievement with no associated task	Achievement

In Ẹ̀dó, there is a difference in the lexicalization pattern of some state eventualities. Stative eventualities are usually expressed as be+ adjective constructions in English.

In Ẹ̀dó, 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, 2005etc.) 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[33] 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.

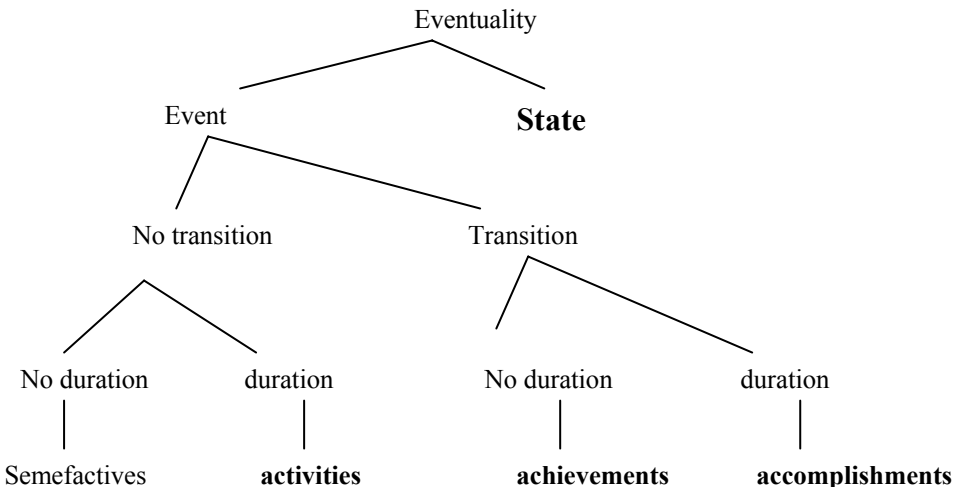
Table 13

Vendler's aspectual classes

	-Process	**+Process**
-Definite	State	Activity
+Definite	Achievement	Accomplishment

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.

[34] Dowty (1979) discusses eleven syntactic and semantic criteria in the identification of these classes based on Ryle (1949), Vendler (1957, 1967), Kenny (1963), Lakoff (1965) and Ross (1972). Pianesi and Varzi (2000) give a comprehensive summary of Dowty's discussion.

Vendler's (1967) distinctions are presented in bold type. The transition/non transition distinction is introduced by Pustejovsky (1991).[35] 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.*[36] In a feature-based classification, a feature is used to capture this distinction. For example, Smith (1991) captures this distinction with the feature $[\pm \text{Stative}]$ while Kamp and Reyle (1993) uses the feature $[\pm \text{STAT}]$ 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 $t_{1\ldots n}$ 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)[37] below capture this:

(4)

> If *ø* is an activity verb, then *xøed* for *y time* entails that at any time during *y, x øed* was true. If ø is an accomplishment verb, then *x øed fo y time* does not entail that *xøed* 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 [± 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.

[37] 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).[38] 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:

(9) a. 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.

(12) a. *Mary walked in an hour.
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 3p.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 Ẹ̀dó. Indeed, the lexical item that encodes the concept of coughing in Ẹ̀dó, inherently encodes iteration. Here, I digress a little.

In Ẹ̀dó 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 sọ̀lọ̀ úkpọ̀n.**

Òzó	sọ̀lọ̀	úkpọ̀n.[39]
Ozo	*tear*.PL.PRES.L	*cloth/clothes*
PN	V	CN

'Ozo is tearing the cloth/the clothes.'

b.**Òzó sọ̀ ùsọ́kpọ̀n.**

Òzó	sọ̀	ùsọ́kpọ̀n.
Ozo	*tear*.PRES.L	*rag*
PN	V	CN

'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 Ẹ̀dó 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. **Ò̱gó̱ dèlé-rè.**

Ò̱gó̱	dèlé-rè.
bottle	*fall*.PL.PST-rV
CN	

'The bottle(s) fell repeatedly/
The bottles fell in one swoop.'

b. **Ò̱gó̱ dé-rè.**

Ò̱gó̱	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 È̱dó can only be expressed as an iterative event.

(17) a. **Òzó tò̱ló̱ óhué̱n.**

Òzó	tò̱ló̱	óhué̱n.
Ozo	*scratch*.PL.PST.H	*cough*
PN	V	CN

'Ozo coughed.'

b.**Òzó só òbó̱ (vbè úrhò).**

Òzó	só	òbó̱	(vbè	úrhò).
Ozo	?.PST.H	*hand*	*(on*	*door)*
PN	V	CN	PREP	CN

'Ozo knocked (at the door).'

c. **Òzó só òbǫ́ (vbè úrhò) (úhú!kpá).**

Òzó	só	òbǫ́	(vbè	úrhò)	(úhú!kpá).
Ozo	?.PST.H	*hand*	*(on*	*door)*	*(once)*
PN	V	CN	PREP	CN	ADV

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

d. **Òzó só òbǫ́ làá ífuánrò ìgbé.**

Òzó	só	òbǫ́	làá	ífuánrò	ìgbé.
Ozo	?.PST.H	*hand*	*for*	*minutes*	*ten*
PN	V	CN	PREP	CN	NUM

'Ozo knocked for ten minutes.'

In (17a), the verb *tǫ̀lǫ́* is used irrespective of *Òzó* coughing once or several times. This does not apply to *tòló* alone. Some other lexical items belonging to the class of activities such as *sàlǫ́ ètó* 'comb hair' and *bàlǫ́ àmɛ̀* 'scoop water repeatedly' have this characteristic.

In (17b), it is the combination of *só* and *òbǫ́* 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 Ẹ̀dó 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)

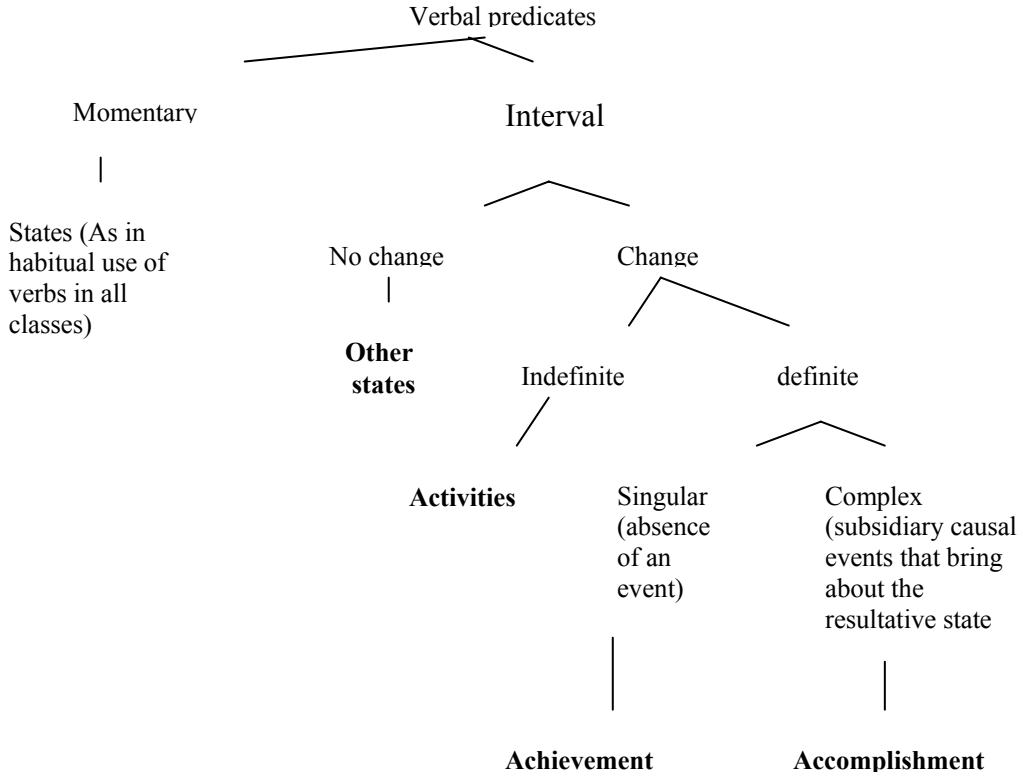
i. Philosophical insight from the research of Aristotle, Kenny (1963), Reyle (1949) and Vendler (1967).

ii. Lexical decomposition analysis of generative semantics (Lakoff 1965, McCawley 1968).

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:

Figure 2



Dowty uses a fifth criterion - agency - in his classification. This criterion is perpendicular with the other aspectual 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.[40] 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	Do a_1 ([$V_n (a_{1, \ldots}, a_n)$]) (*John is walking*).
iii.	Non-agentive accomplishment	[[BECOME Ø] CAUSE [BECOME ψ]] where ∅ and ψ are stative sentences (*The door opening causes the lamp to fall*).

[40] 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) [[DO(α_1, [π_n , (α_1,…, α_n)]) CAUSE (BECOME [ρ_m (β_1,…,β_2)]]]. (*John broke the window*).

v. Simple Achievements BECOME [V_n (a_1, …, a_n)] Here V_n is an n- place predicate and a_1, …, 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 *cause* are not always synonymous. For example, following Dowty's analysis, the sentence *John opened the door* is supposed to entail the logical formula for non-intentional agentive accomplishments, as well as, the sentence *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 *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 CAUSE is an abstract element and need not be considered identical with the English surface verb *cause.* The surface verb *cause* might contain other abstract predicates beside CAUSE in its underlying representation or it might differ from cause in its presupposition.

Turning now to the operator 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: ¬∅ T ∅. Following Benneth and Partee (1978), Dowty (1977, 1979), in order to explain what happens between the states corresponding to ∅ and ¬∅, defines BECOME in terms of intervals. BECOME is defined as:

(27)

$[[\text{BECOME } Ø]]_{M,I\,g} = 1$ iff

i. For some interval jΣ I containing the lower bound of i, $[[Ø]]_{M,I\,g}=0$.

ii. For some interval kΣ I containing the upper bound of i, $[[Ø]]_{M,k\,g}=1$.

iii. There is no non-empty $i' \subset i$ such that a and b hold for i' 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 ∅ 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 Ø is bivalent, then [BECOME Ø] 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) (∃e) [Agent (e, mary) & Cul (e) & [(∃e') [Flying (e') and Cul (e') &
Theme (e', kite) & 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
(∃e')[Flying (e') and Cul (e') & 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 other 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)

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[42] , 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):

[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.

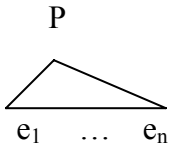
[42] These events may also contain sub-eventual structures (Pustejovsky 1991a: fn 10). This will be relevant in my discussion on aspectual classes in multi-verb constructions in chapter 6.

(35)

States (*S*) are defined as: a single event which is evaluated relative to no other event. The opposition is left implicit.

(36)

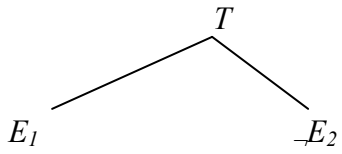
Processes (*P*) or activities are defined as a sequence of events identifying the same semantic expressions:



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):



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

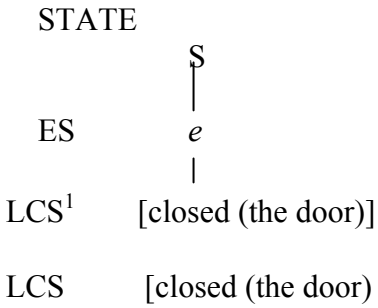
(38) a. The door is closed. (state)

b. The door closed. (achievement)

c. John closed the door. (accomplishment)

The adjectival form in (38i) denotes a state as shown in (39) below.

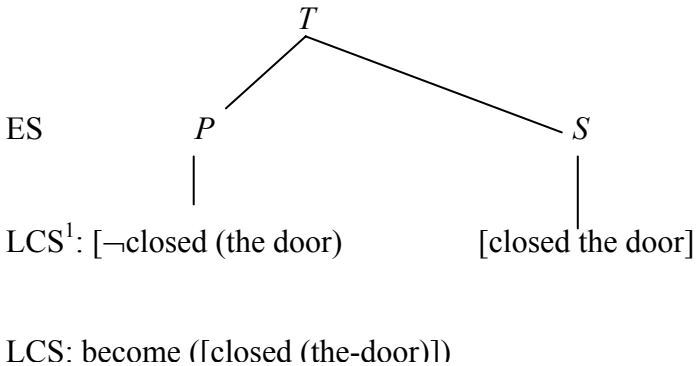
(39)



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.

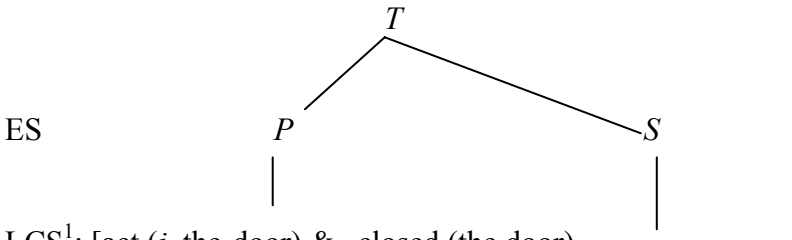
(40) ACHIEVEMENT



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)

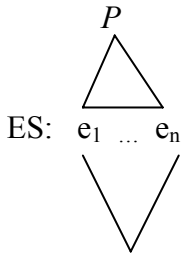


LCS: cause ([act (*j*, the-door),become ([closed (the-door)])])

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

PROCESS



$LCS^{1:}$ [run *(m)*]

LSC [run *(m)*]

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 Ẹ̀dó[43]

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

3.3.1 States

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

(43) Mary is beautiful. (English)

(44) **Òzó mòsé.** (Ẹ̀dó)

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

Only verbs in Ẹ̀dó 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 Ẹ̀dó. 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) ì 'NOM prefix' + rhùlɛ́ *'run'*(process)→ ìrhúlɛ̀ *'race'*(noun).

ì 'NOM prefix' + khuɛ̀ *'bath'*(process)→ àkhuɛ́ *'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. ɛ̀ 'NOM prefix' + gìɛ́gìɛ́ *'quickly'* (adverb) → ɛ̀gìɛ́gìɛ́ *'quickly'*

b. ì 'NOM prefix' + zàí *'swiftly'* (adverb) → *ìzàí *'swiftness'*

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

(47) a. Nominalization

ì 'NOM prefix' + mòsé *'beautiful'*→ ìmòsè *'beauty'*

ò 'NOM prefix' + ghɔ̀ghɔ́ *'be happy'*→ òghɔ̀ghɔ̀ *'happiness'*

b. Adjectival derivation

Mòsé *'beautiful'* + mòsé *'beautiful'* → mòsèmòsè (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 –mwɛ̀n* to a verb stem in Ɛ̀dó.

(48) **Ú-tán-mwe̱n Òzó ye̱é mwe̱n.**

Ú-tán-mwe̱n	Òzó	ye̱é	mwe̱n.
NOM-*tall*-NOM	*Ozo*	*appeal*.PRES.H	1SG
NOM	PN	V	PRON

'Ozo's tallness appeals to me.'

(49) **Ú-gbé-mwe̱n nè Òzó gbé nódè̱ tìtí.**

Ú-gbé-mwe̱n	nè	Òzó	gbé	nódè̱	tìtí.
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 *gìégìé* as base for gerundive formation results in ungrammatical sentences in (50a) & (50b).

Lastly, stative verbs like *mòsé* '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-gìégìé-mwe̱n Òzó ye̱é mwe̱n.**

*Ú-gìégìé-mwe̱n	Òzó	ye̱é	mwe̱n.
NOM-*quick*-NOM	*Ozo appeals*.PRES.H		1SG

'Ozo's quickness appeals to me.'

b ***Ú-gìégìé-mwe̱n nè Òzó gìégìé gbé tìtí.**

*Ú-gìégìé-mwe̱n	nè	Òzó	gìégìé	gbé	tìtí.
NOM-*quick*-NOM	COMP	*Ozo*	*quickly*	*dance*.PST.H	*splendid*

(51) **Òzó mòsé.** (verb)

Òzó mòsé.

Ozo *beautiful*.PRES.H

PN V

'Ozo is beautiful.'

(52) **Òzó yè mòsèè.** (adjective)

Òzó yè mòsèè.

Ozo copular.PRES.L *beautiful*

PN V V

'Ozo looks beautiful.'

Let us now examine classes of state predicates in Ẹ̀dó. Carlson (1977) makes a distinction between stage and individual predicates. According to him (1977:86)

(53)

> 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^1 that realizes *x* at that time, some stages y^1 that realizes *y* at that time and the stages x^1 and y^1 stand in some relation defined on stages, which Carlson calls the eat^1 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 Ẹ̀dó, 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) **Òhànmwẹ̀n gbè Òzó.** (stage level)

Òhànmwẹ̀n	gbè	Òzó.
hunger	*beat*.PRES.L	*Ozo*
CN	V	PN

'*Ozo is hungry.*'

(55) a. **Òhù mù Òzó.** (stage level)

Òhù	mù	Òzó.
anger	*carry*.PRES.L	*Ozo*
CN	V	PN

'*Ozo is angry.*'

b. **Òzó mù Òhù.**

Òzó	mù	Òhù.
Ozo	*carry*.PRES.L	*anger*
PN	V	CN

'Ozo is angry.'

(56) a. **Òhán mù Òzó.** (stage level)

Òhán mù Òzó.

fear *carry*.PRES.L *Ozo*

CN V PN

'Ozo is afraid.'

b. **Òzó mù òhán.**

Òzó mù òhán.

Ozo *carry*.PRES.L *Fear*

PN V CN

'Ozo is afraid.'

c. **Òhán Àzàrí mù Òzó.**

Òhán Àzàrí mù Òzó.

fear *Azari* *carry*.PRES.L *Ozo*

CN PN V PN

'Ozo is afraid/ frightend of Azari,'

or

'Ozo fears Azari.'

b. **Òzó mù òhán Àzàrí.**

Òzó mù òhán Àzàrí.

Ozo *carry*.PRES.L *Fear* *Azari*

PN V CN PN

'Ozo is afraid/ frightend of Azari,'

or

'Ozo fears Azari.'

(57) **Òzó rẹ̀n èbé.** (individual level)

Òzó rẹ̀n èbé.

Ozo *know*.PRES.L *book*

PN V CN

'Ozo is clever.'

(58) **Òzó tán.** (individual level)

Òzó	tán.
Ozo	*tall*.PRES.H
PN	V

'Ozo is tall.'

The state of being hungry can only be expressed by the collocation of the noun *Òhànmwẹ̀n* 'hunger' with the verb *gbé*. 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 Ẹ̀dó do not map unto a causative/ non-causative paradigm. Interestingly, this also obtains when a non-human causer argument is introduced:

(59) a. **Ò yé òhán mú Òzó.**

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

'It frightened Ozo.'

b. **Ọ̀ yé Òzó mú òhán.**

Ọ̀	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:

(60) a. **Àzàrí yé òhán mú Òzó.**

Àzàrí	yé	òhán	mú	Òzó.
Azari	*make*.PST.H	*fear*	*carry*.PST.H	*Ozo*
PN	V	CN	V	PN

'Azari frightened Ozo.'

b.***Àzàrí yé Òzó mú òhán.**

*Àzàrí	yé	Òzó	mú	òhán.
Azari	*make*.PST.H	*Ozo*	*carry*.PST.H	*Fear*
PN	V	PN	V	CN

'Azari frightened Ozo.'

Turning now to the characteristics of state predicates, they generally do not license the progressive in either Ẹ̀dó or English.

(61) *John was being tall (English)

(62) ***Òzó ghá rẹ̀n èbé.** (Ẹ̀dó)

*Òzó	ghá	rẹ̀n	èbé.
Ozo	PRES.PROG	*know*	*book*
PN	ASP	V	CN

'Ozo is being clever.'

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 Ẹ̀dó do not permit the progressive interpretation of a non-progressive form:

(64) **Ì hn̰ ẹ̀mwìn nè ù tà sòkpán Ì má yá rùẹ́ yí.**

Ì	hn̰	ẹ̀mwìn	nè	ù	tà	sòkpán
1SG	*hear*.PRES.L	*thing*	COMP	2SG	*say*.PRES.H	*but*
PRON	V	CN		PRON	V	CONJ

Ì	má	yá	rùẹ́	yí.[44]
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) ***Òzó ghá!á hn̰mwẹ́n Àzàrí.**

*Òzó	ghá!á	hn̰mwẹ́n	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 Ẹ̀dó:

(66) ***Òzó ghá tán.** (individual level)

*Òzó	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 Ẹ̀dó:

(69) **Òzó họ̀ọ́ úkpọ̀n huán.**

Òzó	họ̀ọ́	úkpọ̀n	huán.
Ozo	*wash*.PST.H	*cloth*	*clean*
PN	V	CN	V

'Ozo washed the clothes clean.'

(70) ***Òzó rrí òrèrègbé kpọ̀lọ́.**

*Òzó	rrí	òrèrègbé	kpọ̀lọ́.
Ozo	*eat*.PST.H	*excessive eating*	*fat*.PST.H
PN	V	CN	V

'Ozo overate and became fat.'

(71) **Òzó kòkó Ádésúwà mòsèè.**

Òzó	kòkó	Ádésúwà	mòsèè.
Ozo	*raise*.PST.H	*Adesuwa*	*beautiful*
PN	V	PN	ADJ

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

(72) a. ***Òzó sé ẹ́wù mòsé.**

*Òzó	sé	ẹ́wù	mòsé.
Ozo	*sew*.PST.H	*dress*	*beautiful*
PN	V	CN	V

'Ozo sewed the dress beautifully.'

b. **Òzó sé ẹ̀wú mòsèè.**

Òzó	sé	ẹ̀wú	mòsèè.
Ozo	*sew*.PST.H	*dress*	*beautiful*
PN	V	CN	ADJ

'Ozo 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) *kpọ̀lọ́* 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 *Ádésúwà* 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 Ẹ̀dó. 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 ghá!á 'Past progressive'. Also verbs of motion for example *lé* 'flow' when used as locatives do not license the progressive.

(75) a. ***Òzó ghá tòtá.**

*Òzó	ghá	tòtá.
Ozo	PST.PROG	*sit*
PN		V

'Ozo is sitting.'

b. **Òzó tòtá.**

Òzó	tòtá .
Ozo	*sit*.PRES.H
PN	V

'Ozo is sitting.'

(76) ***Ẹ̀zé ghá lẹ́ lẹ́gáà nèné ìgué.**

*Ẹ̀zé	ghá	lẹ́	lẹ́gáà	nèné	ìgué.
River	PRES.PROG	*flow*	*round*	*the*	*village*
CN		V	PREP	DET	V

'The river is flowing through the village.'

They also do not pass the 'do' test

(77) **?Èmwín nè Òzó rú ọ̀ré ìghé Ọ́ ná tòtá.**

?Èmwín	nè	Òzó	rú	ọ̀ré	ìghé
What	COMP	*Ozo*	*do*.PST.H	FOC	COMP
CN		PN	V		

Ọ́	ná	tòtá.
3SG	SECM	*sat*
PRON		V

'What Ozo did is that he sat down.'

In summary, states in Ẹ̀dó 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 Ẹ̀dó 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 Ẹ̀dó, 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 *bá* '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. ***Òzó yé ágógó èvá yá mòsé.**

*Òzó	yé	ágógó	èvá	yá	mòsé.
Ozo	*use*.PST.H	*clock*	*two*	*to*	*beautiful*
PN	V	CN	NUM	V	V

b. ***Ò yá ágógó èvà yá mú òhán Òzó.**

.*Ò	yá	ágógó	èvà	yá	mú	òhán	Òzó.
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. **Òzó 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 **Òzó 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.'

e. **? Òzó yé ágógó èvá yá sè Ẹ̀dó.**

? Òzó	yé	ágógó	èvá	yá	sè	Ẹ̀dó.
Ozo	*use*.PST.H	*clock*	*two*	*to*	*arrive*	*Benin*
PN	V	CN	NUM	V	V	PN

'Ozo used two hours to arrive in Benin.'

(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 :

Òzó yé ágógó èvá yá mùgbé ọ̀ ké dó ghá mòsé.

Òzó	yé	ágógó	èvá	yá	mùgbé
Ozo	*use*.PST.H	*clock*	*two*	*to*	*dress*
PN	V	CN	NUM	V	V

ọ̀	ké	dó	ghá	mòsé.
3.PL	SECM	SECM	AUX	*beautiful*
PRON			AUX	V

'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.

(82) a. **Òzó yé ágógó èvá yá rhùl̩ sòkpán ọ̀má rhùl̩ ẹ̀ré fòó.**

Òzó	yé	ágógó	èvá	yá	rhùl̩
Ozo	*use*.PST.H	*clock*	*two*	*to*	*run*
PN	V	CN	NUM	V	V

Sòkpán	ọ̀	má	rhùl̩	ẹ̀ré	fòó.
But	3.SG	NEG.PST	*run*	3.SG	*finish*
CONJ	PRON		V	PRON	ADV

Ozo used two hours to run but he did not finish the race.'

b. **Òzó yé ágógó èvá yá lè ìzẹ́ sòkpán ọ̀má yé gá fòó.**

Òzó	yé	ágógó	èvá	yá	lè	ìzẹ́
Ozo	*use*.PST.H	*clock*	*two*	*to*	*cook*	*rice*
PN	V	CN	NUM	V	V	CN

Sòkpán	ọ̀	má	yé	gá	fòó.
But	3.SG	NEG.PST	*still*	*be cooked*	*finish*
CONJ	PRON		V	V	ADV

'Ozo used two hours to cook the rice but it still wasn't done.'

c. ***Òzó yé ágógó èvá yà sè Ẹ̀dó sòkpán ọ̀má sé ẹ̀ré fòó.**

*Òzó	yé	ágógó	èvá	yà	sè	Ẹ̀dó
Ozo	*use*.PST.H	*clock*	*two*	*to*	*reach*	*Benin*
PN	V	CN	NUM	V	V	CN

Sòkpán	ọ̀	má	sé	ẹ̀ré	fòó.
But	3.SG	NEG.PST	reach	3.SG	finish
CONJ	PRON		V	V	ADV

'Ozo used two hours to reach Benin but he did not finish getting to Benin.'

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 Ẹ̀dó.

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 *mẹ̀tín* 'be able to' are used as illustrations.

(83) a. ***Òzó mẹ̀tín mòsé.**

*Òzó	mẹ̀tín	mòsé.
Ozo	*be able to*.PRES.H	*be beautiful*
PN	V	V

'Ozo can be able to be beautiful.'

b. **Òzó mẹ̀tín rhùlẹ́.**

Òzó	mẹ̀tín	rhùlẹ́.
Ozo	*be able to*.PRES.H	*run*
PN	V	V

'Ozo can run.'

c. **Òzó mẹ̀tín lè èvbàré.**

Òzó	mẹ̀tín	lè	èvbàré.
Ozo	*be able to*.PRES.H	*cook*	*food*
PN	V	V	CN

'Ozo can cook.'

d. **Òzó mẹ̀tín sè Ẹ̀dó.**

Òzó	mẹ̀tín	sè	Ẹ̀dó.
Ozo	*be able to*.PRES.H	*arrive*	*Benin*
PN	V	V	PN

*'*Ozo can arrive in Benin.'*

ok as

'Ozo can stop over in Benin on his way to somewhere else.'

Mẹ̀tín requires a VP complement. It connotes that *Ozo* deliberately learned the act of running and cooking in (83b) & (83c). While in (83d), the speaker asserts that if it pleases 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 *bá* 'deliberately'. As with the English adverbial *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.**

*Òzó	bá	mòsé.
Ozo	*deliberately*.PRES.H	*be beautiful*
PN	ADV	V

'Ozo is deliberately being beautiful.'

b. **Òzó bá rhùlẹ́.**

Òzó	bá	rhùlẹ́.
Ozo	*deliberately*.PRES.H	*run*
PN	ADV	V

'Ozo is deliberately running.'

c. **Òzó bá lé èvbàré.**

Òzó	bá	lé	èvbàré.
Ozo	*deliberately*.PRES.H	*cook*	*food*
PN	ADV	V	CN

'Ozo is deliberately cooking the food.'

d. **Òzó bá sé Ẹ̀dó.**

Òzó	bá	sé	Ẹ̀dó.
Ozo	*deliberately*.PRES.H	*reach*	*Benin*
PN	ADV	V	PN

*'*Ozo deliberately arrived in Benin.'*

ok as

'Ozo purposely stopped over in Benin.'

e *** Òzó bàá wú.**

*Òzó	bàá	wú.
Ozo	*deliberately*.PST.H	*die*
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 Ẹ̀dós, 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 Ẹ̀dó 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 Ẹ̀dó 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 Ẹ̀dó, the facts are the same:

(86) **Òzó rhùlẹ́-rè lá ífúnàrò ìgbè.**

Òzó	rhùlẹ́-rè	lá	ífúnàrò	ìgbè.
Ozo	*run*.PST-rV	*for*	*minute*	*ten*
PN	V	PREP	CN	NUM

'Ozo ran for ten minutes.'

But transitions are not compatible with this adverbial:

(87) a. ***Òzó lé ìyán ọ̀kpà lá ífúnàrò ìgbè.**

*Òzó	lé	ìyán	ọ̀kpà	lá	ífúnàrò	ìgbè.
Ozo	*cook*.PST.H	*yam*	*one*	*for*	*minute*	*ten*
PN	V	CN	NUM	PREP	CN	NUM

'Ozo cooked one yam for ten minutes.'

b. ***Òzó sé Ẹ̀dó lá ífúnàrò ìgbè.**

*Òzó	sé	Ẹ̀dó	lá	ífúnàrò	ìgbè.
Ozo	*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 ọ̀ré Òzó yá rhùlẹ́.**

?Úwé	èháwà	èvá	ọ̀ré	Òzó	yá	rhùlẹ́.
Inside hour		*two*	FOC	*Ozo*	*use*.PST.H	*run*
CN	CN	NUM		PN	V	V

'Ozo ran in two hour.'

b. **Úwé èháwà èvá ọ̀ré Òzó yá lé ọ̀ghẹ̀dẹ̀ ọ̀kpá.**

Úwé	èháwà	èvá	ọ̀ré	Òzó	yá	lé	ọ̀ghẹ̀dẹ̀	ọ̀kpá.
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 ọ̀ré Òzó yá sé Ẹ̀dó.**

Úwé	èháwà	èvá	ọ̀ré	Òzó	yá	sé	Ẹ̀dó.
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. *Khuẹ́* in (89a) is an activity but in (89b), it behaves like an accomplishment when it occurs with the NP *ìbiẹ́kà nìí* 'the children'. It becomes infelicitous with the adverbial phrase *làá ífúnàrò ìgbé*:

(89) a. **Òzó khuẹ́-rè lá ífúnàrò ìgbé.**

Òzó	khuẹ́-rè	lá	ífúnàrò	ìgbé.
Ozo	*bath*.PST-rV	*for*	*minute*	*ten*
PN	V	PREP	CN	NUM

'Ozo bathed for ten minutes.'

b. **?Òzó khuẹ́ ìbiẹ́kà nìí lá ífúnàrò ìgbé.**

?Òzó	khuẹ́	ìbiẹ́kà	nìí	lá	ífúnàrò	ìgbé.
Ozo	*bath*.PST	*child*.PL	*those*	*for*	*minute*	*ten*
PN	V	CN	DET	PREP	CN	NUM

'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. **Òzó lé ọ̀ghẹ̀dẹ̀ lá ẹ̀dé èvá.**

Òzó	lé	ọ̀ghẹ̀dẹ̀	lá	ẹ̀dé	èvá.
Ozo	*cook*.PST.H	*plantain*	*for*	*day*	*two*
PN	V	CN	PREP	CN	NUM

'Ozo cooked plantains for two days.'

b. ***Òzó lé ọ̀ghẹ̀dẹ̀ ọ̀kpá lá ẹ̀dé èvá.**

*Òzó	lé	ọ̀ghẹ̀dẹ̀	ọ̀kpá	lá	ẹ̀dé	èvá.
Ozo	*cook*.PST.H	*plantain*	*one*	*for*	*day*	*two*
PN	V	CN	NUM	PREP	CN	NUM

'Ozo cooked one plantain for two days.'

A second bifurcation is that between transitions and non transitions and the duration/ non duration dichothomy. 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. **Òzó sé Ẹ̀dó vbé ágógó ìgbé.**

Òzó	sé	Ẹ̀dó	vbé	ágógó	ìgbé.
Ozo	*arrive*.PST.H	*Benin*	*at*	*clock*	*ten*
PN	V	PN	PREP	CN	NUM

'Ozo arrived Benin at ten o'clock.'

b. **Òzó wú vbé ágógó ìgbé.**

Òzó	wú	vbé	ágógó	ìgbé.
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 rhùlé̱-rè vbé ágógó ìgbé.**

*Òzó	rhùlé̱-rè	vbé	ágógó	ìgbé.
Ozo	*run*.PST-rV	*at*	*clock*	*ten*
PN	V	PREP	CN	NUM

'Ozo ran at ten o'clock.'

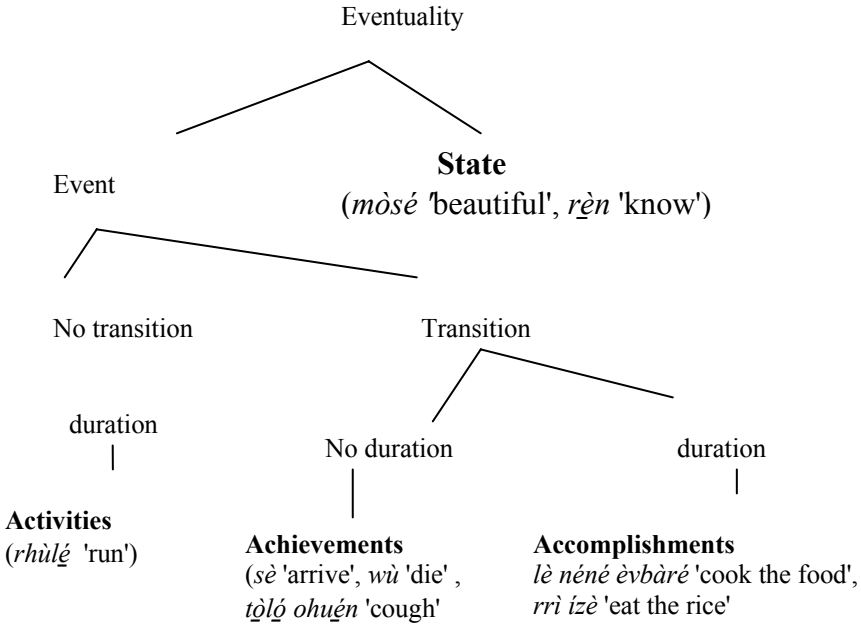
b. ***Òzó lé nèné ò̱ghè̱dè̱ vbé ágógó ìgbé.**

*Òzó	lé	nèné	ò̱ghè̱dè̱	vbé	ágógó	ìgbé.
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 È̱dó as depicted in verbs and constructions in figure 3 below:

Figure 3



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* sub event 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 unsubcategorized 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*.

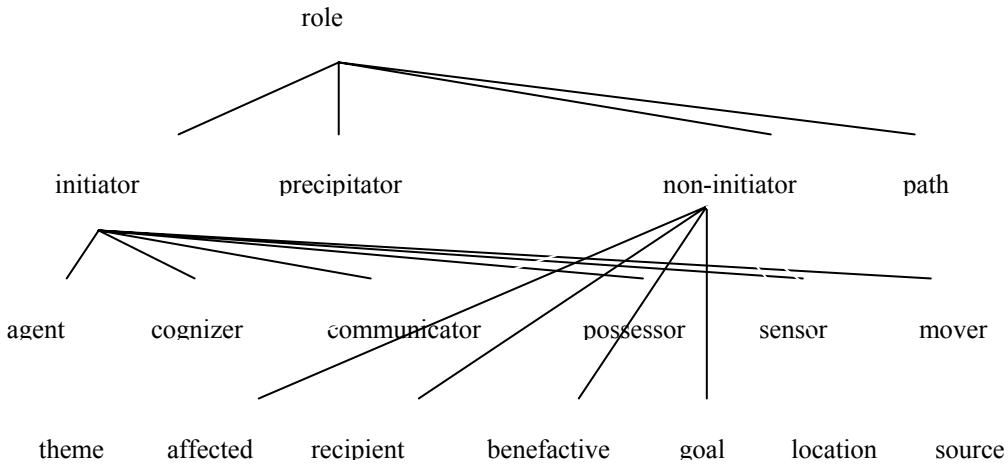
The constraints on these types by their basic aspectual properties are expressed as attributes with boolean values: TELIC [±], DYNAMIC [±], DURATION [±], INCHOATION [±], DEGREE [±] and BALLISTIC [±].

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.

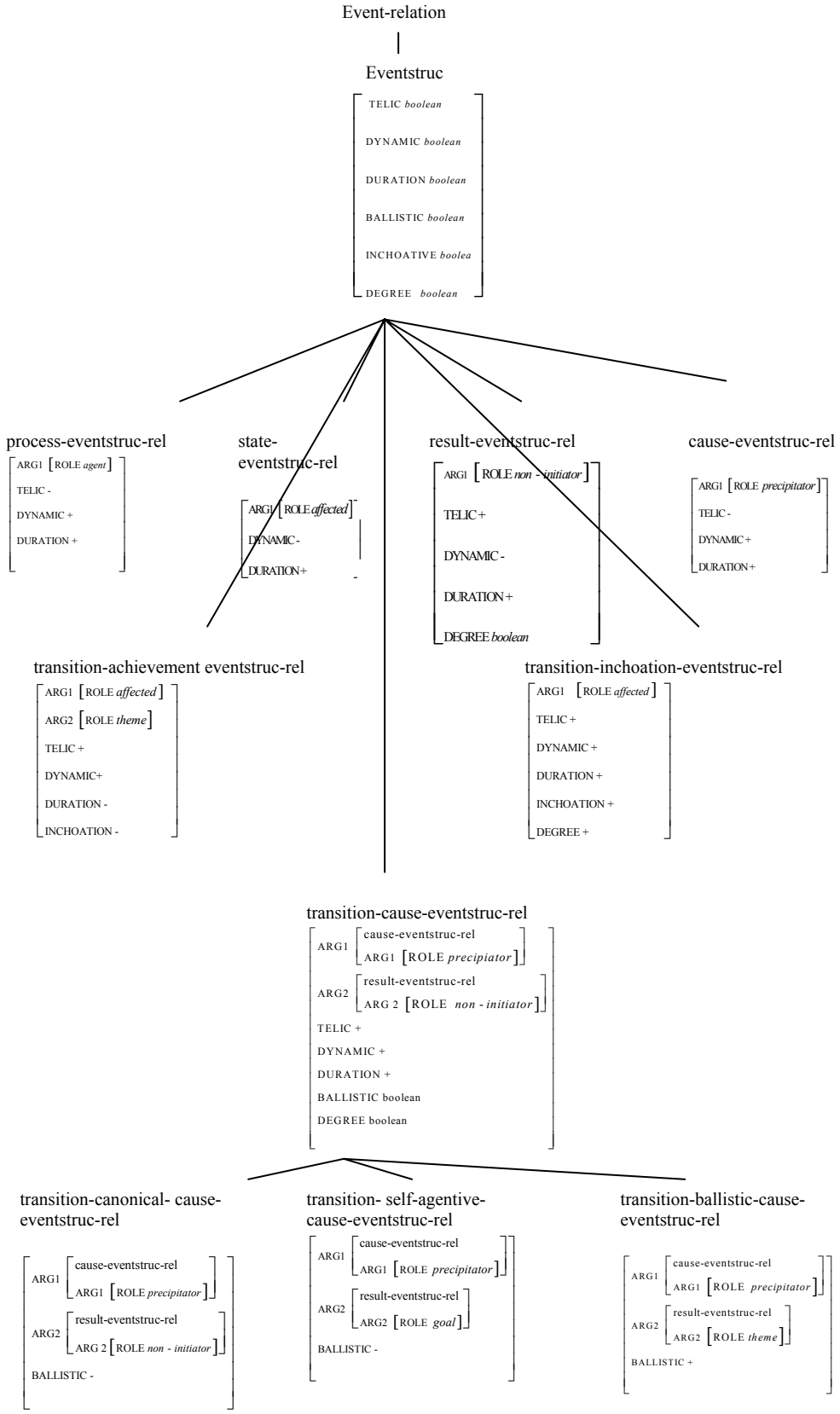
The causal relationship between sub-events in a *transition-cause-eventstruc-rel* is represented as a constraint on the ARG1 and ARG2 attributes constraining this type. ARG1 has the value *cause-eventstruc-rel* that is constrained by the attribute ROLE of the type *precipitator*. ARG2 has the value *result-eventstruc-rel* that is constrained by the attribute ROLE of the type *non-initiator*.
Below in (101) I present the hierarchy of role relations:

(101)



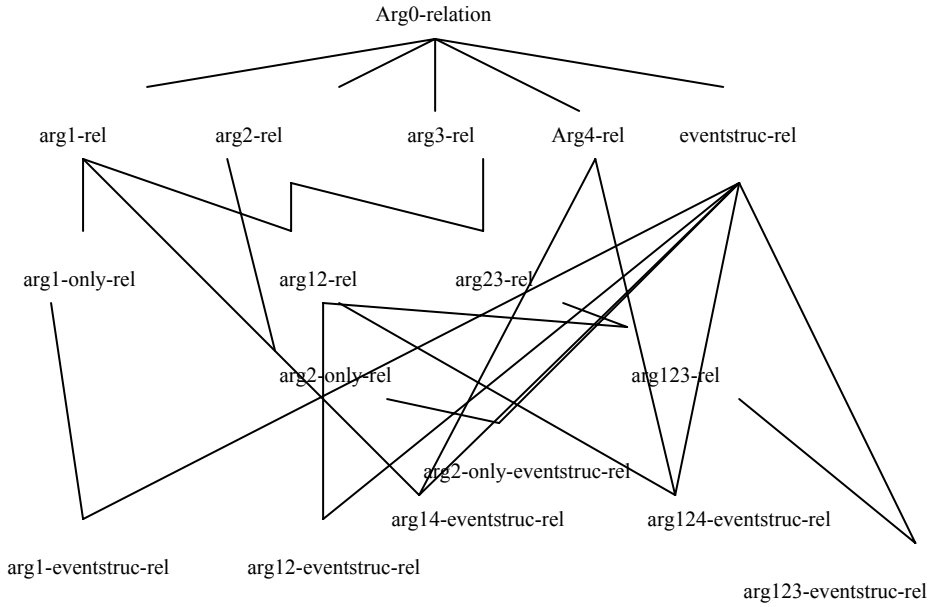
I now present the type hierarchy for event structure relations in (102) below:

(102)


Event-relation
Eventstruc
TELIC boolean
DYNAMIC boolean
DURATION boolean
BALLISTIC boolean
INCHOATIVE boolea
DEGREE boolean
process-eventstruc-rel
ARG1 [ROLE agent]
TELIC -
DYNAMIC +
DURATION +
state-eventstruc-rel
ARG1 [ROLE affected]
DYNAMIC -
DURATION+
result-eventstruc-rel
ARG1 [ROLE non - initiator]
TELIC +
DYNAMIC -
DURATION +
DEGREE boolean
cause-eventstruc-rel
ARG1 [ROLE precipitator]
TELIC -
DYNAMIC +
DURATION +
transition-achievement eventstruc-rel
ARG1 [ROLE affected]
ARG2 [ROLE theme]
TELIC +
DYNAMIC+
DURATION -
INCHOATION -
transition-inchoation-eventstruc-rel
ARG1 [ROLE affected]
TELIC +
DYNAMIC +
DURATION +
INCHOATION +
DEGREE +
transition-cause-eventstruc-rel
ARG1 [cause-eventstruc-rel ARG1 [ROLE precipiator]]
ARG2 [result-eventstruc-rel ARG 2 [ROLE non - initiator]]
TELIC +
DYNAMIC +
DURATION +
BALLISTIC boolean
DEGREE boolean
transition-canonical- cause-eventstruc-rel
ARG1 [cause-eventstruc-rel ARG1 [ROLE precipitator]]
ARG2 [result-eventstruc-rel ARG 2 [ROLE non - initiator]]
BALLISTIC -
transition- self-agentive-cause-eventstruc-rel
ARG1 [cause-eventstruc-rel ARG1 [ROLE precipitator]]
ARG2 [result-eventstruc-rel ARG2 [ROLE goal]]
BALLISTIC -
transition-ballistic-cause-eventstruc-rel
ARG1 [cause-eventstruc-rel ARG1 [ROLE precipitator]]
ARG2 [result-eventstruc-rel ARG2 [ROLE theme]]
BALLISTIC +

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-event-struc-rel* if having a participant of one, inherit from *arg1-eventstruc-rel*. The following constraints show this.

(104) $\begin{bmatrix} \text{arg1} - \textit{process} - \textit{eventstruc} - \textit{rel} \\ \text{ARG1 ref-ind} \end{bmatrix}$

(105) $\begin{bmatrix} \text{arg 1} - \textit{state} - \textit{eventstruc} - \textit{rel} \\ \text{ARG1 ref-ind} \end{bmatrix}$

The type *transition-inchoative-eventstruc-rel* (as in (99) above) also inherit from *arg1-eventstruc-rel* and has the following constraint.

(106) $\begin{bmatrix} \text{arg 1} - \textit{transition} - \textit{inchoative} - \textit{eventstruc} - \textit{rel} \\ \text{ARG1 ref-ind} \end{bmatrix}$

The type *transition-eventstruc* (as in (95) above) may inherit from *arg2-only-eventstruc* and has the following constraint.

(107)
$$\begin{bmatrix} \text{arg 2} - \textit{transition} - \textit{acheivement} - \textit{eventstruc} - \textit{rel} \\ \text{ARG2 ref-ind} \end{bmatrix}$$

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:

(108)
$$\begin{bmatrix} \text{arg 12} - \textit{transition} - \textit{canonical} - \textit{cause} - \textit{eventstruc} - \textit{rel} \\ \text{ARG1 event-or-ref-index} \\ \text{ARG2 event-or-ref-index} \end{bmatrix}$$

(109)
$$\begin{bmatrix} \text{arg 123} - \textit{transition} - \textit{canonical} - \textit{cause} - \textit{eventstruc} - \textit{rel} \\ \text{ARG1 event-or-ref-index} \\ \text{ARG2 event-or-ref-index} \\ \text{ARG3 event-or-ref-index} \end{bmatrix}$$

I use the verb *rhùlé* 'run' a predicate expressing an activity, as illustration in (110) through (113) below.

(110)
intrans-process-verb-lxm := intrans-verb-lxm & arg1-process-subject-lex-item.

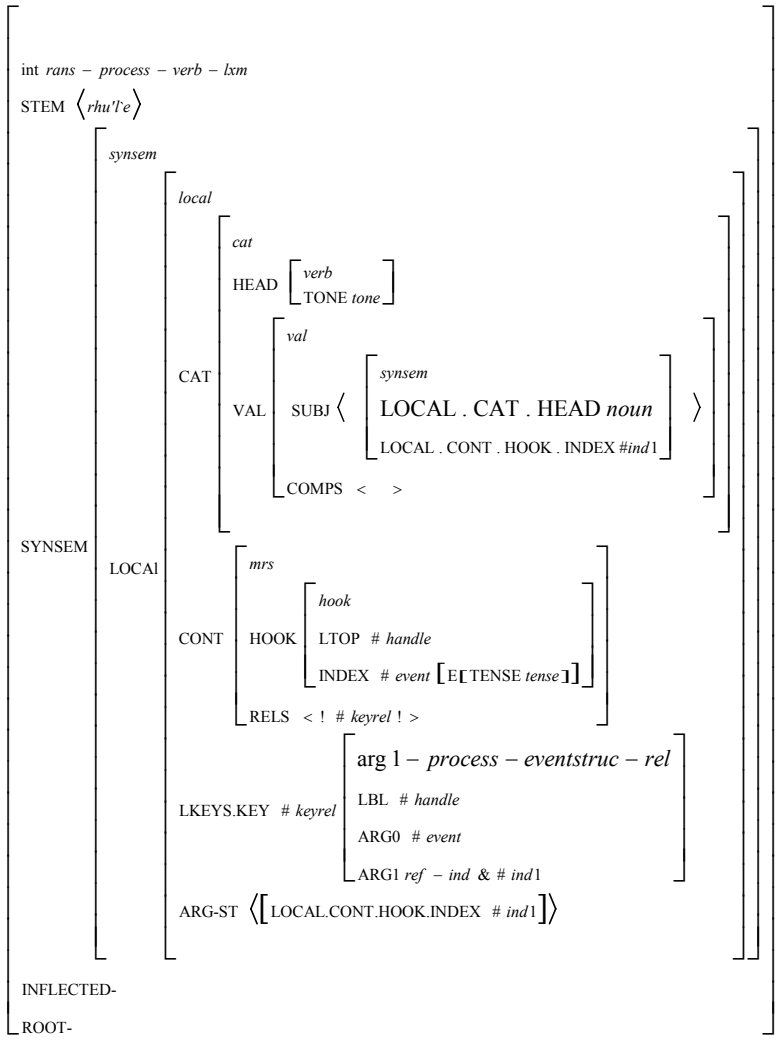
(111) arg1-subject-lex-item

$$\begin{bmatrix} \text{arg1} - \textit{subject} - \textit{lex} - \textit{item} \\ \text{LOCAL.CAT.QVAL.SUBJECT.CONT.HOOK.INDEX \#1} \\ \text{KEYS.KEY.ARG1 \#1} \end{bmatrix}$$

(112) arg1-process-subject-lex-item := arg1-subject-lex-item &

[SYNSEM.LOCAL.CONT.RELS ⟨! arg1-process-eventstruc-relation !⟩]

(113)[46]



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 *process-eventstruc-rel* (as in (106) through (113) above) and those with event structure of the type *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.

[46] The semantic properties constraining the eventstruc-rel types in (104) 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. This is discussed in chapter 7.

(114) a. **Ò gó.**

Ò	gó.
3.SG	*bend*.PRES.H
PRON	V

'It is bending.'

b. **Ò gó-rè.**

Ò	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 &

$$\begin{bmatrix} \text{arg1} - \textit{transition} - \textit{inchoative} - \textit{eventstruc} - \textit{relation} \\ \text{ARG1} \quad \text{ref-ind} \end{bmatrix}$$

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 ẸDÓ: 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 Ẹdó 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 Ẹdó 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 *tòbórè*'by pronoun self' in Ẹdó , 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 Ẹdó 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 Ẹ̀dó

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 11construction 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 constrcutions

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).

(5) a. **Piti den pay rooŋrian mɯ̂awaannɨ́i.**

Piti	den	pay	rooŋrian	mɯ̂awaannɨ́i.
Piti	*walk*	*go*	*school*	*yesterday*
PN	V	V	CN	ADV

'Piti walked in order to get to school yesterday (purpose).'

b. ***Pitiden pay rooŋrian mɯ̂awaannɨ́i nay welaa.**

*Piti	den	pay	rooŋrian	mɯ̂awaannɨ́i	
Piti	*walk*	*go*	*school*	*yesterday*	
PN	V	V	CN	ADV	
nay	welaa		Sìp		naatii.
in	*time*		*ten*		*minute*
PREP	ADV		NUM		ADV

'Piti walked in ten minutes in order to get to school yesterday.'

The goal expression *den pay rooŋrian* 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 *thɯ̂ŋ* meaning 'arrive' or *khan* 'enter':

(6) a. **Piti den pay thɯ̂ŋ rooŋrian mɯ̂awaannɨ́i.**

Piti	den	pay	thɯ̂ŋ	rooŋrian	mɯ̂awaannɨ́i.
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 sìp naatii.**

Piti	den	pay	thûŋ	rooŋrian	nay	welaa
Piti	walk	go	arrive	school	in	time
PN	V	V	V	CN	PREP	ADV

Sìp	naatii.
ten	minute
NUM	ADV

'Piti walked to school in ten mimutes.'

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 *pen ráyáthaaŋ hâa may* 'for distance five miles' and the progressive as *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 *kɯ̀ap* '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 $<_{\propto}$, overlap $o_{\propto}$, and ordered overlap $<o_{\propto}$.[47]

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]This will be discussed in detail in chapter 6 when I discuss temporal relations in multi-verb constructions.

Turning now to Ẹ̀dó 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 sẹ́ ágógó èné.**

Vbé	ágógó	èvá	dó	sẹ́	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.

Table14

Eventuality Type	**Durative adv**:lá (for) ífúnàrò (minutes) X	**Durative adv:** *yé ágógó(time) èvá dó sẹ́ ágógó èné (from 2-to4)*	**Point adv:** *vbé ágógó(time) X*	**Frame adv:** '*vbé (in) ífúnàrò(minutes) X*	**Frame adv:** *Úwé èháwà (hour) X*	**Agency:** *Bá (deliberately)*
States *Kpẹ̀ẹ́* 'be long'	No	No	No	No	No	No
Process *Vi*ẹ́ *'*cry', *Lòó* 'use' *Rhùlẹ́* 'run' *Kòkó* ' gather' *Kpòló* 'sweep' *Gbé* 'dance'	Yes	Yes	No	No	acceptable	Yes
Accomplishments *lé*'cook', *ré* ' eat'	No	Yes	No	Yes	Yes	Yes
Achievements *Fòó* 'finish' *Kpàá* 'leave' *Làọ́* 'enter' *Miẹ́n* 'see' *Kpàán* 'pluck' *Dẹ́* 'buy' *Fián, giá* 'cut' *Suá* 'push', *dé* 'fall'	No	No	Yes	No	Acceptable For some	Acceptable for some

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

V1[48] **(Eventuality type)**	**V2 (Eventuality type)**	**CONSTRUCTION TYPE**	**ASPECTUAL TYPE OF CONSTRUCTION**
Process	State	Duration, resultative, direction, instrumental	State
	Achievement	Location, directional, commitative, durational, instrumental	Achievement
	Accomplishment	Commitative, instrumental	Accomplishment
Accomplishment (Accompl.)	State	Durational, resultatives	State
	Achievement	Durational, consequential	Achievement
	Accomplishment	Consequential, negative resultatives	Accomplishment
Achievement	Achievement	Purpose, resultatives, consequential, negative resultatives, instrumental	Achievement
	Accomplishment	Purpose, consequential	Accomplishment
State (temporal position state)	Event	Manner	Event[49]

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.

[48] The term V1 refers to the first verb in the composition and the term V2 refers to the second verb.
[49] 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 È̲dó *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 V1or 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 vi̲é̲-rè kpè̲é̲.** (state)

Òzó	vi̲é̲-rè	kpè̲é̲.
Ozo	*cry*.PST-rV	*long*
PN	V	ADV

'Ozo cried for a long time.'

b. **Òzó vi̲é̲-rè lá/*vbé ífuánrò ìgbé.** (process)

Òzó	vi̲é̲-rè	lá/*vbé	ífuánrò	ìgbé.
Ozo	*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. ***Òzó kpẹ̀ẹ́ lá/vbé ífuánrò ìgbé.** (state)

*Òzó	kpẹ̀ẹ́	lá/vbé	ífuánrò	ìgbé.
Ozo	*long*.PST.H	*for/in*	*minutes*	*ten*
PN	V	PREP/PREP	CN	NUM

d. ***Òzó ví̩-rè kpẹ̀ẹ́ lá/vbé ífuánrò ìgbé.**

*Òzó	ví̩-rè	kpẹ̀ẹ́	lá/vbé	ífuánrò	ìgbé.
Ozo	*cry*.PST-rV	*long*	*for/in*	*minutes*	*ten*
PN	V	ADV	PREP/PREP	CN	NUM

'Ozo cried long for/in ten minutes.'

(14) a. **Òzó lòó òrí fòó.** (achievement)

Òzó	lòó	òrí	fòó.
Ozo	*use*.PST.H	*cream*	*finish*
PN	V	CN	ADV

'Ozo finished the cream.'

b. **Òzó lòó òrí fòó vbé ágógó ìgbé.** (achievement)

Òzó	lòó	òrí	fòó	vbé	ágógó	ìgbé.
Ozo	*use.* PST.H	*cream*	*finish*	*in*	*clock*	*ten*
PN	V	CN	ADV	PREP	CN	NUM

'Ozo finished the cream at ten o'clock,

or

Ozo finished using the cream at ten o'clock.'

c. **Òzó lòó òrí kpẹ̀ẹ́.** (state)

Òzó	lòó	òrí	kpẹ̀ẹ́.
Ozo	*use*.PST.H	*cream*	*long*
PN	V	CN	ADV

'Ozo used the cream for a long time.'

d. ***Òzó lòó òrí kpẹ̀ẹ́ vbé ágógó ìgbé.**

*Òzó	lòó	òrí	kpẹ̀ẹ́	vbé	ágógó	ìgbé.
Ozo	*use.*PST.H	*cream*	*long*	*in*	*clock*	*ten*
PN	V	CN	ADV	PREP	CN	NUM

'Ozo used the cream for a long time at ten o'clock.'

(13a) has the interpretation that there is a crying event *vié* (a verb) and *kpẹ̀ẹ́* (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, *kpẹ̀ẹ́*[51] 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 *kpẹ̀ẹ́* 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 *kpẹ̀ẹ́* ((14c) & (14d)). Importantly the point adverbial test is licensed in the former, while it is not for the latter. *Ló* 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 Ẹ̀dó.

(15) **Òzó lòó òrí *vbé/lá ífuánrò ìgbé.** (process)

Òzó	lòó	òrí	*vbé/lá	ífuánrò	ìgbé.
Ozo	*use.*PST.H	*cream*	**in/for*	*minute*	*ten*
PN	V	CN	PREP/PREP	CN	NUM

'Ozo used the cream for ten minutes.'

(16) **Òrí fó-rò vbé ágógó ìgbé.** (achievement)

Òrí	fó-rò	vbé	ágógó	ìgbé.
Cream	*finish.*PST-rV	*in*	*clock*	*ten*
CN	V	PREP	CN	NUM

'The cream finished at ten o'clock.'

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 *fó* 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 Ẹ̀dó 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.**

O-da	kye.
3.SG-*sleep*	*long*
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 Ẹ̀dó. 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 ví̱-rè kpè̱́ èś̱sè.** (durational)

Òzó	ví̱-rè	kpè̱́	èś̱sè.
Ozo	*cry*.PST-rV	*long*	*very much*
PN	V	ADV	ADV

'*Ozo cried intensely for a long time,*

**Ozo cried for a very long time (whereby intensely modifies be long).'*

(19) ***Òzó vi̱é̱-rè è̱sésè kpè̱é̱.**

*Òzó	vi̱é̱-rè	è̱sésè	kpè̱é̱.
Ozo	*cry*.PST-rV	*very much*	*long*
PN	V	ADV	ADV

In (18), *vi̱é̱* 'cry' is modified by both *kpè̱é̱* 'be long' and *è̱sé̱sè* 'very much'. The ordering between *kpè̱é̱* and *è̱sé̱sè* in (19) is not possible. Aspectual modifiers/ auxiliary elements must precede other modifiers. This is further buttressed by example (20) below:

(20) a. **Òzó vi̱é̱-rè né̱ è̱sé̱sè.**

Òzó	vi̱é̱-rè	né̱	è̱sé̱sè.	
Ozo	*cry*.PST-rV	PERF	*very much*	
PN	V		ADV	

'Ozo had finished crying intensively.'

b. ***Òzó vi̱é̱-rè è̱sé̱sè né̱.**

*Òzó	vi̱é̱-rè	è̱sé̱sè	né̱.	
Ozo	*cry*.PST-rV	*very much*	PERF	
PN	V	ADV		

Né̱ marks the perfective aspect in È̱dó. It must occur immediately after the verb. A further indication to *Kpè̱é̱'s* loss of verbal status in (18) can be seen from the fact that it can occur with the adverb *è̱sé̱sè* when it occurs as an independent verb in a simple sentence.

(21) **Òzó kpè̱é̱-rè è̱sé̱sè.**

Òzó	kpè̱é̱-rè		è̱sé̱sè.
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 *fó* 'finished'[53] and its adverb counterpart *fòó* 'finished' illustrates this (Agheyisi1990:63-66 also discusses this phenomenon).

(22) a. **Òzó vi̱é-rè fòó.** (durational)

Òzó	vi̱é-rè	fòó.
Ozo	*cry.*PST-rV	*finish*
PN	V	ADV

'Ozo has finished crying.'

b. ***Òzó vi̱é-rè fó.** (durational)

*Òzó	vi̱é-rè	fó.
Ozo	*cry.*PST-rV	*finish*
PN	V	V

'Ozo has finished crying.'

(23) a. **Ízi̱è khián fó.**

Ízi̱è	khián	fó.
Rice	*inceptive marker*	*finish*
CN	AUX	V

'The rice will soon finish.'

[53] This contrast is also found between *kpàá* 'away' and *kpàó*'leave' (Aigbe 1985) as in

(a) **Òzó rhùlé-rè kpàá.** (directional)
Òzó rhùlé-rè kpàá.
Ozo *run.*PST-rV *away*
'Ozo ran away (away from the speaker).'

(b) **Í kpàó.** (Omoregie 1983)
Í kpàó.
I *leave*.PST.H
'I left.'

b. ***Ízẹ̀ khián fòó.**

*Ízẹ̀	khián	fòó.
Ize	*inceptive marker*	*finish* (adverb)
CN	AUX	ADV

'The rice will soon finish.'

The verb *fó* 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 *fó*. It can only occur as a main verb ((23a)) but not as a modifier ((23b)).

Indeed the pattern observed with respect to *fó* and *fòó* is attested with other categorial types in Ẹ̀dó.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. **Àmẹ̀ tué-rè kùá.**

Àmẹ̀	tué-rè	kùá.
Water	*pour*.PST-rV	*away* (adverb)
CN	V	ADV

'Water poured away.'

b. **Àmẹ̀ tué-rè kuè ótò̩.**

Àmẹ̀	tué-rè	ku[54]è	ótò̩
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 *fíí* '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	*stone*
PN	V	CN

'Ozo threw a stone.'

b. **Òzó suá ẹ̀wé fìí ẹ́zé.**

Òzó	suá	ẹ̀wé	fìí	ẹ́zé.
Ozo	*push*.PST.H	*goat*	*into*	*river*
PN	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 Ẹ̀dó 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.

(27) **Ì rhié ẹ̀ré yé èvbá.**

Ì	rhié	ẹ̀ré	yé	èvbá (Ẹ̀dó, Melzian 1937: 228)
1SG	*take*.PST	3SG	*on*	*there*
PRON	V	PRON	PREP	ADV

'I put it there.'

(28) **Ìjòkórò ọ̀ré Òzó rhié ìgàn yí.**

Ìjòkórò	ọ̀ré	Òzó	rhié	ìgàn	yí.	(Ẹ̀dó, Stewart 1998:169)
Small chair	FOC	*Ozo*	*take*	*feather*	*on*	
CN	PN	V	CN		PREP	

'It's on a small chair that Ozo put the feather.'

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:

Ẹ̀dó has only one verb *làọ́ "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 rhùlẹ́-rè làọ́ òwá.** (achievement)

Òzó	rhùlẹ́-rè	làọ́	òwá.
Ozo	*run.*PST-rV	*enter*	*house*
PN	V	ADV	CN

'Ozo ran into the house.'

b. **Òzó làọ́ òwá vbé ágógó ìgbé.** (achievement)

Òzó	làọ́	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 làọ́ òwá lá ífuánrò ìgbé.** (achievement)

*Òzó	làọ́	òwá	lá	ífuánrò	ìgbé.
*Ozo	*enter.*PST.H	*house*	*for*	*minute*	*ten*
PN	V	CN	PREP	CN	NUM

'Ozo entered the house for ten minutes.'

d. **Òzó rhùlẹ́-rè làọ́ òwá vbé/*lá ífuánrò ìgbé.** (achievement)

Òzó	rhùlẹ́-rè	làọ́	òwá	vbé/*lá	ífuánrò ìgbé.
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) **Òzó gbé-rè làọ́ óróré.** (achievement)

Òzó	gbé-rè	làọ́	óróré.
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 V1while they are in the latter:

(31) ***Òzó rhùlẹ́-rè ẹ́gìẹ́gìẹ́ làọ́ òwá.**

*Òzó	rhùlẹ́-rè	ẹ́gìẹ́gìẹ́	làọ́	òwá.
Ozo	*run.*PST-rV	*quickly*	*enter*	*house*
PN	V	ADV	ADV	CN

'Ozo ran quickly into the house.'

(32) **Òzó lé èvbàré ẹ́gìẹ́gìẹ́ vbé òwá.**

Òzó	lé	èvbàré	ẹ́gìẹ́gìẹ́	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 Ẹ̀dó has two forms: *ẹ́gìẹ́gìẹ́* and *gìẹ́gìẹ́*. 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. **Òzó rhùlẹ́ dèé.** (progressive state)

Òzó	rhùlẹ́	dèé.
Ozo	*run.*PRS.H	*coming*
PN	V	ADV

'Ozo is running towards me.'

b. **Òzó rhùlẹ́ lá ífuánrò ìgbé.** (process)

Òzó	rhùlẹ́	lá	ífuánrò	ìgbé.
Ozo	*run.*PST.H	*in*	*minutes*	*ten*
PN	V	PREP	CN	NUM

'Ozo ran for ten minutes.'

c. ***Òzó dèé lá/vbé ífuánrò ìgbé.** (progressive state)

*Òzó	dèé	lá/vbé	ífuánrò ìgbé.	
Ozo	*coming*	*for/in*	*minute ten*	
PN	V	PREP/PREP	CN	NUM

'Ozo is coming towards me for/ in ten minutes.'

d. ***Òzó rhùl̲é dèé lá/vbé ífuánrò ìgbé.**

*Òzó	rhùl̲é	dèé	lá/vbé	ífuánrò ìgbé.	
Ozo	*run*	*coming*	*for/in*	*minute ten*	
PN	V	ADV	PREP/PREP	CN	NUM

'Ozo is running towards me for/ in ten minute.'

(34) a. **Òzó rhùl̲é kpàǫ̲.** (achievement)

Òzó	rhùl̲é	kpàǫ̲.	
Ozo	*run*.PST.H	*leave*	
PN	V	ADV	

'Ozo ran away.'

b. ***Òzó rhùl̲é vbé ágógó ìgbé.** (process)

*Òzó	rhùl̲é	vbé	ágógó	ìgbé.	
Ozo	*run*.PST.H	*in*	*clock*	*ten*	
PN	V	PREP	CN	NUM	

'Ozo ran at ten o'clock.'

c. **Òzó kpàǫ̲ vbéágógó ìgbé.** (achievement)

Òzó	kpàǫ̲	vbé	ágógó	ìgbé.	
Ozo	*leave*.PST.H	*in*	*clock*	*ten*	
PN	V	PREP	CN	NUM	

'Ozo left at ten o'clock.'

d. **Òzó rhùl̲é kpàǫ̲ vbé ágógó ìgbé.** (achievement)

Òzó	rhùl̲é	kpàǫ̲	vbé	ágógó	ìgbé.	
Ozo	*run*.PST.H	*leave*	*in*	*clock*	*ten*	
PN	V	ADV	PREP	CN	NUM	

'Ozo ran away at ten o'clock.'

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 *rhùl̲é* licenses the durative adverbial when used in a simple sentence (33b), *dèé* '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), *rhùl̲é* , being a process verb, never licenses the point adverbial while *kpà̲ó* 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) **Òzó dìgi̲é̲n-rè̲n rrí èvbàré.** (accomplishment)

Òzó	dìgi̲é̲n-rè̲n	rrí[55]	èvbàré.
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.'

[55] The verb eat has two forms: *rrí* 'eat + transitive' and *ré* 'eat + intransitive'.

As discussed in chapter 3, temporal position states typically encode stative as well as process information. Unlike most states in Ẹ̀dó, they license the durative adverbial (recall that they also license the do test):

(36) **Òzó dìgiẹ́n-rẹ̀n lá/*vbé ífuánrò ìgbé.** (temporal position state)

Òzó	dìgiẹ́n-rẹ̀n	lá/*vbé	ífuánrò	ìgbé.
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 dìgiẹ́n-rẹ̀n rrí èvbàré vbé/*lá ífuánrò ìgbé.** (accomplishment)

Òzó	dìgiẹ́n-rẹ̀n	rrí	èvbàré	vbé/*lá	ífuánrò	ìgbé.
Ozo	*bent.*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 dìgiẹ́n-rẹ̀n lá ífuánrò ìgbé, rrí èvbàré nìí.**

Òzó	dìgiẹ́n-rẹ̀n	lá	ífuánrò	ìgbé,	rrí	èvbàré	nìí.
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 Ẹ̀dó adverbs. Adverbs in Ẹ̀dó 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. *Gìẹ́gìẹ́* 'quickly' is preverbal while *ẹ̀gìẹ́gìẹ́* 'quickly' is post verbal.[56]

(39) a. **Òzó giẹ́!giẹ́ /* ẹ̀gìẹ́gìẹ́ viẹ́.** (past)

Òzó	giẹ́!giẹ́ /	* ẹ̀gìẹ́gìẹ́	viẹ́.
Ozo	*quickly*.PST.H!H/	**quickly*	*cry*.PST.H
PN	ADV	ADV	V

'Ozo quickly cried.'

b. **Òzó gìẹ́gìẹ́/* ẹ̀gìẹ́gìẹ́ viẹ́.** (present)

Òzó	gìẹ́gìẹ́/	* ẹ̀gìẹ́gìẹ́	viẹ́.
Ozo	*quickly*.PRS.H/**quickly*		*cry*.PRS.H
PN	ADV	ADV	V

'Ozo is quickly crying.'

(40) a. **Òzó viẹ́-rè ẹ̀gìẹ́gìẹ́ / * giẹ́!giẹ́.** (past)

Òzó	viẹ́-rè	ẹ̀gìẹ́gìẹ́ / * giẹ́!giẹ́ .	
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. *Gèlé* (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. *Fẹ̀kó* also does not change in phonological form (41b) but licenses the *–rV* suffix in pre verbal positions (41a).

b. **Òzó vi̱é è̱gì̱é̱gì̱é̱/*gì̱é̱gì̱é̱.** (present)

Òzó	vi̱é	è̱gì̱é̱gì̱é̱/*gì̱é̱gì̱é̱ .
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. **Òzó fè̱kó-rò gi̱é̱!gi̱é̱ gé!lé gbé.**

Òzó	fè̱kó-rò	gi̱é̱!gi̱é̱	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. **Òzó gé!lé gi̱é̱!gi̱é̱ fé̱!kó gbé.**

Òzó	gé!lé	gi̱é̱!gi̱é̱	fé̱!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) ***Òzó gbé-rè fé̱!kó gi̱é̱!gi̱é̱.**

*Òzó	gbé-rè	fé̱!kó	gi̱é̱!gi̱é̱.
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).

(43) **Òzó gié!gié fé!kó dí!gién lé èvbàré.** (manner)

Òzó	gié!gié	fé!kó	dí!gién	lé	èvbàré.
Ozo	*quickly.*PST.H!H	*gently.*PST.H!H	*stoop.*H!H	*cook.*PST.H	*food*
PN	ADV	ADV	ADV	V	CN

'Ozo quickly gently stooping, cooked the food. '[57]

(44) **Òzó dìgién-rèn fé!kó gié!gié lé èvbàré.**

Òzó	dìgién-rèn	fé!kó	gié!gié	lé	èvbàré.
Ozo	*stoop.*PST-rV	*gently.*PST.H!H	*quickly.*PST.H!H	*cook.*PST.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)

(45) **Òzó fèkó-rò dí!gién gié!gié lé èvbàré.**

Òzó	fèkó-rò	dí!gién	gié!gié	lé	èvbàré.
Ozo	*gently.*PST-rV	*stoop.*PST.H!H	*quickly.*PST.H!H	*cook.*PST.H	*food*
PN	ADV	ADV	ADV	V	CN

'Ozo gently stooping quickly cooked the food (manner).

Or

?Ozo gently bent, and quickly cooked the food '(covert co-ordination)

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 *dìgié́n* and the preverbal adverbs in (43) and (44). Particularly in (44), we find that preverbal adverbs occur after *dìgié́n* 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 *dìgié́n* is functioning as an adverb occurring in an adjunction relationship to the verb with the other preverbal adverbs *gìégìé* and *fèkó*. 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, *fẹ̀kó and gìẹ́gìẹ́* are interpreted as pre-verbal modifiers modifying V2 in VP2 (44) and in (45) *fẹ̀kó* modifies VP1 and *gìẹ́gìẹ́* 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 *dìgiẹ̀n* 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 *bánbánná* "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 fẹ̀kó-rò dí!giẹ́n bánbánná giẹ́!giẹ́ dó lé èvbàré.**

Òzó fẹ̀kó-rò dí!giẹ́n bánbánná giẹ́!giẹ́ 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 bánbánná fẹ̀kó-rò giẹ́!giẹ́ dí!giẹ́n dó lé èvbàré.**

* Òzó bánbánná fẹ̀kó-rò giẹ́!giẹ́

Ozo just now gently.PST-rV *quickly*.PST.H!H

PN ADV ADV ADV

dí!giẹ́n dó lé èvbàré.

bent.PST.H!H SM *cook*.PST.H *food*

ADV V CN

c. *** Òzó fɛ̀kó-rò gié!gié bánbánná dí!gién dó lé èvbàré.**

* Òzó	fɛ̀kó-rò		gié!gié	bánbánná
Ozo	*gently.*PST-rV		*quickly.*PST.H!H	*just now*
PN	ADV		Adv	ADV

dí!gién	dó	lé	èvbàré.
*bent.*PST.H!H	SM	*cook.*PST.H	*food*
ADV		V	CN

d. *** Òzó dí!gién fɛ̀kó-rò gié!gié bánbánná dó lé èvbàré.**

* Òzó	dí!gién		fɛ̀kó-rò	gié!gié
Ozo	*bent.*PST.H!H		*gently.*PST-rV	*quickly.*PST.H!H
PN	ADV		ADV	ADV

bánbánná	dó	lé	èvbàré.
just now	SM	*cook.*PST.H	*food*
ADV		V	CN

Furthermore in (47) below, *rhùlé* 'run' when used as a verb can occur with *gìégìé*. However when *rhú!lé* 'quickly' is used as an adverb in a manner construction, it cannot occur with *gìégìé* '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.**

Òzó	rhùlé-rè / rhú!lé	lé	èvbàré.
Ozo	*run.*PST-rV/*quickly.*PST.H!H	*cook* .PST.H	*food*
PN	V / ADV	V	CN

'Ozo ran, and cooked the food/

or

Ozo quickly cooked the food.'

b. **Òzó gié!gié rhú!lé ,lé èvbàré.**

Òzó	gié!gié	rhú!lé ,	lé	èvbàré .
Ozo	*quickly*.PST.H!H	*run*.PST.H!H	*cook*.PST.H	*food*
PN	ADV	V	V	CN

'Ozo quickly ran and (afterwards) cooked the food.'

c. ***Òzó gié!gié rhú!lé lé èvbàré.**

*Òzó	gié!gié	rhú!lé	lé	èvbàré.
Ozo	*quickly*.PST.H!H	*quickly*.PST.H!H	*cook*.PST.H	*food*
PN	ADV	ADV	V	CN

'Ozo quickly quickly cooked the food.'

Manner SVCs may be found in Yoruba and Kinyarwanda (Kimenyi 1980).

COMPARATIVE CONSTRUCTIONS

The notion of comparison in Ẹ̀dó is expressed by the verb *sèé "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 sẹ̀é Àzàrí.**

Òzó	mòsè	sẹ̀é	Àzàrí.
Ozo	*be beautiful.PRS*	*Surpass.PRS*	*Azari*
PN	V	V	PN

'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]

[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 Ẹ̀dó, the event is 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	*catch*	*goat*	*give*	*medicine*
PN	V	CN	V	CN

'Musa caught a goat to give it medicine.'

(50) **Òzó miẹ̀n àlìmóí kpá!án.** (Ẹ̀dó)

Òzó	miẹ̀n	àlìmóí	kpá!án.
Ozo	*see*.PST.H	*orange*	*pluck*
PN	V	CN	V

'Ozo saw an orange to pluck.'

According to them, V2 in purpose constructions in Nupe is not always asserted while in Ẹ̀dó, 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 Ẹ̀dó 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 mi̱én àlìmoí vbé ágógó ìgbé.** (achievement)

Òzó	mi̱én	àlìmoí	vbé	ágógó	ìgbé.
Ozo	*saw*.PST.H	*orange*	*in*	*clock*	*ten*
PN	V	CN	PREP	CN	NUM

'Ozo saw an orange at ten o'clock.'

b. ***Òzó mi̱én àlìmoí lá ífuánrò ìgbé.** (achievement)

*Òzó	mi̱én	àlìmoí	lá	ífuánrò	ìgbé.
Ozo	*saw*.PST.H	*orange*	*for*	*minutes*	*ten*
PN	V	CN	PREP	CN	NUM

'Ozo saw an orange for ten minutes.'

c. **Òzó kpàán àlìmoí vbé ágógó ìgbé.** (achievement)

Òzó	kpàán	àlìmoí	vbé	ágógó	ìgbé.
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 àlìmoí lá ífuánrò ìgbé.** (achievement)

*Òzó	kpàán	àlìmoí	lá	ífuánrò	ìgbé.
Ozo	*pluck*.PST.H	*orange*	*for*	*minutes*	*ten*
PN	V	CN	PREP	CN	NUM

'Ozo plucked the orange for ten minutes.'

e. **Òzó mi̱én àlìmóí kpá!án vbé ágógó ìgbé.** (achievement)

Òzó	mi̱én	àlìmóí	kpá!án	vbé	ágógó	ìgbé.
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.'

f. ***Òzó mi̱én àlìmóí kpá!án lá ífuánrò ìgbé.** (achievement)

*Òzó	mi̱én	àlìmóí	kpá!án	lá	ífuánrò	ìgbé.
Ozo	*see.*PST.H	*orange*	*pluck*	*for*	*minutes*	*ten*
PN	V	CN	V	PREP	CN	NUM

'Ozo saw an orange to pluck for ten minutes.'

(52) **Òzó mi̱én èvbàré lé vbé ágógó ìgbé.** (achievement)

Òzó	mi̱én	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 È̱dó.

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-rè̱n kié è̱khú.**

Òzó	miànmián-rè̱n	kié	è̱khú.	
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.

COMITATIVE CONSTRUCTIONS

In comitative constructions V1 indicates group participation in an event. Ẹ̀dó 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 dẹ́ ímọ́tò.**

Ìràn	kòkó-rò	dẹ́	ímọ́tò.
3.PL	*gather.*PST-rV	*buy*	*car*
PRON	V	V	CN

'They bought the car together (joint ownership)'

(55) **Íràn gbá dé.**

Íràn	gbá	dé.
3.PL	*be.together.*PST.H	*fall*
PRON	V	V

'They fell together.'

(56) **Íràn kùgbé-rè rrí ízẹ̀.**

Íràn	kùgbé-rè	rrí	ízẹ̀.
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 dẹ́ ímọ́tó vbé ágógó èvá dósẹ́ ágógó èné.** (achievement)

*Íràn	kòkó-rò	dẹ́	ímọ́tó	vbé	ágógó	èvá
3.PL	*gather*.PST-rV	*buy*	*car*	*from*	*clock*	*two*
PRON	V	V	CN	PREP	CN	NUM
dó	sẹ́	ágógó	èné.			
SECM	*reach*	*clock*	*four*			
	V	CN	NUM			

'They gathered together to buy the car from two to four o'clock.'

b. **Íràn dẹ́ ímọ́tó vbé ágógó èvá.** (achievement)

Íràn	dẹ́	ímọ́tó	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 ọ̀gọ́ lá ífuánrò ìgbé.** (process)

Íràn	kòkó	ọ̀gọ́	lá	ífuánrò	ìgbé.
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 sẹ́ 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	sẹ́	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 èvbáré* 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 Ẹ̀dó: *yá* 'use' *lòó* 'use' and *rhié* 'take'. While *yá* 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, yé*), the only restriction on V2 is that it be a transition.

(59) **Òzó yé/ lòó éhọ̀ fián ìrrí.**

Òzó	yé/ lòó	éhọ̀	fián	ìrrí.
Ozo	*use*.PST.H/*use*.PST.H	*knife*	*cut*	*rope*
PN	V/ V	CN	V	CN

'Ozo used a knife to cut the rope.'

(60) **Òzó rhìé éhọ̀ fián ìrrí.**

Òzó	rhìé	éhọ̀	fián	ìrrí.
Ozo	*take*.PST.H	*knife*	*cut*	*rope*
PN	V	CN	V	CN

'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 lòó ẹ̀hó fián néné ìrrí vbé/*lá ífuánrò ọ̀kpá.** (achievement)

Òzó lòó ẹ̀hó fián néné ìrrí vbé/*lá ífuánrò ọ̀kpá.

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 lòó ẹ̀hó fián né èmiówò vbé/*lá ífuánrò ìgbé.** (accomplishment)

Òzó lòó ẹ̀hó fián né èmiówò vbé/*lá ífuánrò ìgbé.

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 lòó ọ́kpià giá ìrùnmwùn lá/*vbé ífuánrò ìgbé.** (process)

Òzó lòó ọ́kpià giá[59] ìrùnmwùn lá/*vbé ífuánrò ìgbé.

Ozo use.PST.H *cutlass cut grass for/*in minute ten*

PN V CN V CN PREP/PREP CN NUM

*'Ozo used a cutlass to cut grass for ten minutes/*in ten minutes.'*

(63) **Òzó lòó ọ́kpià giá néné ìrùnmwùn vbé/*lá ífuánrò ìgbé.**

Òzó lòó ọ́kpià giá néné ìrùnmwùn vbé/*lá ífuánrò ìgbé.

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 ìrrí* in (61a) represents a punctual culminative event while the VP in (61b) *fián né èmiówó* and (63) *giá néné Ìrùnmwùn* are accomplishments and consists 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 *giá ìrùnmwùn* 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 *giá* 'cut'.

the *vbé ágógó èvá dó sẹ́ ágógó èné* ‘from 2 pm- 4pm’ test to further illustrate the above claim:

(64) a. ***Òzó lòó ẹ̀hó fián néné ìrrí vbé ágógó èvá dó sẹ́ ágógó èné.**

*Òzó	lòó	ẹ̀hó	fián	néné	ìrrí	vbé	ágógó	èvá
Ozo	*use.*PST.H	*knife*	*cut*	*the*	*rope*	*in*	*clock*	*two*
PN	V	CN	V	DET	CN	PREP	CN	NUM

dó sẹ́ ágógó èné.

SECM *reach clock four*

V CN NUM

'Ozo used a knife to cut the rope from 2pm to 4pm.'

b. **Òzó lòó èhọ́ fián néné èmiówó vbé ágógó èvá dó sẹ́ ágógó èné.**

Òzó	lòó	èhọ́	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 sẹ́ ágógó èné.

SECM *reach clock four*

V CN NUM

'Ozo used a knife to cut the mea t (a large chunk) from 2pm to 4pm.'

(65) **Òzó lòó ọ́kpià giá ìrùnmwùn vbé ágógó èvá dó sẹ́ ágógó èné.**

Òzó	lòó	ọ́kpià	giá	ìrùnmwùn	vbé	ágógó	èvá
Ozo	*use.*PST.H	*cutlass*	*cut*	*grass*	*in*	*clock*	*two*
PN	V	CN	V	CN	PREP	CN	NUM

dó sẹ́ ágógó èné.

SECM *reach clock four*

V CN NUM

'Ozo used a cutlass to cut grass from 2pm to 4pm.'

(66) **Òzó lòó ọ́kpià giá néné ìrùnmwùn vbé ágógó èvá dó sẹ́ ágógó ènẹ́.**

Òzó	lòó		ọ́kpià	giá	néné	ìrùnmwùn	vbé	ágógó	èvá.
Ozo	*use*.PST.H		*cutlass*	*cut*	*the*	*grass*	*in*	*time*	*two*
PN	V		CN	V	DET	CN	PREP	CN	NUM
dó	sẹ́	ágógó	ènẹ́.						
SECM	*reach*	*clock*	*four*						
	V	CN	NUM						

'Ozo used a cutlass to cut the 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 Ẹ̀dó are *gí* 'let', which occurs without an overt complementizer introducing V2, and *zẹ̀ẹ́* '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 gí íràn múòhú.**

Òzó	gí[60]	íràn	múòhú.
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 òtò̲.** (achievement)

Òzó	suá	Àzàrí	dé	gbé	òtò̲.
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 gí íràn ghá lé èvbàré**

Òzó	gí	íràn	ghá	lé	èvbàré
Ozo	*let.*PST.H	3.PL	*to*	*cook*	*food*
PN	V	PRON	AUX	V	CN

'Ozo allowed them to cook the food.'

b. ***Ò kàkàbó dé.**

*Ò	kàkàbó	dé.
It	*exceedingly*.PST.H	*fall*
PN	ADV	V

'It fell extremely.'

(69) a. **Òzó hòó úkpòn huán.** (degree state)

Òzó	hòó	úkpòn	huán.
Ozo	*wash*.PST.H	*cloth*	*clean*.PST.H
PN	V	CN	V

'Ozo washed the clothes clean.'

b. **Ò kàkàbó huán.**

Ò	kàkàbó	huán.
It	*exceedingly*.PST.H	*clean*
PRON	ADV	V

'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 òtọ̀ vbé ágógó èvá dó sẹ́ ágógó èné.**

*Òzó	suá	Àzàrí	dé	gbé	òtọ̀	vbé	ágógó	èvá
Ozo	*push*.PST.H	*Azari*	*fall*.PST.H	*against*	*ground*	*from*	*clock*	*two*
PN	V	PN	V	PREP	CN	PREP	CN	NUM

dó	sẹ́	ágógó	èné.
SECM	*reach.PST.H*	*clock*	*four*
	V	CN	NUM

'Ozo pushed Azari down from 2pm to 4pm.'

b. **Òzó suá Àzàrí dé gbé òtọ̀ vbé ágógó èvá /*ífuánrò èvá.**

Òzó	suá	Àzàrí	dé	gbé	òtọ̀	(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 họ̀ọ́ úkpọ̀n huán vbé ágógó èvá.** (degree state)

*Òzó	họ̀ọ́	úkpọ̀n	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 ífuánrò èvá.** (degree state)

Òzó	hòó	úkpòn	huán	vbé	ífuánrò	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 Ẹ̀dó.

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 ẹ́bò miẹ́n òkán.**

Òzó	gá	ẹ́bò	miẹ́n	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 ébọ̀* 'serve juju', an accomplishment event, licenses the occurrence with the

durative phrase, but in (74) this phrase is not licensed since *guọ̀ghọ́ 'break'* expresses an achievement event:

(73) **Òzó gá ébọ̀ mi̱ẹ́n òkán vbé ùkí né ọ́ gbéràá dó sẹ́ ùkí ná.**

Òzó	gá	ébọ̀	mi̱ẹ́n	òkán	vbé	ùkí	né
Ozo	*serve*.PST.H	*juju*	*enter*.PST.H	*trouble*	*in*	*week*	*COMP*
PN	V	CN	V	CN	PREP	CN	

Ọ́	gbéràá	dó	sẹ́	ùkí	ná.
PLUG	*Past*	SECM	*reach*.PST.H	*week*	*this*
PRON	V		V	CN	DET

'Ozo served juju and received trouble as his reward from last week to this week.'

(74) ***Òzó guọ̀ghọ́ úwáwà làọ́ ẹ̀mwẹ́n vbé ùkí né ọ́ gbéràá dó sẹ́ ùkí ná.**

*Òzó	guọ̀ghọ́	úwáwà	làọ́	ẹ̀mwẹ́n	vbé	ùkí	né
Ozo	*break*.PST.H	*pot*	*enter*.PST.H	*trouble*	*in*	*week*	*COMP*
PN	V	CN	V	CN	PREP	CN	

Ọ́	gbéràá	dó	sẹ́	ùkí	ná.
PLUG	*Past*	*SM*	*reach.PST.H*	*week*	*this*
PRON	V		V	CN	DET

'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 *guọ̀ghọ́* 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 ízẹ̀ ré.**

Òzó	lé	ízẹ̀	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 Ẹ̀dó 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 Ẹ̀dó.

(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)).

(77) **Òzó dẹ́ ízẹ̀ , rrí ọ̀ré.**

Òzó	dẹ́	ízẹ̀	, rrí	ọ̀ré.
Ozo	*buy.PST.H*	*rice*	*, eat.PST.H*	*it*
PN	V	CN	V	PRON

'Ozo bought rice and ate it.'

(78) **Òzó lé ízẹ̀ , kpòló òwá.**

Òzó	lé	ízẹ̀	,	kpòló	òwá.
Ozo	*cook.PST.H*	*rice*		*sweep.PST.H*	*house*
PN	V	CN		V	CN

'Ozo cooked rice and swept the house.'

(79) **Òzó gbé, tótà.**

Òzó	gbé,	tótà.
Ozo	*dance.PST.H*	*sat.PST*
PN	V	V

'Ozo danced, and sat.'

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 Ẹ̀dó. 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 *tòbọ́rè* "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+infinitival complements*, *V(P)+ V(P)* and the *V+mood* constructions are multi-verb constructions. I discuss this immediately below and in this chapter.

(81)

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+ 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:

V+modifier constructions

(82) **Òzó vi̱é-rè fòó**. (durational)

Òzó	vi̱é-rè	fòó.	
Ozo	*cry*.PST-rV	*finish*	
PN	V	ADV	
		MODIFIER	

'Ozo has finished crying.'

VP+VP constructions

(83) **Òzó dé̱ èbé tìé.** (consequential)

Òzó	dé	èbé	tìé.
Ozo	*buy*.PST.H	*book*	*read*
PN	V		V
	VP		VP

'Ozo bought a book and read.'

V+mood constructions (purpose)

(84) **Òzó mi̱ẹ́n àkhé gu̱ó!gẖó.**

Òzó	mi̱ẹ́n	àkhé	gu̱ó!gẖó.
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) **Íràn kùgbé-rè (yá) rrí ízè.**

Íràn	kùgbé-rè	(yá)	rrí	ízè̱.
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 Ẹ̀dó 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 Ẹ̀dó. I illustrate with the following examples:

V+modifier constructions

(86) **Òzó ọ̀ré ọ̀ viẹ́-rè kpẹ̀ẹ́.** (durational)

Òzó	ọ̀ré	ọ̀	viẹ́-rè	kpẹ̀ẹ́.
Ozo	FOC	PLUG[61]	*cry*.PST-rV	*long*
PN		PRON	V	ADV

'It is Ozo that cried long.'

V+infinitival complement constructions

(87) **Èhọ́ ọ̀ré Òzó lòó-rò fián èmiówò.** (instrumental)

Èhọ́	ọ̀ré	Òzó	lòó-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 ọ̀ré Òzó suá dé.** (resultative)

Àzàrí	ọ̀ré	Òzó	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 ọ̀ré Òzó dẹ́ lé.** (consequential)

Ìyán	ọ̀ré	Òzó	dẹ́	lé.
Yam	FOC	*Ozo*	*buy.*PST.H	*cook.*PST.H
CN		PN	V	V

'It is yam Ozo bought and cooked.'

(90) **Ìyán ọ̀ré Òzó dẹ́ èmi!ówó lé.** (covert co-ordination)

Ìyán	ọ̀ré	Òzó	dẹ́	èmi!ówó	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 ọ̀ré Òzó kó!kó dún!mwún.** (covert co-ordination)

Ìyán	ọ̀ré	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 ọ̀ré Òzó dẹ́ èmi!ówó vbé lé.** (overt coordination)

* Ìyán	ọ̀ré	Òzó	dẹ́	èmi!ówó	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) **Àlìmòí ọ̀ré Òzó mi̱en-rẹ̀n kpá!án.** (purpose construction)

Àlìmòí	ọ̀ré	Òzó	mi̱en-rẹ̀n	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 *vbé* '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. **Òzó vi̱é-rè kpè̱é̱.** (durational-past)

Òzó	vi̱é-rè	kpè̱é̱.
Ozo	*cry*.PST-rV	*long*
PN	V	ADV

'Ozo cried for a long time.'

b. **Òzó vi̱é kpè̱é̱.** (durational-present)

Òzó	vi̱é	kpè̱é̱.
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 È̱dó. The tone on the reanalyzed verb is constant.

V+infinitival complement constructions

(95) a. **Òzó lòó èhó̱ fián èmiówò.** (instrumental-past)

Òzó	lòó	èhó̱	fián	èmiówò.
Ozo	*use*.PST.H	*knife*	*cut*	*meat*
PN	V	CN	V	CN

'Ozo used a knife to cut the meat.'

b. **Òzó lòò èhó̱ fián èmiówò.** (instrumental-present)

Òzó	lòò	èhó̱	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. **Òzó suá Àzàrí dé**. (resultative-past)

Òzó	suá	Àzàrí	dé.
Ozo	*Push*.PST.H	*Azari*	*fall*.PST.H
PN	V	PN	V

'Ozo Pushed Azari down.'

b. **Òzó suà Àzàrí dè**. (resultative-present)

Òzó	suà	Àzàrí	dè.
Ozo	*Push.*PRS.L	*Azari*	*fall.*PRS.L
PN	V	PN	V

'Ozo Pushes Azari down (often).'

(97) a. **Òzó dẹ́ ìyán lé**. (consequential-past)

Òzó	dẹ́	ìyán	lé.
Ozo	*buy.*PST.H	*yam*	*cook.*PST.H
PN	V	CN	V

'Ozo bought yam and cooked.'

b. **Òzó dẹ̀ ìyán lè.** (consequential-present)

Òzó	dẹ̀	ìyán	lè.
Ozo	*buy.*PRS.L	*yam*	*cook.*PRS.L
PN	V	CN	V

'Ozo buys yam and cooks.'

(98) a. **Òzó dẹ́ ìyán lé ẹ̀ré.** (covert coordination-past)

Òzó	dẹ́	ìyán	lé	ẹ̀ré.
Ozo	*buy.*PST.H	*yam*	*cook.*PST.H	3.SG
PN	V	CN	V	PRON

'Ozo bought yam and cooked it.'

b. **Òzó dẹ̀ ìyán lè ẹ̀ré.** (covert coordination-present)

Òzó	dẹ̀	ìyán	lè	ẹ̀ré.
Ozo	*buy.*PRS.L	*yam*	*cook.*PRS.L	3.SG
PN	V	CN		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 mi̱én àlìmòí kpá!án.** (purpose construction-past)

Òzó	mi̱én	àlìmòí	kpá!án.
Ozo	*see*.PST.H	*orange*	*pluck*
PN	V	CN	V

'Ozo saw an orange to pluck.'

b. **Òzó mi̱ẹn àlìmòí kpá!án.** (purpose construction-present)

Òzó	mi̱ẹn	àlìmòí	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 e̱hó yá fián èmió!wò.** (instrumental-past)

Òzó	lòó	e̱hó	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 preceeding 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+infinitival complement* constructions, the *V+mood* constructions where there is no identity in tense, aspect and mood values between V1and V2, V2 has a fixed high tone. This also applies to *V+modifier* constructions where V2 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+ infinitival* complement (an infinitival marker before V2) and the *V+mood* constructions (a high down stepped high tone on V2). Here V1 and V2 do not have the same value for tense and mood. Also, as will be discussed below *-rV* suffixation may be licensed on V1 when V2 does not share the same tense domain as V1.

With respect to licensing of lexical tense-bearing elements such as the future marker *ghá* and negation markers such as the present negative marker *í* in Ẹ̀dó, such items are only licensed before V1:

V+modifier constructions

(103) **Òzó ghá/í viẹ̀ * ghá//í kpẹ̀ẹ́.** (future/negative)

Òzó	ghá/í	viẹ̀	* ghá//í	kpẹ̀ẹ́.
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/í lòò èhọ́* ghá/í fián èmiówò.** (future/negative)

Òzó	ghá/í	lòò	èhọ́	* ghá/í	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/í suà Àzàrí * ghá/ídè.** (resultatives)

Òzó	ghá/í	suà	Àzàrí	* ghá/í	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/í dẹ̀ ìyán * ghá/í lè.** (consequential)

Òzó	ghá/í	dẹ̀	ìyán	* ghá/í	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.'

(107) **Òzó ghá/í dẹ̀ ìyán * ghá /í lè ẹ̀ré.** (covert coordination)

Òzó	ghá/í	dẹ̀	ìyán	* ghá /í	lè	ẹ̀ré.
Ozo	FUT/NEG.PRES	*buy*	*yam*	FUT/PRS.NEG	*cook*	3.SG
PN		V	CN		V	PRON

'Ozo will buy yam and cook it/ Ozo is not buying yams and cooking it.'

V+mood constructions

(108) **Òzó ghá/í mi̱ẹ̀n àlìmòí * ghá/í kpá!án.** (purpose)

Òzó	ghá/í	mi̱ẹ̀n	àlìmòí	* ghá/í	kpá!án.
Ozo	FUT/NEG.PRES	*see*	*orange*	*FUT/PRS.NEG	*pluck*
PN		V	CN		V

'Ozo will see an orange to pluck/ Ozo does not see oranges to pluck.'

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 Ẹ̀dó data in (103) through (108) show that there is only one finite tense realization in Ẹ̀dó 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:

VP+VP constructions

(109) **Àzàrí ọ̀ré Òzó suá dé.** (resultative)

Àzàrí	ọ̀ré	Òzó	suá	dé.
Azari	FOC	*Ozo*	*Push*.PST.H	*fall*.PST.H
PN		PN	V	V

'It is Azari Ozo Pushed down.'

(110) **Ìyán ọ̀ré Òzó dẹ́ lé.** (consequential)

Ìyán	ọ̀ré	Òzó	dẹ́	lé.
Yam	FOC	*Ozo*	*buy*.PST.H	*cook*.PST.H
CN		PN	V	V

'It is yam Ozo bought and cooked.'

(111) **Ìyán ọ̀ré Òzó dẹ́ èmi!ówó lé.** (covert co-ordination)

Ìyán	ọ̀ré	Òzó	dẹ́	èmi!ówó	lé.
Yam	FOC	*Ozo*	*buy*.PST.H	*meat*	*cook*.PST.H
CN		PN	V	CN	V

'It is yam Ozo bought meat and cooked.'

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 V1, and in light verb constructions, it attaches to V2. 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.

TABLE 16: Past tense in simple constructions

SYLLABIC STRUCTURE	**INTRANS OR EXTRACTED DIRECT-OBJECT OR IMPLICIT OBJECT**	**TRANS (OBJECT PRESENT IN CANONICAL OBJECT POSITION)**
UNISYLL	High tone on verb stem +rV suffix (cv́+ rV̀)	High tone on the verb stem (cv́)
DISYLL	High tone on final syllable of verb stem +rV suffix (cvcv́+rV̀)	High tone on final syllable of verb stem (cvcv́)

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 (E̲dó): 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 E̲dó *–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):

(114) a. **Òzó gìá ìrhùnmwùn khèré.**

Òzó	gìá	ìrhùnmwùn	khèré.
Ozo	*cut.*PST.H	*grass*	*small.*PST.H (verb)
PN	V	CN	V

'Ozo cut the grass a little bit.'

b. **Ìrhùnmwùn o̱ré Òzó gìá(-*rè) khèré(*-rè).**

Ìrhùnmwùn	o̱ré	Òzó	gìá(-*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 gìá ìrhùnmwùn khéréé.**

Òzó	gìá	ìrhùnmwùn	khéréé.
Ozo	*cut*.PST.H	*grass*	*small* (adjective)
PN	V	CN	ADJ

'Ozo cut the grass short.'

b. **Ìrhùnmwùn o̱ré Òzó gìá-rè khéréé.**

Ìrhùnmwùn	o̱ré	Òzó	gìá-rè	khéréé.
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 *gìá* 'cut' but has an intervening object NP and *–rV* is not licensed when the object *ìrhùnmwùn* 'grass' is realized non-canonically. On the other hand, in (115), the adjective *khèréé* 'small' modifies the noun *ìrhùnmwùn* 'grass' and does not form a right branch with the verb *gìá* '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.

Igbo, a Benue-Congo language spoken in Eastern Nigeria also has this suffix.
Igbo

(116) **Ḿ rè-re jí (wè-é) bya.**

Ḿ	rè-re	jí	(wè-é)	bya.
Isg	*sell*-AFF	*yam*	*take*-AFF	*come.*AFF
PRON	V	CN	V	V

'I sold the yams and (then) came.'

Unlike *-rV* in Ẹ̀dó, 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 Ẹ̀dó 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 table17 below:

TABLE 17 *-rV* licensing in multi-verb constructions

CONSTRUCTION	**VI IS FINITE**	**V2 IS A MOOD CLAUSE**	**V2 IS AN INFINITIVAL CLAUSE**	**ONE VERB RE-ANALYZED AS ADV/PREP**	**RV SUFFIX ON V1**	**Tone On V2**
V+modifier durational, directional, manner and locational constructions	Yes	No	No	Yes	Yes	High
V+infinitival complement instrumental and comitative constructions	Yes	No	Yes	No	Yes	High
VP+ V(P) Resultative, negative resultative, consequential and covert co-ordination, constructions	Yes	No	No	No	No	STANDARD TENSE MARKING: High in Past and low in present
V+mood Purpose Constructions	Yes	Yes	No	No	Yes	High-Downstepped-High/high

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 Ẹ̀dó (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+modifier* constructions (durational, directional, manner and locational), *V+infinitival complement* constructions (instrumentals and comitative) and *V+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].[63]
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[64] 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.

[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.

(117) **Òzó vi̱é̱-rè kpè̱é̱.** (durational)

Òzó	vi̱é̱-rè	kpè̱é̱.
Ozo	*cry.*PST-rV	*long*
PN	V	ADV

'Ozo cried for a long time.'

(118) **Òzó rhùlé̱-rè kpàá.** (directional)

Òzó	rhùlé̱-rè	kpàá.
Ozo	*run.*PST-rV	*away*
PN	V	ADV

'Ozo ran away (away from the speaker).'

(119) **Òzó dìgié̱n-rè̱n lé èvbàré.** (manner)

Òzó	dìgié̱n-rè̱n	lé	èvbàré.
Ozo	*stoop.*PST-rV	*cook*	*food*
PN	V	V	CN

'Ozo was bent while cooking.'

(120) **Òzó rhùlé̱-rè làó̱ òwá.** (locational)

Òzó	rhùlé̱-rè	làó̱	òwá.
Ozo	*run.*PST-rV	*into*	*house*
PN	V	ADV	CN

'Ozo ran into the house.'

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) ***Òzó vié kpèé-rè.** (durational)

*Òzó	vié	kpèé-rè.
Ozo	*cry*.PST	*be long*.PST-rV
PN	V	ADV

(122) *** Èvbàré òré Òzó dìgién- rèn lé(*-rè).** (manner)

* Èvbàré	òré	Òzó	dìgién- 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) **Òzó kpèé-rè.**

Òzó	kpèé-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 ọ̀ré Òzó lé-rè.**

Èvbàré	ọ̀ré	Òzó	lé-rè.
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 re-analyzed 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 dí!gién lé èvbàré.** (manner)

Òzó	gié!gié	fé!kó	dí!gién	lé	èvbàré.
Ozo	*quickly.*PST.H!H	*gently.*PST.H!H	*stoop.*H!H	*cook.*PST.H	*food*
PN	ADV	ADV	ADV	V	CN

'Ozo quickly gently stooping, cooked the food. '[66]

b. **Òzó dìgién-rèn fé!kó gié!gié lé èvbàré.**

Òzó	dìgién-rèn	fé!kó	gié!gié	lé	èvbàré.
Ozo	*stoop.*PST-rV	*gently.*PST.H!H	*quickly.*PST.H!H	*cook.*PST.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. **Òzó gi̱é!gi̱é fé!kó rhú!lé ré.** (direction)

Òzó	gi̱é!gi̱é	fé!kó	rhú!lé	ré.[67]
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. ***Òzó rhùlé-rè gi̱é!gi̱é fé!kó ré.**

*Òzó	rhùlé-rè	gi̱é!gi̱é	fé!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

$$[\text{V1}[\text{verb}], \text{V2}[\text{verb}]] \Rightarrow [\text{Adv}, \text{V2}]$$

(128) Directional, durational and locational constructions

INPUT OUTPUT

$$[\text{V1}[\text{verb}], \text{V2}[\text{verb}]] \Rightarrow \left[\text{V1}, \left\{\begin{matrix}\text{Adv}\\ \text{Prep}\end{matrix}\right\}\right]$$

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+modifier* constructions, this high downstepped high tone pattern is spread only to V1 as in the following example:

(129) **Òzó gié!gié dí!gién bolo òká.**

Òzó	gié!gié	dí!gién	bòló	òká.
Ozo	*quickly*.PST.H!H	*bend*.PST.H!H	*peal*	*corn*
PN	ADV	ADV	V	CN

'Ozo quickly bent to peal the corn.'

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) **Òzó gi!ẹ́gi ẹ́ kó!kó Àdésúwà mó!sé.**

Òzó	gi!ẹ́gi ẹ́	kó!kó	Àdésúwà	mó!sé.
Ozo	*quickly*.PST.H!H	*raise*.PST.H!H	*Adesuwa*	*beautiful*.H!H
PN	ADV	V	PN	V

'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 miẹ̀nìyán èvá lé.**

Òzó	ghá	miẹ̀n	ìyán	èvá	lé.
Ozo	FUT	*see*	*yam*	*two*	*cook*
PN		V	CN	NUM	V

'Ozo will see two yams to cook (and do so).'

(133) **Àlìmóí ọ̀ré íràn miẹ̀n-rẹ̀n kpá!án.**

Àlìmóí	ọ̀ré	íràn	miẹ̀n-rẹ̀n	kpá!án.
Orange	FOC	3.PL	*see*.PST-rV	*pluck*.H!H
CN		PRON	V	V

'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)).

(134) **Òzó mi̱ẹ́n ìyán èvá té lé.**

Òzó	mi̱ẹ́n	ìyán	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. ***Òzó mi̱ẹ́n ìyán èvá té lé.**

*Òzó	mi̱ẹ́n	ìyán	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. **Òzó té mi̱ẹ́n ìyán èvá lé.**

Òzó	té	mi̱ẹ́n	ìyán	èvá	lé.
Ozo	*used to*	*see.*PST.H	*yam*	*two*	*cook*
PN	AUX	V	CN	NUM	V

'Ozo used to see two yams cook.'

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) ***Òzó vi̱ẹ́-rè té kpè̱ẹ́.** (durational)

*Òzó	vi̱ẹ́-rè	té	kpè̱ẹ́.
Ozo	*cry.*PST-rV	AUX	*be long*
PN	V	AUX	ADV

(137) ***Òzó rhùlẹ́-rè té kpàá.** (directional)

*Òzó	rhùlẹ́-rè	té	kpàá.
Ozo	*run.*PST-rV	AUX	*go*
PN	V	AUX	ADV

(138) ***Òzó dìgiẹ́n-rẹ̀n té lé èvbàré.** (manner)

*Òzó	dìgiẹ́n-rẹ̀n	té	lé	èvbàré.
Ozo	*stoop.*PST-rV	AUX	*cook*	*food*
PN	ADV	AUX	V	CN

(139) ***Òzó rhùlẹ́-rè té làǫ́ òwá.** (locational)

*Òzó	rhùlẹ́-rè	té	làǫ́	òwá.
Ozo	*run.*PST-rV	AUX	*enter*	*house*
PN	V	AUX	PREP	CN

From example (133) above, we can see that the purpose construction behaves like the *V+modifier* construction in the licensing of *–rV* on V1.

In summary, I represent the conditions for *rV s*uffixation 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 *tòbo̱rè* '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) **Íràn kùgbé-rè kó!kó ízè̱.** (comitative)

Íràn	kùgbé-rè	kó!kó	ízè̱.
3.PL	*join.together*.PST-rV	*gather*	*rice*
PRON	V	V	CN

'They joined together to gather rice.'

(142) **Èhò̱ o̱ré Òzó rhié-rè fián àlímóí.** (instrumental)

Èhò̱	o̱ré	Òzó	rhié-rè	fián	àlímóí.
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 *tòbọ́rè* '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) **Íràn$_k$ kùgbé-rè yá tòbíràn$_k$ rrí ízẹ̀.** (comitative)

Íràn$_k$	kùgbé-rè	yá	tòbíràn$_k$	rrí	ízẹ̀
They	*join.together*.PST-rV	INF	*by*.3Pl.selves	*eat*.H	*rice*
3.PL	V	AUX	PRON	V	CN

'They eat the rice together by themselves.'

In (141) the verb *kùgbé* 'join.together' subcategorizes for an infinitival complement *kó!kó ízẹ̀* 'gather rice' and in (142) the verb *rhìé* 'take' subcategorizes for an NP object *èhọ̀* 'knife' and an infinitival complement *fián àlímóí* ' cut orange'. In (143) the infinitival complement of *kùgbé* 'join.together' is introduced by the infinitival marker *yá*. In (142) the object of *rhìé* '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:

Òzó khàá-rè ìghé Àtìtí ghá rrè.

Òzó	khàá-rè	ìghé	Àtìtí	ghá	rrè.
Ozo	*say*.PST-rV	COMP	*Atiti*	*will*	*come*
PN	V	PN	AUX	V	

'Ozo said that Atiti would come.'

(144)

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 Òzó suá-rè dé gbé òtò.** (resultative)

*Àzàrí ọ́ré		Òzó	suá-rè	dé	gbé	òtò.
Azari	FOC	*Ozo*	*push.*PST-rV	*fall.*PST.H	*against ground*	
PN		PN	V	V	PREP	CN

'It is Azari Ozo pushed down.'

(146) ***Ízɛ̀ ò̲ré Òzó dɛ́-rè ré.** (consequential)

*Ízɛ̀	ò̲ré	Òzó	dɛ́-rè	ré.
Rice	FOC	*Ozo*	*buy.*PST-rV	*eat.*PST.H
CN		PN	V	V

'It is rice Ozo bought and ate.'

(147) ***È̲bò ò̲ré Òzógá-rè miɛ́n òkán.** (negative resultative)

*È̲bò	ò̲ré	Òzó	gá-rè	miɛ́n	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 È̲dó. 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 ò̲ré Òzó suá dé.** (resultative)

Àzàrí	ò̲ré	Òzó	suá	dé.
Azari	FOC	*Ozo*	*push.*PST.H	*fall.*PST.H
PN		PN	V	V

'It is Azari Ozo pushed down.'

(149) **Ízɛ̀ ò̲réÒzó dɛ́ ré.** (consequential)

Ízɛ̀	ò̲ré	Òzó	dɛ́	ré.
Rice	FOC	*Ozo*	*buy.*PST.H	*eat.*PST.H
CN		PN	V	V

'It is rice Ozo bought and ate.'

(150) **Ẹ̀bò ọ̀ré Òzó gá mi ẹ́n òkán.** (negative resultative.)

Ẹ̀bò	ọ̀ré	Òzó	gá	mi ẹ́n	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 ọ̀ré Òzó dẹ́ èmi!ówó lé.** (covert co-ordination)

Ìyán	ọ̀ré	Òzó	dẹ́	èmi!ówó	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 ọ̀ré Òzó dẹ́ èmi!ówó vbé lé.** (overt coordination)

* Ìyán	ọ̀ré	Òzó	dẹ́	èmi!ówó	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) *** Ízẹ̀ ọ̀ré Òzó dẹ́-rè ré.** (covert co-ordination)

* Ízẹ̀	ọ̀ré	Òzó	dẹ́-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) **Àlìmóí ọ̀ré íràn mi̱ẹn-rẹ̀n kpá!án.** (purposive)

Àlìmóí	ọ̀ré	íràn	mi̱ẹn-rẹ̀n	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) **Èhọ̀ ọ̀ré Òzó rhìé-rè fián àlímóí.** (instrumental)

Èhọ̀	ọ̀ré	Òzó	rhìé-rè	fián	àlímóí.
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 *mi̱ẹ́n* 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.

(156) **Òzó suà Àzàrí dè gbé òtọ̀.** (resultative)

Òzó	suà	Àzàrí	dè	gbé	òtọ̀.
Ozo	*push*.PRS.L	*Azari*	*fall*.PRS.L	*against*	*ground*
PN	V	CN		PREP	CN

'Ozo pushes Azari down (everytime).'

(157) **Òzó dẹ̀ ízẹ̀ rè.** (consequential)

Òzó	dẹ̀	ízẹ̀	rè.
Ozo	*buy*.PRS.L	*rice*	*eat*.PRS.L
PN	V	CN	V

'Ozo buys rice and eats.'

(158) **Òzó gà ẹ̀bò miẹ̀n òkán.** (negative resultative)

Òzó	gà	ẹ̀bò	miẹ̀n	òkán.
Ozo	*serve*.PRS.L	*juju*	*receive*.PRS.L	*distress*
PN	V	CN	V	CN

'Ozo serves gods and gets trouble as his reward (always).'

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 dẹ̀ ízẹ̀ ré.** (consequential)

*Òzó	dẹ̀	ízẹ̀	ré.
Ozo	*buy*.PRS.L	*rice*	*eat*.PRS.L
PN	V	CN	V

'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.[69] 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.

[69] The term grammaticalization was introduced by Meillet (1912) as meaning the attribution of a grammatical character to a formerly independent word.

(162)

Revised Grammaticalization Cline

Full verb > auxiliary > clitic > affix

|

Light verb

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 Ẹ̀dó, 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 Ẹ̀dó below.

Light verb constructions in Ẹ̀dó 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 ọ́mọ́mọ́.**

Òzó	mú	ọ́mọ́mọ́.
Ozo	*carry*.PST.H	*baby*
PN	V	CN

'Ozo carried a baby.'

b. **Ọ́mọ́mọ́ vbóvbó.**

Ọ́mọ́mọ́	vbóvbó.
Child	*back a child*.PST.H *(carry on back)*
CN	V

'The baby was on the back (of a person).'

c. **Òzó mú ọ́mọ́mọ́ vbóvbó.**

Òzó	mú	ọ́mọ́mọ́	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 ízẹ̀.**

Òzó	mú	ízẹ̀.
Ozo	*carry*.PST.H	*rice*
PN	V	CN

'Ozo carried the rice.'

b. **Òzó lɛ̱ré-rè.**

Òzó lɛ̱ré-rè.

Ozo hide.PST-rV

PN V

'Ozo hid.'

c. ***Ízɛ̱̀ lɛ̱ré-rè.**

*Ízɛ̱̀ lɛ̱ré-rè.

Rice hide.PST-rV

'Rice hid.'

d. ***Òzó lɛ̱ré ízɛ̱̀.**

*Òzó lɛ̱ré ízɛ̱̀.

Ozo hide.PST *rice*

PN V CN

'Ozo hid the rice.'

e. **Òzó mú ízɛ̱̀ lɛ̱ré.**

Òzó mú ízɛ̱̀ lɛ̱ré

Ozo ?carry.PST.H *rice hide*.PST.H

PN V CN V

'Ozo hid the rice.'

In (164a) *mú* subcategorizes for an agent and a theme while in (164b) *lɛ̱ré* 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 *Òzó* and the shared inanimate NP *ízɛ̱̀*.

Finally, some light verbs make visible contribution to the meaning of the predication as in (165).

(165) a. **Òzó fí úkpo̱n gbé Èmérí.**

Òzó	fí	úkpo̱n	gbé	Èmérí.
Ozo	*throw*.PST.H	*cloth*	*against*	*Mary*
PN	V	CN	PREP	CN

'Ozo threw the cloth on Mary.'

b. **Òzó wèrrie̱ èbélí úkpo̱n lá òwá.**

Òzó	wèrrie̱	èbélí	úkpo̱n	lá	òwá.
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 úkpo̱n wèrrie̱.**

Òzó	fí	úkpo̱n	wèrrie̱.
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 *wèrrie̱* '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 *wèrrie̱* 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) **Ǫ́mǫ́mǫ́ o̱ré Òzó mú vbóvbó-rò.**

Ǫ́mǫ́mǫ́	o̱ré	Òzó	mú	vbóvbó-rò.
Baby	FOC	*Ozo*	*?carry*	*back a child*.PST-rV
CN		PN	V	V

'It is a child Ozo backed.'

(167) **Ízẹ̀ ọ̀ré Òzó mú lẹ̀ré-rè.**

Ízẹ̀	ọ̀ré	Òzó	mú	lẹ̀ré-rè.
Rice	FOC	*Ozo*	*?carry.* PST.H	*hide.*PST-rV
CN		PN	V	V

'It is rice Ozo hid.'

(168) **Úkpọ̀n ọ̀ré Òzó fí wèrrié-rè.**

Úkpọ̀n	ọ̀ré	Òzó	fí	wèrrié-rè.
Clothe	FOC	*Ozo*	*?throw.*PST.H	*roll.over.*PST-rV
CN		PN	V	V

'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 Ẹ̀dó. For instance in (168), the verb complex *fí+wèrrié* may be nominalized as in (169) below:

(169) á (nominal prefix) + fí wèrrié → áfíwèrrié (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 ɖ̩ɔ́ 'cover' and a satellite kpɔ́ '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 kpɔ́ '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 È̲dó example in (169), the verb kpɔ́ '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 kpɔ́-kpɔ́ɔ́-kpɔ́ o.**

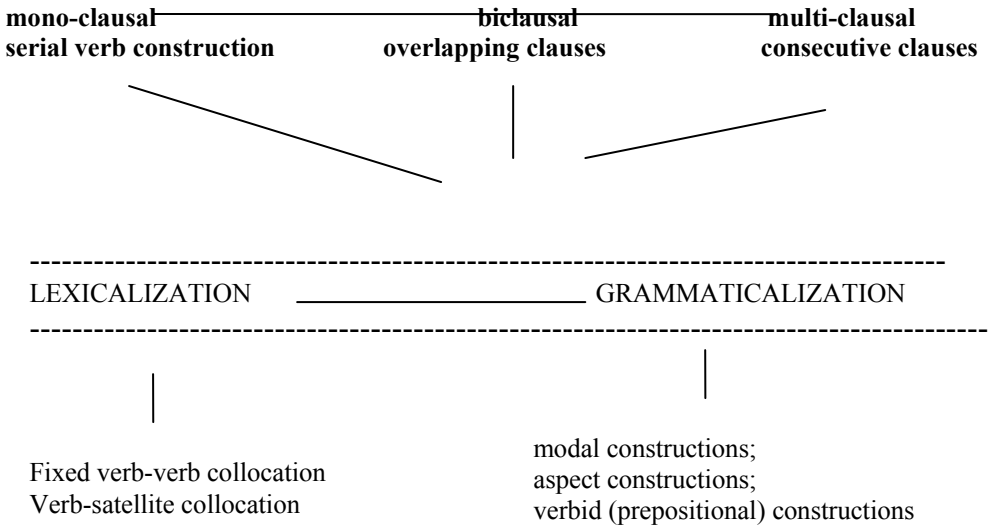
Nye-mé-se-e	kpɔ́-kpɔ́ɔ́-kpɔ́	o.
1SG-NEG-*hear*-3SG	TRIP-TRIP-PTV	NEG
PRON-V-PRON	V	

'I have never, never heard it.'

Table 18 below represents multi-verb constructions and their outcomes (Ameka 2003:3)

Table 18

No marker of syntactic Dependency	**No connector is used as a linker**	**A linker may be used**
Share one tense value		
Share one mood value		Semantically compatible mood values e.g. imperative and subjunctive
Can have different but semantically compatible aspect and modality values		
Same syntactic subject for all verbs or VPs in the series but expressed only once on V1	Subject of first verb is different from subject of subsequent verb Subject argument of subsequent verb must be obligatorily expressed Subject argument of subsequent verb is coreferential with a non-subject argument of the situation characterized by the first verb	Subject of verbs may be different Subject of verbs may be different Subject may be same or different
Verbs cannot be formally Independently negated	Verbs can be independently Negated	Verbs can be independently Negated
Each verb may occur with its own complement and/or adjunct		
Verbs can function in the same form in a monoverbal clause		



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 Ẹ̀dó covert co-ordination. However, Ẹ̀dó 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. Ẹ̀dó 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)

V(P)+V(P)	**V+mood**	**V+infinitival complement**
V1&V2 *tam* values are token identified.	V1&V2 *tam* values are not token identified. V2 has positive value for Mood.	V2 is nonfinite. An optional infinitival marker *yá* before V2.
[-rV-] Resultative Negative resultative Consequential , Covert co-ordination Constructions	[-rV+] Purpose construction	[-rV+] Comitative Instrumental Constructions

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+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.

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 Ẹ̀dó.

(173.2) The distribution of a floating anaphor *tòbọ́rè 'by pronoun self'* in Ẹ̀dó.

(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 *tòbọ́rè* 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 19

Construction type	**Infinitival Marker *yá* Before V2**	**Floating anaphor before V2**	**Preverbal Adverb Before V1**	**Preverbal Adverb Before V2**	**VP Adjuncts After VP 1**	**VP Delimiting Adverb after VP2**
V+modifier	No	No	Yes	No	No	Yes
V(P)+V(P):						
Resultatives	No	No	Yes	No	No	Yes
Consequential	No	No	Yes	Yes	Yes	Yes
Neg.resultatives	No	No	Yes	Yes	Yes	Yes
Covert-coordination	No	Yes	Yes	Yes	Yes	Yes
V+mood	No	No	Yes	Yes	Yes	Yes
V+infinitival complement	Yes	Yes	Yes	No	No	Yes

4.2.5.1 VP constructions and the infinitival marker yá

Stewart (1998:251-262) gives the following characteristics of the infinitival marker *yá*

(174)

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 hìá-rè rrí èvbárè.**

Òzó	hìá-rè	rrí	èvbárè.
Ozo	*try.*PST-rV	*eat*	*food*
PN	V	V	CN

'Ozo made effort to eat the food (and he ate it).'

b. **Òzó hìà rrí èvbárè.**

Òzó	hìà	rrí	èvbárè.
Ozo	*try.*PRS.L	*eat*	*food*
PN	V	V	CN

'Ozo makes efforts to eat food (regularly).'

(176) It is generated in an embedded INFL and always bears a high tone.

a. **Òzó hìá-rè yá rrí èvbárè.**

Òzó	hìá-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).'

b. **Òzó hìà yá rrí èvbárè.**

Òzó	hìà	yá	rrí	èvbárè.
Ozo	*try.*PRS.L	INF	*eat*	*food*
PN	V		V	CN

'Ozo makes efforts to eat food (regularly).'

(177) It cannot occur in a tense clause.

***Òzó yá hìá-rè rrí èvbárè.**

*Òzó	yá	hìá-rè	rrí	èvbárè.
Ozo	INF	*try*.PST-rV	*eat*	*food*
PN		V	V	CN

'Ozo 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 V1and 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) ***Òzó rhùlẹ́-re (*yá)* kpàá.** (directional)

*Òzó	rhùlẹ́-re	(*yá)*	kpàá.
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) **Íràn kùgbé-rè (yá) (tòbíràn) rrí ízẹ̀.** (comitative)

Íràn	kùgbé-rè	(yá)	(tòbíràn)	rrí	ízẹ̀.
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) **Èhọ̀ èvá ọ̀ré Òzó rhié-rè (yá) (tòbọ́rè) fián àlímói.** (instrumental)

Èhọ̀	èvá	ọ̀ré	Òzó	rhié-rè
Knife	*two*	FOC	*Ozo*	*take*.PST-rV
CN	NUM		PN	V

(Yá)	(tòbọ́rè)	fián	àlímói.
(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 miẹ́n àlìmói (*yá)* kpá!án.** (purpose)

*Òzó	miẹ́n	àlìmói	(*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 òtò̩.** (resultatives)

*Íràn	suá	Àzàrí	(yá)
3.PL	*push*.PST.H	*Azari*	(INF)
PRON	V	PN	

dé	gbé	òtò̩.
fall.PST.H	*against*	*ground*
V	PREP	CN

'They pushed Azari to down. '

(183) ***Òzó dé̩ ízè̩, (yá) rrí ò̩ré.** (covert co-ordination)

*Òzó	dé̩	ízè̩,	(yá)	rrí	ò̩ré
Ozo	*buy*.PST.H	*rice,*	(INF)	*eat*	3.SG
PN	V	CN		V	PRON

'Ozo bought rice to eat it.'

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 È̩dó 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 *tè* (nearly, already 'an adverb').

(184) **Òzó té lé èvbárè** (realis[70])

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** (realis/irrealis)

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 kùgbé rrí ízẹ̀.** (comitative)

Íràn	té	kùgbé	rrí	ízẹ̀.
3.PL	*used.to*.PST.H	*join.together*	*eat*	*rice*
PRON	AUX	V	V	CN

'They used to eat the rice together.'

b. **Íràn kùgbé-rè tè /*té rrí ízẹ̀.**

Íràn	kùgbé-rè	tè /*té	rrí	ízẹ̀.
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 Ẹ̀dó.

(187) a. **Òzó té rhìé èhọ̀ fián ávbé àlímóí.** (instrument)

Òzó	té	rhìé	èhọ̀	fián	ávbé	àlímóí.
Ozo	*used.to.*PST.H	*take*	*knife*	*cut*	PL.SPEC	*orange*
PN	AUX	V	CN	V		CN

'Ozo used to use a knife to cut oranges.'

b. **Òzó rhìé èhọ̀ tè/*té fián ávbé àlímóí.**

Òzó	rhìé	èhọ̀	tè/*té	fián	ávbé	àlímóí.
Ozo	*take*	*knife*	*almost/*used to.*PST.H	*cut*	PL.SPEC	*orange*
PN	V	CN	ADV/AUX	V		CN

'Ozo used a knife to almost cut the oranges.'

*'*Ozo used a knife used to cut oranges.'*

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 *tòbọ́ré*

I begin this section with a discussion of the distribution of the *tòbọ́rè 'by.pronoun. self'* anaphor. Thereafter, I show its interaction with the 11 VP construction types.

4.2.5.2.1 The *tòbọ́ré* anaphor

Below is a characterization of the anaphor:

(188)

i. It is used for emphasis.

ii. Its internal structure is *t*é *'to urge'*+òbọ́ *'hand' + pronoun*

(Melzian1937: 133,191-192).

iii. Its basic use is as a subject oriented adverb.

iv. It cannot occur in object position.

Table 20 shows the composition of the anaphor.

Table 20

Ist PERS	SING	tòbǫ́ *'by hand'*+ mwɛ̀n *'me'* = tòbǫ́mwɛ̀n *'by myself'*
	PL	Tòbǫ́ *'by hand'*+ ímà *'us'* = tòbímà *'by ourselves'*
2nd PERS	SING	Tòbǫ́ *'by hand'*+ rùɛ̀ *'you'* = tòbǫ́ rùɛ̀ *'by yourself'*
	PL	Tòbǫ́ *'by hand'*+ rùá *'you'* = tòbírúà *'by yourselves'*
3rd PERS	SING	Tòbǫ́ *'by hand'*+ ɛ̀ré *'him/ her/ it'* = tòbǫ́rè *'by him/her/it self'*
	PL	Tòbǫ́ *'by hand'*+ íràn *'us'* = tóbíràn *'by themselves'*

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

Ist PERS	SING	ègbé *'body'*+ mwɛ̀n *'me'* = ègbèmwɛ̀n *'myself'*
	PL	ègbé *'body'*+ ímà *'us'* = ègbímá *'ourselves'*
2nd PERS	SING	ègbé *'body'*+ rùɛ̀ *'you'* = ègbérùɛ̀ *'yourself'*
	PL	ègbé *'body'*+ rùá *'you'* = ègbérùá *'yourselves'*
3rd PERS	SING	ègbé '*body'*+ ɛ̀ré *'him/ her/ it'* = ègbɛ́rè *'him/her/it self'*
	PL	ègbé *'body'*+ íràn *'us'* = ègbéíràn *'themselves'*

In (189) I show that the anaphor *tòbǫ́rè* cannot occur in object position while (190) shows that the reflexive pronoun can.

(189) ***Òsàrǫ́$_I$ fián tòbǫ́rè$_i$.**

*Òsàrǫ́$_i$	fián	tòbǫ́rè$_i$.
Osaro	*cut*.PST.H	*by.3SG.self*
PN	V	ANA

' Osaro cut by himself.'

(190) **Òsàró̱$_i$ fián ègbé̱rè$_i$ tòbó̱rè$_{i.}$**

Òsàró̱$_i$	fián	ègbé̱rè$_i$	tòbó̱rè$_{i.}$
Osaro	*cut*.PST.H	*himself*	*by*.3SG.*self*
PN	V	PROREFL	ANA

'Osaro cut himself by himself.'

The anaphor may occur after the subject or float off the subject:[71]

(191) **Íràn$_i$ tòbíràn$_i$ ghá lè ízè̱.** (subject NP)

Íràn$_i$	tòbíràn$_i$	ghá	lè	ízè̱.
3.PL	*by*.3.PL.*selves*	FUT	*cook*	*food*
PRON	ANA		V	CN

'They themselves will cook the food
(They will cook the food themselves, even if no one joins them in the cooking).'

(192) **Íràn$_i$ ghá tòbíràn$_i$ lè ízè̱.** (auxiliary)

Íràn$_i$	ghá	tòbíràn$_i$	lè	ízè̱.
3.PL	FUT	*by*.3.PL.*selves*	*cook*	*food*
PRON		ANA	V	CN

'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) **Íràn$_i$ tòbíràn$_i$ ò̱ré ò̱$_i$ ghá tè lè ízè̱.**

Íràn$_i$	tòbíràn$_i$	ò̱ré	ò̱$_i$	ghá	tè	lè	ízè̱
3.PL	*by*.3.PL.*selves*	*FOC*	*PLUG*	*AUX*	*AUX*	*cook*.PRS	*rice*
PRON	ANA		PRON	AUX	AUX	V	CN

'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$_i$ gìẹ̲́gìẹ̲́ tòbíràn$_i$ lè ízè̲.** (adv)

Íràn$_i$	gìẹ̲́gìẹ̲́	tòbíràn$_i$	lè	ízè̲.
3.PL	*quickly*.PRS	*by*.3.PL.*selves*	*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 È̲dó, it may also right adjoin to object and dative NPs, post verbal advP and PPs:

(194) **Íràn$_i$ lé ízè̲ tòbíràn$_i$.** (object NP)

Íràn$_i$	lé	ízè̲	tòbíràn$_i$.
3.PL	*cook*.PST.H	*rice*	*by*.3.PL.*selves*
PRON	V	CN	ANA

'They cooked the rice by themselves
(Someone else should have joined in the cooking).'

(195) **Íràn$_i$ lé ízè̲ nè ègbíràn$_i$ tòbíràn$_i$.** (dative object NP)

Íràn$_i$	lé	ízè̲	nè	ègbíràn$_i$	tòbíràn$_i$.
3.PL	*cook*.PST.H	*rice*	*for*	*themselves*	*by*.3.PL.*selves*
PRON	V	CN	PREP	PROREFL	ANA

'They cooked the rice for themselves by themselves)
(Someone else should have joined in the cooking).'

(196) **Íràn$_i$ lé ízẹ̀ vbé ùkónì tòbíràn$_i$.** (PP)

Íràn$_i$	lé	ízẹ̀	vbé	ùkónì	tòbíràn$_i$.
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) **Íràn$_i$ lé ízẹ̀ bánbánnà tòbíràn$_i$.** (AdvP)

Íràn$_i$	lé	ízẹ̀	bánbánnà	tòbíràn$_i$.
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) ***Íràn$_i$ lé tòbíràn$_i$ ízẹ̀.**

*Íràn$_i$	lé	tòbíràn$_i$	ízẹ̀.
3.PL	*cook*.PST.H	*by*.3.PL.*selves*	*rice*
PRON	V	ANA	CN

(199) ***Íràn$_i$ rhié ízẹ̀ tòbíràn$_i$ nè Òzó.**

*Íràn$_i$	rhié	ízẹ̀	tòbíràn$_i$	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 *mòsé* 'be beautiful' through the process of reduplication and tonal change.

(200) ***Ò$_j$ bó̲ è̲ré tòbó̲rè$_i$ mòsèmòsè.**

*Ò$_j$	bó̲	è̲ré	tòbó̲rè$_i$	mòsèmòsè.
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.***Òzó kpàán àlìmói$_k$ tòbó̲rè$_k$.**

Òzó	kpàán	àlìmói$_k$	tòbó̲rè$_k$.
Ozo	*pluck*.PST.H	*orange*	*by*.3.SG.*self*
PN	V	CN	ANA

'Ozo plucked the orange by itself.'

b. **Òzó$_k$ kpàán àlìmói tòbó̲rè$_k$.**

Òzó$_k$	kpàán	àlìmói	tòbó̲rè$_k$.
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.

(202) **Òzó$_{i}$ kpàán àlìmói èvá $_{k}$ tòbǫ́rè $_{i/*k.}$**

Òzó$_{i}$	kpàán	àlìmói	èvá $_{k}$	tòbǫ́rè $_{i/*k.}$
Ozo	*pluck*.PST.H	*orange*	two	*by*.3.SG.*self*
PN	V	CN	NUM	ANA

(i)*'Ozo plucked two oranges by himself.'*

(ii)*'*Ozo plucked two oranges by itself.'*

A plural anaphor does not rescue the construction in (202 (ii)). The referent of the anaphor **must** be the subject NP:

(203) **Íràn$_{i}$ kpàán àlìmói èvá $_{k}$ tòbíràn $_{i/*k.}$**

Íràn$_{i}$	kpàán	àlìmói	èvá $_{k}$	tòbíràn $_{i/*k.}$
3.PL	*pluck*.PST.H	*orange*	*two*	*by*.3.PL.*selves*
PRON	V	CN	NUM	ANA

(i)*'They plucked two oranges by themselves (not the oranges).'*

(ii)'**They plucked two oranges by themselves (the oranges).'*

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):

(204) a. The inmates all had been eating gruel.
b. The inmates had all been eating gruel.
c. The inmates had been all eating gruel.

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).

(205) 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 (entence) 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 Ẹ̀dó given above buttresses my argumentation of a subject oriented analysis for the *tòbórè* anaphor and a non *pro* based analysis for the

object for V2 in consequential constructions in Ẹ̀dó as proposed by Baker and Stewart. Data from Haiti presented below also buttresses this view.

An anaphor interpretation similar to *tòbọ́rè* also exists in Haiti (Dechaine and Manfredi 1994:210):

(206) **Jak$_i$ benyen l$_{i/k}$ de fwa pa jou.**

Jak$_i$	benyen	l$_{i/k}$	de	fwa	pa	jou.
Jak	*bathe*	*3sg*	*two*	*times*	*per*	*day*
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 tòbórẹ̀ 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+modifier*, *V+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) ***Òzó$_i$ vié-rè tòbórè$_i$ kpèé.** (durational)

*Òzó$_i$	vié-rè	tòbórè$_i$	kpèé.	
Ozo	*cry.*PST-rV	*by.*3SG.*self*	*be long*	
PN	V	ANA	ADV	

'Ozo cried by himself for a long time.'

(208) ***Òzó$_i$ rhùlé-rè tòbórè$_i$ kpàá.** (directional)

*Òzó$_i$	rhùlé-rè	tòbórè$_i$	kpàá.	
Ozo	*run.*PST-rV	*by.*3SG.*self*	*go*	
PN	V	ANA	ADV	

'Ozo ran by himself away (away from the speaker).'

(209) ***Òzó$_i$ dìgién-rèn tòbórè$_i$lé èvbàré.** (manner)

*Òzó$_i$	dìgién-rèn	tòbórè$_i$	lé	èvbàré.
Ozo	*stoop.*PST-rV	*by.3SG.self*	*cook*	*food*
PN	V	ANA	V	CN

'Ozo bent by himself while cooking.'

(210) ***Òzó$_i$ rhùlé-rè tòbórè$_i$ làá òwá.** (locational)

*Òzó$_i$	rhùlé-rè	tòbórè$_i$	làá	òwá.
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) ***Òzó$_k$ mi̱én àlìmóí tòbó̱rè$_k$ kpá!án.** (purpose)

*Òzó$_k$	mi̱én	àlìmóí	tòbó̱rè$_k$	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) ***Íràn$_k$ suá Àzàrí tòbíràn$_k$ dé gbé òtò.** (resultative)

*Íràn$_k$	suá	Àzàrí	tòbíràn$_k$
3.PL $_k$	*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) ***Íràn$_k$ gá e̱bò tòbíràn$_k$ mi̱énòkán.** (neg. resultative)

*Íràn$_k$	gá	e̱bò	tòbíràn$_k$
3.PL	*serve*.PST.H	*juju*	*by*.3PL.*selves*
PRON	V	CN	ANA

mi̱én	òkán.
receive.PST.H	*distress*
V	CN

'They got trouble by themselve as their reward for serving gods.'

(214) ***Íràn$_k$ sá àmẹ̲ tòbíràn$_k$ wǫ́n.** (consequential)

*Íràn$_k$	sá	àmẹ̲	tòbíràn$_k$	wǫ́n.
3.PL	*fetch*.PST.H	*water*	*by*.3PL.*selves*	*drink*.PST.H
PRON	V	CN	ANA	V

'They fetched water by themselves and drank.'

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.

(215) **Òzó$_i$ tòbǫ́rè$_i$ rhùlẹ́-rè kpàá.** (V+modifier)

Òzó$_i$	tòbǫ́rè$_i$	rhùlẹ́-rè	kpàá.
Ozo	*by*.3SG.*self*	*run*.PST-rV	*go*
PN	ANA	V	ADV

'Ozo ran away by himself (away from the speaker).'

(216) **Òzó$_k$ tòbǫ́rè$_k$ miẹ́n àlìmói kpá!án.** (V+mood)

Òzó$_k$	tòbǫ́rè$_k$	miẹ́n	àlìmói	kpá!án.
Ozo	*by*.3SG.*self*	*see*.PST.H	*orange*	*pluck*
PN	ANA	V	CN	V

'Ozo saw an orange to pluck by himself.'

(217) **Íràn$_k$ tòbíràn$_k$ sá àmẹ̀ wǫ́n.** (V(P) + V(P))

Íràn$_k$	tòbíràn$_k$	sá	àmẹ̀	wǫ́n.
3.PL	*by*.3PL.*selves*	*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) **Íràn$_k$ kùgbé-rè tòbíràn$_k$ rrí ízẹ̀.** (comitative)

Íràn$_k$	kùgbé-rè	tòbíràn$_k$	rrí	ízẹ̀.
3.PL	*join.together*.PST-rV	*by*.3PL.*selves*	*eat*	*rice*
PRON	V	ANA	V	CN

'They ate the rice together by themselves.'

(219) **Èhọ̀ èvá ọ̀ré Òzó$_k$ rhié-rè tòbǫ́rè$_k$ fián àlímóí.** (instrumental)

Èhọ̀ èvá	ọ̀ré	Òzó$_k$	rhié-rè	tòbǫ́rè$_k$	fián	àlímóí.
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) **Òzó$_k$ dé̲ ízè̲, tòbó̲rè$_k$ rrí ò̲ré.** (covert co-ordination)

Òzó$_k$	dé̲	ízè̲,	tòbó̲rè$_k$	rrí	ò̲ré.
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 byhimself.'

In (220), *tòbó̲rè* has the subject NP *Òzó* as its antecedent. The object NP *ízè̲* 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. **Íràn$_k$ dé̲ ízè̲, tòbíràn$_k$ rrí ò̲ré.**

Íràn$_k$	dé̲	ízè̲,	tòbíràn$_k$	rrí	ò̲ré
3.PL	*buy*.PST.H	*rice,*	*by.3PL.selves*	*eat*.PST.H	3.SG
PRON	V	CN	ANA	V	PRON

'They bought rice and ate it by themselves.'

b. ***Ìràn$_k$ dé̲ ízè̲, tòbó̲rè$_k$ rrí ò̲ré.**

*Ìràn$_k$	dé̲	ízè̲,	tòbó̲rè$_k$	rrí	ò̲ré
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. ***Ìràn dé̲ ízè̲$_k$, tòbó̲rè$_k$ rrí ò̲ré.**

*Ìràn	dé̲	ízè̲$_k$,	tòbó̲rè$_k$	rrí	ò̲ré.
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 dẹ́ ízẹ̀, ọ́ rrí ọ̀ré.**

Òzó	dẹ́	ízẹ̀,	Ọ́	rrí	ọ̀ré
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 dẹ́ ízẹ̀, Ọ́ ná rrí ọ̀ré.**

Òzó	ghí	dẹ́	ízẹ̀,	Ọ́	ná	rrí	ọ̀ré
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) dẹ́ ízẹ̀, Ọ́ (vbé) lé ìyán.**

Òzó	(vbé)	dẹ́	ízẹ̀,	Ọ́	(vbé)	lé	ìyán.
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) **Òzó dẹ́ ízẹ̀, Ọ́ má (vbé) rrí ọ̀ré.**

Òzó	dẹ́	ízẹ̀,	Ọ́	má	(vbé) rrí	ọ̀ré.
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. Ẹ̀dó, 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 Ẹ̀dó. Imperatives in Ẹ̀dó 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 Ẹ̀dó, 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+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 *ghẹ́*. Here, the anaphor **must** occur after the marker as in (225b) and (225c).

(225) a. **Tòbọ́ruè dẹ́ ízẹ̀, lé ọ̀ré.**

Tòbọ́ruè	dẹ́	ízẹ̀,	lé	ọ̀ré.
By.2SG.self	*buy*.PST.H	*rice,*	*cook*.PST.H	3.SG
EMPH.ANA	V	CN	V	PRON

'Buy rice and cook it by yourself.'

b. **Ghẹ́ tòbọ́ruè dẹ́ ízẹ̀, lé ọ̀ré.**

Ghẹ́	tòbọ́ruè	dẹ́	ízẹ̀,	lé	ọ̀ré.
NEG.IMP	*By*.2SG.*self*	*buy*.PST.H	*rice,*	*cook*.PST.H	3.SG
AUX	EMPH.ANA	V	CN	V	PRON

'Don't buy rice and cook it by yourself.'

c. ***Tòbọ́ruè ghẹ́ dẹ́ ízẹ̀, lé ọ̀ré.**

*Tòbọ́ruè	ghẹ́	dẹ́	ízẹ̀,	lé	ọ̀ré.
By.2SG.self	NEG.IMP	*buy*.PST.H	*rice,*	*cook*.PST.H	3.SG
EMPH.ANA	AUX	V	CN	V	PRON

'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+*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$_k$ tòbíràn$_k$ kùgbé-rè rrí ízẹ̀.** (comitative)

Íràn$_k$	tòbíràn$_k$	kùgbé-rè	rrí	ízẹ̀.
3.PL	*by.3PL.selves*	*join.together*.PST-rV	*eat*	*rice*
PRON	ANA	V	V	CN

'They eat the rice together by themselves.'

(227) **Òzó$_k$ tòbọ́rè$_k$ dẹ́ ízẹ̀, rrí ọ̀ré.** (covert co-ordination)

Òzó$_k$	tòbọ́rè$_k$	dẹ́	ízẹ̀,	rrí	ọ̀ré.
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 coordination 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 *gìẹ̀gìẹ́* "quickly" and gèlé "truly" and then examine the patterning with respect to the VP delimiting adverb ẹ̀*gìẹ̀gìẹ́* "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. **Òzó gi̱é!gi̱é rhú!lé̱ kpàá.** (V+modifier)

Òzó	gi̱é!gi̱é	rhú!lé̱	kpàá.
Ozo	*quickly*.PST.H!H	*run*.PST.H!H	*go*
PN	ADV	V	V

'Ozo quickly ran away (away from the speaker).'

b.***Òzó rhú!lé̱ gi̱é!gi̱é kpàá.** (V+modifier)

*Òzó	rhú!lé̱	gi̱é!gi̱é	kpàá.
Ozo	*run*.PST.H!H	*quickly*.PST.H!H	*go*
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 gé!lé dé gbé òtò.** (resultative)

*Íràn	gié!gié	suá	Àzàrí
3.PL	*quickly*.PST.!H	*push*.PST.H	*Azari*
PRON	ADV	V	PN

gé!lé	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 wǫ́n. (consequential)

Íràn	gié!gié	sá	àmè	gé!lé	wǫ́n.
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 lé ǫ̀ká , bó!ló ré. (consequential)

Òzó	gié!gié	lé	ǫ̀ká	, 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 gbǫ́!ǫ́ ívìn, bolo ǫ̀ká.** (covert co-ordination)

Òzó	gié!gié	gbǫ́!ǫ́	ívìn,	bòló	ǫ̀ká.
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 gbǫ́!ǫ́ ívìn, gié!gié bó!ló ǫ̀ká.

Òzó	gié!gié	gbǫ́!ǫ́	ívìn,	gié!gié	bó!ló	ǫ̀ká
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:

***Íràn gié!gié kú!gbé gé!lé rrí ízè.** (comitative)

*Íràn	gié!gié	kú!gbé	gé!lé	rrí	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:

Íràn gié!gié gá ébò gé!lé mién òkán. (neg. resultative)

Íràn	gié!gié	gá	ébò	gé!lé.
3.PL	*quickly*.PST.!H	*serve*.PST.H	*juju*	*truly*.PST.!H
PRON	ADV	V	CN	ADV

mién	òkán.
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:

Òzó gié!gié mién àlìmói gé!lé kpá!án. (V+mood)

Òzó	gié!gié	mién	àlìmói	gé!lé	kpá!án.
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+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 *gìe̱gìé* "quickly belongs to this class. When right adjoined to a VP it takes the form *è̱gìe̱gìé* "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+modifier* (236a), resultative (237a) and *V+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 ***Òzó rhùle̱-rè è̱giégié kpàá.** (V+modifier)

*Òzó	rhùle̱-rè	è̱giégié	kpàá.
Ozo	*run.*PST-rV	*quickly*	*go*
PN	V	ADV	ADV

'Ozo ran quickly away (away from the speaker).'

b. **Òzó rhùle̱-rè kpàá è̱giégié.** (V+modifier)

Òzó	rhùle̱-rè	kpàá	è̱giégié.
Ozo	*run.*PST-rV	*go*	*quickly*
PN	V	ADV	ADV

'Ozo ran away quickly (away from the speaker).'

(237) a. ***Íràn suá Àzàrí ègiégié dé gbé òtò.** (resultative)

*Íràn	suá	Àzàrí	ègiégié
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 Àzàrí dé gbé òtò ègiégié.** (resultative)

Íràn	suá	Àzàrí	
3.PL	*push.*PST.H	*Azari*	
PRON	V	PN	
dé	gbé	òtò	ègiégié.
*fall.*PST.H	*against*	*ground*	*quickly*
V	PREP	CN	ADV

'They pushed Azari down quickly.'

(238) a. ***Íràn kùgbé-rè ègiégié rrí ízè** (comitative)

*Íràn	kùgbé-rè	ègiégié	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 ègiégié.** (comitative)

Íràn	kùgbé-rè	rrí	ízè	ègiégié.
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 *ègiégié* after VP1 or after VP2.

Unlike with the preverbal adverb counterpart *gìégìé*, the scope of the adverb is limited to the VP it modifiers for all of the constructions.

(239) a. **Íràn sá àmè̱ è̱gi̱é̱gi̱é̱ wó̱n.** (consequential)

Íràn	sá	àmè̱	è̱gi̱é̱gi̱é̱	wó̱n.
3.PL	*fetch.*PST.H	*water*	*quickly*	*drink.*PST.H
PRON	V	CN	ADV	V

'They fetched water quickly and drank (it).'

b. **Íràn sá àmè̱ wó̱n è̱gi̱é̱gi̱é̱.** (consequential)

Íràn	sá	àmè̱	wó̱n	è̱gi̱é̱gi̱é̱
3.PL	*fetch.*PST.H	*water*	*drink.*PST.H	*quickly*
PRON	V	CN	V	ADV

'They fetched water and drank (it) quickly.'

(240) a. **Íràn gá é̱bò è̱gi̱é̱gi̱é̱ mi̱é̱n òkán.** (neg. resultative)

Íràn	gá	é̱bò	è̱gi̱é̱gi̱é̱
3.PL	*serve.*PST.H	*juju*	*quickly*
PRON	V	CN	ADV

mi̱é̱n	òkán.
*receive.*PST.H	*distress*
V	CN

'They served the gods quickly and got trouble as their reward.'

b. **Íràn gá ébò̱ mié̱n òkán è̱gié̱gié̱.** (neg. resultative)

Íràn	gá	ébò̱
3.PL	*serve.*PST.H	*juju*
PRON	V	CN

mié̱n	òkán	è̱gié̱gié̱.
*receive.*PST.H	*distress*	*quickly*
V	CN	ADV

'They served the gods and quickly got trouble as their reward.'

(241) a. **Òzó gbò̱ó̱ ívìn è̱gié̱gié̱, bolo ò̱ká.** (covert co-ordination)

Òzó gbò̱ó̱	ívìn	è̱gié̱gié̱, bòló	ò̱ká
*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 gbò̱ó̱ ívìn, bò̱ló ò̱ká è̱gié̱gié̱.** (covert co-ordination)

Òzó gbò̱ó̱	ívìn ,	bò̱ló	ò̱ká	è̱gié̱gié̱.
*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 quckly.'

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

Construction type	**Structure**	**Infinitival Marker *yá* Before V2**	**Floating anaphor before V2**	**Preverbal Adverb Before V1**	**Preverbal Adverb Before V2**	**VP Adjuncts After VP 1**	**VP Delimiting Adverb after VP2**
V+modifier	Adjunction	No	No	Yes	No	No	Yes
V(P)+V(P):							
Resultatives	Complementation	No	No	Yes	No	No	Yes
Consequential	Adjunction	No	No	Yes	Yes	Yes	Yes
Neg.resultatives	Adjunction	No	No	Yes	Yes	Yes	Yes
Covert-coordination	Adjunction	No	Yes	Yes	Yes	Yes	Yes
V+mood	Adjunction	No	No	Yes	Yes	Yes	Yes
V+infinitival complement	Complementation	Yes	Yes	No	No	No	Yes

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 Ẹ̀dó. 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:

(242) a. "True" SVCs are those that involve object sharing (Baker 1989, 1991, 2000, Collins 1997, Stewart 1998).

b. SVCs may not involve sharing of arguments (Law and Veenstra 1992, Durie1997, Beermann, Sahoo and Hellan 2002, Hellan, Sæthero and Beermann 2003).

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".

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 Ẹ̀dó: 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

Type	Size of VP2	Object of VP2	Attachment site	NP analog
CSVC	vP	Pro	Adjoined to vP1	Participial relative
RSVC	VP	None	Complement of V1	(Attrib. Modification)
PSVC	AspP	Wh-trace	Adjoined to AspP1	Operator relative

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.

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*.

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 view point 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 Jackendoffs 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

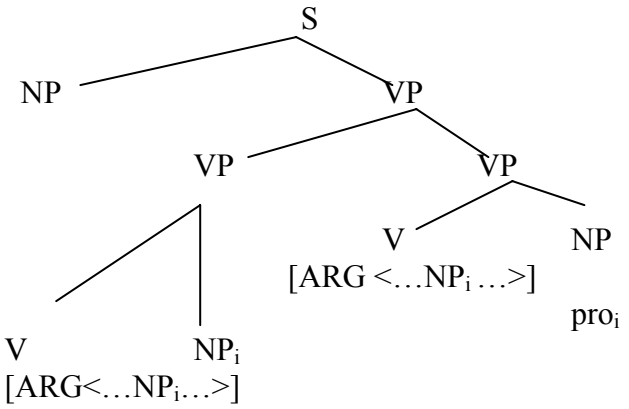
Beermann Sahoo and Hellan (2002) working on Oriya (spoken in India), show that argument sharing (in the sense of Baker 1989) is not obligatory. Each of the verbs in series may select its own set of complements. According to them, in the structure [NP_A V1 NP_B V2], the subject or object of V1 may be 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)

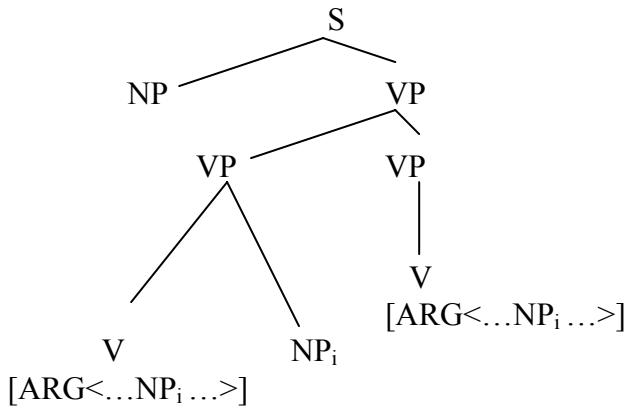
i. ARGUMENT SHARING SENSE 1
A token occurrence of an NP serves for a set of consecutive verb V1, V2…Vn as the **only overt** NP which instantiates a given argument function (AF) relative to each of the verbs.

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 occurence 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 sense1 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 [V1 $_{[TRANS]}$ NP2 V2 $_{[INTRANS]}$ V3 $_{[TRANS]}$].

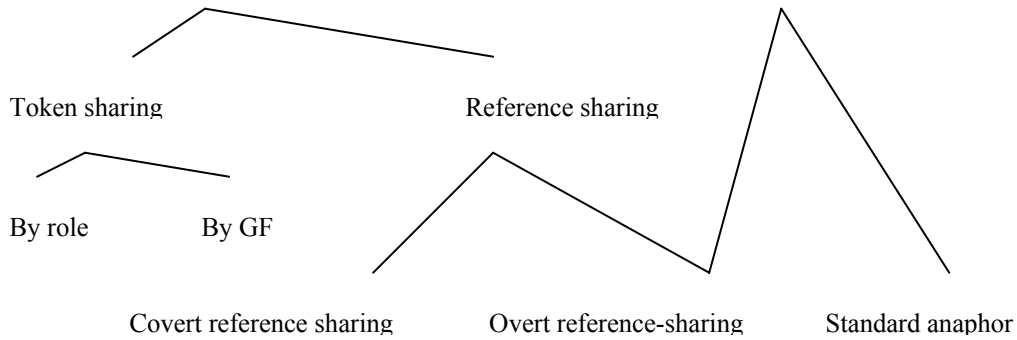
NP2 is the object of V1 and the understood object of V3 despite the intervening intransitive V2 between them. The sharing kept on hold phenomenon they claim, suggests that sense two of argument sharing may not be the right analysis of such construction types in Oriya.

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, Sæthero and Beermann's construal of coreference for the argument sharing patterns in Ẹ̀dó multi-verb constructions.

4.2.6.1 Argument sharing patterns in Ẹ̀dó 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 Ẹ̀dó 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 V1. A test confirming this is the non-licensing of the floating anaphor before V2. I illustrate this below:

(248) ***Òzó$_k$vié-rè tòbó̲rè$_k$fòó.** (V+modifier: durational)

*Òzó$_k$	vié-rè	tòbó̲rè$_k$	fòó.
Ozo	*cry*.PST-rV	*by.* 3SG.*self*	*finish*
PN	V	ANA	ADV

'Ozo finished crying by himself.'

(249) ***Òzó rhùlé-rè tòbó̲rè làó̲ òwá.** (directional)

*Òzó$_i$	rhùlé-rè	tòbó̲rè$_i$	làó̲	òwá.
Ozo	*run*.PST-rV	*by.* 3SG.*self*	*enter*	*house*
PN	V		ADV	CN

'Ozo ran into the house by himself.'

(250) ***Òzó$_k$ lé èvbàré tòbó̲rè$_k$ ré.** (V (P) +V (P): CSVC)

*Òzó$_k$	lé	èvbàré	tòbó̲rè$_k$	ré.
Ozo	*cook*.PST.H	*food*	*by*.3SG.*self*	*eat*.PST.H
PN	V	CN	ANA	V

(251) ***Òzó$_k$mi̱é̱n akhe tòbó̱rè$_k$ guó̱!gho̱.** (V+mood:purpose)

*Òzó$_k$	mi̱é̱n	àkhé	tòbó̱rè$_k$	guó̱!gho̱.
Ozo	*see.*PST.H	*pot*	*by.*3SG.*self*	*break*
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:

(252) **Íràn $_k$ kùgbé-rè tòbíràn$_k$ rrí ízè̱.** (comitative)

Íràn $_k$	kùgbé-rè	tòbíràn$_k$	rrí	ízè̱.
3.PL	*join. together.*PST-rV	*by.*3.PL.*selves*	*eat*	*rice*
PRON	V	ANA	V	CN

'They ate the rice together by themselves.'

(253) **Òzó$_k$ dé̱ ízè̱, tòbó̱rè$_k$ rrí ò̱ré.** (covert co-ordination)

Òzó$_k$	dé̱	ízè̱,	tòbó̱rè$_k$	rrí	ò̱ré.
Ozo	*buy.*PST.H	*rice,*	*by.*3SG.*self*	*ate.PST.H*	3.SG
PN	V	CN	ANA	V	PRON

'Ozo bought rice and ate it byhimself.'

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:

(254) ***Òzó$_k$ kòkó Àdésúwà tòbó̲rè$_k$ mòsé** (resultatives)

*Òzó$_k$	kòkó	Àdésúwà	tòbó̲rè$_k$	mòsé
Ozo	*raise*.PST.H	*Adesuwa*	*by*.3SG.*pron*	*be-beautiful*.PST.H

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) **Òzó dé̲ ìyán dùnmwún.** (consequential)

Òzó	dé̲	ìyán	dùnmwún.
Ozo	*buy*.PST.H	*yam*	*pound*.PST.H
PN	V	CN	V

'Ozo 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) **Òzó dé̲ ízè̲$_k$ rrí ò̲ré$_k$.**

Òzó	dé̲	ízè̲$_k$	rrí	ò̲ré$_k$.
Ozo	*buy*.PST.H	*rice*	*eat*.PST.H	3.SG
PN	V	CN	V	PRON

'Ozo bought rice and ate it.'

(257) **Òzó lé ízẹ̀$_{I}$ kpòló òwá$_{k.}$**

Òzó	lé	ízẹ̀$_{i}$	kpòló	òwá$_{k.}$
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

Construction type	**Infinitival Marker *yá* Before V2**	**Floating anaphor before V2**	**VP Adjuncts After VP 1**	**Token Sharing of subjects**	**Switch Sharing**	**Covert reference sharing Of subjects**	**Token Sharing Of objects**	**Overt Reference Sharing of objects**	**Objects are not shared**
V+modifier:									
durational	No	No	No	Not	Not	Not	Not	Not	Not
Locational	No	No	No	Applicable	applicable	applicable	Applicable	Applicable	applicable
Directional	No	No	No	Yes	No	No	No	No	No
Manner	No	No	No	Yes	No	No	No	No	No
V(P)+V(P):									
Resultatives	No	No	No	No	Yes	No	No	No	Yes
Consequential	No	No	Yes	Yes	No	No	Yes	No	No
Neg.resultatives	No	No	Yes	Yes	No	No	No	No	Yes
Covert-coordination	No	Yes	Yes	No	No	Yes	No	Yes	Yes
V+mood	No	No	Yes	Yes	No	No	Yes	No	No
V+infinitival complement	Yes	Yes	No	No	No	Yes	No	No	Yes

4.3 Conclusion

In this chapter, my aim has been to identify the different types of multi-verb constructions in Ẹ̀dó 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 *yá*, the floating anaphor *tòbǫ́rè 'by pronoun self'* and adverbial elements I have classified them into four structural types:

(258)

i. *V+modifier*; durational, directional, manner and locational constructions.
ii. *V(P)+V(P);* resultative, consequential, negative resultative and covert co-ordination constructions.
iii. *V+mood*: purpose construction.
iv. *V+infinitival*; comitative and instrumental constructions.

With respect to *–rV* suffixation, it is not licensed when there is total identity of *tam* features for V1 and V2. It is licensed when V2 bears a different value either with respect to the value for mood or it is non finite as in *V+mood* and *V+infinitival complement* construction. It is also licensed when V2 is reanalyzed as an adverb as in *V+modifier* constructions. This was discussed in section 4.2.4.

The distribution of the infinitival marker *yá* and pre and post verbal adverbs as discussed in section 4.2.5 have shown that *V+modifier*, *V(P)+V(P)* and *V+mood* constructions have an adjunction structure while the *V+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 *tòbǫ́rè 'by pronoun self'* in section 4.2.5, that VP2 in *V+infinitival complement* and covert co-ordination constructions have unsatured subjects whose referential indices are identified with the referential indices of the overt subjects of V1, while the verbs in series in the *V+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: Ẹ̀dó, 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 Ẹ̀dó multi-verb constructions discussed in chapter 4, within observed typology common to these languages:

(1) i. Benue-Congo: Ẹ̀dó, Igbo and Yoruba.
ii. North: Gur: Oti-Volta: Gurenne.
iii. Kwa: Nyo: Ga, Baule, Akan and,
iv. Kwa: left-bank: Gbe: Ewe.

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: leftbank: 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 clausters. 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 Ẹ̀dó, 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 Ẹ̀dó as discussed in chapter 4, subject sharing patterns distinguish between covert co-ordination and multi-verb constructions classified in the literature as SVCs. For Ẹ̀dó 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 Ẹ̀dó as discussed in chapter 4, the distribution of a floating anaphor *tòbórè* '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 Ẹ̀dó (Baker and Stewart 1999). Different from Ẹ̀dó, 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 Ẹ̀dó 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 Ẹ̀dó 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) identifiers "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 Ẹ̀dó, 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[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).

[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).

(14) Tense, aspect, mood and negation:

i. Same/one marking on the verbs in series (SVCs).

ii. Different marking on the verbs in series (consecutive constructions, language dependent for covert co-ordination).

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 ɖá.

Ame	síáa	ame	né	míá	nkú	né	mí-dó	gbe	ɖá.
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 Ẹ̀dó, 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. **Ẹ̀dó.**

Òzó lé ízẹ̀, rrí ọ̀ré.

Òzó	lé	ízẹ̀,	rrí	ọ̀ré.
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).*'

c. **Ewe** (Ameka 2005).

É-yɔ́-m nye-mé-tɔ o.

É-yɔ́-m	nye-mé-tɔ		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).

ɔ si-li aliɛ-`n (ɔ) sɔkɔ-li tro`n.

ɔ	si-li	aliɛ-`n
3.SG .SUBJ	*pound*-COMPL	*food*-DEF
PRON	V	CN

(ɔ)	sɔkɔ-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): Ẹ̀dó & Yoruba.

ii. Consequential constructions (CSVC): Ẹ̀dó, Yoruba.

iii. Purpose constructions (PSVC): Ẹ̀dó.

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 Ẹ̀dó as either *V+modifier* or *V+INFcomplement*).

Below are some examples:

(18) **Single events**:

Igbo Commitative SVC (Dechaine 1993).

a. **Ó wè-re ìte byá.**

Ó	wè-re	ìte	byá.
3.SG	*take*-Øasp	*pot*	*come.*Asp
PRON	V	CN	V

'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.*'

Akan ISVC (Stewart 1963 cf.Hellan et al 2003).

d. **ɔ-de no fɛm-m me.**

ɔ-de	no	fɛm-m	me.
3.SG-*take*	3.SG (animate)	*lend*-PST	1.SG
PRON-V	PRON	V	PRON

'*He lent me it.*'

Ẹ̀dó resultative constructions.

e. **Òzó suá Àzàrí dé gbé òtọ̀.**

Òzó	suá	Àzàrí	dé	gbé	òtọ̀.
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 zí'à ná.**

Bà	diki	mà	tá`asi	zí'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 ní!í hǎ́-ǎ̀ àmɛ.**

Akwele	hó-ọ	ní!í	hǎ́-ǎ̀	àmɛ.
Akwele	*cook*-HAB	*things*	*give*-HAB	3.PL
PN	V	CN	V	PRON

'*Akwele cooks for them.'*

Multi-events:

(19) Igbo multi-events serialization Manfredi (2005a).

Ḿ rè-re jí (wè-é) bya.

Ḿ	rè-re	jí	(wè-é)	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, Ẹ̀dó, 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)

	BK1	BK2	Characterization
a	-	+	A finite eventive predicate with minimal inflection allows a present perfect reading in addition to a past one
b	-	+	Aspectually unrelated events are excluded from a single clause
c	-	+	Minimal finite inflection is an aux/proclitic particle (as opposed to a suffix or root-borne tone pattern)
d	-	+	At least three surface tones contrast on roots of the same category (as opposed to two tones plus downstep)

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 tensedmarked.

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 Ẹ̀dó 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 *-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 *–rV* is possible. The following examples from Igbo illustrate this:

Single event serialization.

(23) a. **Ó 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. **Ó 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 Ẹ̀dó *–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 Ẹ̀dó, 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 Ẹ̀dó 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). Further more, 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 Èdo̱ as I have already discussed in chapter 4 also exhibit different inflection patterns. Summarizing briefly, in *V+modifier* and *V+infinitival complement* constructions, the tone on V2 is always high irrespective of the tense interpretation of the sentence and for *V+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 o̱ré Òzó kó!kó dún!mwún.** (covert co-ordination)

Ìyán	o̱ré	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.'

b. **E̱wé o̱ré Òzó gbè-lé khièn-né̱.** (consequential construction)

E̱wé	o̱ré	Òzó	gbè-lé	khièn-né̱.
Goat	FOC	Ozo	*kill*-PL.PST.H	*sell*-PL.PST.H
CN		PN	V	V

'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 E̱dó 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.

E̱dó, 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 Sæthero 2004:3, Dakubu 2004:6). Gurene has a number of preverbal and post verbal particles that express negation, tense, aspect and modality. Also aspectual 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.

Fʊ̰ʔíŋɛ là ŋwàni wʊ̰-n –à

Fʊ̰	ʔíŋɛ	là	ŋwàni	wʊ̰-n	–à?
You	*do*.COMPL	AFF	*what*	*hear*-IMPF-HAB	
PRON	V		CN	V	

'How did you learn it[a language]?

b. Theme-goal.

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.'

c. nyaŋɛ'can'/ taʔam'possibility'.

Fʊ nyaŋ -a ka mi –n –a fʊ-n wa ʔíŋɛ seʔem.

Fʊ	nyaŋ	-a	ka	mi –n –a
2.SG	*able*.COMPL-HAB		NEG	*know*-IMPF-HAB
PRON	V			V

fʊ-n	wa	ʔíŋɛ	seʔem.
2.SG-FOC	INGR	*do*.COMP	*thing*
PRON		V	CN

´You couldn´t know what to do. ´

Some languages in addition to SVCs have also CCs (Ẹ̀dó and Igbo). Ẹ̀dó 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.

(27). Baule single event CC: Tonal prefix before V2 indicated (Larsen 2005:69).

ɔ̀ sú fàtánnì ´ màn kouàdió.

ɔ̀	sú	fà	tánnì ´	màn	kouàdió.
3.SG.SUBJ	PROG	*take*	*cloth*	*give*	*kouadio*
PRON	V		CN	V	CN

'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).

(28) a. Yoruba single event SVC: Benefactive (Dechaine 1993).

Jímọ́ ọ́ra èwùbùn mì.

Jímọ́	ọ́	ra	èwù	bùn	mì.
Jimo	Agr	*buy*	*garmet*	*present*	1.SG
PN		V	CN	V	PRON

'*Jimo bought me a garment.*'

b. Yoruba single event: manner (Dechaine 1993).

Jímò kò Jókòó jẹun.

Jímò	kò	[Jókòó	[jẹun]].
Jimo	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.

(29) a. Ewe multi-event construction CC (Ameka 2005).

É-yɔ́ -m nye-mé-tɔo.

É-yɔ́-m	nye-mé-tɔ	o.
3.SG-*call*-1.SG	1.SG-NEG-*respond*	NEG
PRON-V-PRON	PRON V	

'*He/she called me, I did not respond.*'

(29) b. Ewe single event SVC (Agbedo 1993).

Nye me sle agbala na Ama o.

Nye	me	šle	agbala	na	Ama	o.
I.SG	NEG	*buy*	*book*	*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).

ɔ fa-man agba man-man Yao.

ɔ	fa-man	agba	man-man	Yao.
3.SG	*take*-NEG	*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 Ẹ̀dó ((31)) and Igbo ((32)) CCs on the other hand, negation is expressed once indicating that CCs in these languages are single clauses.

(31) Ẹdo multi-event: CC.

Òzó ghá/í dẹ̀ ìyán lè ẹ̀ré.

Òzó	ghá/í	dẹ̀	ìyán	lè	ẹ̀ré.
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).

Ó wè-re ìte byá.

Ó	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

LANGAUGE FAMILY	CONSTRUCTION TYPE	SINGLE MICRO/ MACRO EVENT	MULTI (DISTINCT) EVENT	INFLECTION PATTERN ENCODES DIFFERENCE BETWEEN SINGLE/MULTI EVENT	V1-VN MUST HAVE ONE/HARMONIZING TAM FEATURES	V1-VN MUST HAVE SAME POLARITY FEATURES
EDO	SVC	YES	NO	YES (25b)	YES (33)	YES (33)
	CC	NO	YES	YES (25a)	YES (31)	YES (31)
IGBO	SVC	YES	NO	YES (23a)	YES(23a)	YES
	CC	NO	YES	YES (23b)	NO(32)	YES(32)
YORUBA	SVC	YES	NO		YES (28b)	YES (28b)
AKAN	SVC	YES	NO		YES (35)	YES (35)
EWE	CONSEC CONST	NO	YES		NO (36b)	NO (36a)
	CC	NO	YES		YES (29a)	NO (29a)
	SVC	YES	NO		YES (29b)	YES (29b)
GA	SVC	YES	NO		YES (37)	YES (37)
GURENNE	SVC: Pluractionality	YES	NO		YES (38a)	YES
	Ingressive/inchoative				NO(26a)	YES
	Theme-goal				NO(26b)	YES(38b)
	nyaŋɛ'can'/ taʔam'possibility'				NO(26c)	NO (26c)
BAULE	CC	YES	NO		YES (30)	YES (30)

Below are more examples from Ẹ̀dó, Igbo, Akan, Ewe and Gurene exemplifying the discussion above:

(33) Ẹ̀dó single event: consequential construction.

Òzó ghá/í dẹ̀ ìyán lè.

Òzó	ghá/í	dẹ̀	ìyán	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.'*

(35) Akan single event: CCSVC (Agyemae 2002).

Ama n-tɔnam n-twitwa n-kye n-we.

Ama	n-tɔ	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.'*

(36) Ewe multi-event: Consecutive Construction (Ameka 2005).

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-nɔyi-yi-ḿ ḿá-vá.**

Mí-nɔ	yi-yi-ḿ	ḿá-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).

Àmɛ$_1$-he é-!tswá-aa !shí t$_1$ kɛ̀- tsú –uu ní!í.

Àmɛ$_1$-he é-!tswá-aa		!shí t$_1$
3.PL- *self* NEG-*strike*-NEG.IMP		*down*
Pron	V	CN
kɛ̀-	tsú -uu	ní!í.
move.NEG-	*send*-NEGIMP	*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 toogbɛɛ kɔ-ɔs –a.

A	wá	kiin	–a	la	toogbɛɛ	kɔ-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. Theme-goal (negation).

Ǎ ká tári fárifari yù'urɛ pá'asɛ?

Ǎ	ká	tári	fárifari	yù'urɛ	pá'asɛ?
3.SG	NEG	*have*	*frafra*	*name*	*add*
PRON	V	CN		CN	

'*Doesn`t he also have a Frafra name?'*

c. Nyaŋɛ'can'/ Taʔam'possibility'

ti tʊ nyaŋɛ tạ̲ʔ -am daa tʊm tʊʊnɛ wa.

ti	tʊ	nyaŋɛ	tạ̲ʔ -am	daa	tʊm	tʊʊnɛ	wa.
and	1.PL	*able*.COMPL	*could*-ST	PAST	*do*	*work*	DEF
	PRON	V	V		V	CN	

'and we were able to do the work.'

Another construction which Ameka (2005) calls a bi-clausal construction and likens to the covert co-ordination in Ẹ̀dó 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 Ẹ̀dó 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) **É-yɔ́-m nye-mé-tɔ o.**

É-yɔ́-m	nye-mé-tɔ	o.
3.SG-*call*-I.SG	I.SG-NEG-*respond*	NEG
PRON-V-PRON	PRON	V

'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 Ẹ̀dó that are SVCs and CCs in the other languages. At this point let me mention that the *V+infinitival* constructions as found in Ẹ̀dó 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.

(40) **Wọ́n ra aṣọ tà.**

Wọ́n	ra	aṣọ	tà.
3.PL.AFF	*buy*	*cloth*	*sell*
PRON	V	CN	V

'They bought cloth to sell'

However, while the Ẹ̀dó *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 (Ẹ̀dó 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

[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 È̲dó 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

				A	B	C	D	E	F	G	H
language family Benue-Congo	**construction type**	**single micro/ macro event**	**Multi (distinct) event**	**token sharing of subjects**	**Switch sharing**	**Overt reference sharing Of subjects**	**Covert reference sharing Of subjects**	**Token Sharing Of objects**	**Overt Reference Sharing of objects**	**Covert sharing of objects**	**Objects are not Shared (if any)**
Ẹ̀DO	SVC: Resultative	YES	NO		YES (41)			NO (41)			YES
	Consequential	YES	NO	YES(47a)				YES(47a)			NO
	Purpose	YES	NO	YES (47b)				YES(47b)			NO
	Negative resultative	YES	NO	YES (47c)							YES (47c)
	CC	NO	YES				YES (47d &e)		YES (47d)		YES (47e)
IGBO	SVC: Instrumental	YES	NO	Yes (48a)							Yes(48a)
	Comitative	YES	NO	YES (32)							Yes(34)
	Manner	YES	NO	YES (48b)							YES(48b)
	CC	NO	YES	YES(48c)							YES(48c)
YORUBA	SVC: Resultative	YES	NO		YES(42)						
	Consequential	YES	NO	YES(49a)				YES(49a)			
	Comitative	YES	NO	YES(49b)				YES(49b)			
	Benefactive	YES	NO	YES(49c)				YES(49c)			
	Instrument	YES	NO	YES(49d)							YES (49d)

Table 27 Argument sharing patterns in Kwa and North.

				I	J	K	L	M	N	O	P
language family Kwa and North	**construction type**	**single micro/ macro event**	**Multi (distinct) event**	**token sharing of subjects**	**Switch sharing**	**Overt reference sharing Of subjects**	**Covert reference sharing Of subjects**	**Token Sharing Of objects**	**Overt Reference Sharing of objects**	**Covert sharing of objects**	**Objects are not Shared (if any)**
AKAN	ISVC:	YES	NO								
	De+ditrans verb			YES(50a)				YES(50a &b)			
	Take-as-instrument			YES(50b)							
	De+location verb				YES(50c)						YES (50c)
	CCSVC				YES(43)		YES(all Examples)		YES(50d &50e)		YES (50d)
EWE	CONSEC CONST	NO	YES								
	CC	NO	YES			YES(52b)					YES(52b)
	SVC:	YES	NO								
	ISVC			YES(52c & 52d)				YES(52c)			YES (52d)
	Instrumental			YES(52e)						YES(52e)	
	resultative			YES(52d)						YES(52f)	
	CCSVC			YES(all examples)					YES(50h)	YES(52g)	YES (52i)
GA	ISVC:	YES	NO								
	Resumptive					YES(53b)				YES(53b)	YES
	Non Resumptive			YES(53a)			YES(53c)	YES(53a)		YES(53c)	
GURENNE	SVC	YES	NO								
	Pluractionality			YES(51a)				YES(51a)			
	Ingressive/inchoative			YES(51b)			YES(51c)	YES(51b)			YES (51c)
	Theme-goal			Yes(51d)				YES(51d)			
	Nyaŋɛ'can'/ Taʔam'possibility'			YES(37)							
BAULE	CC	YES	NO				YES(all examples		YES(54a)	YES(54b)	YES(54c)
	RSC	YES	NO			YES (54d &f)				YES(54d)	YES(54e)

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 Ẹ̀dó 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 Ẹ̀dó, Yoruba and Akan. Again the type of switch sharing attested reflects the general pattern of argument sharing found in these languages. Ẹ̀dó 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) Ẹ̀dó Resultative SVC (switch sharing).

Òzó suá Àzàrí dé gbé òtọ̀.

Òzó	suá	Àzàrí	dé	gbé	òtọ̀.
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 ṣubú.

Olú	ti	ọmọ	náà	ṣubú.
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 Ẹ̀dó 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 Ẹ̀dó

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 (wÒ) has the form of dependent Pronoun (Ameka 2005).

Kofí ná (bé) wÒ-ɖu nú-á.

kofí	ná	(bé)	wÒ-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).

Kofí fo-e fú anyí.

Kofí	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 (wÒ) has the form of dependent Pronoun (Ameka 2005).

Kofí fo-e wÒ-dze anyí.

Kofí	fo-e_i	$wÒ_i$ -dze	anyí.
Kofi	*struck*-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. **Ò vì kɛ tsà la.**

Ò	vì	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 vì kɛ tsà la.**

Bà	vì	kɛ	tsà	la.
3.PL.PERF	*push*	3.SG.OBJ	*touch*.PERF	LOC
PRON	V	PRON	V	

'They pushed him and he fell.'

c. **Ò vì bá ʧà la.**

Ò	vì	bá	ʧà	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 ɔ́-sɔ a-klotiabí nyã-mə o-bia-sə.

Ú$_i$-fi	háma	ɔ́$_i$-sɔ	a-klotiabí	nyã-mə	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-təkə lɛ-bɔ nə-mə le-siabi léfo le-fabé.

Ú-təkə	lɛ-bɔ	nə-mə	le-siabi	léfo	le-fabé.
3.SG-*put*	CM-*pumpkin*	AGR-DET	CM-*knife*	ANAPH-do	CM-*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. Ẹ̀dó, 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.

Ẹ̀dó 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) **Ẹ̀dó SVCs**

a. Consequential (token subject and object sharing) .

Òzó lé ízẹ̀ ré.

Òzó	lé	ízẹ̀	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).

Òzó mi̱én àlìmóí kpá!án.

Òzó	mi̱én	àlìmóí	kpá!án.
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).

Òzó gá e̱bo̱ mi̱én òkán.

Òzó	gá	e̱bo̱	mi̱én	òkán.
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).

Òzó de̱ ízè̱, rrí o̱ré.

Òzó	de̱	ízè̱$_i$	, rrí	o̱ré$_i$.
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).

Òzó lé ízè̱, kpòló òwá.

Òzó	lé	ízè̱	,	kpòló	òwá.
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 ụ́kwụ gà-á ahyá.

O	wè-re	ụ́kwụ	gà-á	ahyá.
3.SG	*take*-ØASP	*leg*	*go*-Asp	*market*.Gen
PRON	V	CN	V	CN

'*S/he went to [the] market on foot.'*

b. Manner (Dechaine 1993).

Token subject sharing and different objects.

Ó jì-rí ọ́hụ́hụ́ rí-e ihé.

Ó	jì-rí	ọ́hụ́hụ́	rí-e	ihé.
3.SG	*use*-ØASP	*hurry*	*eat*-ASP	*thing*.GEN
PRON	V	V	V	CN

'*S/he hurriedly ate.'*

c. Multi-event constructions (Dechaine 1993).

Token subject sharing and different objects.

Ó kwùru ókwu kẹ́wa-a akhwá.

Ó	kwù-ru	ókwu	kẹ́wa-a	akhwá.
3.SG	*speak*-ØASP	*word*	*cry*-ASP	*crying*.GEN
PRON	V	CN	V	CN

'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**

a. Consequential (Baker 1989).

Token subject and object sharing.

Bọ́la sè ẹran tà.

Bọ́la	sè	ẹran	tà.
Bola	*cook*	*meat*	*sell*
PN	V	CN	V

'Bola cooked some meat and sold it.'

b. Commitative (Baker 1989).

Token subject and object sharing.

Ó mú ìwé wá.

Ó	mú	ìwé	wá.
He	take	book	come
PRON	V	CN	V

'He brought the book.'

c. Benefactive (Dechaine 1993).

Token subject and object sharing.

Jímọ̀ ọ́ra èwùbùn mì.

Jímọ̀	ọ́	ra	èwù	bùn	mì.
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.

Jímọ̀ ọ́ fi òbẹ gé iṣu.

Jímọ̀	ọ́	fi	òbẹ	gé	iṣu.
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 È̱dó, 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.

ɔ-de no fɛm-m me.

ɔ-de	no	fɛm-m	me.
3.SG-*take*	3.SG(animate)	*lend*-PAST	1.SG
PRON-take	PRON	V	PRON

'*He lent me it.*'

b. Take-as-instrument type.

Token subject and object sharing.

ɔ-de enkrante tya duabasa.

ɔ-de	enkrante	tya	duabasa
he-take	*sword*	*cut*	*branch*
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 atadeɛ no sɛn-n daewa so.

Kofi	de atadeɛ no	sɛn-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 bayerɛ twitwa noa di-i.

Ama	tu-u	bayerɛ	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 tɔ-ɔ adanko dware-e no yɛn-n no

Ama	tɔ-ɔ	adanko$_i$	dware-e	no$_i$	yɛn-n	no$_i$
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 tɔn-ee.

Gyasibi	nya-a	sika	si-i	dan	tɔn-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 kɔ-ɔs -a

A	wá	kiin	–a	la	toogbɛɛ	kɔ-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.

Fṵʔíŋɛ là ŋwàni wṵ-n –à?

Fṵ	ʔíŋɛ	là	ŋwàni	wṵ-n	–à?
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.

ʔí-ŋa mɛ̀ à kíŋɛ súkurì zíʔ-ir –i lá kɔ̀mo̱ ɛ́trà̱s pá-asɛ.

ʔí$_i$-ŋa	mɛ̀	à $_i$	kíŋɛ	súkurì
3.SG-DEM	*too*	3.SG	*go*.COMPL	*school*
PRON		PRON	V	CN

zíʔ-ir –i	lá	kɔ̀mo̱ ɛ́trà̱s	pá-asɛ
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**

a. Consecutive construction (Ameka 2005).

Different subjects.

Mí-nɔ yi-yi-ḿ ḿá-vá.

Mí-nɔ	yi-yi-ḿ	ḿá-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-tɔo.

É-yɔ́-m$_i$	nye$_i$-mé-tɔ	o.
3.SG-call-1.SG	1.SG-NEG-respond	NEG
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 Adzo fia.

Ama	de	Adzo	fia.
Ama	*remove*	*Adzo*	*show*
PN	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 ɣii yɔ Kofi.

Ama	do	ɣii	yɔ	Kofi.
Ama	*ICV*	*scream*	*call*	*Kofi*
PN	V	CN	V	PN

'*Ama screamed, calling Kofi.*'

e. Instrumental (Collins 1997).

Token subject sharing and covert reference object sharing.

Kofi a tsɔ ati-ɛ fo Yao.

Kofi	a	tsɔ	ati-ɛ	fo	Yao.
Kofi	FUT	*take*	*stick-DEF*	*hit*	*Yao*
PN		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 kaɖɛgbɛ gba.

Me	fo	kaɖɛgbɛ	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 abladzo ɗa ɗu.

Aku	fle	abladzo	ɗa	ɗu.
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, ʊu-I he-dze xexle gɔ me.

Kɔdzo	kɔ	bibli-a_i,	ʊu-i_i	he-dze	xexle	gɔ	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 wɔ dɔ, kpɔga fle afe.

Agbeko	wɔ	dɔ,	kpɔ	ga	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 ní!í hǎ́-ǎ̀ àmɛ.**

Akwele	hó-ọ	ní!í	hǎ́-ǎ̀	àmɛ.
Akwele	*cook*-HAB	*things*	*give*-HAB	3.PL
PN	V	CN	V	PRON

'*Akwele cooks for them.'*

b. Overt reference subject sharing and covert reference object sharing.

E-tao adeka e-ba-ha mi.

E_i-tao	adeka	e_i-	ba-ha	mi.
3.SG-*look.for*	*box*	3.SG-INGR-*give*		I.SG
PRON-V	CN	PRON	V	PRON

'*S/he looked for a box for me.*'

c. Covert reference subject sharing and covert reference object sharing.

E_1-tao adeka$_2$ t_1kɛ t_2 -ba-ha mi.

E_1-tao	adeka$_2$	t_1	kɛ	t_2	-ba-ha	mi
3.SG-look.for	box		move		INGR-give	I.SG
PRON-V	CN		V			PN

'*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.

(54) **Baule** (Larsen 2005).

ESC

a. Covert reference subject sharing and overt object reference sharing.

ɔ fa ba-`n wunzin i kpɛkpɛi.

ɔ	fa	ba-`n$_i$	wunzin	i$_i$	kpɛkpɛ	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.

B-'a sanzue a nɔn.

B-'a	sa	nzue	a	nɔn.
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.

ɔ si-li aliɛ-`n sɔkɔ-li tro`n.

ɔ	si-li	aliɛ-`n	sɔkɔ-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.

B-'a sa nzue a nɔn.

B-'a	sa	nzue	(b')	a	nɔn.
3.PL.SUBJ-PERF	*draw*	*water*	(3ps)	PERF	*drink*
PRON	V	CN	PRON		V

'*They have drawn water and drunk it.* '

e. Accidental-combination ESC and different objects.

ɔ si-li aliɛ-`n (ɔ) sɔkɔ-li tro`n.

ɔ	si-li	aliɛ-`n
3.SG.SUBJ	*pound-COMPL*	*food*-DEF
PRON	V	CN
(ɔ)	sɔkɔ-li	tro`n.
(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 Ẹ̀dó 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 symmentry 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. Ẹ̀dó 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, Ẹ̀dó 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. Complemenation: Ẹ̀dó RSVC (Baker and Stewart 1999 and 2002), Yoruba SVC (Baker 1989), Ewe SVC (Collins 1997).

ii. Adjunction: Ẹ̀dó 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 (Ȅdó and Baule).
ii. The distribution of a floating anaphor (Ȅdó).
iii. Distribution of a future marker (Ewe).
iv. Wh-extraction (Akan).
v. Headedness and inflection marking (Igbo).
vi. Predicate cleft (Ȅdó), (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 Ȅdó, 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

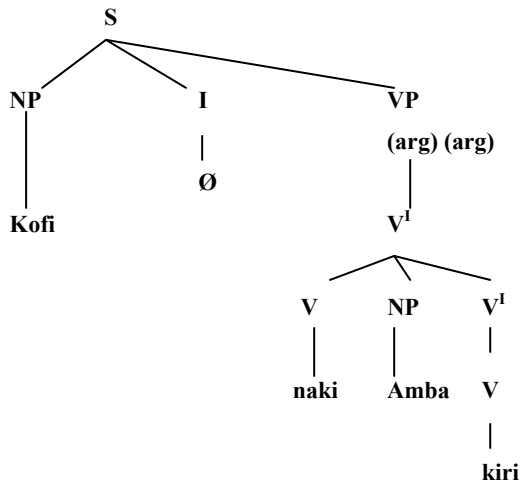
(2003) calls the *verbid*, and in Akan wh-extraction ((79)) is used by Hellan, Beermann and Sætherø (2003) to distinguish between CCSVCs and overt co-ordination. Headedness, predicate cleft and inflection are used to support an adjunction structure for Yoruba ((72)) to ((73)), Igbo and Haitan by Dechaine (1993). Predicate cleft has also been used to distinguish between complementation and adjunction structures for Ẹ̀dó (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.

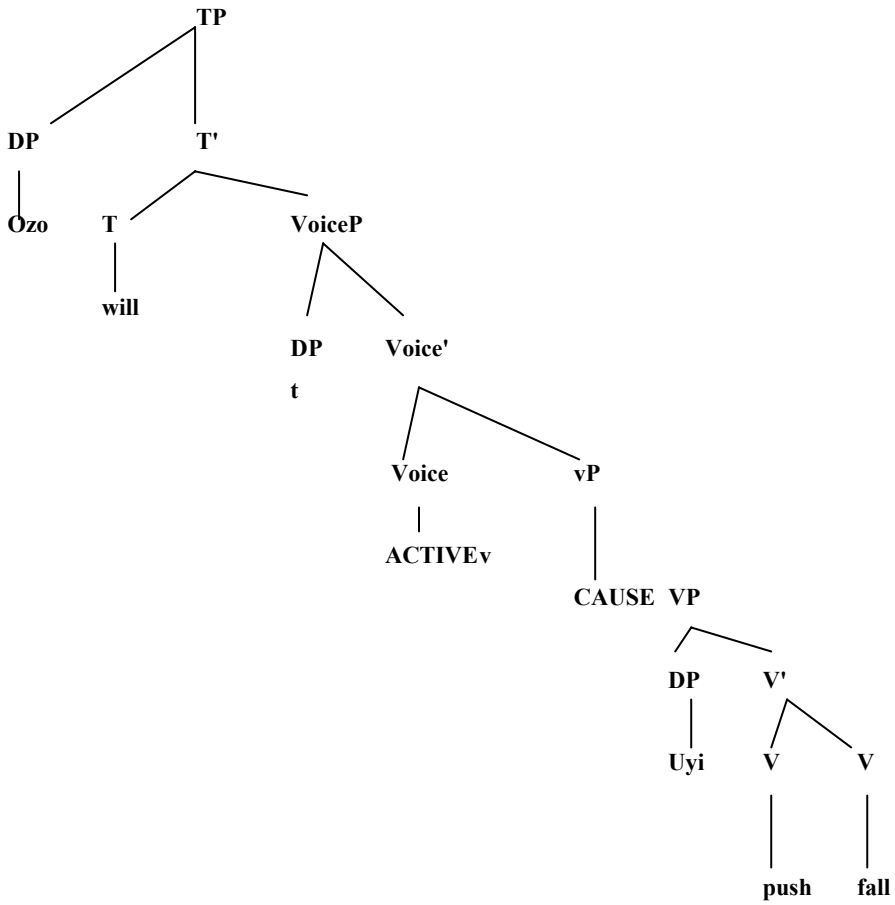
The SVC is analyzed as having a complementation structure. He proposes the following schema to account for the object sharing phenomena using Sranan as illustration.

(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 thetha 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):

(58)



Evidence from adverb distribution (59) and the distribution of the floating anaphor *tòbo̱rè* 'by his/her/it self' (60) is used to buttress this claim by them:

(59) *** Òzó fí àkhé gìe̱gìe̱ guògho̱.**

*Òzó	fí	àkhé	*gìe̱gìe̱*	guògho̱.
Ozo	*throw*.PST.H	*pot*	*quickly*	*break*.PST.H
PN	V	CN	ADV	V

'Ozo threw the pot so that it quickly broke.'

(60) ***Òzó kòkó Àdésúwà mòsé tòbǫ́rè.**

*Òzó	kòkó	Àdésúwà	mòsé	(--) tòbǫ́rè.
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-fí-mwẹ̀n ǫ̀ré Ò fí akhe gìẹ́gìẹ́ guǫ̀ghǫ́.** (V1 focus)

?? Ú-fí-mwẹ̀n	ǫ̀ré	Ò	fí	àkhé	ghuǫ́!ghó.
NOM-*throw*-NOM	FOC	*he throw*.PST.H		*pot*	*break.*PST.!H
GERUND	CN	V		CN	V

'Its by throwing that he made the pot break (not by striking it)'

b. ***Ú-ghuǫ́!ghǫ́-mwẹ̀n ǫ̀ré Òzó fí akhe gìẹ́gìẹ́ guǫ́!ghǫ́.** (V2 focus)

* Ú- ghuǫ́!ghó -mwèn	ǫ̀ré	Òzó	fí	àkhé	ghuǫ́!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 *gìẹ́gìẹ́* '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 Ẹ̀dó is derived through the affixation of a circumfix *U-mwẹ̀n* to the clefted verb.

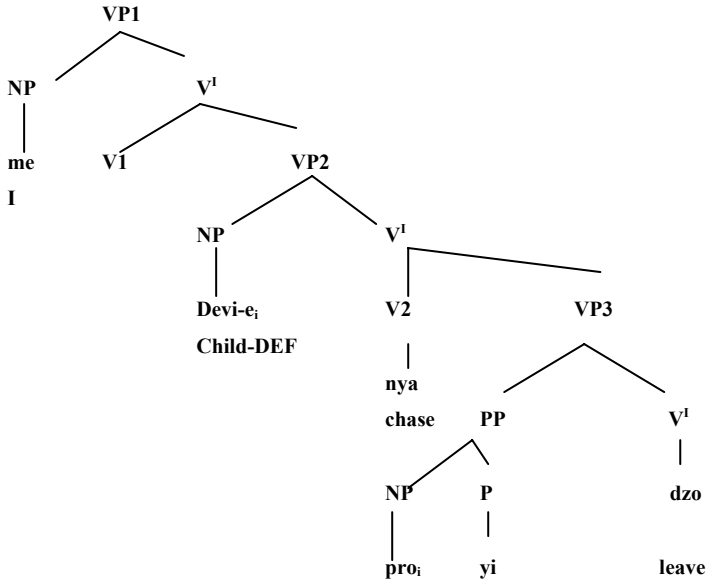
Collins (1997) working within the Principles and Parameters framework adopts a complementation structure and rejects an adjunction structure in his account of the licensing of the *pro* complement of V2-Vn. *Pro* requires a c-commanding antecedent and an adjunction relationship between V1 and V2-Vn precludes this. Just like the distribution of the *tòbǫ́rè* 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 nya ɖevi-ɛ dzo (yi).**

Me	nya	ɖevi-ɛ	dzo	(yi).
I	*chase*	*child*-DEF	*leave*	P
PRON	V	CN	V	

'I chased the child away.'

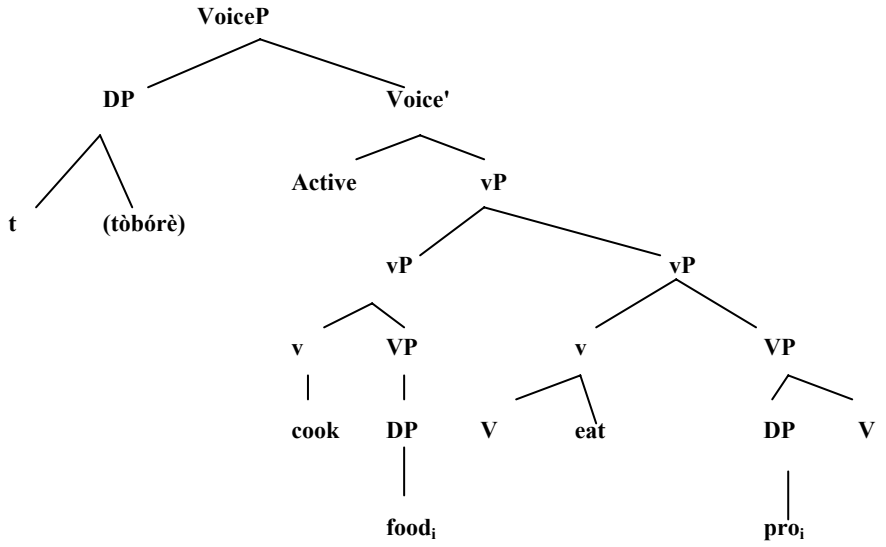
b.



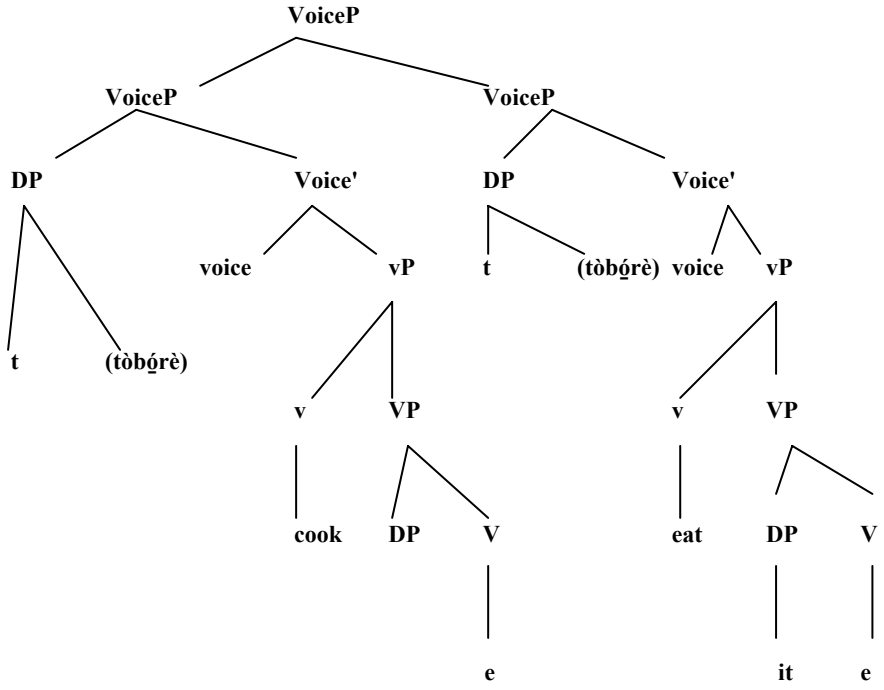
Adjunction

For Ȅdó 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.

(63) CSVC (Baker and Stewart 1999)



(64) Covert Co-ordination (Baker and Stewart 1999)



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).

Òzó lé èvbárè rhé! rhé ré.

Òzó	lé	èvbárè	rhé! rhé	ré.
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).

Òzó gi̱é!gi̱é gbó̱!ó̱ ívìn gi̱é!gi̱é gbó̱!ó̱ ò̱ká.

Òzó	gi̱é!gi̱é	gbó̱!ó̱	ívìn
Ozo	*quickly*.PST.H	*plant*.PST!H	*coco-nut*
PN	ADV	V	CN

gi̱é!gi̱é	gbó̱!ó̱	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. ***Òzó lé èvbárè tòbǫ́rè ré.**

Òzó	lé	èvbárè	tòbǫ́rè	ré.
Ozo	*cook*.PST.H	*food*	*by*.3.SG.*self*	*eat*.PST.H
PN	V	CN	ANA	V

'Ozo cooked some food and by himself ate it.'

(floating anaphor licensed after VP2).

b. **Òzó dé̱ ìyán$_i$ dùnmwún (--) tòbórè$_i$.**

Òzó	dé̱	ìyán$_i$	dùnmwún	(--)	tòbórè$_i$.
Ozo	*buy*.PST.H	*yam*	*pound*.PST.H		*by*.3.SG.*self*
PN	V	CN	V		ANA

'Ozo bought the yam and pounded it by itself.'

(68) Covert Co-ordination.

(floating anaphor licensed before V2).

Òzó lé èvbárè tòbórè ré ọ̀ré.

Òzó	lé	èvbárè	tòbórè	rrí	ọ̀ré.
Ozo	*cook*.PST.H	*food*	*by.3SG.self*	*eat*.PST.H	it
PN	V	CN	ANA	V	PRON

'Ozo cooked some food and by himself ate it.'

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.

(69) CSVC

a. **Ù-lé -mwẹ̀n ọ̀ré Úyi lé èvbárè khiẹ́n** (V1 focus).

Ù-lé -mwẹ̀n	ọ̀ré	Úyi	lé	èvbárè	khiẹ́n.
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. **Ù-khiẹ́n-mwẹ̀n ọ̀ré Úyi lé èvbárè khiẹ́n** (V2 focus).

Ù-khiẹ́n-mwẹ̀n	ọ̀ré	Úyi	lé	èvbárè	khiẹ́n.
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.'

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. Ẹ̀dó 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 Ẹ̀dó multi-verb constructions in chapter 7.

I now discuss Dechaine (1993) adjunction structure for Yoruba and Igbo. I leave Haitian out of the discussion.

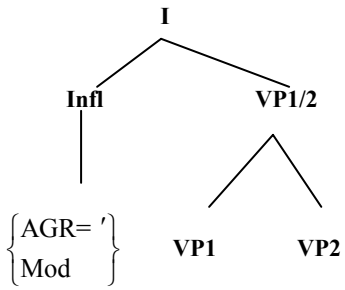
Using the scope of negation, predicate cleft and focusing, the following classification in table 28 below is arrived at:

Table 28 Headedness and SVC types

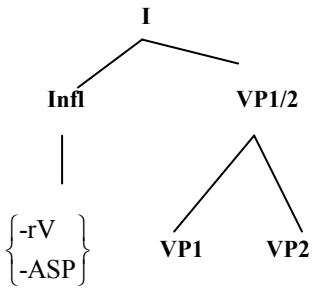
	HEAD=V1		**HEAD=V2**
Construction type	Dative Benefactive Locative	Resultatives	Instrumental Manner Comitative
Haitan	Serial construction	-	-
Igbo	V-V compound	V-V compound	Serial construction
Yoruba	Serial construction	Serial Construction	Serial construction

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.[76] 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] nì Jímọ̀ ọ́ mú àpótí fún mì.** (V1 focus)

[Mí-mú]	nì	Jímọ̀	ọ́	mú	àpótí	fún	mì.
Nom-*take*	FOC	*Jimo*	AGR	*take*	*box*	*give*	*me*
GERUND		PN		V	CN	V	PRON

Translation difficult

b. ***[Fí-fún] nì Jímọ̀ ọ́ mú àpótí fún mì.** (V2 focus)

[Fí-fún]	nì	Jímọ̀	ọ́	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-fí] nì Jimọ̀ ọ́ fì ọ̀bẹ gé ìṣu.** (V1 focus)

[Fí-fí]	nì	Jimọ̀	ọ́	fì	ọ̀bẹ	gé	ìṣu.
Nom-*use*	FOC	*Jimo*	Agr	*use*	*knife*	*cut*	*yam*
GERUND		PN		V	CN	V	CN

Translation difficult

b. **[Gí-gé] nì Jimọ̀ ọ́ fì ọ̀bẹ gé ìṣu.** (V2 focus)

[Gí-gé]	nì	Jimọ̀	ọ́	fì	ọ̀bẹ	gé	ìṣu.
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 Ẹ̀dó resultatives. The dative construction also behaves like the resultative construction in Ẹ̀dó in this respect. The Instrumental construction is parallel with Ẹ̀dó 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:

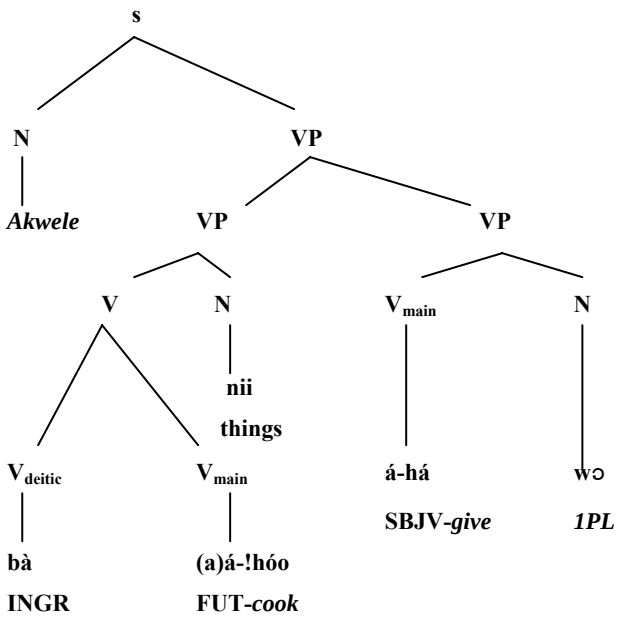
(74)

a. **Akwele bàáhóo nii á-há wɔ.**

Akwele	bàá	hóo	nii	á	há	wɔ
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 b*á* 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. **lɔle-i ɛ baá-to lai ké-jɛ biɛ.**

lɔle-i	ɛ	baá-to	lai	ké-jɛ	biɛ.
Car-PL	DEF	GR.FUT-*arrange*	*line*	*move*.SUB-l*eave*	*here*
N		V	N	V	N

'The cars will line up from here'

b. ***Ké-jɛ biɛ (nĩ) lɔle-i ɛ baá-to lai** (VP2 focus).

* Ké-jɛ	biɛ	(nĩ)	lɔle-i	ɛ	baá-to	lai.
Move.SUB-l*eave*	*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. Kɛ '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 aV_{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:

Pron-prefix $V_{kɛ}$ V_{neg} $V_{deictic}$ 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.

Kɛ 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 *kɛ* 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. Ẹ̀dó does not have such preverbs. The closest to the *kɛ, ba* and *ya* preverbs in Ẹ̀dó 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 *kɛ* as illutration:

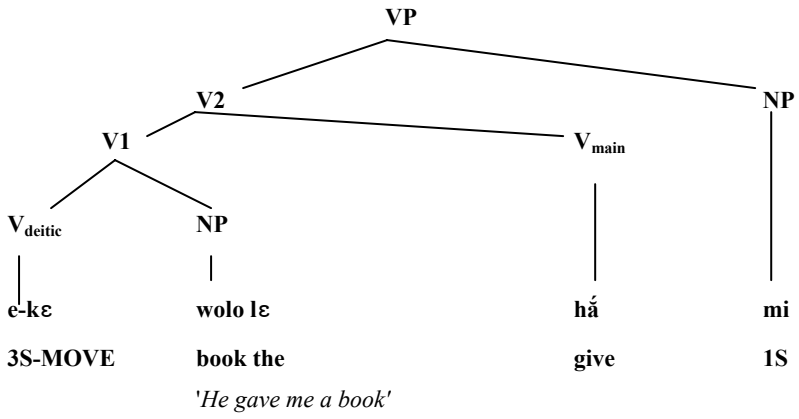
(77) **EVC**

a. **E kɛ wolo lɛ ha mi**

E	kɛ	wolo	lɛ	ha	mi
3.SG	*MOVE*	*book*	*Det*	*give*	1.SG
V		CN	DET	V	PRON

'He gave me the book'

a.



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 preceeding 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.

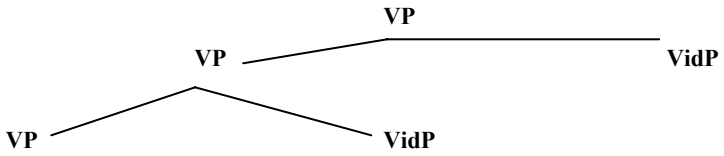
(78) **VERBID (VidP)**

a. **Akwele`-baá- hoo niyeniì-ha amɛ.**

Akwele	`-	baá-	hoo	niyeniì-ha		amɛ.
Akwele	AOR-GR.FUT			*-cook food*	AOR-*give*	3.PL
PN	V			CN	V	PRON

'Akwele will cook for them'

b.



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) *** Dɛn na Ama noa di-i?**

Dɛn	na	Ama		noa di-i?
what	FOC	*Ama*	*cook*	*eat*-COMPL
N		N	V	V

'What did Ama cook and eat?'

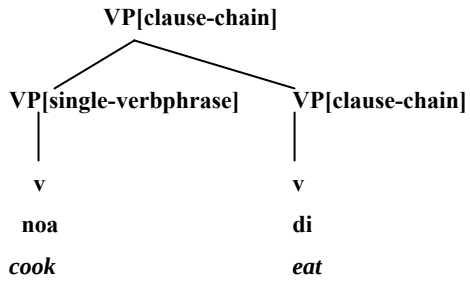
Similar to Ga, they also represent serialization as a right branching adjunction structure for Akan.
CCSVC are represented formally as binary right branching adjunction structures with the left-most daughter the head and the rightmost daughter an adjunct. The latter licenses recursion and allows for 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

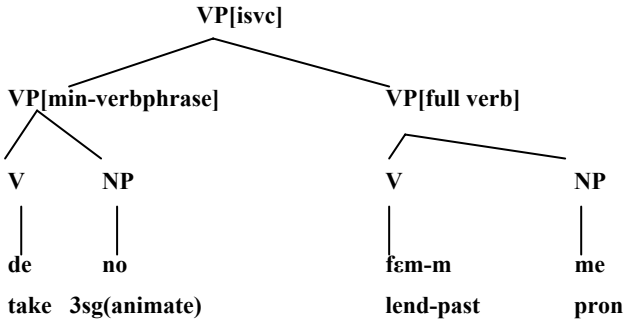
Ama cook eat

PN V V

'*Ama cooks and then eats*'

(81)

a.



a. **ɔ-de no fɛm-m me.**

ɔ-de	no	fɛm-m	me.
3.SG-*take*	3.SG(animate)	*lend*-PAST	1.SG
PRON-take	PRON	V	PRON

'*He lent me it.*'

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).

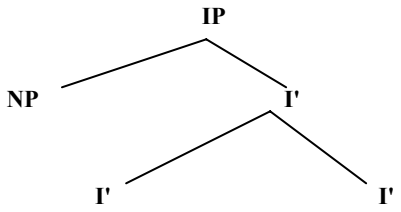
(82)

a. **Me a fo kaɖɛgbɛ a gba (yɛme) tsimini.**

Me	a	fo	kaɖɛgbɛ	a	gba	(yɛme)	tsimini.
I	FUT	*hit*	*lamp*	FUT	*break*	*its*	*glass*
Pron		V	N		V	pron	N

'I hit the lamp and broke it.'

b.



The covert co-ordination in Ewe differs from Ẹ̀dó covert co-ordination and all multi-verb constructions types in Ẹ̀dó that I have discussed in this thesis in this respect. Ẹ̀dó 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 kɛ atɛkpa be di-li kangale-'n.

Kofi	se-li	kɛ	atɛkpa	be	di-li	kangale-'n.
Kofi	*say*-COMPL	*that*	*possibly*	3.PL.SUBJ	*eat*-COMPL	*panthe*r-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).

kɛ nzuewe kun Aya ɔ sa nzue ndɛndɛ nɔn.

kɛ	nzuewe	kun	Aya	ɔ	sa	nzue	ndɛndɛ	nɔn.
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.'*

(87) VP adverb-overt coordination.

kɛ nzuewe kun Aya ɔ sa nzue kpɛkun ɔ nɔn i ndɛndɛ.

kɛ	nzuewe	kun	Aya
when	*thirst*	*kill*	*Aya*
	V	V	PN

ɔ	sa	nzue	kpɛkun	ɔ	nɔn	i	ndɛndɛ.
3.SG.SUBJ	*draw*	*water*	*and*	3.SG.SUBJ	*drink*	3.SOBJ	*quickly*
PRON	V	CN	CONJ	PRON	V	PRON	ADV

'When Aya is thirsty, she draws water and drinks it quickly.'

With respect to the licensing of sentential adverbs, Ȅdó 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 Ȅdó consequential construction, a preverbal adverb occurring before V1 has scope obligatorily over the whole macro event. Also the Ȅdó 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, Ȅdó 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).

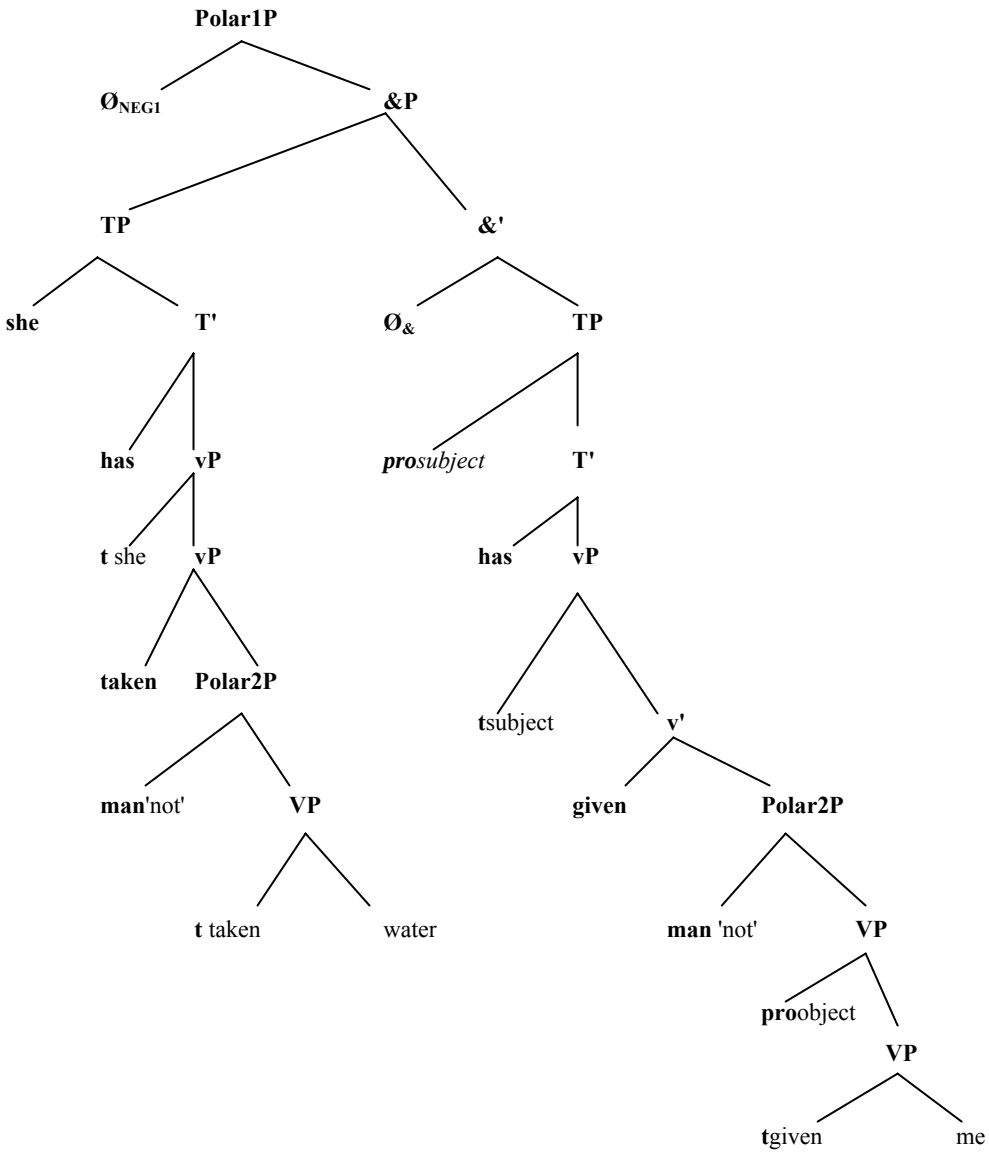
(88)

a. **ɔ-à fa man ɔ-à man man mi.**

ɔ-à	fa	man	ɔ-à	man	man	mi
3.SG.SUBJ-PERF	*take*	NEG	3.SG.SUBJ-PERF	*give*	NEG	1.SG.OBJ
PRON	V		PRON	V		PRON

'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 Ẹ̀dó, 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 Ẹ̀dó, 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 Ẹ̀dó when their arguments are realized non-canonically. This pattern was found only in Igbo and Ẹ̀dó.

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 (Ẹ̀dó 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 Ẹ̀dó 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

subjects and switch sharing (Ẹ̀dó, 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. Ẹ̀dó 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, Ẹ̀dó 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: Ẹ̀dó RSVC (Baker and Stewart 1999 and 2002), Yoruba SVC (Baker 1989), Ewe SVC (Collins 1997) and Ga EVCs (Dakubu, Hellan and Beermann 2007). Adjunction: Ẹ̀dó 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 (Ẹ̀dó and Baule), the distribution of a floating anaphor (Ẹ̀dó), distribution of a future marker (Ewe),wh-extraction (Akan), headedness and inflection marking (Igbo), predicate cleft (Ẹ̀dó), (Yoruba) and (Ga) and lastly negation (Baule).

CHAPTER SIX
TEMPORAL RELATIONS AND EVENT STRCTURE

6.0 Introduction

The essence of the previous 5 chapters is to provide a semantic and syntactic description of multi-verb constructions in Ẹ̀dó 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 Ẹ̀dó 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).

(1.2) Contradiction test using the conjunction *sòkpán* 'but'.

(1.3) Causative paraphrases that identify non-overlapping relations (Rappaport and Levin 1999).

These tests identify *non-overlapping* and *over-lapping* relations. In section 6.4, I relate these temporal relations to the licensing of the *–rV* suffix in multi-verb constructions.

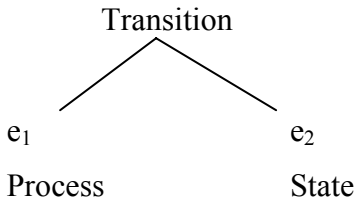
Finally, I show in section 6.5 how these temporal relations can be modeled in an HPSG analysis, and in this model be construed as licensed between the head-daughter VP (1) and the non-head-daughter VP(2) through a constraint SIT (UATION)-PAIR condition on *mrs* with value *sit-pair*. The type *sit-pair* is constrained by the attributes EVENT1 and EVENT2 with values *eventstruc-rel*, TEMP-REL with value *temporal-relation* and TEMPORAL with value *time-span*.

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 Ẹ̀dó. This is illustrated in example (2) below:

(2). English/ Ẹ̀dó:



English:

'John hammered the nail flat'

Ẹ̀dó:

Òzó	kán	ìsé	bigọ̀ọ́[77]
Ozo	*nail*.PST.H	*nail*	*bent*.PST.H
PN	V	CN	V

'Ozo nailed the nail bent'

Different from the English example where e_2 is a result XP, in Ẹ̀dó the result predicate is a verb, with e_1 and e_2 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.*[78] 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*.

[77] See chapter 3 for discussion on state verbs in Ẹ̀dó.

[78] Two sub-events are disjoint if they do not overlap in any way, that is, $e_1 \prec: e_2 \vee e_2 \prec: e_1$. 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 Ẹdo *fó* '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 1999[79]) and the *disjoint order* (Allen and Fergusen 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) **Òzó vi̱é̱-rè kpè̱é̱**.

Òzó	vi̱é̱-rè	kpè̱é̱.
	process	state
Ozo	*cry*.PST-rV	*long*
PN	V	ADV

'Ozo cried for a long time.'

(7) **Òzó lòó òrí fòó.**

Òzó	lòó	òrí	fòó.
	process		achievement
Ozo	*use*.PST.H	*cream*	*finish*
PN	V		ADV

'Ozo finished the cream'

(8) **Òzó kpèé èmá kpè̲é̲.**

Òzó	kpèé	èmá	kpè̲é̲.
	accomplishment		state
Ozo	*beat*.PST.H	*drum*	*long*
PN	V	CN	ADV

'*Ozo beat the drum for a long time.*'

(9) **Òzó rrí ízè̲ fòó.**

Òzó	rrí	ízè̲	fòó.
	accomplishment		achievement
Ozo	*eat*.PST.H	*rice*	*finish*
PN	V	CN	ADV

'Ozo finished the rice.'

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)

V1	V2
Process	Achievement
Achievement	State

(11) **Ì rhié ẹ̀ré yè èvbá.**

Ì	rhié	ẹ̀ré	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**

V1	V2
Process	Progressive state
Process	Achievement

(13) **overlap**

Òzó rhùlẹ́ dèé.

Òzó	rhùlẹ́	dèé.
	process	progressive state
Ozo	*run*.PRS	*coming*
PN	V	ADV

'Ozo is running towards me.'

(14) **ordered overlap**

Òzó rhùlẹ́-rè làọ́ òwá.

Òzó	rhùlẹ́-rè	làọ́	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**

V1	V2
State(temporal position state)	Event

(16) **Òzó dìgiẹ́n-rẹ̀n rrí èvbàré.**

Òzó	dìgiẹ́n-rẹ̀n	rrí	èvbàré.
	state	accomplishment	
Ozo	*stoop.*PST-rV	*eat.*PST.H	*food*
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+infinitival complements* also stand in an *overlapping* relation and I discuss this immediately.

V+INFINITIVAL COMPLEMENT CONSTRUCTIONS

For the events in series in *V+infinitival complement* construction the relation is that of *overlap.*

(17) **Comitative construction**

Overlap relation

V1	V2
Process	Achievement
Process	Accomplishment

Examples (18) and (19) illustrate this:

(18) **Íràn kòkó-rò dẹ́ ímọ́tò.**

Íràn	kòkó-rò	dẹ́	ímọ́tò.
	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 ízẹ̀.**

Íràn	kùgbé-rè	rrí	ízẹ̀.
	process	accomplishment	
3.PL	*gather together.*PST-rV	*eat*	*rice*
PRON	V	V	CN

'They eat the rice together.'

e_1 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.

V1	V2
Process	Achievement
Process	Accomplishment
Achievement	Achievement

(21) **Òzó lòó éhọ̀ fián ìrrí.**

Òzó	lòó	éhọ̀	fián	ìrrí.
	process		achievement	
Ozo	*use.*PST.H	*knife*	*cut*	*rope*
PN	V	CN	V	CN

'Ozo used a knife to cut the rope.'

(22) **Òzó lòó èmióẁò lé èvbàré.**

Òzó	lòó	èmióẁò	lé	èvbàré.
	process		accomplishment	
Ozo	*use*.PST.H	*meat*	*cook*.PST.H	*food*
PN	V	CN	V	CN

'Ozo used meat to cook the food.'

(23) **Òzó rhìé éhọ̲́ fián ìrrí.**

Òzó	rhìé	éhọ̲́	fián	ìrrí.
	achievement		achievement	
Ozo	*take*.PST.H	*knife*	*cut*	*rope*
PN	V	CN	V	CN

'Ozo cut the rope with a knife.'

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

V1	V2
Achievement	Accomplishment
Achievement	Achievement

(25) **Òzó miẹ̲́n ìyán lé.**

Òzó	miẹ̲́n	ìyán	lé.
	achievement		accomplishment
Ozo	*see.*PST.H	*yam*	*cook*
PN	V	CN	V

'Ozo saw yam to cook (and he cooked it).'

(26) **Òzó miẹ̲́n àkhé guọ́!ghọ́.**

Òzó	miẹ̲́n	àkhé	guọ́!ghọ́.
	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 *miẹ̲́n 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 È̲dó 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

V1	V2
Accomplishment	Achievement
Accomplishment	Accomplishment
Achievement	Accomplishment

(28) **Òzó lé ízẹ̀ ré.**

Òzó	lé	ízẹ̀	ré.
	accomplishment		accomplishment
Ozo	*cook.*PST.H	*rice*	*eat.*PST.H
PN	V	CN	V

'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**

V1	V2
Process	State
Accomplishment	State
Achievement	Achievement

(30) **Resultative partial order relation**

Òzó suá Àzàrí dé gbé òtọ̀.

Òzó	suá	Àzàrí	dé	gbé	òtọ̀.
	achievement		achievement		
Ozo	*push.*PST.H	*Azari*	*fall.*PST.H	*against ground*	
PN	V	PN	V	PP	CN

'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**

Òzó họ̀ọ́ úkpọ̀n huán̰.[80]

Òzó	họ̀ọ́	úkpọ̀n	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 È̱dó. 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)	Ò̱	kàkàbọ́	huán
	3SG	exceedingly.PST.H	clean.PST.H
	'It is extremely clean'		
(b)	*Ò̱	kàkàbọ́	dé
	3SG	exceedingly.PST.H	fall.PST.H
	'It fell extremely'		

(32) **Negative Resultative**

Disjoint order relation

V1	V2
Accomplishment	Achievement
Achievement	Achievement

(33) **Òzó guo̱ghó̱ úwáwà là ó̱ è̱mwé̱n.**

Òzó	guo̱ghó̱	úwáwà	là ó̱	è̱mwé̱n.
	achievement		achievement	
Ozo	*break*.PST.H	*pot*	*enter*.PST.H	*trouble*
PN	V	CN	V	CN

'Ozo broke the pot and got into trouble.'

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 *Òzó* 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**

Òzó dé ízè̱ , rrí o̱ré.

Òzó	dé	ízè̱	, rrí	o̱ré.
	achievement		accomplishment	
Ozo	*buy*.PST.H	*rice*	*, eat*.PST.H	*it*
PN	V	CN	V	PRON

'Ozo bought rice and ate it.'

(35) **Disjoint order relation**

Òzó	**gbé, tótà.**	
Òzó	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

ORDERED OVERLAP	**OVERLAP**	**PARTIAL ORDER**	**DISJOINT ORDER**
	Resultative construction (V2 is a degree state)	Resultative Constructions (V2 is achievement/individual level predicate)	Negative resultatives
			Consequential Constructions
Non-deictic directional constructions	Deictic directional constructions		Covert Co-ordination
Purpose construction	Commitative Constructions		
Manner constructions	Instrumental Constructions		

[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 2005[82] 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 felititious with events in a causative relation (Rappaport and Levin 1999).

V+Modifier constructions

(37) ***Òzó rhùlẹ́-rè ọ̀ ké làọ́ òwá.**[85] (sequential test)

*Òzó	rhùlẹ́-rè	ọ̀	ké	làọ́	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 rhùlẹ́-rè sòkpán ọ̀ má làọ́ òwá.** (contradiction test)

*Òzó	rhùlẹ́-rè	sòkpán	ọ̀	má	làọ́	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 ọ̀ré ó rhùlẹ́-rè ọ́ zẹ́ né ọ̀ ná làọ́ òwá.** (causative test)

* Òzó	ọ̀ré	ọ́	rhùlẹ́-rè
			process
Ozo	FOC	3.SG	*run.*PST-rV
PN		PRON	V

ọ́zẹ́	né	ò	ná	làọ́	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 dẹ́ ímọ́tò.** (sequential test)

*Íràn	kòkó-rò	íràn	ké	dẹ́	ímọ́tò.
	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 dẹ́ ímọ́tò.** (contradiction test)

*Íràn	kòkó-rò	sòkpán	íràn	má	dẹ́	ímọ́tò.
	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 ọ̀ré ọ́ kòkó-rò ọ̀ zẹ́ né íràn ná dẹ́ ímọ́tò.** (causative test)

*Íràn	ọ̀ré	ọ́	kòkó-rò
			process
3PL	FOC	3SG	*buy.*PST-rV
PRON		PRON	V

ọ̀	zẹ́	né	íràn	ná	dẹ́	ímọ́tò.
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) ***Òzó miẹ́n ìyán ọ̀ ké lé vbọ́.** (sequential test)

*Òzó	miẹ́n	ìyán	ọ̀	ké	lé	vbọ́.
	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) ***Òzó miẹ́n ìyán sòkpán ọ̀ má lé vbọ́.** (contradiction test)

*Òzó	miẹ́n	ìyán	sòkpán	ọ̀	má	lé	vbọ́.
	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) ***Òzó ọ̀ré ọ́ miẹ́n ìyán ọ̀ zẹ́ né ọ̀ ná lé vbọ́.** (causative test)

*Òzó	ọ̀ré	ọ́	miẹ́n	ìyán
			achievement	
Ozo	FOC	3SG	*see*.PST.H	*yam*
PN		PRON	V	CN

ọ̀	zẹ́	né	ọ̀	ná	lé	vbọ́.
				accomplishment		
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) ***Òzó hò̱ó̱ úkpò̱n ò̱ ké huán.**[86] (sequential test)

Òzó	hò̱ó̱	úkpò̱n	ò̱	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) **Òzó hò̱ó̱ úkpò̱n sòkpán ò̱ má huán.** (contradiction test)

Òzó	hò̱ó̱	úkpò̱n	sòkpán	ò̱	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) **Òzó ò̱ré ó̱ hò̱ó̱ úkpòn ò̱ zé̱ né ò̱ ná huán.** (causative test)

Òzó	ò̱ré	ó̱	hò̱ó̱	úkpòn
			process	
Ozo	FOC	3SG	*wash.*PST.H	*cloth*
PN		PRON	V	CN

ò̱	zé̱	né	ò̱	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 (V2 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) **Òzó lé ízẹ̀ ọ̀ ké ré vbọ́.** (sequential test)

Òzó	lé	ízẹ̀	ọ̀	ké	ré	vbọ́.
	accomplishment				accomplishment	
Ozo	*cook*.PST.H	*rice*	3SG	*before*	*eat*.PST.H	*from.it*
PN	V	CN	V	PRON	AUX V	ADV

'Ozo cooked (the) rice before he ate from it.'

(50) **Òzó lé ízẹ̀ sòkpán ọ̀ má ré vbọ́.** (contradiction test)

Òzó	lé	ízẹ̀	sòkpán	ọ̀	má	ré	vbọ́.
	accomplishment					accomplishement	
Ozo	*cook*.PST.H	*rice*	*but*	3SG	NEG	*eat*.PST.H	*from.it*
PN	V	CN	CONJ	PRON		V	ADV

'Ozo cooked rice but he did not eat from it.'

(51) **Òzó ò̱ré ó̱ lé ízè̱ ò̱ zé̱ né ò̱ ná ré vbó̱.**[87] (causative test)

Òzó	ò̱ré	ó̱	lé	ízè̱
			accomplishment	
Ozo	FOC	3SG	*cook*.PST.H	*rice*
PN		PRON	V	CN

ò̱	zé̱	né	ò̱	ná	ré	vbó̱.
3SG	*cause*	COMP	3SG	SECM	*cook*.PST.H	*from.it*

'It is Ozo that cooked the food that is why he ate from it.'

Resultative construction

Here V2 is an achievement.

(52) **Òzó suá Àzàrí ò̱ ké dé gbé òtò̱.** (sequential test)

Òzó	suá	Àzàrí	ó̱	ké	dé	gbé	òtò̱.
	achievement				achievement		
Ozo	*push*.PST.H	*Azari*	3.SG	*before*	*fall*.PST.H	*against ground*	
PN	V	PN	PRON	AUX	V	PP	CN

'Ozo pushed Azari before he (Azari) fell down.'

[87] 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 ò̱ré ó̱ lé ízè̱ ò̱ zé̱ né ò̱ ná fòó.**

*Òzó	ò̱ré	ó̱	lé	ízè̱
			accomplishment	
Ozo	FOC	3SG	*cook*.PST.H	*rice*
PN		PRON	V	CN

ò̱	zé̱	né	ò̱	ná	fòó.
3SG	*cause*	COMP	3SG	SECM	*cook*.PST.H

'It is Ozo that cooked the rice that is why it finished.'

(53) **Òzó suá Àzàrí sòkpán ọ́ má dé gbé òtọ̀.** (contradiction test)

Òzó	suá	Àzàrí sòkpán	ọ́	má	dé	gbé	òtọ̀.
	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 ọ̀ré ọ́ suá Àzàrí ọ̀ zḛ́ né ọ̀ ná dé gbé òtọ̀.** (causative test)

Òzó	ọ̀ré	ọ́	suá	Àzàrí
			achievement	
Ozo	FOC	3SG	*push*.PST.H	*Azari*
PN		PRON	V	PN

ọ̀	zḛ́	né	ọ̀	ná	dé	gbé	òtọ̀.
					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 guọ̀ghọ́ úwáwà ọ̀ ké làọ́ ḛ̀mwḛ́n.** (sequential test)

Òzó	guọ̀ghọ́	úwáwà	ọ̀	ké	làọ́	ḛ̀mwḛ́n.
	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 guo̱ghó̱ úwáwà sòkpán o̱ má làó̱ e̱mwé̱n.** (contradiction test)

Òzó	guo̱ghó̱	úwáwà	sòkpán	o̱	má	làó̱	e̱mwé̱n.
	achievement					achievement	
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 o̱ré ó̱ guo̱ghó̱ úwáwà o̱ zé̱ né o̱ ná làó̱ e̱mwé̱n.** (causative test)

Òzó	o̱ré	ó̱	guo̱ghó̱	úwáwà
			achievement	
Ozo	FOC	3SG	*break*.PST.H	*pot*
PN		PRON	V	CN

o̱	zé̱	né	o̱	ná	làó̱	e̱mwé̱n.
					achievement	
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 dé̱ ízè̱ , o̱ ké rrí o̱ré.** (sequential test)

Òzó	dé̱	ízè̱	o̱	ké	rrí	o̱ré.
	achievement				accomplishment	
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.'

(59) **Òzó dẹ́ ízẹ̀ sòkpán ọ̀ má rrí ọ̀ré.** (contradiction test)

Òzó	dẹ́	ízẹ̀	sòkpán	ọ̀	má	rrí	ọ̀ré.
	achievement					accomplishment	
Ozo	*buy*.PST.H	*rice*	*but*	3.SG	NEG	*eat*.PST.H	*it*
PN	V	CN	CONJ	PRON		V	PRON

'Ozo bought (the) rice but he did not eat it.'

(60) **Òzó ọ̀ré ọ́ dẹ́ ízẹ̀ ọ̀ zẹ́ né ọ̀ ná rrí ọ̀ré.** (causative test)

Òzó	ọ̀ré	ọ́	dẹ́	ízẹ̀
			achievement	
Ozo	FOC	3SG	*eat*.PST.H	*rice*
PN		PRON	V	CN

ọ̀	zẹ́	né	ọ̀	ná	rrí	ọ̀ré.
3.SG	*cause*	COMP	3.SG	SECM	*eat*.PST.H	3.SG
					accomplishment	
PRON	V		PRON		V	PRON

'It is Ozo that bought the rice that is why 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 òwá.** (past ordered-overlap)

Òzó	rhùlé-rè	làó	òwá.
Ozo	*run*.PST-rV	*enter*	*house*
PN	V	ADV	CN

'Ozo ran into the house.'

b. **Òzó rhùlè làó òwá.** (present ordered-overlap)

Òzó	rhùlè	làó	òwá.
Ozo	*run*.PRES.L	*enter*	*house*
PN	V	ADV	CN

'Ozo runs into the house.'

V+infinitival complement instrumental constructions

(62) a. **Òzó lòó èhǫ́ fián èmióẁò.** (overlap-past)

Òzó	lòó	èhǫ́	fián	èmióẁò.
Ozo	*use*.PRES.H	*knife*	*cut*	*meat*
PN	V	CN	V	CN

'Ozo used a knife to cut the meat.'

b. **Òzó lòò èhǫ́ fián èmióẁò.** (overlap-present)

Òzó	lòò	èhǫ́	fián	èmióẁò.
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 miẹ́n àlìmòí kpá!án.** (ordered overlap-past)

Òzó	miẹ́n	àlìmòí	kpá!án.
Ozo	*see*.PST.H	*orange*	*pluck*
PN	V	CN	V

'Ozo saw an orange to pluck.'

b. **Òzó miẹ̀n àlìmòí kpá!án.** (ordered overlap-present)

Òzó	miẹ̀n	àlìmòí	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 hò̱ó̱ úkpò̱n huán.** (ordered overlap-past)

Òzó	hò̱ó̱	úkpò̱n	huán.
	process		state
Ozo	*wash.*PST.H	*cloth*	*clean.*PST.H
PN	V	CN	V

'Ozo washed the clothes clean.'

(65) **Òzó hò̱ò̱ úkpò̱n huàn**. (ordered overlap-present)

Òzó	hò̱ò̱	úkpò̱n	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. **Òzó gié!gié rhú!lé kpàá.** (adverb before V1)

Òzó	gié!gié	rhú!lé	kpàá.
Ozo	*quickly.*PST.H!H	*run.*PST.H!H	*go*
PN	ADV	V	ADV

'Ozo quickly ran away (away from the speaker).'

b. ***Òzó rhú!lé gié!gié kpàá.** (adverb before V2)

*Òzó	rhú!lé	gié!gié	kpàá.
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. **Òzó gié!gié lòó èhó fián èmiówò.** (adverb before V1)

Òzó	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. ***Òzó lòó èhó gèlé fián èmiówò.** (adverb before V2)

*Òzó	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. **Òzó gié!gié hòó úkpòn huán.** (adverb before V1)

Òzó	gié!gié	hòó	úkpòn	huán.
Ozo	*quickly*.PST.H!H	*wash*.PST.H	*cloth*	*clean*.PST.H
PN	ADV	V	CN	V

'Ozo quickly washed the clothes clean.'

b. ***Òzó hòó úkpòn gié!gié huán.** (adverb before V2)

*Òzó	hòó	úkpòn	gié!gié	huán.
Ozo	*wash*.PST.H	*cloth*	*quickly*.PST.H!H	*clean*.PST.H
PN	V	CN	ADV	V

'Ozo washed the clothes quickly clean.'

Preverbal adverb licensed before V1 and or V2

V+mood constructions

Purpose construction

(69) a. **Òzó gié!gié mién àlìmòí kpá!án.** (adverb before V1)

Òzó	gié!gié	mién	àlìmòí	kpá!án.
Ozo	*quickly*.PST.H!H	*see*.PST.H	*orange*	*pluck*
PN	ADV	V	CN	V

'Ozo quickly saw an orange to pluck.'

b. **Òzó mién àlìmòí gié!gié kpá!án.** (adverb before V2)

Òzó	mién	àlìmòí	gié!gié	kpá!án.
Ozo	*see*.PST.H	*orange*	*quickly*.PST.H!H	*pluck*
PN	V	CN	ADV	V

'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+infinitival complement, V+modifier* and *resultative* constructions. The first three all have overlapping events while events in series in the resultative construction depending on the nature of V2 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 *disjoint order* exhibit uniform tonal patterns on V1 and V2 (70) to (72) and allow preverbal adverbs before V1 and V2 (74) to (76).

On the other hand, non-overlapping *V(P)+V(P) resultative, construction* where V2 is an achievement and the events in series are related by *partial order* also have uniform tonal marking for tense on V1 and V2 (73) but differs from those linked by *disjoint order* in licensing preverbal adverbs only before V1 (77).

Uniform tone on V1 and V2

Consequential construction

(70) a. **Òzó dé̱ ìyán lé.** (past)

Òzó	dé̱	ìyán	lé.
Ozo	*buy.*PST.H	*yam*	*cook.*PST.H
PN	V	CN	V

'Ozo bought yam and cooked.'

b. **Òzó dè̱ ìyán lè.** (present)

Òzó	dè̱	ìyán	lè.
Ozo	*buy.*PRES.L	*yam*	*cook.*PRES.L
PN	V	CN	V

'Ozo buys yam and cooks.'

Negative resultative constructions

(71) a. **Òzó guo̱ghó úwáwà làó̱ e̱mwé̱n.** (past)

Òzó	guo̱ghó̱	úwáwà	làó̱	e̱mwé̱n.
Ozo	*break*.PST.H	*pot*	*enter*.PST.H	*trouble*
PN	V	CN	V	CN

'Ozo broke the pot and got into trouble.'

b. **Òzó̱ guo̱ghò̱ úwáwà làó̱ e̱mwé̱n.** (present)

Òzó	guo̱ghò̱	úwáwà	làò̱	e̱mwé̱n.
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 dé̱ ìyán lé e̱ré.** (past)

Òzó	dé̱	ìyán	lé	e̱ré.
Ozo	*buy*.PST.H	*yam*	*cook*.PST.H	3.SG
PN	V	CN	V	PRON

'Ozo bought yam and cooked it.'

b. **Òzó dè̱ ìyán lè e̱ré.** (present)

Òzó	dè̱	ìyán	lè	e̱ré.
Ozo	*buy*.PRES.L	*yam*	*cook*.PRES.L	3.SG
PN	V	CN		PRON

'Ozo buys yam and cooks it.'

Resultative construction (V2 is an achievement)

(73) a. **Òzó suá Àzàrí dé gbé òtò̱.**

Òzó	suá	Àzàrí	dé	gbé	òtò̱
Ozo	*Push*.PST.H	*Azari*	*fall*.PST.H	against	ground
PN	V	PN	V	PREP	CN

'Ozo Pushed Azari down.'

b. **Òzó suà Àzàrí dè gbé òtò̱.**

Òzó	suà	Àzàrí	dè	gbé	òtò̱**.**
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 gié̱!gié̱ sá àmè̱ gé!lé wó̱n.**

Íràn	gié̱!gié̱	sá	àmè̱	gé!lé	wó̱n.
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 gié̱!gié̱ guò̱ghó úwáwà gé!lé làó̱ è̱mwé̱n.**

Òzó	gié̱!gié̱	guò̱ghó̱	úwáwà	gé!lé	làó̱	è̱mwé̱n.
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) **Òzó gié̱!gié̱ gbó̱!ó̱ ívìn, gié̱!gié̱ bó!ló ò̱ká.**

Òzó	gié̱!gié̱	gbó̱!ó̱	ívìn,	gié̱!gié̱	bó!ló	ò̱ká.
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 morpho-syntactic properties in Ẹ̀dó. 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 e_1 and e_2 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+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.

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.

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), (79 ii) 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.**

Òzó	vbié-rè.
	process
Ozo	*sleep*.PST-rV
PN	V

'Ozo slept well.'

b. **Dé ú vbiérè.**

Dé ú vbié-rè.

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. **Òzó tán-rèn.**

Òzó tán-rèn.

state

Ozo be.tall-rV

PN V

'Ozo is very tall

or

Ozo was very tall.'

In (80a) the speaker asserts that *Òzó* 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 Ẹ̀dó 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*

Òzó cooked in (81) below does not imply that *Òzó* cooked the food well.

(81) **Èvbàré ọ̀ré Òzó lé-rè.**

Èvbàré	ọ̀ré	Òzó	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**

Ọ̀bá ghá tọ́ kpẹ̀ẹ́-rè / *kpẹ̀ẹ́.

Ọ̀bá	ghá	tọ́	kpẹ̀ẹ́-rè / *kpẹ̀ẹ́.
		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.

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+modifier*- 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+modifier constructions
Non-deictic directional construction.

(85) **Òzó rhùlɛ́-rè làǫ́ òwá**

Òzó	rhùlɛ́-rè	làǫ́	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) **Íràn kókórò dé ímótò.**

Íràn	kókó-rò	dé	ímótò.
	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 miénrèn 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 òrè Òzó kán-rèn dòó[88] bìgòó Vbéniánà.**

Ìsé	òré	Òzó	kán-rèn		dòó	bìgòó	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. bánbánnà *'just now'*) may occur after V1. However, it seemed to be licensed only when *dòó* is present :

(a) **Ísé òrè Òzó kánrèn bánbánnà dòó bìgòó Vbéniánà.**

Ísé	òrè	Òzó	kánrèn	bánbánnà	dòó	bìgòó
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) ***Ízɛ̀ ò̲ré Òzó dɛ̲́-rè ré.**

*Ízɛ̀	ò̲ré	Òzó	dɛ̲́-rè	ré.
			achievement	accomplishment
Rice	FOC	*Ozo*	*buy*.PST-rV	*eat*.PST.H

'It is rice Ozo bought and ate.'

Negative resultative construction

(90) ***È̲bò ò̲ré Òzó gá-rè mié̲n òkán.**

*È̲bò	ò̲ré	Òzó	gá-rè	mié̲n	òkán.
			achievement	achievement	
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.'

Resultative construction (V2 is an achievement)

(91) ***Àzàrí ọ̀ré Òzó suá-rè dòó dé gbé òtọ̀ vbéniánà.**

*Àzàrí ọ̀ré		Òzó	suá-rè	dòó
			achievement	
Azari	FOC	*Ozo*	*push*.PST-rV	
PN		PN	V	ADV

dé	gbé	òtọ̀	vbéniánà.
achievement			
fall.PST.H	*againstground*		*like this*
V	PREP	CN	ADV

'It is Azari Ozo pushed to fall down like this.'

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 *dòó* before V2. *Dòó* 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 *dòó* 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 *bìgọ̀ọ́* is an XP that stand in a adjunction relationship to *kán* while in the latter, the verb *dé* stands in a complementation relation to V1.

Figure 2 summarizes the discussion so far:

Figure 2

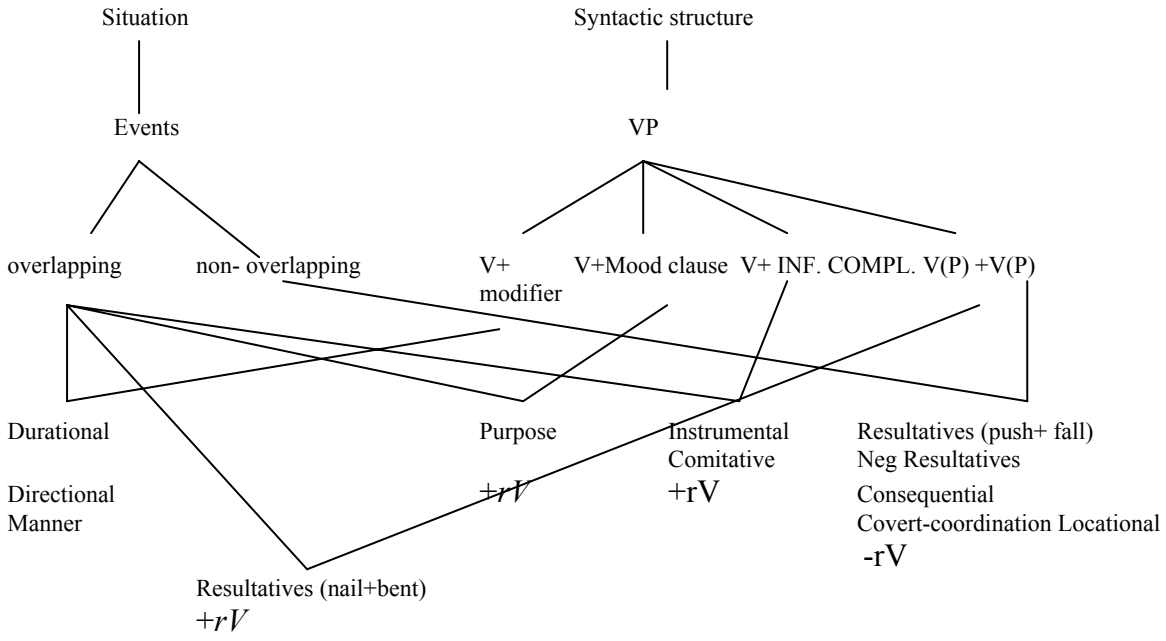


Figure 2 is an informal representation of the combination of the syntactic and semantic specifications of signs.

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 Ẹ̀dó:

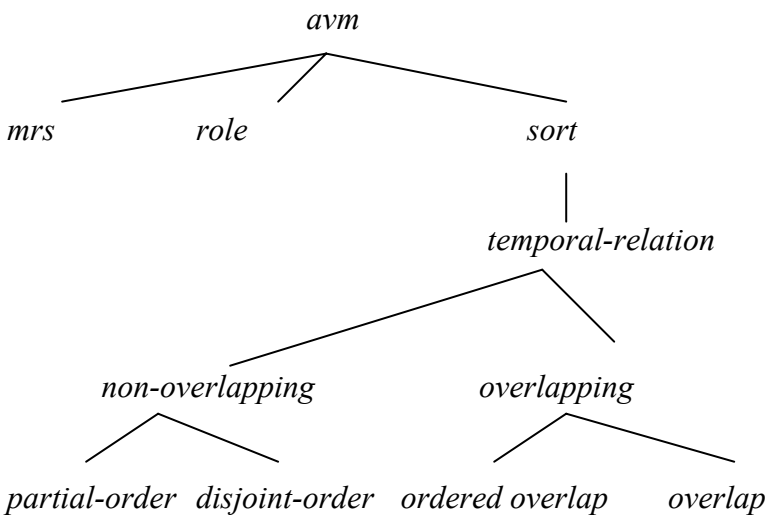
(92)

Mrs

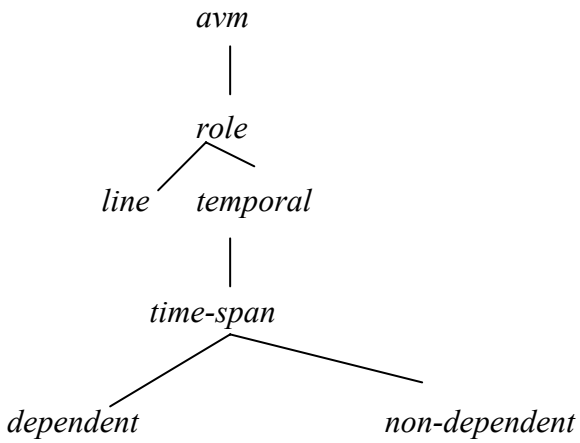
$$\begin{bmatrix} mrs \\ \text{SITPAIR-COND} < \begin{bmatrix} sitpair-cond \\ \text{EVENT1 } eventstruc\text{-}relation \\ \text{EVENT2 } eventstruc\text{-}relation \\ \text{TEMP-REL } temporal\text{-}relation \\ \text{TEMPORAL } time\text{-}span \end{bmatrix} ...> \end{bmatrix}$$

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)



(94)



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 *mrs* avm for overlapping and non-overlapping events in (95b) and (96b) for examples (95a) and (96a) respectively below:

(95) a. **Ordered overlap relation**

Òzó rhùlé-rè làó òwá. (V+modifier construction)

Òzó	rhùlé-rè	làó	òwá.
	process	achievement	
Ozo	*run.*PST-rV	*enter*	*house*
PN	V	ADV	CN

'Ozo ran into the house.'

b.
$$\begin{bmatrix} mrs \\ \text{SITPAIR-COND} < \begin{bmatrix} sitpair-cond \\ \text{EVENT1 } eventstruc\text{-}relation \\ \text{EVENT2 } eventstruc\text{-}relation \\ \text{TEMP-REL } ordered\ overlap \\ \text{TEMPORAL } dependent \end{bmatrix} > \end{bmatrix}$$

(96) a. **Òzó léízè ré.** (V (P) + V (P) constructions)

Òzó	lé	ízè	ré.
	accomplishment		accomplishment
Ozo	*cook.*PST.H	*rice*	*eat.*PST.H
PN	V	CN	V

'Ozo cooked rice and ate.'

b.
$$\begin{bmatrix} mrs \\ \text{SITPAIR-COND} < \begin{bmatrix} sitpair-cond \\ \text{EVENT1 } eventstruc\text{-}relation \\ \text{EVENT2 } eventstruc\text{-}relation \\ \text{TEMP-REL } disjo\text{int } order \\ \text{TEMPORAL } non\text{-}dependent \end{bmatrix} > \end{bmatrix}$$

In (95a &b), EVENT1 is in an *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 *non-dependent* as value for the attribute TEMPORAL and the events in series are in a *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_irule* 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_irule*. 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 ẸDÓ

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 Ẹdó are shown to display different patterning with respect to the distribution of a past tense suffix *–rV*, a floating anaphor *tòbọ́rè* '*by him/her/it self* ', VP adverbs and argument sharing patterns:

(1)

i. *V+ modifier constructions*: durational, directional, locational and manner constructions.[90]

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+infinitival complement* constructions.

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

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 Ẹ̀dó 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 Ẹ̀dó SVCs

In chapter 5 section 5.4, I discussed two main syntactic structures proposed for Ẹ̀dó:

(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.

Table 30

Type	Size of VP2	Object of VP2	Attachment site	NP analogue
CSVC	vP	Pro	Adjoined to vP1	Participial relative
RSVC	VP	None	Complement of V1	(Attrib. Modification)
PSVC	AspP	Wh-trace	Adjoined to AspP1	Operator relative

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 *tòbǫ́*rè 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).

(4) **CSVC**

Ɛ̀kpɛ́tìn ɔ̀ré Òzó dɛ́ àkhé mú yì.

Ɛ̀kpɛ́tìn	ɔ̀ré	Òzó	dɛ́	àkhé	mú	yì.
Box	FOC	*Ozo*	*buy*.PST.H	*pot*	*carry*.PST.H	*into*
CN		PN	V	CN	V	PREP

'It's a box that Ozo bought a pot and put into.'

(5) **PSVC**

***Èmió!wó nà ɔ̀ré Òzó miɛ́n ékítà rhié ná.**

*Èmió!wó	nà	ɔ̀ré	Òzó	miɛ́n	ékítà	rhié	ná.
Meat	*that*	FOC	*Ozo*	*find*.PST.H	*dog*	*take*	*to*
CN	DET		PN	V	CN	V	PREP

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 [OP_i that I saw t_i]]].

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 *zì* 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 *zì* occurs after the verb as in example (7) below (Baker and Stewart 2002:53).

(7) **Musa bé etsi (yin) du zì.**

Musa	bé	etsi	(yin)	du	zì.
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 zì.

Musa	bé	etsi	(yin)	du	kun	zì.
Musa	*come*	*yam*	PRT	*cook*	*sell*	PURP
PN	V	CN		V	V	

'Musa came to cook the yam and sell it.'

(9) **PSVC**

?Musa bé nangi wan zì ya tsigbè.

?Musa	bé	nangi	wan	zì	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 Ẹ̀dó 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 *dẹ́* 'buy' and the compound verb *mú yí* ' put (carry+into)', and it is the locative argument *èkpẹ́tìn* '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**

Ẹ̀kpẹ́tìn ọ̀ré Òzó àkhé miẹ́n mú yì.

Ẹ̀kpẹ́tìn	ọ̀ré	Òzó	miẹ́n	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) *miẹ́n* 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 ọ̀ré Òzó tié Àzàrí rhié ná.**

*Èbé	ọ̀ré	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**

Èwò Musa dzin kpati la dan o.

*Èwò	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.'

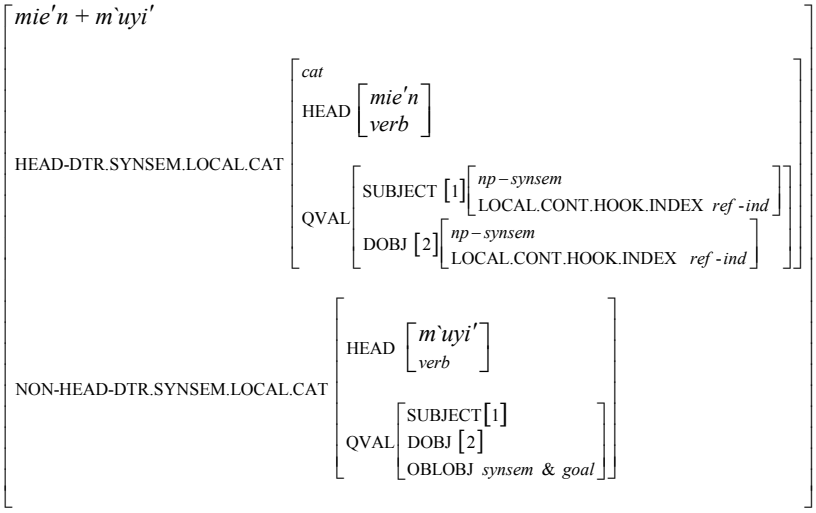
From the above, it would seem that there is a constraint on extraction of theme objects of V2 out of PSVCs and CSVCs where V2 is ditransitive and it is not token shared with V1. A descriptive statement of this constraint is given below in (14).

(14)

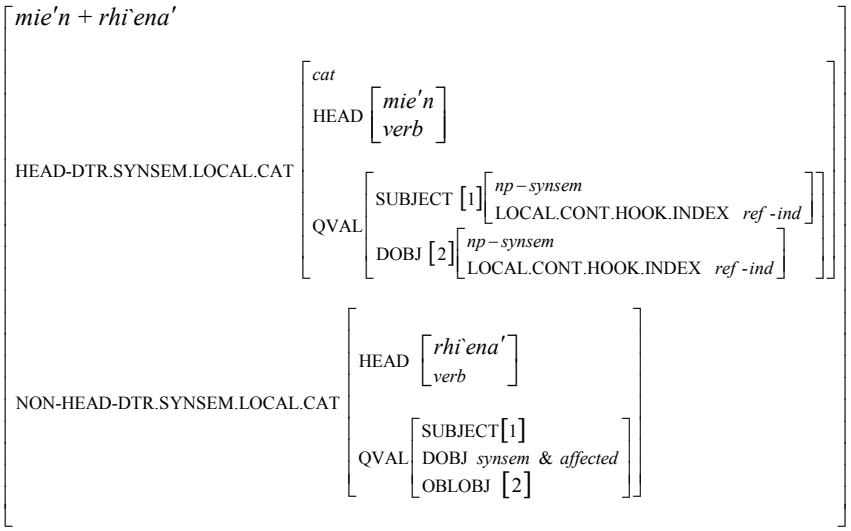
i. If V1 (transitive) and V2 (ditransitive) share theme arguments then extraction of the unshared goal /locative argument of V2 is licensed.

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 *múyí* 'put' as in example (10) above.

(15)


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 *rhiè ná* in example (5) above.

(16)


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$_i$ that [we bought [a portrait of__$_i$ and two photos of__$_i$]].

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):

(18) **Òzó dẹ̲ èbé khéré$_i$ tìé.**

Òzó	dẹ̲	èbé	khéré$_i$	tìé.	*pro$_i$*	(CSVC)
Ozo	*buy*.PST.H	*book*	*few*	*read*.PST.H		
PN	V	CN	ADV	V		

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

(19) **Òzó sùá èrhán khéré dè-lé.**

Òzó	sùá	èrhán	khéré	dè-lé.	*(RSVC)*
Ozo	*push*.PST.H	*tree*	*few*	*fall*.PST.PL	
PN	V	CN	ADV	V	

'Ozo pushed (a) few trees down.'

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 Ẹ̀dó 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):

(20) **Òzó miẹ̲n èbé khéré tìé.**

Òzó	miẹ̲n	èbé	khéré	tìé.	(PSVC)
Ozo	*find*.PST.H	*book*	*few*	*read*	
PN	V	CN	ADV	V	

'Ozo found (a) few books and read (them).'

Example (20) implies that *Òzó* 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).
ii. Schemata and type subsumption (Beermann, Hellan and Sætherø 2003, Sahoo 2001, Hellan 2007, Dakubu, Hellan and Beermann 2007).

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 khâan (pay nay) rooŋrian**

Piti	den	khâan	(pay	nay)	rooŋrian
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).

.

(24)a.
$$\begin{bmatrix} \text{PHON /den/} \\ \text{ARG-ST } \langle \text{NP}[1],\ \text{VP:}[2] \rangle \\ \text{CONTENT } [2] \begin{bmatrix} \textit{walk\_rel} \\ \text{ACT } [1] \\ \text{UND } [1] \\ \text{GRND } \textit{path} \end{bmatrix} \end{bmatrix}$$

According to him, the lexical entry for khâw "enter" specifies the position of the endpoint of the motion and crucially the min− *path*path lenght.

b.
$$\begin{bmatrix} \text{PHON /khâw/} \\ \text{ARG-STR } \langle \text{NP}[1],\ \text{NP}[2] \rangle \\ \text{CONTENT } \textit{mot\_rel} \begin{bmatrix} \text{UND } [1] \\ \text{GRND } \text{min}-\textit{path}\left[\text{ENDPT } \textit{in\_place}\left[\text{IN } [2]\ \textit{nom\_ref} \right] \right] \end{bmatrix} \end{bmatrix}$$

Unification of the content values of "walk" and "enter" gives the semantic of the verb "walk enter"

c.
$$\begin{bmatrix} \textit{walk\_rel} \\ \text{ACT } [1]\ (\text{Piti}) \\ \text{UND } [1] \\ \text{GRND } \begin{bmatrix} \text{min\_}\textit{rel} \\ \text{ENDPT } \begin{bmatrix} \textit{in\_place} \\ \text{IN } [2]\ (\text{school}) \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

This approach in principle may account for resultatives in Ẹ̀dó 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.

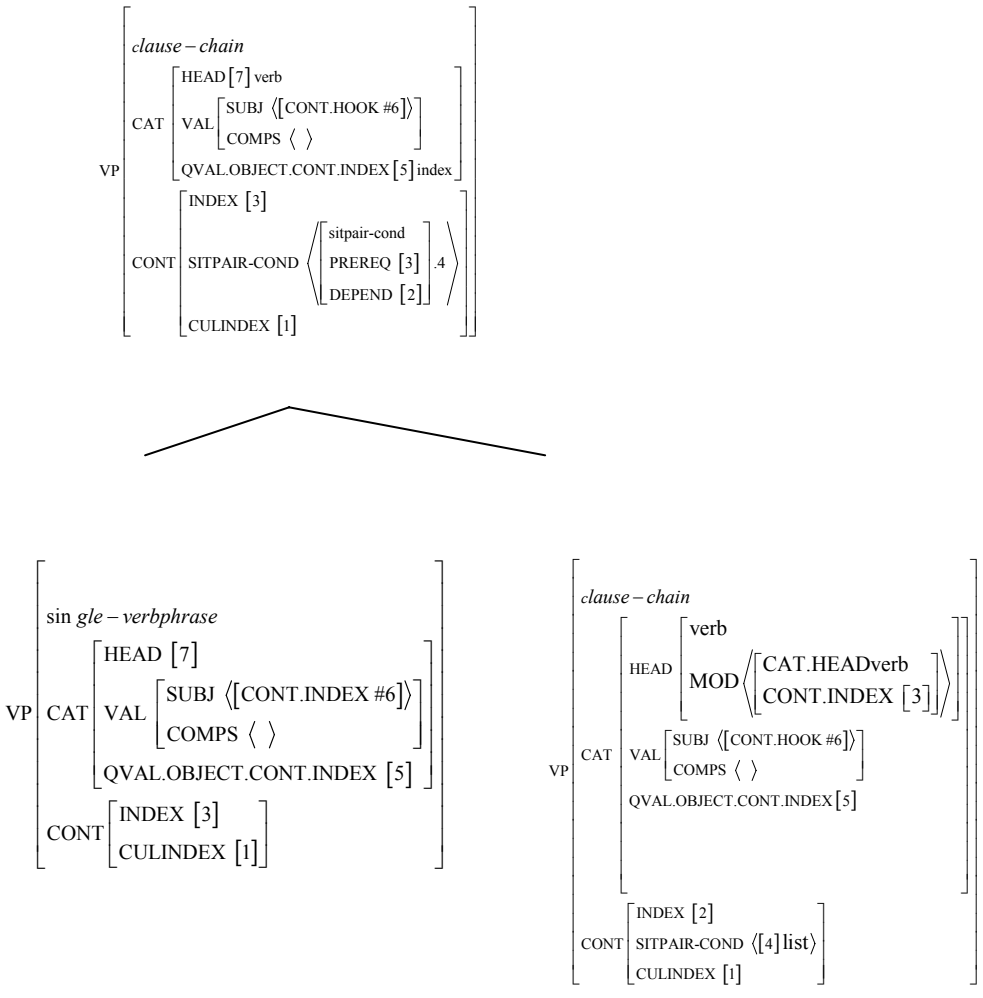
I discuss clause chaining schema below. Two types of verb phrase types are posited the *single-verbphrase* and *clause-chain*, with the latter licensing recursion. Examples (25) and (26) below illustrate this type.

(25) **Ama tɔ-ɔ adanko dware-e no yɛn-n no.**

Ama	tɔ-ɔ	adanko$_i$	dware-e	no$_i$	yɛn-n	no$_i$
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).

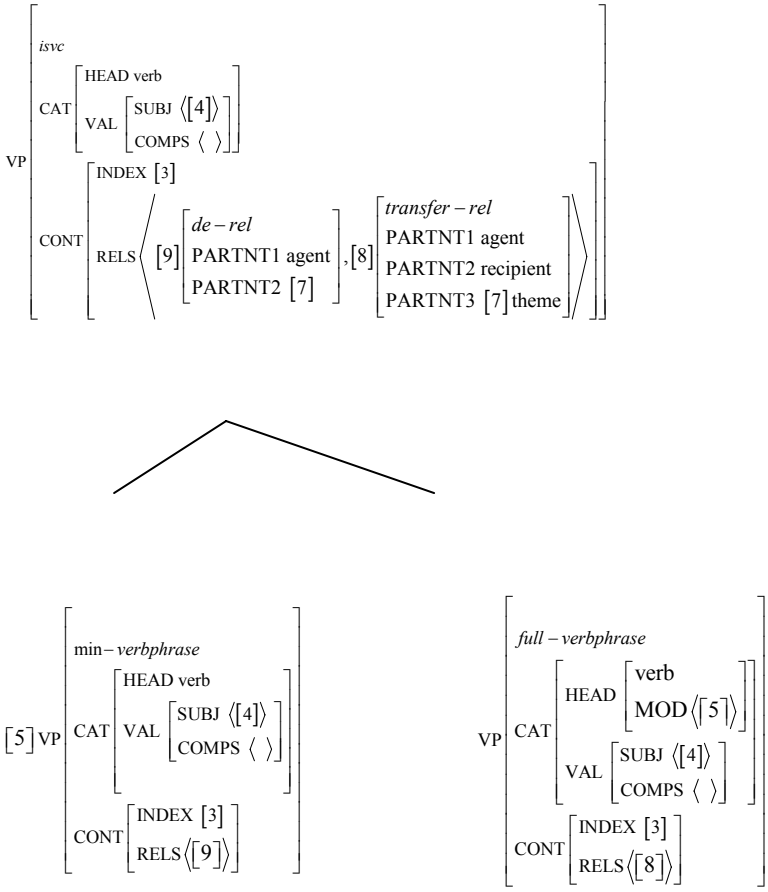


In the schema in (26), the head is the *single-verbphrase* and the *clause-chain* is an adjunct, a relationship that is established through the selection of the *single-verbphrase* as a value for the MOD feature of *clause-chain*. Identity between feature specifications is done through re-entrancy. To 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).

(27)



Example (28) below exemplifies the schema in (27)

(28) **ɔ-de no fɛm-m me.**

ɔ-de	no	fɛm-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-switchshar-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-switchshar-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 Ẹ̀dó multi-verb constructions.

7.3. Formal representation: Ẹ̀dó 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 *tòbọ́rè*, the *–rV* suffix and argument distribution patterns.

Table 31

Construct-ion type	**Structure**	**-rV Suffix Licensed**	**Infinitival Marker *yá* Before V2**	**Floating anaphor before V2**	**VP Adjuncts After VP 1**	**Token Sharing of subjects**	**Switch Sharing**	**Covert reference sharing Of subjects**	**Token Sharing Of objects**	**Overt Reference Sharing of objects**	**Objects are not shared**
V+modifier: durational Locational Directional Manner	Adjunction	Yes	No No No No	No No No No	No No No No	Not Applicable Yes Yes	Not Applica-ble No No	Not Applicable No No	Not Applicable No No	Not Applicable No No	Not Applica-ble No No
V(P)+V(P): Resultatives Conseq. Neg.result. Covert-coordination	Compl. Adjunction Adjunction Adjunction	No No No No	No No No No	No No No Yes	No Yes Yes Yes	No Yes Yes No	Yes No No No	No No No Yes	No Yes No No	No No No Yes	Yes No Yes Yes
V+mood	Adjunction	Yes	No	No	Yes	Yes	No	No	Yes	No	No
V+infinitival complement	Compl.	Yes	Yes	Yes	No	No	No	Yes	No	No	Yes

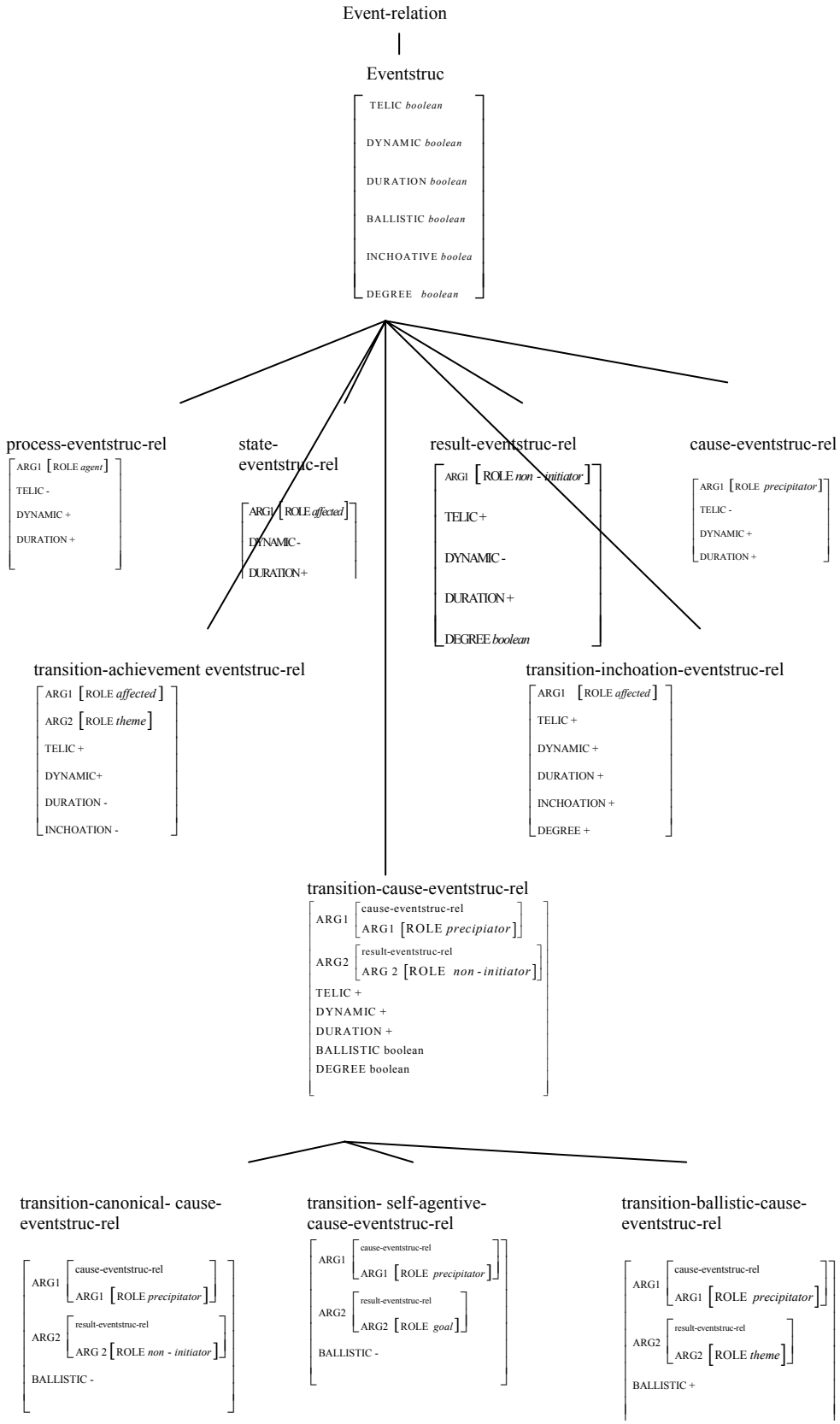
My analysis consists of the following:

(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.

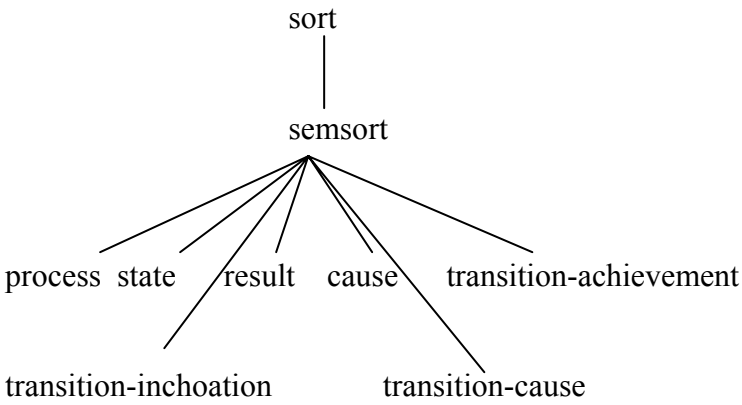
In chapter 3 section 3.4, a type hierarchy of subtypes of the type *event* was discussed. I introduced a type *event-struc* encoding aktionsart information that inherits from *event* and the following types inherit from it.

(32)


Event-relation
Eventstruc
TELIC boolean
DYNAMIC boolean
DURATION boolean
BALLISTIC boolean
INCHOATIVE boolea
DEGREE boolean
process-eventstruc-rel
ARG1 [ROLE agent]
TELIC -
DYNAMIC +
DURATION +
state-eventstruc-rel
ARG1 [ROLE affected]
DYNAMIC -
DURATION+
result-eventstruc-rel
ARG1 [ROLE non - initiator]
TELIC+
DYNAMIC -
DURATION +
DEGREE boolean
cause-eventstruc-rel
ARG1 [ROLE precipitator]
TELIC -
DYNAMIC +
DURATION +
transition-achievement eventstruc-rel
ARG1 [ROLE affected]
ARG2 [ROLE theme]
TELIC +
DYNAMIC+
DURATION -
INCHOATION -
transition-inchoation-eventstruc-rel
ARG1 [ROLE affected]
TELIC +
DYNAMIC +
DURATION +
INCHOATION +
DEGREE +
transition-cause-eventstruc-rel
ARG1 [cause-eventstruc-rel ARG1 [ROLE precipiator]]
ARG2 [result-eventstruc-rel ARG 2 [ROLE non - initiator]]
TELIC +
DYNAMIC +
DURATION +
BALLISTIC boolean
DEGREE boolean
transition-canonical- cause-eventstruc-rel
ARG1 [cause-eventstruc-rel ARG1 [ROLE precipitator]]
ARG2 [result-eventstruc-rel ARG 2 [ROLE non - initiator]]
BALLISTIC -
transition- self-agentive-cause-eventstruc-rel
ARG1 [cause-eventstruc-rel ARG1 [ROLE precipitator]]
ARG2 [result-eventstruc-rel ARG2 [ROLE goal]]
BALLISTIC -
transition-ballistic-cause-eventstruc-rel
ARG1 [cause-eventstruc-rel ARG1 [ROLE precipitator]]
ARG2 [result-eventstruc-rel ARG2 [ROLE theme]]
BALLISTIC +

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 Ẹ̀dó.

(33)

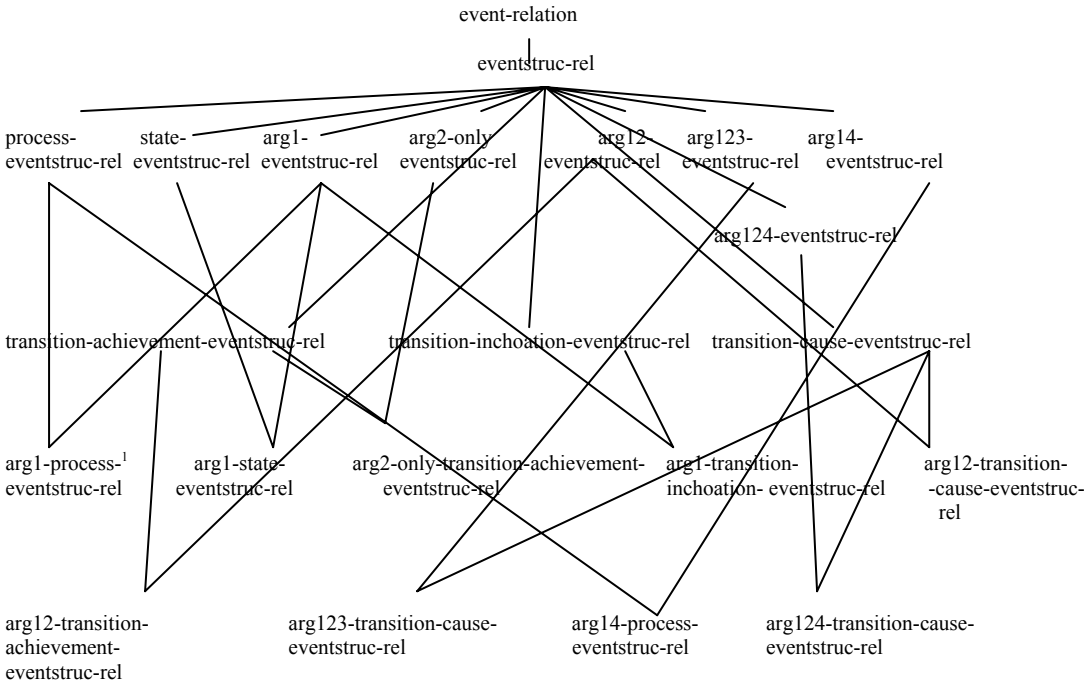


Using the type *process* and *cause* as illustration, for the former its semantic property includes atelic, dynamic and duration. Thus it can combine with elements that are telic. For the type *cause* its semantic properties includes atelic, dynamic, duration and cause. This ensures that it combines 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

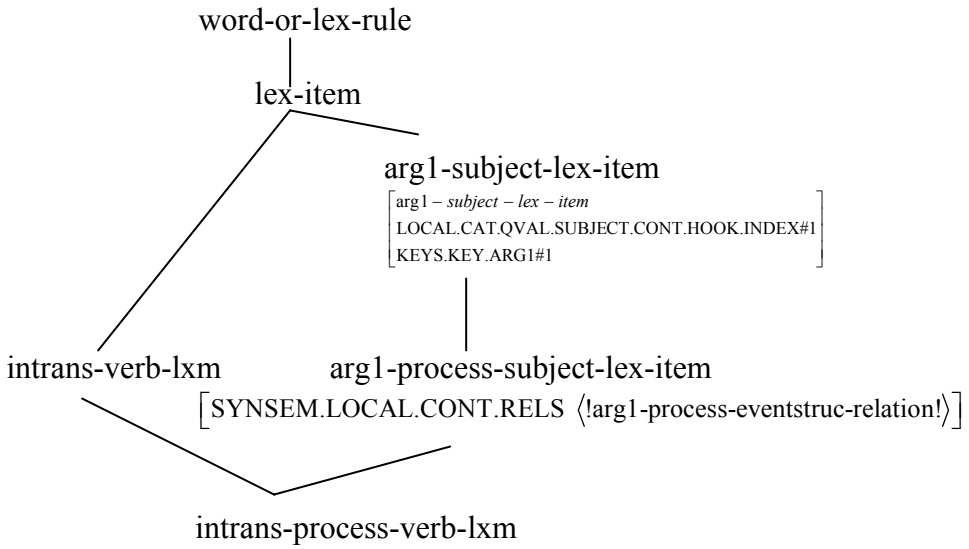


I repeat example (104) from chapter 3 as (35) below to illustrate the linking pattern.

(35) $\begin{bmatrix} \text{arg1} - \textit{process} - \textit{eventstruc} - \textit{rel} \\ \text{ARG1 } \textit{ref} - \textit{ind} \end{bmatrix}$

As discussed in chapter 3, an intransitive process verb would inherit from the following types. This is represented in the partial Hierarchy below:

(36)



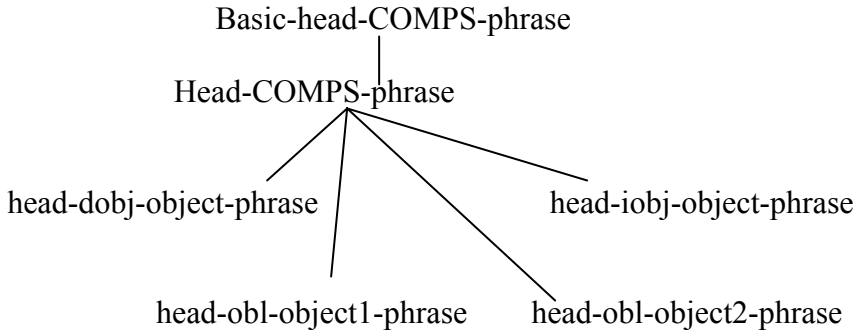
Example (35) states that the type *arg1-process-eventstruc-rel* has only one participant. The type *arg1-subject-lex-item* in (36) states that the KEY argument must be identified with the value of the SUBJECT attribute constraining QVAL and the type *arg1-process-subject-lex-item* inherits from it with 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.[91] The *basic-head-COMPS-phrase* is exactly as stated by the *head complement rule* (except of course modification to include *qval* information). However, different from standard Matrix 0.6 and HPSG assumptions, object rules constraining values of *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 *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 *prep* and for the *head-obl-object2-phrase*, the HEAD value is of type *pronoun*.

I have described above the compositional semantics for phrasal combinations. I now discuss the schemata for multi-verb constructions in Ẹ̀dó:

[91] I make use only of the COMPS in my analysis in this thesis. However, ICOMPS is applicable in Ẹ̀dó for verbs subcategorizing for PPs that allow non subcategorized right adjuncts to occur between them and the subcategorized PPs.

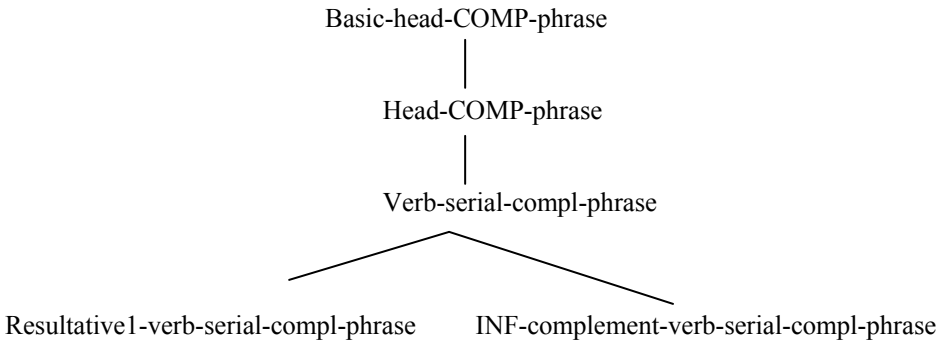
(38)

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*.

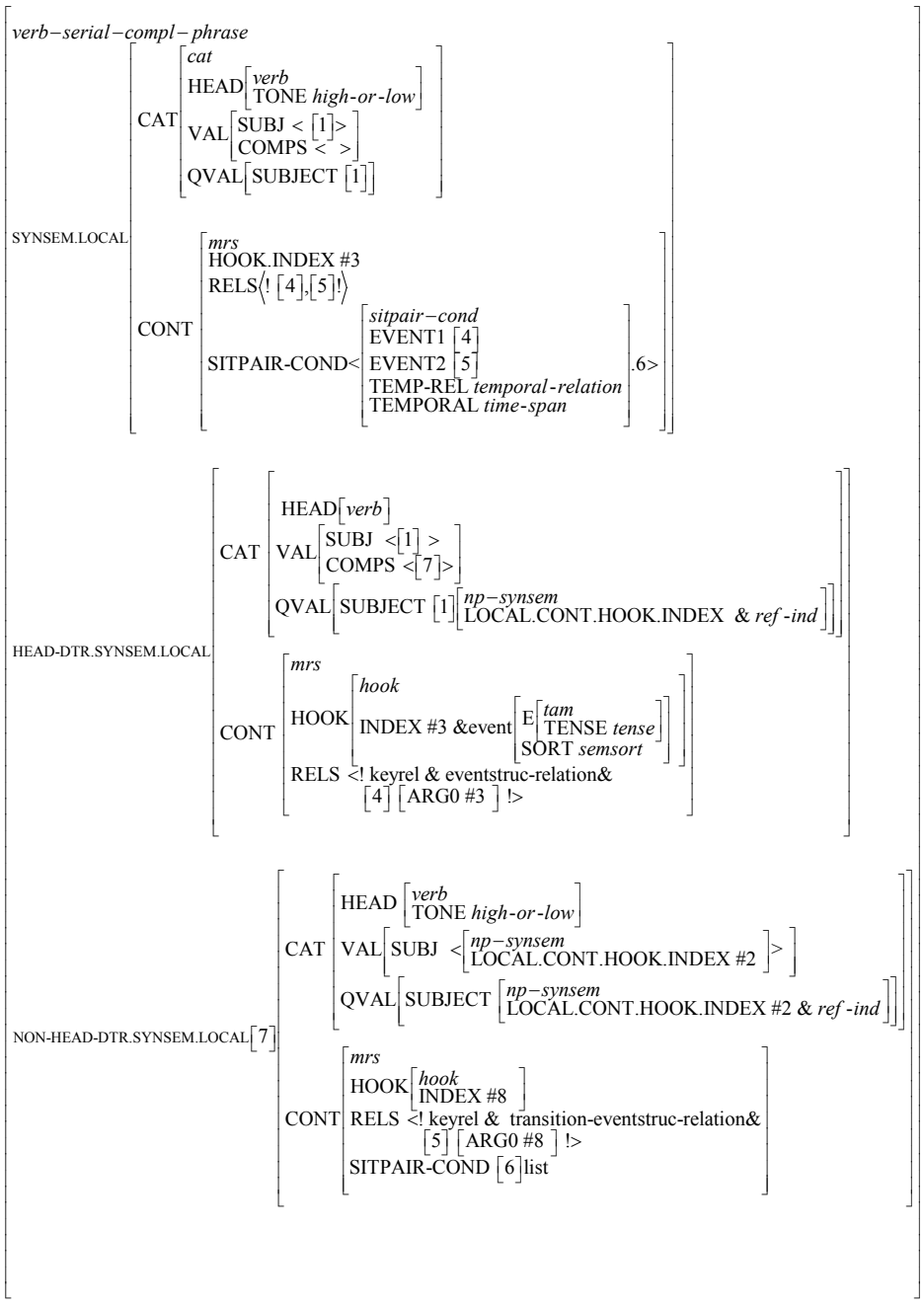
In (41ii) below, a type hierarchy is given for *head-COMPS-phrase* and the sub-types that inherit from it.

ii. Type hierarchy for *Head-COMPS-phrase*



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)).

(39) Verb-serial-compl-phrase



Example (40b) below is a schema for a resultative construction as in (40a) with two arguments.

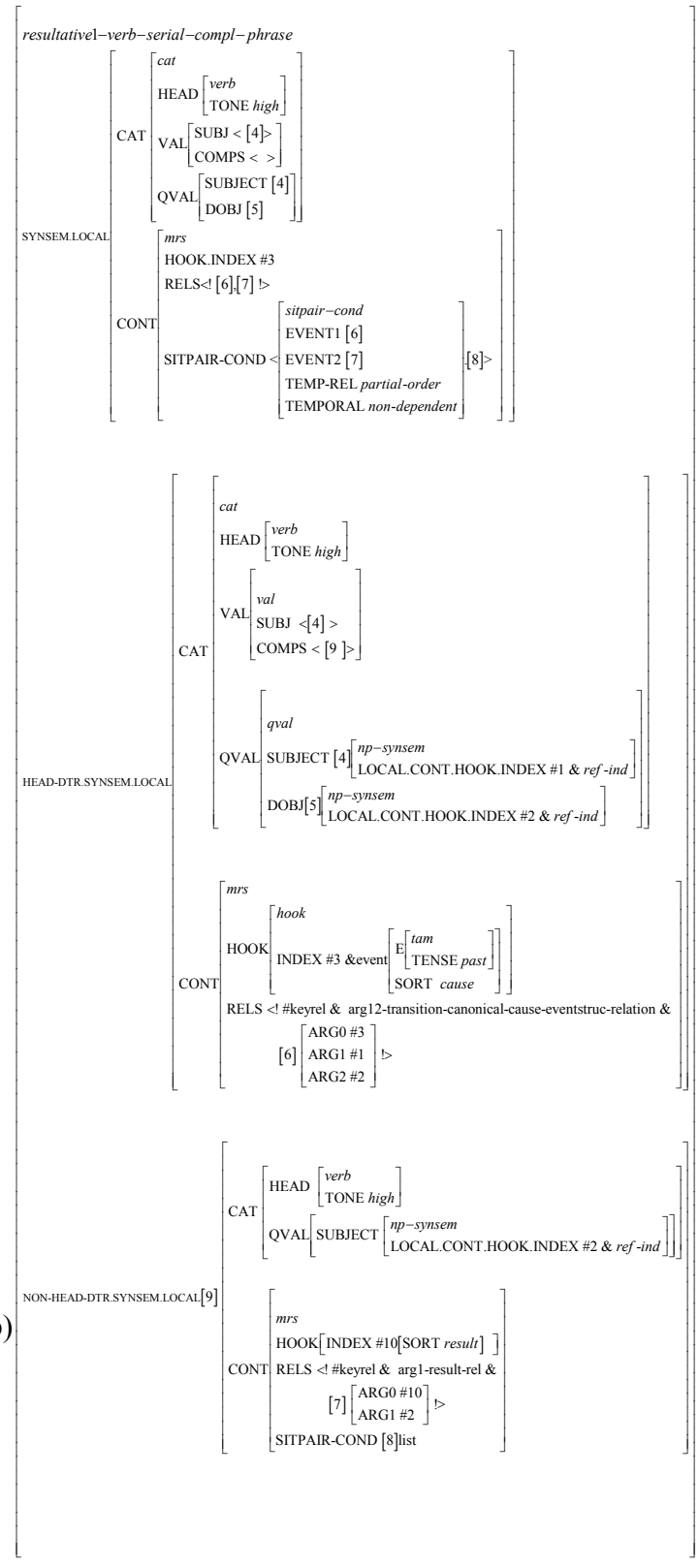
(40) a. **Partial order relation**

Òzó suá Àzàrí dé.

Òzó	suá	Àzàrí	dé.
	achievement		achievement
Ozo	*push*.PST.H	*Azari*	*fall*.PST.H
PN	V	PN	V

'Ozo pushed Azari down.'

(40b)



The schema in (40b) the *resultative1-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 *kòkó* 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.

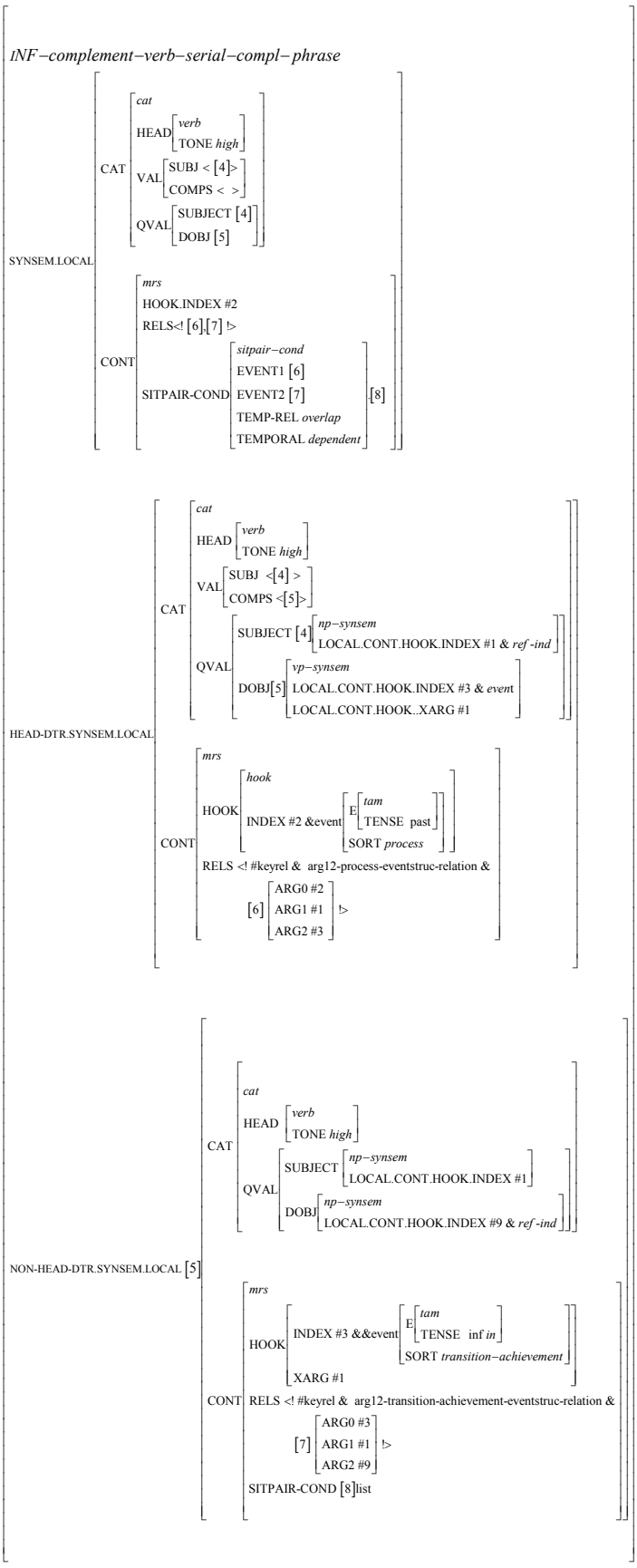
(41) a. **Overlap relation**

Íràn kòkó-rò dẹ́ ímọ́tò.

Íràn	kòkó-rò	dẹ́	ímọ́tò.
	process	achievement	
3.PL	*gather.*PST-rV	*buy*	*car*
PRON	V	V	CN

'They bought the car together (joint ownership).'

(41b)


INF−complement−verb−serial−compl− phrase
SYNSEM.LOCAL
CAT
cat
HEAD
verb
TONE high
VAL
SUBJ < [4]>
COMPS < >
QVAL
SUBJECT [4]
DOBJ [5]
CONT
mrs
HOOK.INDEX #2
RELS<! [6],[7] !>
SITPAIR-COND
sitpair−cond
EVENT1 [6]
EVENT2 [7]
TEMP-REL overlap
TEMPORAL dependent
[8]
HEAD-DTR.SYNSEM.LOCAL
CAT
cat
HEAD
verb
TONE high
VAL
SUBJ <[4] >
COMPS <[5]>
QVAL
SUBJECT [4]
np−synsem
LOCAL.CONT.HOOK.INDEX #1 & ref -ind
DOBJ[5]
vp−synsem
LOCAL.CONT.HOOK.INDEX #3 & event
LOCAL.CONT.HOOK..XARG #1
CONT
mrs
HOOK
hook
INDEX #2 &event
E
tam
TENSE past
SORT process
RELS <! #keyrel & arg12-process-eventstruc-relation &
[6]
ARG0 #2
ARG1 #1
ARG2 #3
!>
NON-HEAD-DTR.SYNSEM.LOCAL [5]
CAT
cat
HEAD
verb
TONE high
QVAL
SUBJECT
np−synsem
LOCAL.CONT.HOOK.INDEX #1
DOBJ
np−synsem
LOCAL.CONT.HOOK.INDEX #9 & ref -ind
CONT
mrs
HOOK
INDEX #3 &&event
E
tam
TENSE inf in
SORT transition−achievement
XARG #1
RELS <! #keyrel & arg12-transition-achievement-eventstruc-relation &
[7]
ARG0 #3
ARG1 #1
ARG2 #9
!>
SITPAIR-COND [8]list

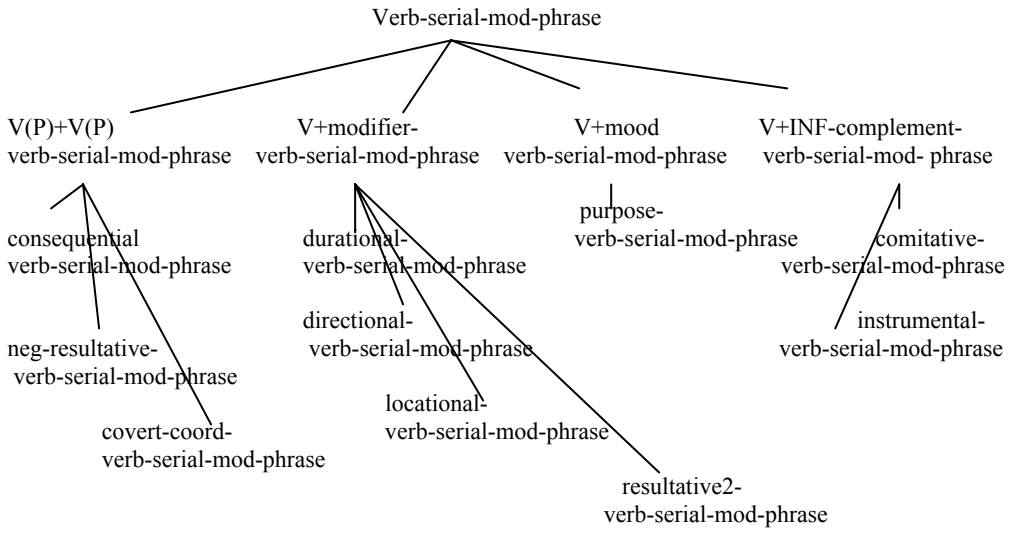
I now discuss the *Verb-serial-mod-phrase*. In (42i) I present a description of the schema and in (42ii) I present a hierarchy of the types that inherit from it. In (42iii), I present the schema.

(42)

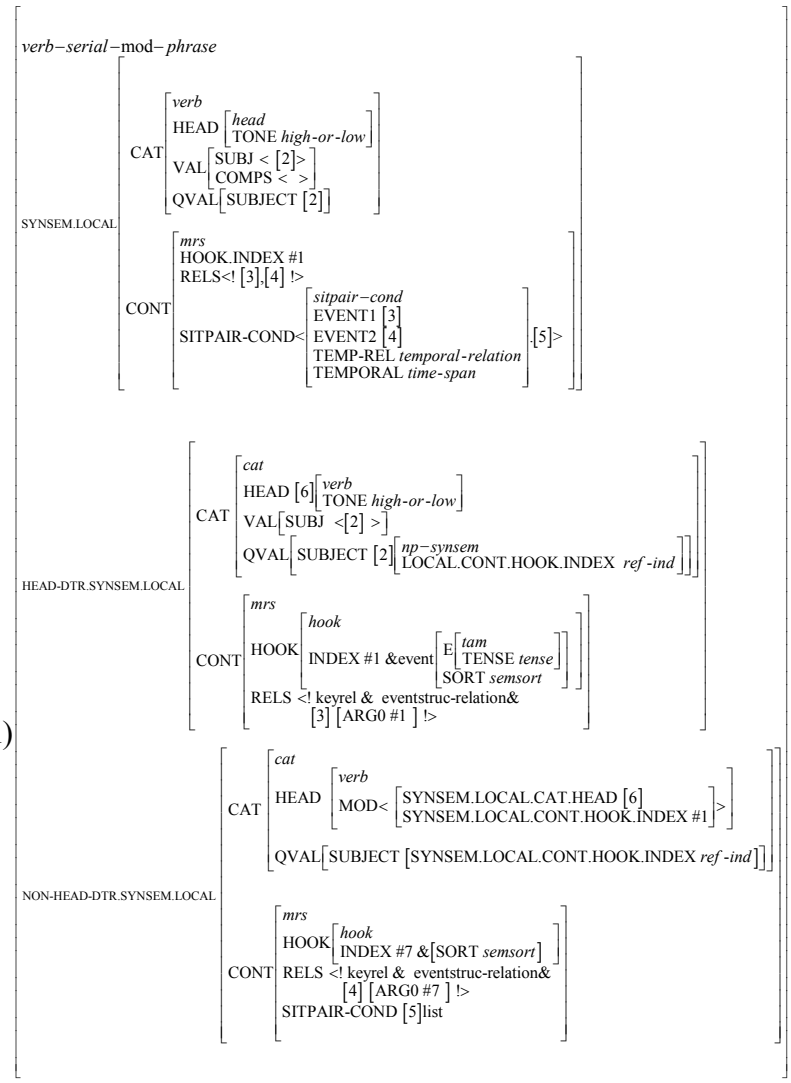
i. *Verb-serial-mod-phrase* with adjunction structure:

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



(42iii)



Example (43b) below is a schema for *consequential-verb-serial-mod-phrase* for consequential constructions as in example (43a) below.

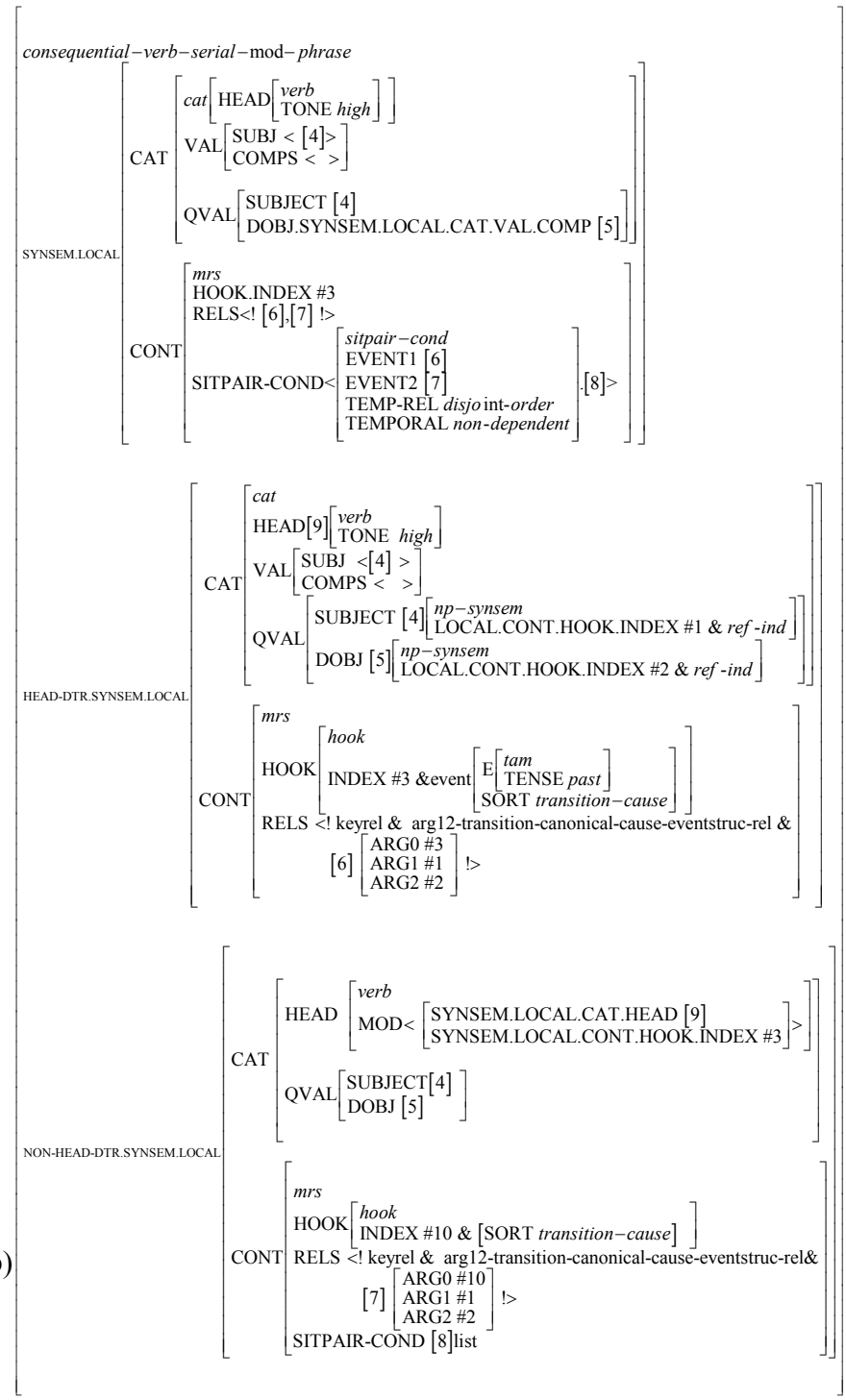
(43) a. **Disjoint order relation**

Òzó lé ízẹ̀ ré.

Òzó	lé	ízẹ̀	ré.
	accomplishment		accomplishment
Ozo	*cook.*PST.H	*rice*	*eat.*PST.H
PN	V	CN	V

'Ozo cooked rice and ate.'

(43b)



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 *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 *disjoint* and *non-dependent* constraining TEMP-REL and TEMPORAL respectively.

Another type that inherits from *verb-serial-mod-phrase* is the *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 *arg12-transition-achievement-eventstruc-rel* while that of the head-daughter is of type *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.

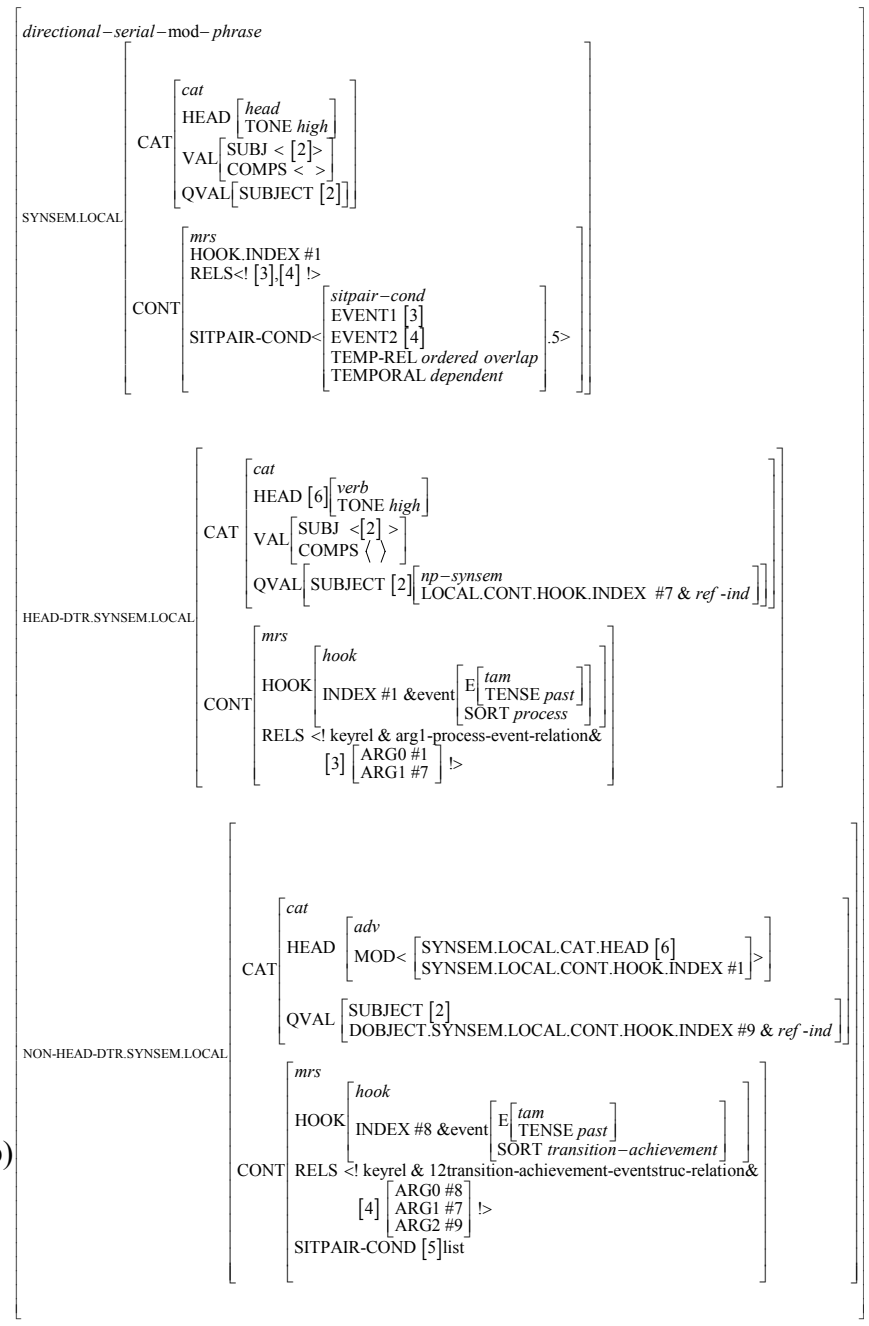
(44) a. **Ordered overlap relation**

Òzó rhùl̲é-rè là̲ó̲ òwá.

Òzó	rhùl̲é-rè	là̲ó̲	òwá.
Ozo	*run.*PST-rV	*enter*	*house*
	process	achievement	
PN	V	ADV	CN

'Ozo ran into the house.'

(44b)



Example (45b) below is a schema for *V+mood construction*. I use the purpose construction in (45a) below as illustration.

(45a) **Ordered overlap relation**

Òzó mi̱én ìyán lé.

Òzó	mi̱én	ìyán	lé.
	achievement		accomplishment
Ozo	*see*.PST.H	*yam*	*cook*
PN	V	CN	V

'Ozo saw yam to cook (and he cooked it).'

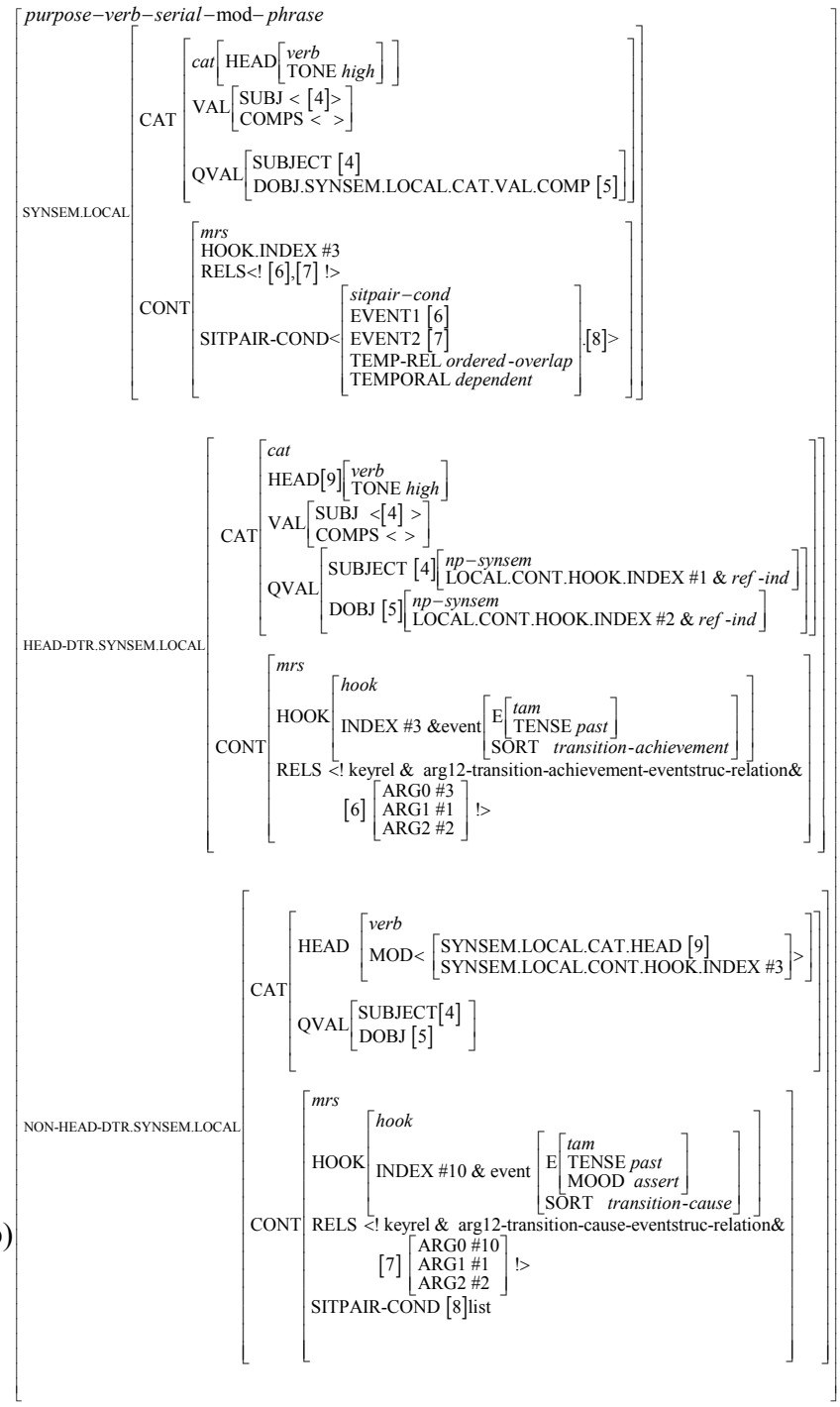
As discussed in chapter 4, the purpose construction in È̱dó is asserted and this is realized as a fixed high tone on V2 if monosyllabic and a high downstepped high tone if disyllabic. I have introduced a type *assert*[92] that inherits from the type *sort* as a value for the attribute MOOD constraining 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.

(45b)



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.

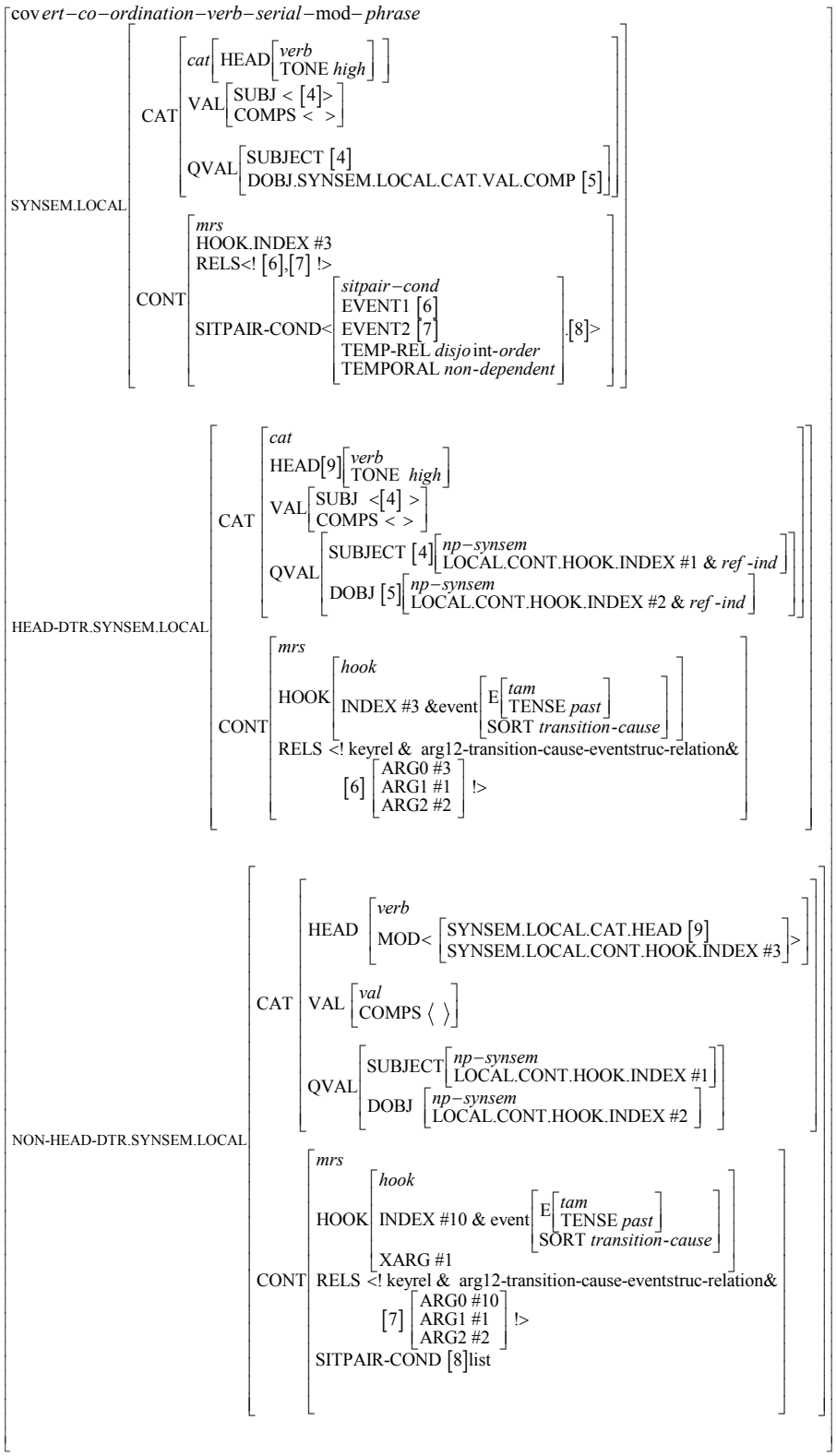
(46) a. **Disjoint order relation**

Òzó dẹ́ ízẹ̀ , rrí ọ̀ré.

Òzó	dẹ́	ízẹ̀	, rrí	ọ̀ré.
	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

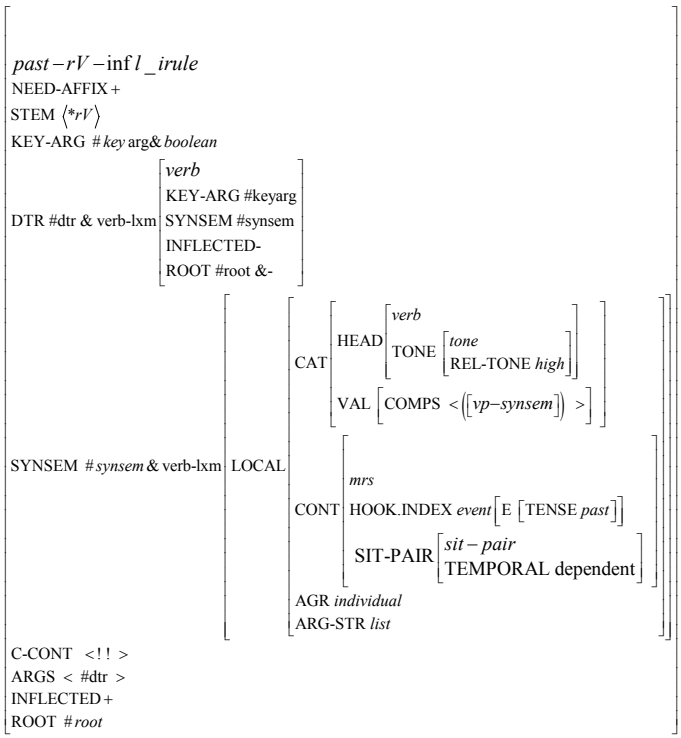


Finally, in (47) below, I present a modification of the *past-rV-infl_irule* to account for licensing of the suffix in overlapping multi-verb constructions that I discussed in chapter 6. This is stated as a constraint on the attributes SITPAIR-COND.TEMPORAL with value *dependent* on *mrs* below. This 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*.[94] Inflectional rules and their constraints are discussed in chapter 2 section 2.5.

(47) Past-rV-infl_irule

[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) **Èbánáná vbó-rò.**
Èbánáná vbó-rò
state
banana ripe-rV
CN V
'The banana has ripened.'



7.4 Conclusion

I have discussed Baker and Stewart's (2002) analysis for PSVCs and CSVCs 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 Ẹ̀dó:

(48)

i. *Head-COMPS-phrase* with a complementation structure and subtypes *resultative1-verb-serial-compl-phrase* and *INF-complement-verb-serial-compl-phrase* that inherit from it.

ii. *Verb-serial-mod-phrase* with an adjunction structure and subtypes *V(P)+V(P)- verb-serial-mod-phrase* ,*V+modifier- verb-serial-mod-phrase, V+mood-verb-serial-mod-phrase* and *V+INF-complement- verb-serial-mod-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 Ẹ̀dó (a Benue-Congo language).

11 multi-verb constructions in Ẹ̀dó 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 *tòbọ́rè* '*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 *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 Ẹ̀dó tone distribution. Tones in Ẹ̀dó are either Lexical (LEX-TONE) and constant (CONST+) or grammatical (REL-TONE) and (CONST-). Also, inflectional rules that map Ẹ̀dó verb lexemes to words were discussed, mainly, the *past-rV_infl_rule*, the *past-const_rule*, and the *pres-const_rule.*

A sub-eventual approach to event composition using Pustejovsky's (1991, 1995 and 2005) event templates is adopted in the thesis. A type *eventstruc-rel* that inherits from the type *event-relation* is introduced. This relation has sub-types of aktionsart inheriting from it. They 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*.

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 Ẹ̀dó 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 Ẹ̀dó, 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 (Ẹ̀dó 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 (Ẹ̀dó, 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. Ẹ̀dó 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, Ẹ̀dó does not have covert sharing of objects and employs mainly token sharing of objects.

In particular, object sharing in multi-verb constructions in Ẹ̀dó 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 Ẹ̀dó multi-verb constructions:

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