

SERIAL VERBS

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Introduction

This paper consists of a series of connected notes and comments on a very perplexing type of surface structure found in many of the languages of West Africa. In the first part of the paper I will present a number of examples of the phenomenon mentioned in the title. The second part will examine the notions causative and inchoative and their function in the two languages being discussed. The third part will be devoted to a few speculations as to what the preceding sections may mean. All of the data for this paper are taken from two somewhat remotely related members of the Kwa subgroup of Niger-Kordofanian: Yoruba, spoken in southwestern Nigeria, and Yatyɛ, spoken in Ogoja Province in southeastern Nigeria.¹

I. A Survey of Serial Verb Constructions

A common phenomenon in many West African languages is the use of a series of verbs, all having the same structure subject. In some cases the resultant meaning would be expressed in English by a

¹ A few special symbols will be used, for typographical reasons. ɔ and ɔ̄ are respectively front and back lax mid vowels. ɔ̄ is a palato-alveolar sibilant. ɔ̄, ɔ̄, and ɔ̄ are respectively high, low, and mid tones. Normally mid tone will be marked by the absence of any tone mark. A tone mark not appearing over a segment will belong to the preceding segment and does not entail any lengthening of that preceding segment.

single verb, as with the Yoruba example:

(1) mo mú iwé wá ilé

I took book came house

I brought a book home.

In other cases the meaning would be equivalent to a benefactive or some kind of adverbial notion in English, as in

(2) mo fi àdà gè igi ná

I took machete cut tree the

I cut the tree with a machete.

(3) mo bá q mú iwé wá

I for you took book came

I brought a book on your behalf.

The range of syntactic and semantic phenomena which these languages account for with serialization is even broader than this. In the two languages which I have singled out for study in this paper, Yoruba and Yatyq, we will find serialization used to express what in English are considered instrumental and manner adverbials, datives, benefactives, locatives, causatives, inchoatives, comparatives, and auxiliaries.

Apparent instances of instrumental adverbs are (2) and (4)

(4) Ami awá òkítì adyú òtsi (Yatyq)

I took machete cut tree

I cut the tree with a machete.

A Yoruba manner adverbial looks and behaves much like an instrumental, as in (5).

- (5) Mo fi ɔgbòṅ gě igi
 I took cleverness cut tree
 I cut the tree cleverly.

There does seem to be an order constraint, however, requiring that when both an instrumental and a manner adverbial occur in one sentence, the manner adverb comes first.

- (6) Mo fi ɔgbòṅ fi àdà gě igi
 I took cleverness took machete cut tree
 I cleverly cut the tree with a machete.

The expression of directional and some non-directional locative adverbs require verbs with appropriate locative semantic content.

- (7) Èkó ni mo gbé se isíḡ
 Lagos TOPIC I live-in do work
 I work in Lagos.

- (8) Mo mú gbogbo àvqṅ ɔmòdè lq Èkó
 I took all PLURAL children went Lagos
 I took all the children to Lagos.

- (9) Àyi malÚtyù iku ni òtywi syq úkfò
 PLURAL inhabitants of Utyu gathered in meeting ground did
 work
 The people of Utyu worked in the meeting ground.

- (10) ìvyi avá ínyahvḡ awa itywi
 child took book went home
 The child took the book home.

Yoruba exhibits a very clear contrast between datives and benefactives, using distinct verbs.

(11) mo bá àbúrò mi mú ìvé wá

I on-behalf-of younger brother my took book come

I brought a book for my younger brother.

This benefactive contrasts with a dative.

(12) mo mú ìvé wá fún ẹ

I took book came gave you

I brought you a book.

Both can occur in one sentence.

(13) mo bá àbúrò mi mú ìvé wá fún ẹ

I brought you a book for my younger brother.

In Yatyẹ the situation is more like in English, where the two have, at least in surface structure, merged, so that (14) is ambiguous.

(14) àmi awá ìnyahwẹ ìbì akà àwọ

I took book came for you

I brought you a book.

(or I brought a book on your behalf.)

The comparative construction in Yoruba involves two verbs: jù 'surpass', and lọ 'go'. That there is nothing morphologically comparable to the English superlative in Yoruba will be seen to be related to the use of these verbs. The surface structure of the comparative is

(15) NP V NP [ju NP lọ]_S

Examples of this structure are

- (16) Ayò ní qgbòṅ jù mí lò

Ayò has cleverness surpass me go

Ayò is cleverer than I am.

- (17) Ayò lè sá eré ju gbogbo àvqṅ ará-òkùnrin-rẹ̀ lò

Ayò is-able run race surpass all PLURAL classmates his go

Ayò can run faster than any of his classmates.

Jù, a low tone verb, behaves like all low tone verbs in changing to mid by a very early phonological rule if its object is a noun, rather than a pronoun, as the examples show. The NP following jù can be a sentence, as in (18) and (19).

- (18) Ayò ní qgbòṅ ju kpé kí ó dára fún un lò

Ayò has cleverness surpass that₁ that₂ it is-good for him go

Ayò is cleverer than is good for him.

- (19) Ayò ní qgbòṅ ju bí mo ti rò lò

Ayò has cleverness surpass how I PERFECT think go

Ayò is cleverer than I had thought.

In both sentences the constituent between jù and lò is a sentence and is dominated by an NP, as the tonal behavior of jù indicates. The difference between a comparative and a superlative depends on the presence of a NP object after jù. (17), for example, could be paraphrased by (20).

(20) Ayọ̀ lẹ́ sá eré jú lọ ní inú gbogbo àwọ̀n ará ọ̀kùnrín-rẹ́

Ayọ̀ can run race surpass go among all PLURAL classmates his

Ayọ̀ can run the fastest of all his classmates.

The first part of (20), as far as jú lọ, would mean 'Ayọ̀ can run very fast' or 'Ayọ̀ can run fastest', depending on contextual factors.

Auxiliaries too are treated as verbs in series in some languages. This is clearest in Yatyẹ, although there is some evidence for it in Yoruba too. In Yatyẹ there is a class of verbs which can be used either as auxiliaries or as main verbs. Although there seems to be a semantic relation between their meanings as auxiliaries and as main verbs, within the current theory it may be difficult, if not impossible, to characterize this relation adequately.

(21) (i) [-Aux] Verbs [+Aux] [-Aux]

abá	future	
ahyẹ́	continuous	squat, lie
aga	habitual	wander
ibu	repetitive	return

(ii) òdìdè ahyẹ́ ibí ìtywí òdìdè ahyẹ́ ọ̀mẹ́

man CONT come home man squat there

The man is coming home. The man squatted there.

(iii) òdìdè aga ibí ìtywí òdìdè aga ọ̀mẹ́

man HABIT come home man wander there

The man usually comes home. The man wandered there.

(iv) òdìdè ibu ibí ìtywí òdìdè ibu ọ̀mẹ́

man REPET come home man return there

The man came home again. The man returned there.

(v) òdìde abá ibí ìtywi

man INTENT come home

The man is going to come home.

The causative and inchoative constructions are also clearest in Yatyę, where the following facts are in evidence.

(22) (i) ìtywęndę adà

pot broken

The pot is broken.

(Stative)

(ii) ìtywęndę abà adà²

pot ACTIVE broken

The pot broke.

(Inchoative)

(iii) yetá abà ìtywęndę adà

stone ACTIVE pot broken

The stone broke the pot.

(Causative)

(v) ìwyi abà yetá adà ìtywęndę

child ACTIVE stone broken pot

The child broke the pot with a stone.

(Causative
Instrumental)

(23) (i) òtsi aplę

tree tear out

The tree was uprooted.

(Stative)

²In previous papers I used the term CAUSATIVE for what I am calling ACTIVE in this paper. The term ACTIVE seems to subsume both CAUSATIVE and INCHOATIVE, at least in the sense in which Lakoff (1965) used them.

- (ii) òtsi abà aplè
 tree ACTIVE tear out
 The tree got uprooted/toppled. (Inchoative)
- (iii) medide abà òtsi aplè
 men ACTIVE tree tear out
 The men uprooted the tree. (Causative)
- (iv) ahuhwq abà òtsi aplè
 wind ACTIVE tree tear out
 The wind uprooted the tree. (Causative)
- (v) medide abà yahwà aplè òtsi
 men ACTIVE axes tear out tree
 The men tore out the tree with axes. (Causative,
 Instrumental)
- (24) (i) utsi ikù
 door close
 The door is shut. (Stative)
- (ii) utsi abà ikù
 door ACTIVE close
 The door shut. (Inchoative)
- (iii) iwyi abà utsi ikù
 child ACTIVE door close
 The child shut the door. (Causative)
- (iv) òtsi abà utsi ikù
 stick ACTIVE door close
 The stick shut the door. (Causative)

- (v) ɪvyi abà ̀òtsi ikù utsi
 child ACTIVE stick close door

The child shut the door with a stick. (Causative
 Instrumental)

There are a large number of verbs which have paradigms like (22)-(24), a few of which are given in the Appendix. There has been some doubt expressed as to whether abà is actually a verb. The evidence seems to indicate that it is. It is inflected for mood and tense, as in (25), where (24.iii) is given in the Perfect, Imperfect, and Imperative.

- (25) (i) ɪvyi abà utsi ikù
 The child shut the door.
 (ii) ɪvyi ǎbà utsi ikù
 The child shuts the door.
 (iii) bà utsi kù
 Shut the door.

Perfect tense is marked by a mid tone on the prefix of the verb, Imperfect by a low-high sequence, and the Imperative mood by the absence of a prefix. Also abà can undergo Agent-Nominalization, as in (26).

- (26) (i) obà utsi kù
 one who closes doors, a door-closer
 (ii) obà ́itywəndə̀ dā
 one who breaks pots
 (iii) obà ̀òtsi pl̩ɛ̀
 one who fells trees

II. Causative and Inchoative

The way Yatyq handles statives, inchoatives, and causatives suggests that the latter two are the same phenomenon and that Lakoff's distinction between them (1965) is redundant. The important contrast seems to be between stative and active, with the inchoative/causative contrast being a matter of the number of NP's involved and the relation between them. For example, (27.i) is stative, but (ii-iv) are all non-stative and all have inchoatives in them. The causatives (iii and iv) are distinguished by the presence of a subject and an object. (27.v) suggests that instrumentals may be a further extension of causatives.³

- (27) (i) The sky was red.
 (ii) The sky reddened.
 (iii) The sunset reddened the sky.
 (iv) The artist reddened the sky.
 (v) The artist reddened the sky with a sunset.

This suggestion is borne out by an examination of sentences like those in (22)-(24).

The sentence (24.iii) can be paraphrased by (28).

³Much non-transformational work, particularly the tagmemic school, talks about 'degrees of transitivity', using the terms 'intransitive', 'transitive', 'ditransitive', etc. A ditransitive, in a tagmemic framework, is a structure including both an indirect and a direct object. The present treatment suggests that if there is a useful notion of this sort it is to be defined in terms of embedded actives, rather than such things as datives and benefactives.

- (24) (iii) iwyi abà utsi ikù
 child ACTIVE door close

The child shut the door.

- (28) iwyi abà utsi abà ikù

The child shut the door with a stick.

Furthermore, (24.i) is ambiguous in a way in which (24.iii-v) are not. (24.i) can be interpreted as stative or active, its active interpretation being identical to the unambiguous (24.ii). Although (28) is an acceptable paraphrase of (24.iii), (24.iii) is not ambiguous. (24.iv) and (24.v) have paraphrases similar to (28), i.e., respectively:

- (29) òtsi abà utsi abà ikù

The stick shut the door.

- (30) iwyi abà òtsi abà ikù utsi

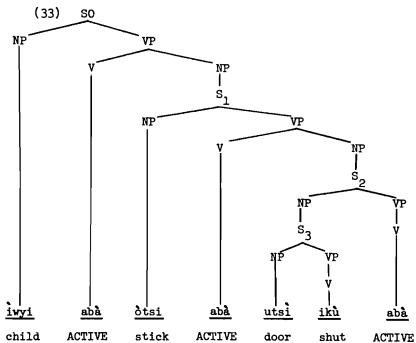
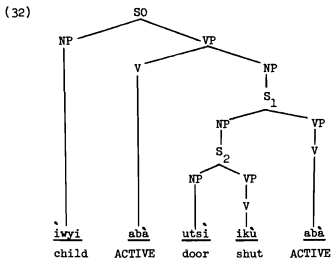
The child shut the door with a stick.

The potential further paraphrase of (30), that is (31), does not seem to be fully acceptable, but informants recognize the structure and usually call it baby-talk. It is immediately noticeable that (31) continues the pattern of (29), adding an abà so that there is one ACTIVE per actant in a non-stative sentence:

- (31) iwyi abà òtsi abà utsi abà ikù

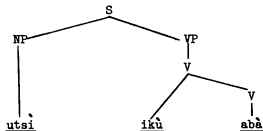
The child shut the door with a stick.

For these reasons we may suggest (32) and (33) as underlying structures for (24.iv-v), this counting for the facts of (28)-(30).



A transformation similar to McCawley's predicate raising will raise ikù into S_2 of (33) and S_1 of (32). Precisely where it will be attached is not clear, but because of the subsequent incorporation of abà, it seems better to consider abà ikù a verb and to Chomsky-adjoin ikù to abà, so that the lowest S's of (32) and (33) become

(34)



Abà then copies the feature [+ACTIVE] onto ikù and is deleted, resulting in the ambiguity which was observed in (24.i). (24.iii-v) are not similarly ambiguous because a stative embedded as an object complement to abà is apparently not a well-formed deep structure.

The underlying trees we have arrived at are strikingly like those of Lakoff (1965) with the difference that Lakoff's [+CAUSATIVE] and [+INCHOATIVE] pro-verbs are found to be the same verb, ACTIVE. Compare Lakoff's tree (35) to (32).

The sort of paraphrase we get with abà is odd in that the sentence does not contain a number of verbs, each of which has a distinct meaning and can be used as the only verb in the surface structure representation of a sentence. That is, the English paraphrase of (35) can be, among others, those found in (36).

- (36) John shut the door.
 (37) (i) John caused the door to shut.
 (ii) John made the door close.
 (iii) John pushed the door shut.

(24.1) can be paraphrased by (38).

- (38) ìwyi awá utsì ikù
 child took door shut
 The child shut the door.

This, in turn, can be paraphrased on the pattern of (29)-(32).

- (39) (i) ìwyi awá utsì abà ikù
 (ii) ìwyi abà utsì awá ikù
 (iii) ìwyi abà utsì abà ikù
 (iv) ìwyi abà utsì awá abà ikù
 (v) ìwyi abà utsì abà awá ikù
 (vi) ìwyi abà utsì abà awá abà ikù

However the relation between awá 'take' and ikù 'shut' is to be represented, its behavior with abà is familiar, and the predicate raising and incorporation used above with ikù can be used here also.

Awá 'take' and abà 'ACTIVE' have rather different properties, but what is important here is the fact that awá utsì in (39.i) is a

constituent, while abà utsì is not. Thus the former can be nominalized and clefted, whereas the latter cannot. (40), therefore, is grammatical, but (41) is not.

- (40) utsì òwówá ní ìwýi awá utsì ikù mę
 door taking TOPIC child took door shut

The child took the door and shut it.

- (41) *utsì òbòbà ní ìwýi abà utsì ikù mę
 door ACTIVE TOPIC child ACTIVE door shut

In Yoruba, the verb fi 'take' appears to behave very much like the Yatyę awá 'take'. Both are used to express instrumentals.

- (42) (i) ɔmɔ́ fi igi ti ìlẹ̀kùn (Yoruba)
 child took stick shut door

The child shut the door with a stick.

- (ii) ìwýi awá òtsi ikù utsì (Yatyę)
 child took stick shut door

The child shut the door with a stick.

With both verbs, the verb and its following noun form a constituent which can be nominalized and topicalized.

- (43) (i) fífi igi ní ɔmɔ́ fi igi ti ìlẹ̀kùn
taking stick TOPIC child took stick shut door

- (ii) òtsi òwówá ní ìwýi awá òtsi ikù utsì
 stick taking TOPIC child took stick shut door

Fi is not normally used with inchoatives, but in some types of embeddings it is found as an inchoative. The sentences (44.i) and (45.i) are ambiguous between stative and active. As (44.ii) and (45.ii)

show, this ambiguity cannot be eliminated by using fi as abà is used in Yatyɛ. The sentences with fi inserted are ungrammatical. This is not surprising, since fi is not an embedding verb, as is clear from (43.i). That fi does at least have an ACTIVE feature, in Lakoff's terms an inchoative, is clear from (46), where it makes the difference between a stative and an active. In (47) fi is obligatory in structures which semantically entail the notion of coming into a state.

(44) (i) omi' kún ìgò

water fill bottle

The bottle is full of water.

(or The water filled the bottle.)

(ii) *omi' fi kún ìgò

water fill bottle

The water filled the bottle.

(45) (i) ìgò' fò

bottle broke

The bottle is broken.

(or The bottle broke.)

(ii) *ìgò' fi fò

bottle broke

The bottle broke.

(46) (i) ní ìgbà tí ó jẹ̀ ọ̀lọ́lá

when he was a bigshot

(ii) ní ìgbà tí ó fi jẹ̀ ọ̀lọ́lá

when he was acting-like a bigshot

(47) (i) ó ǵe 1ǵǵ títí ó fi kparí-rǵ
 he do work until he finish it

(ii) wǵn lù ú tó bǵǵ tí ó fi kú
 they beat him equal thus that he died
 They beat him to death.

Thus it is possible that fi, like awá in (39), is embedded under an ACTIVE; but that, unlike awá, with fí raising and incorporation are obligatory.

III. Properties of Serial Verbs

It is fairly evident that abà in Yatyǵ is a complementizing verb, but sources for other types of serial construction are not so clear. We will not go into the problem of the underlying representations for auxiliaries, but sentences like (48)-(50) present a different sort of problem. Verbs such as gbà 'receive', fi 'take', bá 'benefit', and mú 'pick up, take' are not the type which one normally treats as taking sentential complements. There are at least two other ways of deriving such structures as we have in (48)-(50): they may result from underlying conjoined structures, or they may be underlying or derived case markers. We will first consider conjunction as a source.

The sentences of (48)-(50) must be distinguished both syntactically and semantically from coordinate structures.

- (48) ajá gbà eegun ha ǵnu (Yoruba)
 dog received bone wedged mouth
 The dog took the bone in his mouth.

(49) qmɔ ná` fi àdà gè igi gígá (Yoruba)

child the took machete cut tree tall

The child cut a tall tree with a machete.

(50) mo bá ẹ́ mú iwé wá ilé (Yoruba)

I for you took book came home

I brought a book home for you. (Benefactive)

Semantically it would be possible to continue a coordinate structure like (51) with (52):

(51) mo mú iwé, mo si wá ilé

I took book, I and came home

I picked up a book and came home.

(52) ɔ̀nḡbón mo gbàgbé láti mú wá pèlú

but I forgot to take come with

but I forgot to bring it along.

However, to continue (50) with (52) in the same way would render it nonsensical. Syntactically it would be impossible to derive (48)-(50) from coordinate sentence structure for a number of reasons. First, they cannot result from conjunction reduction, simply because if conjunction reduction occurs at all in Yoruba, it is restricted to deleting identical VP's, as in (53).

(53) Adé* jẹ ońjẹ, èmi' sí jẹ ońjẹ Adé àti èmi' jẹ ońjẹ

Ade ate food, I and ate food ⇒ Ade and I ate food

Ade ate and I ate.

Ade and I ate.

There is, for example, a general constraint in Yoruba and typologically similar languages against the deletion of identical verbs in

coordinate structures. Thus, because Yoruba does not have a gapping rule, (54) is ungrammatical:

(54) *Adé' mú ɛnu, Oyè' omi, Dokún' sì qí

Ade drank wine, Oye water, Dokun and gin.

We saw above that the meaning of (50) is quite distinct from that of (51). That their underlying structures are also distinct is shown by the fact that conjunction reduction on (51), deleting mo, produces not (52), but an ungrammatical (55).

(55) *mo mú iwé sì wá ilé

I took book and came house

Finally, if (48) derives from coordinate structure, it should be impossible to move either eegun 'bone' or ɛnu 'mouth' out of its original conjunct. However, both sentences in (56) are grammatical.

(56) (i) eegun`wo ni ajá gbà ha ɛnu

Which bone did the dog take in his mouth?

(ii) ɛé ɛnu ni ajá gbà eegun ha

Was it his mouth that the dog took the bone in?

Moving either iwé 'book' or ilé 'house' out of its conjunct in (51), on the other hand, results in ungrammatical sentences.

(57) (i) *iwé ni mo mú, mo sì wá ilé

*It was a book I took and I came home.

(ii) *ilé ni mo mú iwé, mo sì wá

*It was home that I took a book and I came.

The same facts apply to (49) also. This argument, of course, depends on at least two of so far unmentioned factors which together may be

sufficient to vitiate it. The first of these is the question of whether the VP's in series are still in conjoined structure at the point where the NP movement applies. At present I have no way of making certain of this. The second factor has to do with NP movement in general. Neither Yatyẹ nor Yoruba show any evidence of Psych-movement, WH-movement, Passive, Tough-movement, or other such transformations which have the effect of moving one NP over another. We will return to this point briefly below.

A second distinguishing feature of serialization is the tense agreement noted on page 67. All verbs in a series must agree as to tense and, as (25.iii) illustrates, as to mood also. This is clearest in Yatyẹ, where the perfect is indicated by a mid tone on the prefixes of all verbs within one series, and the imperfect by a low-high tone sequence, the high being absent on auxiliaries.

(58) (1) ɪ̀wɪ́ abá awá ɪ̀nyahwẹ́ ibí (Perfect)

child FUTURE take book come

The child was going to bring a book.

(ii) ɪ̀wɪ́ àbá áwá ɪ̀nyahwẹ́ íbí (Imperfect)

child FUTURE take book come

The child is going to bring a book.

Lack of tense agreement results in an ungrammatical sentence. That this may be true in Yoruba also is indicated by a suppletion involving the verb wá 'come'. Wá does not occur with the continuous particle N̄, but must be replaced by bọ̀ 'come'. The following paradigm results.

- (59) (i) mo wá láti Èkó
I came from Lagos.
- (ii) *mò Ñ wá láti Èkó
I am coming from Lagos.
- (iii) *mo bọ̀ láti Èkó
I came from Lagos.
- (iv) mò Ñ bọ̀ láti Èkó
I am coming from Lagos.

The second verb of (60) has to be marked for tense agreement, as comparison with (59) indicates.

- (60) (i) mò Ñ mú ìwé bọ̀.
I am bringing a book.
- (ii) *mò Ñ mú ìwé wá.
I am bringing a book.

A third condition on verbs in series is that they must all agree as to auxiliaries, negation, interrogative, and mood. Mood agreement is shown in (25), at least for Yatyẹ. This is not quite so obvious in Yoruba. The auxiliaries in Yoruba and Yatyẹ both occur before all other verbs in surface structure. For Yatyẹ this is illustrated by the examples in (21). For an auxiliary to occur elsewhere produces an ungrammatical sentence. There is an apparent case of a different auxiliary element occurring after the initial verb in surface structure in Yoruba in sentences like (61).

(61) mo lq̄q̄ m̄aa mú ìvé wá.

I went-to FUTURE take book come

I went to fetch a book.

This, however, is a case of a sentence embedded as a purpose adverb in which Equi-NP-Deletion has removed the embedded subject. This is shown by the vowel length on the main verb lq̄ 'go' and the optionality of l̄ati 'in order to' before m̄aa 'FUTURE', which is in complementary distribution with the vowel length.

(62) mo lq̄ l̄ati m̄aa mú ìvé wá.

I went to fetch a book.

These facts are true of Yoruba complement structures in general, for example,

(63) (i) mo f̄f̄f̄ (m̄aa) mú ìvé wá.

I want-to (FUTURE) take book come.

(ii) mo f̄f̄ l̄ati (m̄aa) mú ìvé wá.

I want to (FUTURE) take book come.

Yatȳf̄ does not have Equi-NP-Deletion in complement structures, so this sort of apparent exception does not occur.

If negation were permitted to occur on more than one verb in series, and if it were not the case that all verbs in series agree as to negation, then one would expect this to show up when a verb phrase is topicalized, as in (43.ii). The negation of (44.ii), the untropicalized equivalent of (45.ii), is

(64) ìwýi awá òtsi ikù utsì ya

child took stick shut door NEG

The child did not shut the door with a stick.

Both sentences of (65), however, are ungrammatical. Ya 'NEG' must be on the whole series.

(65) (i) *òwówá òtsi ya nì ìwýi awá òtsi ikù utsì.

(ii) *ìkùkù utsì ya nì ìwýi awá òtsi ikù utsì.

This, of course, is related to the fact that ya 'NEG' is the last element in the surface structure of a sentence. Because of this, the sentences of (66), in which a NEG occurs after the first verb phrase, are also ungrammatical.

(66) (i) *ìwýi awá òtsi ya ikù utsì.

(ii) *ìwýi awá òtsi ya ikù utsì ya.

All of these points suggest that the serial constructions of the type discussed in this section are not derived from underlying conjoined structures. This leaves our other alternative: that at least some verbs in series, especially those denoting the so-called 'oblique' cases, are in fact overt case markers.

Treating verbs in series as case markers results in several problems. First of all we get the paraphrases in (67).

(67) (i) Oyé' mí iwé wá fún mí.

Oye took book came for me

(ii) Oyé' mí iwé wá bùn mí.

Oye took book came presented me

(iii) Oyé' mí íwé wá ta mí ní qrę.

Oye took book came gave me

In all three sentences, the last underlined word is a verb meaning something like 'give'. The particular verb used depends on the circumstances surrounding the giving, but in all three the 'case marking' is done not on the noun, but in the semantic content of the verb. There is no way of predicting exactly which one of a class of verbs marked as Instrumental or Dative or some other case is going to mark that case in a given sentence, and so we do not really have a unique determination of case marking.

A second problem is that the verbs involved must also be marked for tense. To show this I will give an example from Yoruba similar to one which we discussed earlier. The evidence in Yatyę is much more straight-forward, and the reader can refer back to (25) above, where he will notice the prefixes of all verbs agree for tense. The relevant Yoruba examples are (68) and (69).

(68) (i) mo wá láti Èkó ní àná.

I came from Lagos yesterday.

(ii) mò ń bọ láti Èkó ní ìsinsìn èyí.

I am coming from Lagos right now.

(iii) *mò ń wá láti Èkó ní ìsinsìn èyí.

I am coming from Lagos right now.

(69) (i) mo mú àbúrò mí wá láti Èkó ní àná.

I brought my younger brother from Lagos yesterday.

(ii) mò N mú àbùrò mí bọ́ láti Èkó ní ìsinsìn èyí.

I am bringing my younger brother from Lagos right now.

(iii) *mò N mú àbùrò mí wá láti Èkó ní ìsinsìn èyí.

I am bringing my younger brother from Lagos right now.

The verb used in (68) and (69) to mark the locative is wá 'come'.

This is only one of a number of verbs which could have been used, the choice again being determined by the context, but wá has one idiosyncrasy which is crucial here. If wá is used in a continuous tense, even if the continuous particle is several verbs earlier in the sentence, wá must be replaced by its suppletive bọ́ 'come', and failure to apply this rule results in ungrammatical sentences like (68.iii) and (69.iii). We have, then, a choice of 'case marker' conditioned by the tense of the sentence, an improbable situation. A third problem is that, as we saw above, certain so-called case markers are ambiguous as to which case they represent, and the choice depends on the semantic content of the following noun. Examples of this are the Yoruba sentences with fi 'take' in (70) and the Yatyę sentences with abà 'ACTIVE' in (71):

(70) (i) mò fi àdà gẹ́ igi.

I took machete cut wood.

I cut wood with a machete.

(ii) mò fi àgbàrà gẹ́ igi.

I took strength cut wood.

I cut wood energetically.

The fi of (70.i) is instrumental and the fi of (70.ii) is a manner adverb, not a case at all. Similarly:

(71) (i) àmì abà òkìtì adyú òtsi.

I ACTIVE machete cut wood.

I cut wood with a machete.

(ii) àmì abà ètsi awa yirú.

I ACTIVE firewood went market.

I took firewood to market.

In (71.i) òkìtì is instrumental and in a case grammar abà would have to mark it as such. In (71.ii), on the other hand, ètsi is the direct object of the sentence. Therefore the specification of which case a 'case marker' marks is a function of the meaning of the noun to which the 'case marker' assigns case. This is obviously circular.

One of the basic motives behind case grammar is the need to specify relations between nouns and the verb of the sentence. This presupposes that a problem exists here, that is, that there must be the possibility of a single verb relating three or more actants. Two actants can, of course, be differentiated by formal Subject-of and Object-of relations, but more than two require some additional marking. The case base generates a string consisting of a modality, a verb, and a series of nouns, each marked for case. An early transformation is responsible for forming the subject and object, a process requiring the movement of NP. Such a movement transformation causes no problems in English, where NP-movement transformations seem to grow on trees, but, as we observed earlier, these languages with

serial constructions do not seem to have NP-movement transformations, with the possible exceptions of topicalization and Y-movement, neither of which seems to be subject to the sort of crossover and NP movement constraints that Ross (1967) and Postal (1968) have shown to control how other types of NP-movement can operate. In a language which otherwise lacks NP-movement before shallow structure, it seems very odd to begin the transformational derivation of sentences with mass migrations of NP.

One final observation on the problems involved in treating verbs in series as case markers is the fact that this would demand that abà 'ACTIVE' and its immediately following noun be a constituent. They are, in fact, not a constituent. Abà embeds a sentential complement, and the noun immediately after abà is not its object, but is rather the subject of the complement sentence. Evidence of this is alluded to in example (26), where abà and its complement are nominalized. If it could take a noun as object then it should be possible to nominalize abà and the following noun. This is not possible.

There is one other possibility that would be worth examining in our search for a source for serial verbs, and that is the complex lexical item. The sorts of phenomena which we have been calling serialization act in some ways like complex lexical items and yet are clearly composed of independent lexical items. A NP within a serial string can take a relative clause, for example, and it is possible to pronominalize into and out of serial strings. Neither of these is possible with complex lexical items, as Postal (1969) and Morgan (1968)

have shown. Furthermore, it is possible, as we saw on page seven, to nominalize a section of a serial string which looks very much like a verb phrase. Also, a noun can be moved out of a serial string by Topicalization or Y-movement. Thus we do have evidence for at least the following bracketings.

(72) $\dot{i}vyi]_{NP}$ $awá \dot{o}tsi]_{VP}$ $ikù utsi]_{VP}]_S$

child took stick shut door

The child shut the door with a stick.

(73) $\dot{o}wówa \dot{o}tsi]_{VP}]_{NP}$ $ní \dot{i}vyi]_{NP}$ $awá \dot{o}tsi]_{VP}$ $ikù utsi]_{VP}]_S$

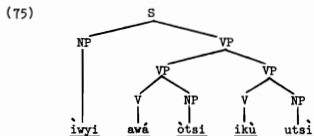
taking stick TOPIC child took stick shut door

It was by taking a stick that the child shut the door.

The fact that the two VP's together can be nominalized, as in (26), suggests also the following bracketing.

(74) $\dot{i}vyi]_{NP}$ $[awá \dot{o}tsi ikù utsi]_{VP}]_S$

The resulting surface structure phrase marker, however, is not obviously derived from underlying conjunction, since the results of the discussion on this earlier apply equally to Yatyę. It must then be derived from some other source, unless we are to believe that the base generates structures like (75):



Another restriction on serial strings is that verb phrase complementation cannot be string-internal, that is, it must occur after the entire serial string. Although it is not impossible that this results from an obligatory extraposition transformation, this possibility seems unlikely because of the absence of other NP-movement transformations. In any case, the fact remains that sentential complements are not found within serial strings. Therefore (76) below is a grammatical sentence in Yoruba, but (77) is not:

(76) mo s_q fún q kpé Àdìsà kò ní l_q ìlú.

I said gave you that Adisa would not go to town.

I told you that Adisa would not go to town.

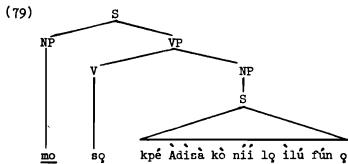
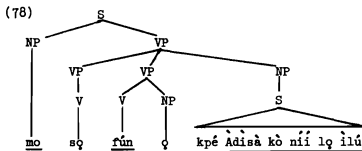
(77) *mo s_q kpé Àdìsà kò ní l_q ìlú fún q.

I said that Adisa would not go to town give you.

I said that Adisa would not go to town to you.

Notice that (77) does have a correct reading if fún q is considered internal to the complement, meaning 'I said that Adisa would not go to town for you.' Semantically, and on the basis of what is known about complements in English, this is not surprising, but we are still left with the verb fún to account for. I have at this point no defensible explanation for these structures. And the problem does not stop here. Why the surface structure of (72) and (74), as given in (75), should seem to contradict our intuition that utsi is the direct object of the sentence and that òtsi is part of an instrumental adverb is very puzzling; as is the fact that we do apparently have the

correct relations in the surface structure of (76) and of (77) in its correct reading, as (78) and (79), respectively, show:



Although it is possible as we suggested above that (78) results from extraposition, the independent evidence for this transformation in Yoruba is very slim. But even if it does, that would mean that the complement is not actually the direct object of the sentence, but the surface structure only makes it look that way. In either case, serialization presents us with a structure that behaves in some ways like a complex lexical item and in other ways like a structure containing a number of independent lexical items. But it evidently is not what one would normally consider a complex lexical item.

Needless to say, this paper has left a score of unanswered questions, the most important of which concerns the source of verbs

in series. Ross (1967:170) mentions a set of sentences which appear to be immune to the coordinate structure constraint. These are

- (80) (4.107) a. She's gone and ruined her dress now.
 b. I've got to try and find that screw.
 c. Aunt Hattie wants you to be nice and kiss
 your granny.

(80.b) and (80.c) puzzle me at least as much as they puzzled Ross.

(80.a), on the other hand, seems to bear some relation to the phenomena discussed in Part Two, and in a more general way to the whole problem of serialization. Additional examples like (80.a) are the inchoative sentences of (81),

- (81) (i) The bottle took and broke.
 (ii) The bottle upped and broke.
 (iii) The bottle went and broke.

and their causative counterparts

- (82) (i) John took and broke the bottle.
 (ii) John upped and broke the bottle.
 (iii) John went and broke the bottle.

These sentences are paraphrases of the more standard form using only the verb broke, in much the same way that the sentences of (28)-(30) are paraphrases of those in (24). The sentences of (81) and (82) have properties which seem quite similar to those cited in Yatyq also. For example, the verbs took, upped, and broke can occur only in non-stative, or, in the terminology of Part Two, ACTIVE sentences. The sentences of (83), then, are not surprisingly ungrammatical.

(83) (i) *The bottle is taken and broken.

(ii) *The bottle is upped and broken.

(iii) *The bottle is gone and broken.

A further parallel is the fact that they must take the same auxiliary and must both be either negative or affirmative, as in (84).

(84) (i) *The bottle took and didn't break.

*The bottle upped and might break.

*The bottle went and will break.

*The bottle went and has broken.

(ii) The bottle didn't take and break.

The bottle might up and break.

The bottle will go and break.

(iii) *The bottle has taken and broken.

The bottle has gone and broken.

The bottle has upped and broken.

but

(iv) The bottle has took and broken!

Except for the puzzling asymmetry of (84.iii), these facts show themselves to be strikingly similar to what we found in Yatyç. It may be that these represent the failure of a plugging-in rule, in R. Lakoff's (1969) terms, to apply, leaving a pro-verb to be spelled out in surface structure. The verbs take, up, and go serve no semantic function other than to redundantly mark the sentence as active. The ultimate solution to both this and the serialization problem may turn out to be very closely related, if not identical.

IV. Some Broader Implications of Serialization

In the earlier years of research into transformational grammar a great deal was written on the formal notion of simplicity as an evaluatory measure. More recently this topic has with some justification received less attention and the thrust of research has been turned more to the related topic of constraints on transformations and on derivations. The feeling has been rather that before we can talk meaningfully about simplicity metrics we need to know much more about just what sort of devices we will need to account for the phenomena of natural languages. It is therefore with considerable trepidation that I venture into the question of what is meant by simplicity in linguistic descriptions.

I will begin with the statement that the goal of our science is to be able to present for any given sentence of any given language a fully 'factored-out' representation of the meaning of that sentence and to be able to justify, in some meaningful sense, all formal devices and primitive notions used in such a description. It stands to reason that in some languages we may require certain devices which will not be required in other languages. A case in point is the NP-movement transformation. As was noted in earlier parts of this paper Yoruba and Yatyɛ appear to have little, if any, NP-movement. There are, to be sure, movement transformations of other types, including Topicalization and Y-movement, and, more importantly for these languages, clitic placement. However, these movement transformations are distinct from NP-movement rules in one crucial way: they are not

subject to the same complex constraints, such as the Crossover Constraint, the Complex NP Constraint, the Coordinate Structure Constraint, and so on.

The function of these 'global derivational constraints', as Lakoff calls them (1969), is to prevent the underlying structure of a sentence from being destroyed beyond the point of recoverability. That is, NP-movement transformations are an extremely powerful type of rule, and any grammar which allows them must also block those movements which would be particularly destructive to the underlying structure. The statement of such constraints may involve reference to rules and to various not necessarily adjacent stages in the derivation, and it therefore is a costly affair, but the added complexity they bring to the grammar is not due to the fact that there are global constraints operating, but to the fact that the grammar of that particular language permits NP-movement transformations in the first place. It should not, therefore, come as a surprise that there are languages without NP-movement rules, and therefore languages that do not need some of these global constraints. In terms of a universal base, Yoruba, Yatyę and typologically similar languages do not seem to have such transformations and therefore in some sense the grammars of these languages can be considered 'less marked' than the grammars of languages having NP-movement rules and therefore needing global derivational constraints on these rules.

In as complex a device as a grammar of a natural language, it is unlikely that simplification in an area such as NP-movement

would be without its parallels in other areas of the grammar. Such a parallel simplification might involve the serialization phenomena we have been discussing. If, in fact, the goal of the underlying representation of a sentence is to give a factored-out representation of the meaning of that sentence, then one would also expect that lexical incorporation rules would be needed in languages such as English. These could be similar to what McCawley (1968) suggested for the derivation of kill, or they could be similar to such processes as Gruber (1967) developed. Whatever they are like, it should not be surprising to find languages in which such highly constrained processes are needed to a more limited degree than they are, say, in English. This may be why we find both serialization and the absence of NP-movement transformations in the same languages. There is apparently an overall tendency toward economy in a grammar and some languages may well have more nearly 'optimal' grammars than others. It may also be possible that processes as costly and complex as NP-movement in English may be found in languages other than English, and not in English at all.

Whatever the validity of the preceding speculations, we apparently have some important questions before us. Why, for example, do we find a strongly limited verb inventory in the lexicon, a type of syntactic structure in which groups of verbs get in concert to form more complex meanings, such as 'go-take-come' for 'fetch' or 'take-give' for the three argument verb 'give', and the absence of NP-movement all in the same languages? Here is a ripe field for the

sometime vacuous discipline of linguistic typology. Linguistic typology should be able to tell us what the implications of specific linguistic phenomena are for the structure of particular languages and should enable us to predict much more accurately the sorts of phenomena we can expect to find in particular languages.

APPENDIX

The following is a sample listing of verbs which are inherently stative in Yatyq. Each can become non-stative when embedded as subject complement of abà 'ACTIVE', and that complex can then be embedded as object complement of a higher abà to produce a causative. Each verb is given with its stative, inchoative, and causative meanings.

<u>Item</u>	<u>Stative</u>	<u>Inchoative</u>	<u>Causative</u>
apíq̣	uprooted	get uprooted	uproot
ihù	fallen	fall	fell
akḷq̣	torn	tear	tear
avù	dry	dry	dry
adyù	severed	get severed	cut/sever
asá	split	split	split
apù	rotten	rot	_____
atà	crushed	get crushed	crush
awà	broken	break	break
ikú	open	open	open
ikù	shut	shut	shut
adà	shattered	shatter	shatter
iṛq̣	spoiled	spoil	spoil
ayf̣q̣	molten	melt	melt
abḷq̣	glued to	get stuck to	glue to

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