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## **Adverb Placement and the Structure of the Serial Verb Construction (SVC)\***

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### **0. Introduction**

Quite generally, SVC data from Kwa languages of West Africa (like Akan, Edo, Ewe, Igbo, Yoruba etc) seem to be largely heterogeneous consisting of two discernable categories.<sup>1</sup> For example, sentences (1) to (3) are judged to be semantically ambiguous.

- (1) òzó gbé èkhù lá òwá  
Ozo hit door enter house  
a. "Ozo hit the door into the house" or  
b. "Ozo hit the door and he went into the house"
- (2) èkpé fò kcpò yì xc-mè (Ewe, Collins 1994=12)  
rock hit cup go room-in  
a. "a rock hit a cup into the room" or  
b. "a rock hit the cup, and then went into the room"
- (3) Olú lu mǎákù kú (Yoruba, Baker 1989=69)  
Olu beat cow die  
a. "Olu beat the cow dead." (the cow died) or  
b. "Olu beat the cow and died." (Olu died)

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\* Except where specified, data for this paper is drawn from the Edo language. The discussion of SVCs is restricted to just two verbs in this paper although the generalizations can apply to more serial strings. I am especially grateful to Mark Baker for various comments and discussions on several aspects of this paper. I also thank L.Travis, Chris Collins, Victor Manfredi, Jeff Gruber, Jose Bonneau and the audience at NELS 26 at Harvard/MIT and the Syntax Project meetings, McGill University for their useful contributions. The usual disclaimer applies. This research was supported by SSHRCC grant 410-95-0979 to Mark Baker, and Max E. Binz (McGill) Fellowship.

<sup>1</sup> Baker (1989) argues that it is legitimate to use the term "serialization" in a broad sense to refer to both true SVC and covert coordination (CCs) since the same principles and parameters make both structures possible under his account.

The immediate question is, are these sentences also structurally ambiguous? (cf. Larson's 1991 review of Hale 1991). If the answer is yes, it should predict the parameter of variation between verb serialization and covert coordination or parataxis. To achieve this goal, this paper focuses on two issues:

- (a) What is the correct structure of SVCs between the approach that argues that there is an empty category in the structure of SVCs (Collins 1994, 1995, Carstens 1988, Law and Veenstra 1992) and those that do not (Sebba 1987, Baker 1989, 1991, Larson 1991 etc)?  
 (b) How are true SVCs to be distinguished from parataxis (cf. Sebba 1987, Baker 1989, Collins 1994 etc)?<sup>2</sup>

In this paper, I will present strong new evidence from the relative positioning of adverbs that will convincingly show the syntactic or structural demarcation between the two categories of serialization, i.e., SVC and covert coordination. This paper is organized as follows. Section one deals with the classification and theory of adverbs in the Edo language. It focuses on the relative positions that the different types of adverbs occupy in a sentence (simple and SVCs) and from which their licensing conditions can be determined.<sup>3</sup> Section two deals with the interpretation of the implications of the relative positioning of the different adverbs along with their licensing conditions for the syntactic and semantic distinction between SVCs and parataxis or covert coordinations.

## **1.0 Relative positioning and licensing of adverbs in simple sentences**

Two types of adverbs can be distinguished in the Edo language based on the relative positions that they occupy in simple sentences. Consider the following examples:

- (4) òzó giégié rrí èvbàré 'Ozo quickly ate the food'  
Ozo quickly eat food

(5) (\*giègié), òzó rrí èvbàré (\*giègié) '(\*quickly), Ozo ate the food (\*quickly)  
quickly, Ozo eat food quickly

(6) ègiégié, òzó (\*ègiégié) rrí èvbàré 'Hurriedly, Ozo (\*hurriedly) ate the food'  
hurnedly, Ozo hurriedly eat food

(7) òzó rrí èvbàré ègiégié 'Ozo ate the food hurriedly'  
Ozo eat food hurriedly

<sup>2</sup> Attempts in the past have been either inconclusive or lack cross-linguistic generalization. In Kwa, Collins (1994) has proposed a future marking test to distinguish SVCs from CCs in Ewe, but in Edo you do not get the future marker before V2 in either of the constructions. In fact Chirs Collins (p.c) confirms that the test does not hold also in Ife (a dialect of Yoruba spoken in Togo). Furthermore, disagreement between Agbedor (1993) and Collins (1994) shows that extraction test is inconclusive since as Collins shows, you can extract freely from both SVCs and CCs in Ewe. Finally, as far as I know, no one has provided any syntactic explanation for the intonational properties of the SVC, nor what the slight comma or pause before V2 in a covert coordination (CC) actually mean in syntax.

<sup>3</sup> For various treatments of adverbs see Jackendoff (1972), McConnell-Ginet (1982), Ernst (1984), Travis (1988), Rochette (1990), Laenzlinger (1994) etc. For the purposes of this paper, like Ernst (1984), most of the discussion presented is based on (surface or overt) syntactic positioning. I have not attempted any semantic analysis of adverbs.

From the data in (4) to (7), one can notice two broad distributional patterns of the adverbs in initial, medial, and final positions. I shall refer to these patterns in terms of non-semantic notions like Types 1 and 2.

Type 1 adverbs can only occur in the (preverb) auxiliary position in a sentence between the subject and the predicate as illustrated by the distributions in (4) and (5). I shall refer to such adverbs as INFL/AUX adverbs. In (5) observe that the AUX adverb cannot occur in sentence initial nor sentence final positions. Other adverbs of this Type include *kakabo* "greatly", *zegie* "hurriedly", *feko* "slowly/gently", *giegie* "quickly", *gele* "evidently".

Type 2 adverbs are the only ones that can occur in sentence initial position as the example in (6) shows. In addition, (6) also shows that such adverbs cannot occur in the AUX position. However, observe in (7) that this type of adverb can occur in the sentence final position. Type 2 adverbs can thus be characterized as both sentence-initial and sentence/VP-final adverbs.<sup>4</sup> Other type 2 adverbs include the following; *gelegele* "certainly", *zaizai* "briskly", *lughelughe* "lazily", *Ugbenso* "sometimes" etc.

### 1.1. Relative positioning and licensing of adverbs in SVCs

Given the behavior of adverbs in simple sentences in 1.0, I shall now investigate the facts about adverb placement in SVCs and show what implications they have for syntactic structure. The overt surface structure of the SVC is illustrated in (8);

- (8) [NP VI NP V2 (NP)]<sup>5</sup>

#### 1.1.1 Type 1 adverbs

The following sentences illustrate the behavior of this group of adverbs

- (9) ðzó rhérhé lé èvbàré ré 'Ozo cooked the food and ate it, early'  
Ozo early cook food eat
- (10) ðzó lé èvbàré rhérhé ré 'Ozo cooked the food and ate it early'  
Ozo cooked food early eat
- (11) \* ðzó lé èvbàré ré rhérhé 'Ozo cooked the food and ate it, early'

Type 1 adverbs have the significant contrastive property of occurring before the VP, i.e they are either AUX or VP-initial adverbs. The pertinent question here is, how are they licensed in this position? I will show this by investigating the relationship between Type 1 adverbs and "true" auxiliaries (tense markers) in the Edo language.

<sup>4</sup> Since this paper is primarily concerned with IP or VP structure, I will not discuss the licensing of adverbs in initial position but put it aside for further research in the light of the relationship between the morpho-phonological constraints on nominalization and items that can occupy specifier of focus or complementizer phrase in the Edo language.

<sup>5</sup> As can be observed from (8) SVCs are constructions in which two or more verbs with their complements (if any) occur within a single clause without any marker of subordination or coordination.

### 1.1.1.1 The structure of Tense Phrase [TP] in the Edo language

In this section, two broad tenses will be examined: Non past versus past. It is a generally accepted fact that the verbs in Edo are inherently toneless (Amayo 1976, Omoruyi 1991, Aikhionbare 1988 etc), they only acquire grammatical tones in the context of utterance (time of reference) which is represented tonally.<sup>6</sup>

**Non-past:** There are two distinctions here between present and future (progressive) tenses. Present tense is marked by a low tone on the verbs as in (12);

#### Present tense

- (12) òzó lè èvbàré rè 'Ozo is cooking the food and eating it'  
Ozo cook food eat

Future tense is indicated by the future morpheme "ghá" with an associated lexical high tone along with the low tones on the verbs as in (13).

#### Future tense

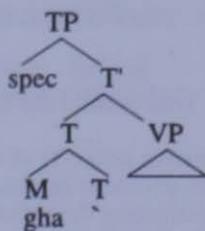
- (13) òzó ghá lè èvbàré rè 'Ozo will cook the food and eat it' or  
Ozo will cook food eat 'Ozo is cooking and eating the food'

#### Past tense

- (14) òzó lé èvbàré ré 'Ozo cooked the food and ate'  
Ozo cooked food ate

Observe that (12) resembles (14) except for the difference of the tone type on the verbs. In (14) the tones are high. This contrast shows that low tones on the verb marks non-past tense while high tones mark past tense. On the basis of the distribution of tense in (12), (13) and (14), I propose, rather simplistically, that the structure of Edo TP (tense phrase) is not a simple one, i.e. it can contain (at least) two morphemes. Essentially, I suggest that it consists of a head [T] which is occupied by the floating tone tense morpheme, and a M(odal) node which left adjoins to T.<sup>7</sup> This is illustrated in (15).

(15)



<sup>6</sup> This language makes a non-trivial distinction between Lexical tones on Nouns, adverbs, adjectives etc and grammatical tones on verbs (see Agheyisi 1986).

<sup>7</sup> Exactly what M(odal) means may be likened to the English auxiliary and modal verbs. Therefore, (13) can be interpreted with the copula (aux. verb) reading as 'Ozo is/was cooking and eating the food'. This suggests that "ghá" is some kind of auxiliary verb.

### 1.1.1.2 Type 1 adverb Placement and TP

Given the observations concerning the structure of TP in the Edo language and in the light of the fact that Type 1 adverbs occur between the subject and the VP, we shall now examine how these Type 1 adverbs fit into the structure proposed in (15).

Consider the following example:

- (16) dzó rhérhé lè èvbàré ré      'Ozo quickly cooks the food and eats'  
 Ozo early cook food eat

The basic tone pattern of the adverb is a low-high sequence as in "rhérhé" i.e., by basic here I mean the lexical tones that the item has when pronounced in isolation devoid of grammatical information or context. Notice that this pattern is preserved in (16). I suggest that what has happened in this case is that the low tone morpheme marking Non-past tense docks (spreads) downward to the first segment of the adverb as well as unto the verb. Compare this with (17):

- (17) dzó rhé! rhé lè èvbàré ré      'Ozo quickly cooked the food and ate'  
 Ozo early cook food eat

(17) motivates the observation concerning tone spreading unto the adverb. Here we do get tone changes on the adverb: the observable high tone past tense morpheme causes downdrift within the adverb. The conclusion one is led to draw from this discussion is that the adverb must be closely related to [T]. Now if this is so, it says something about the licensing of Type 1 adverbs that occur in this position. The proposal is that tone spreads only to items dominated by, and closely (grammatically) related to the head of TP which contains the tone tense morpheme. This observation can be generalized to account for not only the licensing of Type 1 adverbs but also the other Type of adverb as well. This is formalized as the tone spreading/adverb licensing constraint in (18) to which I shall return now and again as the analysis unfolds.<sup>8</sup>

#### (19) Tones spreading/adverb licensing constraint

- (i) If X has Grammatical tone (G.T.)  $\beta$  and X selects YP, then the first member of YP has the G.T.  $\beta^9$
- (ii) The G.T. on a head X spreads to adjunct phrases contained within the maximal projection of X, if there is no subcategorized argument of X.

### 1.1.1.3 Adverb Placement, TP and AspP1

In this section I will argue that there is more structure to (15). This follows from the fact that there is a rigid word order to be observed between Tense and Aspect nodes. Consider the following contrasts:

- (19) dzó rhérhé ghá lè èvbàré ré  
 Ozo early Asp cook food eat  
 'Ozo quickly cooks the food and eats it (repeatedly)'

<sup>8</sup> This constraint will be shown to be crucial in deriving the difference between SVCs and Covert coordination.

<sup>9</sup> This means that in a SVC, Grammatical tones in T spreads to all heads contained within the extended projection that it c-commands. For the purposes of this paper, this constraint only takes into account phrasal categories such as NP, VP, but not AdjP nor PP.

- (20) òzó rhé! rhé ghá lé èvbàré ré  
 Ozo early Asp cook food eat  
 'Ozo quickly cooked the food and ate it (repeatedly)'

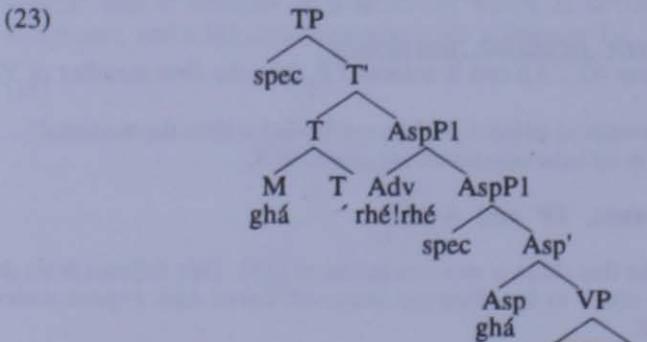
In (19) and (20) one can observe a new pattern in which there is an intervening item between the adverb and the verb and yet the observed tonal tense changes are maintained. Essentially, what this shows is that Type 1 adverb left-adopts to an AspP. The morpheme that occupies the head of AspP encodes the aspectual meaning of "iterativity" (see Stewart 1994a, 1995 for discussion and analysis).

A clear contrast now arises between two types of "ghá" in this language that clearly shows the distinction between Tense and Aspect. One type occupies the M node as in (13) and encodes future tense, while the other type occupies the head of AspP and encodes iterativity as in (19) & (20).

Further support for the Tense/Aspect distinction comes from the following sentences;

- (21) òzó ghá rhérhé lè èvbàré rè 'Ozo will quickly cook food and eat'  
 Ozo will early cook food eat
- (22) òzó ghá rhérhé ghá lè èvbàré rè  
 Ozo will early Asp cook food eat  
 'Ozo will be quickly cooking and eating the food'

In (21), the Modal "ghá" occurs and the tense is in the future so noticeable tone changes cannot be observed on the adverb. Crucially, (22) again shows that Type 1 adverbs appear between tense and aspect, confirming that the adverb left-adopts to AspP. Therefore, AspP must be projected whether or not the head is null or overt. This ensures the licensing of Type 1 adverbs. The structure therefore is as illustrated in (23).



Before going on to the discussion of Type 2 adverbs, perhaps at this point I can explore what (23) may actually imply for the structure of SVCs with respect to the position before the second verb and how to reconcile this with the observed word order in TP. In principle one might expect a copying of all of the projections in (23) into the position before the second verb in the structure of the SVC. However, if Collins' (1994) serialization parameter given in (24) is correct, then the values of Tense; M(odal) and T(ense) nodes, must be eliminated from the position before the second verb.

- (24) Collins (1994) serialization parameter  
INFL (tense) can license multiple Vs

The implication of (24) is that there must be only one projection of INFL in the structure of SVCs as has been observed in the literature. This leaves us with only the Adverb-AspP sequence from the structure in (23). Now, if truly Type I adverbs are licensed as adjuncts to AspP as I have claimed so far, then it would mean that to account for adverbs of Type I that occur before the second verb as in example (10) above, there must be some licensing functional category in this pre-lower VP position. In other words, the indication is that there should be a copy of AspP in the position before the second verb namely, AspP2. The following data substantiates this AspP2 projection.

- (25) òzó ghá lè èvbàré ré 'Ozo will cook food and eat it'  
 Ozo will cook food eat

(26) òzó lè èvbàré ghá ré 'Ozo cooked food and repeatedly ate it'

(27) òzó ghá lè èvbàré ghá rè 'Ozo will cook food and repeatedly eat it'

Once again, (25) to (27) further confirms the need to keep the instances of "ghá" separate. More than that, it motivates both the structure in (23) and confirms that the position before the second verb must be Aspect as can be noticed in (26) and (27) where "ghá" can only mean "iterativity" and not "modality" as in (25). Consequently, the position before V2 is not occupied by a Modal but rather by Asp, hence AspP2.

#### 1.1.1.4 The licensing of Type 1 adverbs in pre-V2 position

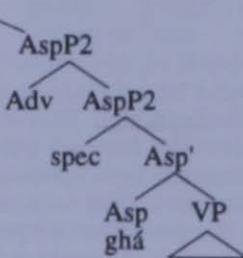
Now that we have shown that there is an AspP2 projection between the verbs in the SVC, let us turn our attention towards its relationship with Type 1 adverbs. Consider the following:

- (28) \*òzó lé èvbàré ghá rhérhé ré 'Ozo cooked the food and quickly ate it repeatedly'  
Ozu cook food ASP eat

(29) òzó lé èvbàré rhérhé ghá ré 'Ozo cooked the food and quickly ate it repeatedly'  
Ozo cook food early ASP eat

Recall the observed word order in TP. Thus, the order in which we have AspP2 occurring before the adverb is ungrammatical as in (28). In fact, (28) provides key evidence that Type I adverbs cannot adjoin directly to the VP. This must mean as I have stated above that Type I adverbs are licensed as adjuncts to AspP, in this case AspP2. Quite often, the AspP has a null head but I assume that this projection is always present in the structure of SVCs as illustrated in (30).

(30)



That all of the foregoing is the right approach to the licensing of Type 1 adverbs, observe the tonal behavior of Type 1 adverbs in the pre-V2 position in the following sentences:

- (31) ðzó lé èvbàré rhé!rhé ghá ré 'Ozo cooked the food and repeatedly ate it quickly'
- (32) ðzó lè èvbàré rhèrhé rè 'Ozo cooks food and quickly eats'

Based on the tonal contrast between the adverbs; past in (31) and non-past (32), it becomes very clear that these adverbs are definitely licensed as adjuncts to AspP2 given the statement of constraint (18). Returning now to constraint (18), by condition (i) the functional projection AspP2 is selected by the verb and so the head of AspP2 inherits the grammatical tone (G.T.). Now, by condition (ii), since there is no subcategorized argument of Asp, the first member of the adjunct phrase (Type 1 adverb) also inherits the floating tone from T: high (past) in (31) and low (non-past) in (32).

According to the analysis developed so far, the SVC is not a complex predicate that is simply composed of bare VP projections but one that consists of functional projections like the Aspps. This understanding of the structure of the SVCs has considerable implications for the nature of the construction especially with respect to the analysis of "object sharing" as I shall discuss in section two.

### 1.2. Type 2 adverbs

Consider the following sentences which illustrate the behavior of Type 2 adverbs :

- (33) ðzó lé èvbàré ègiégié ré 'Ozo cooked the food hurriedly and ate it'  
Ozo cook food hurriedly eat  
\* 'Ozo cooked the food and hurriedly ate it'
- (34) ðzó lé èvbàré ré ègiégié 'Ozo cooked the food and ate it hurriedly'  
Ozo cook food eat hurriedly
- (35) \*ðzó ègiégié lé èvbàré ré 'Ozo hurriedly cooked the food and ate it'

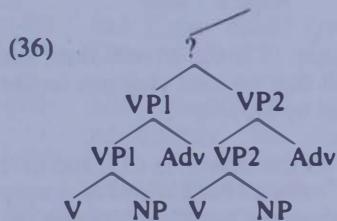
As the data in (33) to (35) shows, adverbs in this group have a different kind of distribution from Type 1 adverbs. Based on the interpretation of (33), the adverb may only right-adjoin to a constituent containing V1 and NP1, but crucially it cannot be interpreted as adjoining to AspP2 like Type 1 adverbs. This difference in interpretations (and ultimately a difference in structural positions) is what is responsible for the starred English translation of (33). This is intended to show that such translation by its English equivalent which allows it to left-adjoin either to AspP2 or VP2 is an unacceptable interpretation for the Edo

Type 2 adverb in SVC structure. The point here is that basically, Type 2 adverbs always right-adjoin to a VP in SVCS. Now, if the observation concerning the positional behavior of VP-final adverbs (of Type 2) is correct, then it should be the case that this same adverb can occur after VP2. This prediction is indeed borne out as (34) shows.

Judging from the ungrammaticality of (35) we conclude that Type 2 adverbs occur in mutually exclusive environments with Type 1 adverbs. This is so because such adverbs of Type 2 cannot occur in the INFL or VP-initial positions.

### 1.2.1 The licensing of type 2 as VP-final/sentence final adverbs

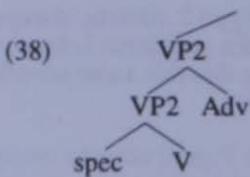
When Type 2 adverb right-joins to VP1, it linearly occupies a position between the two VPs in SVCS. In this position it has scope over the VP1, i.e. modifies VP1 only. This means that the Type 2 adverb in this position must be licensed by VP1 and not VP2. The implication of this for structure is that given the assumptions of the modification (Sportiche 1988) and predication (Rochette 1990) approaches to adverb licensing, if the adverb does not have scope over the second VP, then it means that VP2 is not c-commanded by this adverb. Consequently, if the adverb does not c-command the VP2, it means that we are not dealing with a simple right-branching layered VP shell structure but rather some sort of coordination structure as illustrated in (36).



The real test for these observations is for us to see if these Type 2 adverbs exhibit the same behavior when they right adjoin to VP2. In other words, is it the case that there is a coordination reading to be found when Type 2 adverbs occur in VP2 final position? Once we can establish that a coordination reading is the regular or associated feature of Type 2 adverbs then we can make some conclusions concerning the structure of the SVC.

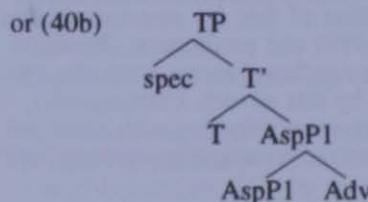
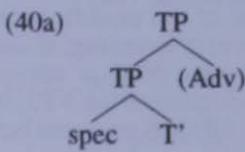
There are two interpretations possible when the Type 2 adverb right-joins to VP2. First, there is the reading in which the adverb modifies only the final verb (VP2). This will be the equivalent of the case discussed above in which the adverb only modifies VP1. Under this reading in which the adverb modifies only the second verb, it should be noted that there must be a pause before VP2. Now, what might this pause mean? I propose that this phenomenon of "pausing" implies that when Type 2 adverbs occur to modify each of the VPs separately we have a structure which must be different from that of the true SVC. This is illustrated by the sentence in (37) and the structure in (38)

- (37) *ðzó [l]é èvbàré[ [ré ègiégié] ]* 'Ozo cooked the food and ate it hurriedly'  
*Ozo cook food eat hurriedly*



The second interpretation has a reading in which the adverb modifies the entire sentence (both verbs). In this case, the adverb adjoins to TP or more consistently to AspP1. This is illustrated by the sentence in (39) and the structures in (40a/b). Under this reading, observe further that the adverb does exhibit tonal changes in (39) unlike (37).

- (39) ðzó [lé èvbàré ré égiégié] 'Ozo cooked and ate the food hurriedly'



Returning once again to constraint (18). Recall that in (37) the adverb does not exhibit any tonal changes in contrast with (39). Also, recall that no tone changes on the adverb are observed when it right adjoins VP1 as illustrated by (33).

According to my analysis, there are no tone changes on the adverb in (33) and (37) because there exists subcategorized argument of the verbs: "evbare" in (33) and an empty category (e.c) in (37). The existence of the subcategorized arguments therefore prevents the adjunct (Type 2 adverb) which right-adjoins to the VPs from inheriting the G.T on the verbs according to condition (ii) of the constraint in (18). The effect of the empty category is illustrated by the contrast between (41) and (42) where the e.c blocks tone spreading from taking place within the VP2 phrasal projections.

- (41) ðzó [lé èvbàré] \*[ré égiégié] (42) ðzó [lé èvbàré] [ré e.c] égiégié

Concerning (39), we observe tone changes because the adverb adjoins at a higher level in structure; TP or AspP1 where there is no subcategorized argument of T to act as a barrier to tone spreading.<sup>10</sup> This would be consistent with the treatment I have given to the licensing of Type 1 adverbs as left adjuncts to AspP1, since in that position Type 1 adverbs also exhibit tone changes. Against this background, what my analysis predicts is that (39) may be a SVC, while (37) necessarily involves a coordinated VP or AspP structure (parataxis or CC).

<sup>10</sup> The use of the term "subcategorized" implies the combination of two features: selection and theta marking. This means that although the TP selects AspP, it does not however subcategorize for it since it does not theta mark it.

In the final section of this paper, I shall now check to see whether the predictions from adverb placements hold in disambiguating sentences like (1) above. This is against the backdrop of the kinds of "control" patterns that exist in SVCs and covert coordinations.<sup>11</sup>

## 2.0 Internal Argument sharing/"Control": Patterns and Analysis 12

The ambiguous sentence in (1) is repeated here as (43);

- (43)    ðzð    gbé    èkhù    lá    ðwá  
Ozo hit door enter house

(43) has two readings: one in which Ozo goes into the house (subject control), and another in which the door goes into the house (object control or sharing). (44) to (47) shows the different Types of adverb placements and their "control" patterns.

- (44) ɒzó [gbé èkhù ègiégié] lá ðwá (subject control= Ozo goes into the house)  
Ozo hit door hurriedly enter house

(45) ɒzó [gbé èkhù lá ðwá] ègiégié (ambiguous= subject/object control)  
Ozo hit door enter house hurriedly

(46) ɒzó [[gbé èkhù] [giégié lá ðwá]] (ambiguous with an associated pause)  
Ozo hit door quickly enter house

(47) ɒzó [giégié [gbé èkhù lá ðwá]] (ambiguous= subject/object control)  
øzo quickly hit door enter house

In (44), we have the Type 2 adverb modifying VP1 separately. The interpretation we get here is that it is only "Ozo" that goes into the house. What this means is that when Type 2 adverbs occur to modify VP1, object sharing or control is blocked and as such we do not get the reading in (44) in which the door goes into the house.

In (45), there are two possible interpretations. There is one in which the adverb modifies only the final VP2, but in this case there must be a pause before the VP2. Under this interpretation, it is the understood subject "Ozo" that goes into the house and not the door. Once again object sharing is blocked. This consistently reaffirms the link between Type 2 adverbs, subject control and parataxis or covert coordination.

Consequently, we conclude that Type 2 adverbs when adjoined to the VP block a true SVC structure. This in turn blocks "object sharing". Thus, Type 2 adverbs force a CC structure which only allows subject sharing (like English VP coordinations).

The second interpretation of (45) is one in which the adverb is adjoined higher to AspP1 or TP. In this case a lot of pragmatic information is required to interpret the sentence because it may be either Ozo or the door that goes into the house. In fact, this is what we expect when the adverb is adjoined to AspP1 as seen in (47) below. Adjunction to a higher

<sup>11</sup> See Collins (1994) for more on the term "control". It is used in this paper to indicate the co-indexation relationship between a lexical NP and an empty category, hence "object sharing".

<sup>12</sup> The term Object sharing has been well discussed in the literature on SVCs. It implies the situation in which the object of V1 is also the object of V2, in other words a lexical NP (the shared object) receives two thematic roles; one each from the two verbs in the SVC. See Stewart (1963), Déchaine (1986), Baker (1989, 1991), Sebba (1987), Collins (1994) etc for various discussions of this phenomenon.

position in structure such as  $VP_{max}$  will not interrupt what happens inside AspP as seen with the control patterns displayed by Type 1 adverbs.

(46) has strong implications for an account of the structure of SVCs. Here, there are two possible interpretations which build upon our conclusions above. If (46) is said without a pause, then the interpretation that we get is one in which the door goes into the house (object sharing) hence SVC. However, if (46) is said with a pause between the verbs (which is not common with this type of adverb), then the interpretation that we get is one in which only "ozo" goes into the house (subject control). In such a case, it would appear that a process of clausal conjunction is taking place, hence parataxis or covert coordination.

An important consequence of this analysis of (46) is that it shows that when Type 1 adverbs are adjoined to AspP2 we may have an SVC structure consistent with Collins' (1994) Serialization parameter. In the light of our discussion of Type 1 adverbs, this fact is sufficient in explaining the tonal behavior of Type 1 adverb in the inner aux position as in (31) and (32). On the other hand, a pause between the verbs with Type 1 adverbs suggests that something higher than VPs are being conjoined in order to ensure the licensing of Type 1 adverbs as left-adjuncts to AspP2. The logical conclusion is that it is AspPs that are being conjoined under such a reading. This indicates that covert coordination may be composed by different levels of the structures being coordinated; VP or AspP.<sup>13</sup> It further opens up an interesting area of research into the nature of coordination that is taking place, an issue which I shall put aside for future research.

(47) appears to be the strongest confirmation of a c-command (scope) analysis of adverbs. Here, we have two possible interpretations; one in which "Ozo" goes into the house (subject control) and another in which the "door" goes into the house (object control). The conclusion is obvious: Type 1 adverbs allow for the possibility of object sharing interpretation, but Type 2 adverbs do not. These patterns of facts indicate the existence of a deep relationship between subject control, CCs and Type 2 adverbs, and between object control, SVCs and Type 1 adverbs which I shall not pursue further than this in this present paper.

## 2.1 Some consequences of adverb placements for the structure of SVCs

First, my analysis has shown that SVCs can be distinguished from CCs on the basis of the positioning and licensing of the two types of adverbs in the Edo language. Cross-linguistically, CCs consist of two possibilities namely; VP conjunction and AspP conjunction, parallel to VP coordination in English and I-bar conjunction in Ewe.<sup>14</sup>

Second, by my account of adverb licensing couched in constraint (18), the single tense and aspect values that have been observed across languages for SVCs receives a straightforward analysis.

Third, the licensing of Type 2 adverbs shows that contrary to Baker (1989), the correct structure of SVCs must allow for an empty category (Collins 1994, Stewart 1994b). Consider the following sentence,

<sup>13</sup>This will accommodate those CCs in Ewe (Collins 1994) where the future marking test suggests that their structure involves I-bar conjunction.

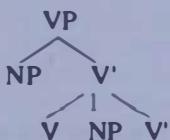
<sup>14</sup>The implication of this is that my analysis allows for the parameterization of covert coordinations between VPs (English and Edo) and AspPs (Ewe and Edo). See Awoyale (1987) for related discussion based on his proposed serial verb construction parameter.

- (48) Ḍzó lé ᴇvbáre ré 'Ozo cooked the food and ate it'

The analysis of adverbs proposed here predicts that the Type 2 adverb can be adjoined to two positions; VP and TP (this follows from the discussion of (37) and (39)). My concern here is with the case in which it adjoins to the VP. The question is, what is it in constraint (18) that rules out this type 2 adverb from receiving a tone value from the head of the VP in a situation where there is no associated pause before the V2? This question has direct consequences for an analysis of adverb placements in (48). This is so because on the surface there appears to be no overt item serving as the subcategorized argument of V2 to prevent the Type 2 adverb from inheriting the G.T. on the verb. The answer to the question is that in fact there is an empty category serving as the object of V2. This is similar to the claim in Collins (1994) and Stewart (1994b). The presence of the empty category therefore ensures that condition (ii) of constraint (18) prevents the Type 2 adverb, when right adjoined to the VP2 in (48), from inheriting the grammatical tone from the verb which is the head of the maximal projection VP2.

Fourth, SVCs require at least two functional projections in its structure. In fact, having the AspP2 split the VPs in SVCs prevents true internal argument sharing in the sense of Baker (1989). According to Baker's analysis, true argument sharing arises configurationally by having a V-bar dominate another V-bar within a single VP projection as shown in (49).

- (49)



According (49), "object sharing" arises when a transitive or unaccusative V2 dominated by the lower V-bar assigns its internal theta role directly to the NP that is the left sister of the lower V-bar. Simultaneously, the same NP is assigned the internal theta role of the verb dominated by the higher V-bar.<sup>15</sup> Under this configuration, the two verbs are joint heads of a single VP. Unlike Baker (1989), Sebba (1987) etc, "object sharing" under my account (like in Collins 1994, Stewart 1994b) involves the presence of an empty category as the object of V2 which is co-indexed with the lexical NP that is the direct object of V1.

The direct consequence of the foregoing then is that the verbs in the SVC cannot be joint heads of a single VP as suggested in Baker (1989). Rather, they must be independent phrasal projections with "lives of their own" (cf. Stewart 1994a). In particular, V2 must assign all its theta roles, including at least one to an empty category. Indeed, if (49) were the correct structure of SVCs, then there could be no adequate account of the licensing of Type 1 adverbs in such structure because there is no functional projection. Consequently, I conclude that all the previous structures proposed for the SVCs without functional categories have this one obvious weakness indicating that they could therefore not be accurate.

A logical issue which I have not addressed in this paper concerns the nature of the empty category in SVCs. This is very relevant because Collins (1994) does not clearly deal with the question of what the empty category is in SVCs ( pro or PRO)? nor with how the empty category is licensed. I have not discussed the issue of the nature of the empty

<sup>15</sup> See Baker (1989) and (1991) for detailed discussions.

category in SVCs in this paper but merely assumed following Stewart (1994b) that it is *pro* pending further research.

### 3. Conclusion

I have argued that CCs are different from SVCs both in terms of interpretation and structure based on the positioning and licensing of the two identified types of adverb. Type 1 adverbs are licensed as adjuncts to a functional projection and by their "control" behavior are compatible with an SVC structure. Type 2 adverbs exhibit a different modificatory pattern that is reflected by a pause effect between the VPs which they right adjoin to. The over-riding implication of this behavior of Type 2 adverbs is that the pause must be seen as a phonological indicator of the covert coordinating morpheme, hence parataxis or covert coordination in the syntax.<sup>16</sup> The structural difference between the two types of adverbs is consistent with two different "Control" patterns. In particular, CCs exhibit subject control while SVCs have object control.

Crucially, the analysis proposed here allows for a functional projection AspP between the VPs in the SVC. Thus, there can be no true argument sharing as argued for in Baker (1989). This conclusion finds support in the proposed tone spreading constraint. The constraint implies that in a sentence where there is no overt NP after V2, there is an empty category which satisfies the selectional requirement of the subcategorizing head. However, the exact nature, licensing and interpretation of this empty category is left to future research.

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<sup>16</sup> This is similar to Cormack and Smith's (1994) "asymmetric conjunction" analysis of SVCs.

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