

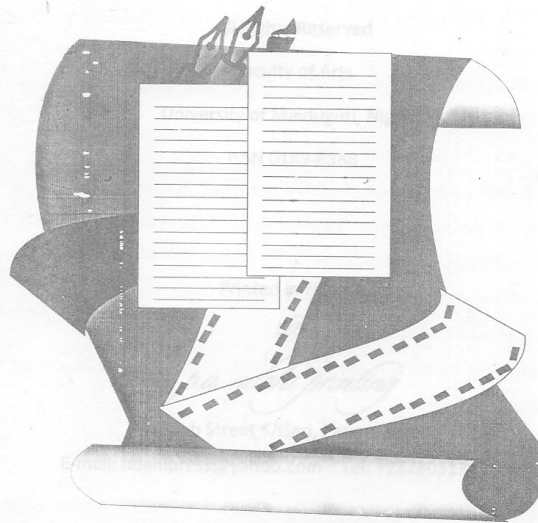
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Inflectional Morphology of the Gã verbs and The Infl Movement

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Abstract

This paper examines the morphological behaviour of Gã verbs in relation to pre-verbal elements and the inflectional morphemes in the language. The components of the INFL node with which the verbs relate include tense, aspect, mood and polarity (TAMP). Within the basic clause structure in Gã, the INFL is located between the subject-NP and the VP. Unlike the phenomenon of verb movement (ie., V-to-I), as found in languages like French (Pollock, 1989); it is the INFL that moves unto the verb in Gã (i.e. I-to-V), a phenomenon that was hitherto known as 'affix hopping'. Using the concept of 'movement', as introduced within the Principles and Parameters (P&P) theory and later modified in the Minimalist Program (MP) (Chomsky, 1995) and other subsequent relevant works¹, this paper presents a morphosyntactic analysis of verbal inflection in Gã. From the available data, it was also observed that tone plays an important role in the inflectional movement. The paper concludes that while some elements within the INFL node are subject to movement, there are others that tend to remain in-situ.

Keywords: Gã, Principles and Parameters theory, Inflectional Morphology, INFL movement, pre-verbs, verbs.

1.0 Introduction

Gã, the language under study, is one of the Kwa languages under the Niger-Congo phylum (Hall, 2001:17) and it is predominantly spoken in Accra, the capital of Ghana². The language exhibits an SVO basic word order. In Gã, the *INFL* consists of tense, aspect, mood and polarity (*TAMP*) and these are represented by affixes which are dependent morphemes. There are two types of morphemes namely: derivational and inflectional. The major difference between them is that the derivational morphemes change the part of speech and meaning of a word, but inflectional morphemes do not.

Morphosyntactically, the INFL elements in Gã normally move unto the verb stem for the verb to acquire its grammatical status. As cited in Koopman (1984: 72), Chomsky (1981) made the assumption that the inflectional element of INFL may be a collection of the features [$\pm$ Tense (AGR)], and that if INFL is [+Tense], it will contain AGR, a node underlying subject-verb agreement consisting of the features person, gender and number.

In Gã, there are two types of verbal elements: inflections which are morphological affixes and the pre-verbs. While pre-verbs like: "kɔ", "aka", and "ba/ya" are projected from the VP, the inflectional affixes are projected from the IP.

¹(See Cook and Newson, 2010, Sanusi 2003, Omaki, 2009 & Lamidi 2008).

² In addition to other published materials on Gã, the data used for our analysis in this paper were supplied by one of the writers who happens to be a native speaker of the language:

The purpose of this paper is to establish the fact that contrary to what obtains in some African languages like Vata and Gbadi (Koopman, 1984) where the verbs move unto the inflection node to acquire their grammatical status; it is the inflectional morphemes in Gã that move unto the verbs for the verbs to attain their grammatical status.

2.0 The Inflectional Affixes in Gã

Tense, aspect, mood and polarity are represented by inflectional affixes and they can either precede the verb or follow it at S-structure level, after movement has taken place. Saeed (2009: 125) states that tense and aspect systems both allow speakers to relate to time, but they offer different slants on time. He further states that tense and aspect are interdependent on each other.

2.1 Tense

Tense refers to the way the grammar marks time. Comrie (1985a: 9) defines tense as the grammaticalized expression of location in time. Tallerman (2009: 56) agrees with Comrie, but goes further to point out that different languages will choose to represent grammatically different contrast in time and these form tenses. In Gã, there is no grammatical difference between the present and the past and speakers tend to give the 'aorist' a default past tense interpretation (see Dakubu, 2008: 97). Time adverbials can however be used to distinguish the present from the past in the language. The bare form of the verb used as the default past tense in Gã confirms Aboh and Essegbey's (2010b:44ff) observation that most Kwa languages may derive specific tense from the combination of particular tense and aspect. This buttresses the point by Matthews (2007) that the boundary between tense and aspect is fluid. For Gã, the future tense can be derived from the bare form of the verb plus affixes. Adjei (1999) uses the term '*tense*' for the future because the language has a future tense which is encoded by the affix '*baa*' as opposed to English that expresses future time with modals such as *will*, *shall* and *may*.

The future tense is used to describe an action that has not happened but is expected to happen later. Some examples³ of Gã sentences in which the future is expressed include the following:

- (1) a. Kófi baa-bà bí! wí

Kofi FUT-come here tomorrow

'Kofi will come here tomorrow.'

- b. Gáánàbíi baa-fí òshíkí áfín! í

Ghanaian-PL FUT-cast vote year DET

'Ghanaians will go to the polls this year.'

- c. sùkúù-bíil baa-gbè nítsum í nàà

school-children DET FUT-finish work DET end

'The schoolchildren will finish the work.'

³Gã is a tone language with two tone levels: high and low.

When the future tense marker “bàá” combines with the first person singular pronoun “mí” it results in “má” after some deletion processes. In expressing a wish, a request or a possibility in the future, “bàá” is deleted for the second and third person singular pronouns and the vowels of the pronouns are geminated. That is, “òbàá”(you may...) becomes “óò” and “èbàá”(s/he/it may...) changes to “èè”. The indefinite future is represented by the affix “àá”.

2.2 Aspect

Aspect systems allow speakers to relate to situations and time but not as tense does. Rather it allows speakers to view events in various ways; as complete or incomplete, as so short as to involve almost no time, as something stretched over a perceptible period, or as something repeated over a period (Saeed, 2009: 129). Aspect includes the habitual, perfective and progressive. In previous Gã studies on verbs, Okunor (1967), Dakubu (1998) and Adjei (1999) acknowledge that there is an imperfect aspect but Radford (1997) states that the imperfect is the same as the past progressive. Since Gã makes no distinction between the simple past and the past progressive (also called the imperfect), the term ‘aorist’ will be used.

2.2.1 The Perfective Aspect

This aspect is used to express an event or action which began in the past and was completed in the past. The affix “é” represents this aspect in Gã as illustrated in (2):

- | | |
|---|---|
| <p>(2) a. Kòfi é -kánewòlòl □
Kofi PERF-read book DET
‘Kofi has read the book.’</p> | <p>b. àm □ -bà bí □
3PL- PERF-come here
‘They have come here.’</p> |
| <p>c. nùul □ é-húgm □ mlif □ □
man DET PERF-weed farm inside all
‘The man has weeded the entire farm.’</p> | <p>d. màjts □ I □ é-gbó
chief DET PERF-die
‘The chief is dead.’</p> |
| <p>e. é-yè kùním y □ kàà I □ mli
3SG-eat victory in test DET inside
‘He has been successful in the test.’</p> | |

When the perfective aspect follows a subject pronoun, the perfective affix is deleted leaving a floating high tone which is then realized on the vowel of the pronoun as shown in (2b& e).

2.2.2 The Habitual Aspect

It is used to express an action or event that is carried out frequently and predictably or repeatedly. The affixes “a”/ “□” represent the habitual aspect. When the main verb ends

with the vowel "a", the habitual marker 'a' is suffixed to the verb but for all other verbs; the vowel "i" is suffixed to the verb. This is illustrated in (3) below:

- (3) a. Kôfî sùm ní!yeniits b.gbé!k l yà-àsùkúù bēf bē
 Kofi like-HAB food too much child DET go-HAB school time all time
 'Kofi likes food too much.' 'The child goes to school every time.'
- c. Ámā fité- nùts d. mí-ts bō- mi tòì
 Ama waste-HAB water too much 1SG-lecturer DEF listen-HAB 1SG ear
 'Ama wastes too much water.' 'My lecturer listens to me.'

2.2.3 The Progressive Aspect

The progressive describes an on-going action which is not completed at the time of speech (Crystal, 2009). The affixes used to mark the progressive are "mii" for the first person singular pronoun, the plural pronouns and lexical nouns, "ò" and "è" for the second person and third person singular pronouns respectively. The use of progressive aspect in Gã can be exemplified in (4):

- (4) a. Kôfî mii-gbá nùúmól nàà b.éékánewòlòl
 Kofi PROG-worry old man DET edge 3SG-PROG-read book DET
 'Kofi is worrying the old man.' 'He is reading the book.'
- c. óòfité shikáts y shia d. Mimiiyashia
 2SG-PROG-waste money too much PREP home 1SG PROG.go home
 'You are wasting too much money in the house.' 'I am going home.'
- e. àm -mii-n k tsèik t í
 3PL- PROG -fight PREP sticks CONJ stones
 'They are fighting with sticks and stones.'

Apart from the progressive affix, the other inflectional affixes can precede or be preceded by the pre-verbs "ba" and "ya". Mood is another inflectional verbal form.

2.3 Mood

Mood expresses a particular attitude. There are three types of mood namely; indicative, imperative and subjunctive.

2.3.1 The Indicative Mood

This is used for the description of factual or real situations (Saeed, 2009) and it interacts with aspect and tense to give realizations in the orthography like the one in table (1).

Table 1: The Positive Indicative Moods

			48			

Mood		PST	FUT	PREF	PROG	HAB	GLOSS
	yè	bàá-yè	é'-yè		mii-yè	yè-	eat
Positive	tù	bàá-tù	é'-tù		mii-tùtù-		jump
	tá	bàá-tá	é'-tá		mii-tá	tà-á	sit
Indicative	wú	bàá-wú	é'-wú		mii-wú	wú-	swim
	wié	bàá-wié	é'-wie		miiwié	wié-	speak

2.3.2 The Imperative Mood

This refers to the form used in expressing commands and requests as in (5):

- (5) a. ó!fáin□ há mìnòò fióó
 please give 1SG salt small
 'Please, give me a little salt.'

- b. jèé kpòk□j□tsùl□mli
 come out from room DET inside
 'Come out from the room.'

- c. bó!tém□tsù l□mli
 enterroom DET inside
 'Enter the room.'

There are different affixes for the singular imperative mood in the language. The singular imperative mood is realized in three ways as follows: a high tone is realized on monosyllabic verbs with low tones; a vowel with a high tone is suffixed to the verb stem and this is similar to the vowel of the verb stem; the affix '-m□' is suffixed to the verb stem. The examples in (5a-c) above illustrate the three possible ways in which the singular imperative mood can be realized in the language.

Table 2: The Structure of the Imperative Moods

Verb Stem	Singular Mood	Plural Mood	Gloss
ká	ká	ny□káá	hang
yè	yé	ny□yéà	eat
lá	lá	ny□láá	sing
ŋm□	ŋm□	ny□ŋm□à	spread
shà	shàá	ny□shàá	smoke

tù	tùú	ny 'tùà	jump
kótà	kótám	ny 'kótàà	fold
wiri	wirim	ny 'wirià	paddle
wiè	wièm	ny 'wièà	speak

For the plural imperative, the INFL is a discontinuous affix “á...à”. The first ‘á’ is the imperative marker and the second one marks plurality. When this affix combines with the pronoun, the first “á” is deleted leaving a floating high tone. This tone is then realized on the low vowel “i” of the plural pronoun “ny i” (you-PL) and changes it to a high vowel as illustrated in (6):

- (6) ny i - - V - - à
 (2PL-SUB) - (IMP) - (VERB) - (PL MARKER)

The plural formation process in (6) can be exemplified with the data in (7a-c) below:

- (7)a. ny -gáá shínàál
 2PL-close door DET
 ‘You (plural), shut the door.’
 b. ny -téà shì ny -háà ònúkpái l
 2PL-stand up 2PL-give elders DET
 ‘You (plural), stand up for your elders.’
 c. ny -wòà ny -hi -nyi l l l
 2PL-respect 2PL-leader DET
 ‘You (plural) respect your leader.’

2.3.3 The Subjunctive Mood

This verb form expresses possibilities and is referred to in Gā as the *Future Indefinite Aspect* (see Dakubu, 1970). The future indefinite marker ‘á’ is prefixed to the verb as illustrated in (8):

- (8) a. Kòfì á-fèé díóó b. Ámà á-yè níi
 Kofi SBJV-make quiet Ama SBJV-eat STH
 ‘Kofi may keep quiet.’ ‘Ama should eat.’
 c. gbé!k -bíl -á-ta shì d. òkwááfóil -á-bà shía
 child-PL DET SBJV-sit down farmer-PL DET SBJV-come home
 ‘The children should sit down.’ ‘The farmers should come home.’

When a pronoun precedes the subjunctive marker, the subjunctive affix is dropped leaving a floating high tone which is realized on the vowel of the preceding pronoun which has a low tone as in (8).

- (9) a. é-fèé díóó
3SG-SBJV-make quiet
'S/he should keep quiet.'
- b. éyà shíá
3SG-SBJV-go home
'S/he must go home.'
- c. àm tùàfábáŋ
3PL - SBJV -jump- wall DET
'They should jump the wall'
- d. w hɪŋmáa
IPL- SBJV-hate food
'We must fast.'

2.4 Polarity

Gã does not express the positive polarity overtly but the negative is expressed by the use of affixes. Table (4) shows the different affixes which are used to show negation in the future tense and aspectual forms.

Table 3: Negation in the Indicative Mood

V _{root}	PST/PROG/HAB NEG	NEG. PERF	NEG. FUT.	Gloss
yè	yè-èè	yè-kò	yè-ŋ	eat
yà	éyà-àà	éyà-kò	éyà-ŋ	go
hi	éhi-ii	éhi-kò	éhi-ŋ	live
kpá	kpá-láá'	kpá-kò	kpá-!ŋ	stop
kpé	kpé-léé'	kpé-kò	kpé-!ŋ	chew
kù	ékù-ùù	ékù-kòé	kù-ŋ	break
Gã verbs are grouped into two (see Dakubu, 2008:113). Negative Class One verbs are preceded by a prefix 'e' as in Table 3.				

2.4.1 Negative Imperative Mood

For the negative imperative, the affix 'káá' marks the negative singular imperative. The affix could be analyzed as a combination of the negative inflection 'ká' and the future indefinite 'á', (see Dakubu, 1998) The following sentences are some negative singular imperative:

- (10) a. káá fò
NEG-IMP-weep
'Don't weep.'
- b. kááyè nìi
NEG-IMP-eat STH
'Don't eat.'

- | | | | |
|----|--|----|---|
| c. | kááyèŋk 'm
NEG-eat sadness
'Don't be sad.' | d. | káá málé
NEG-lie
'Don't tell lies.' |
|----|--|----|---|

2.4.2 Negative Subjunctive Mood

The negative subjunctive mood is represented by the affix 'áká' and this marks both the singular and plural moods. The 'a' marks the mood and the 'ka' marks the negation as demonstrated in (11):

- (11) a. Kòfi á-ká -fèé díóó
Kofi SBJV -NEG-make quiet
'Kofi shouldn't be quiet.'
- b. gbék bíl á -ká -yá -ná núúmól
child-PL DET SBJV-NEG-PreV.-see man-old DET
'The children shouldn't go and see the old man.'
'The children shouldn't see the old man.'
- c. ó-ká -hóó nù ò-háyòò
2SG-NEG-cook 2SG-give woman DET
'You shouldn't cook for the woman.'
- d. àm -ká -yè àmálé òdàse
3PL-NEG-eat false witness
'They mustn't bear false witness.'

The next section will attempt an analysis of INFL movement in Gã clause structures.

3.0 INFL-to-Verb Movement in Gã

Many criteria are used to determine whether a language has verb-to-INFL movement as in French or INFL-to-verb movement as in English and Gã. The placement of the adverb within the sentence is one criterion that is used to determine movement in a language like English or French. For instance, in both languages, the adverb occupies a slot between the INFL and the tensed main verb at D-structure level. At the S-structure level, the adverb blocks the movement of the verb unto the INFL in English. The INFL is rather lowered unto the verb, as the motivation for movement is to allow inflectional affixes to give various shapes to the verb. On the other hand, French allows for the verb to raise unto the INFL without blockage from the adverb. Examples from (Cook & Newson, 2010: 131) can be used to explain this phenomenon:

- (12) a. French b. English

Jean embrasse souvent t_iMarie
(John kisses often Mary)

'John often kisses Mary.' John t_i

John es often kiss Mary

often kisses_i Mary

The position of the adverb is fixed in Gā; therefore it will not serve as a motivation for movement as found in French and English examples given in (12) above.

Another criterion is the occurrence of the negative markers in the two languages. In English, the main verb follows the negative marker unlike in French. The verb is raised in French but lowered in English as illustrated with the examples adapted from Carnie (2006, p.197) and presented here as (13) below:

- (13) a. je ne mange pas t_ides pommes (French) b. I do not eat apples (English)
I do eat not apples

In French, the 'ne' is not obligatory so the negative marker is actually the 'pas' and the main verb precedes it. One can therefore assume that in Gā, the negative affixes are all lowered unto the verb in the indicative mood as shown in example (14):

- (14) a. gbék□□t_iyè-èè:nii b. Kófit_ibá-kò,shía

child DET INFL eat-NEG STH '

'The child didn't eat.'

Kofi INFL come- NEG here

'Kofi has not come here.'

- c. yèil□□t_ibá-ḡd. nítul□□-il□□t_itsú-úú:nii

woman-PL DEF INFL come-NEG

'The women will not come.'

worker-PL DET INFL work-NEG STH

'The workers are not working.'

Another criterion is the placement of the auxiliary and the tensed verb as shown with the examples from Vata, a language spoken in West Africa, and illustrated in Koopman (1984):

- (15) a. a li saka

we eat rice

'We ate rice.'

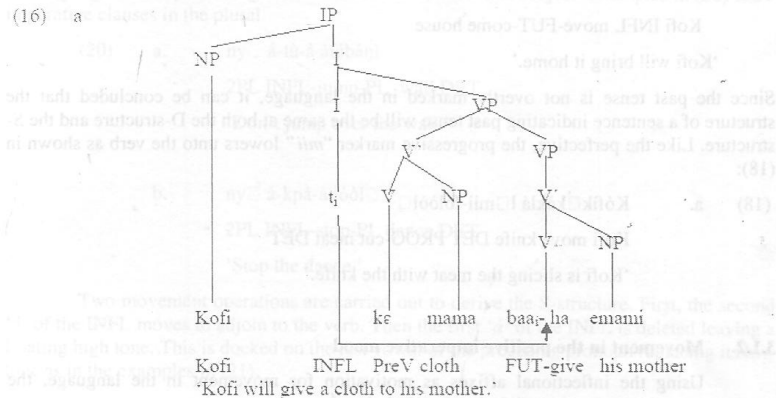
- b. a la saka li

we PERF rice eat

'We have eaten rice.'

In Vata, the auxiliary and the tensed verb are in complementary distribution such that when a structure contains an auxiliary, the main verb moves to the end of the sentence. This confirms the evidence that the verb raises to the INFL.

Gã has pre-verbs that precede the main verb but follow the INFL at D-Structure level. Unlike other auxiliaries, these pre-verbs are projected from the VP rather than the INFL because they do not inflect for tense, aspect, mood or polarity. The pre-verbs block the movement of verbs unto the INFL, but allow the lowering of the INFL unto the verb. The motivation for movement is to allow inflectional affix to give various shapes to the verb. Example (16) illustrates this phenomenon.



Gãinflections are affixes and according to Lasnik's (1981, p.162) morphological principle; "a morphologically realised affix must be realised as a syntactic dependent at S-structure." Koopman (1984), refers to this principle as the 'No-Free-Affix principle.' This principle ensures the obligatoriness of rules like affix hopping. In (16), the affix "baa" represents the future tense and is moved unto the verb "ha" (give).

3.1 Movement in the indicative mood

This paper shall make two proposals for the INFL movement namely: when the verb directly follows the INFL and the INFL is a prefix, the INFL remains in-situ, but when the INFL is a suffix or the pre-verb "k" intervenes between the INFL and the verb then the INFL moves unto the verb.

3.1.1 Movement in the perfective, past, progressive and future

The examples in (17) below illustrate the fact that it is the INFL that moves unto the verb stem for the verb to attain its grammatical status:

(17)a. Kòfitk jàtsùl é'-màshì

Kofi INFL move load DET PERF-putdown

'Kofi has put down the load.'

b. Kòfitk jàtsùl -màshì

Kofi INFL move load DET PERF-putdown

'Kofi has put it down.'

- c. Kòfitk wòlòl báá-bàshía
Kofi INFL move book DET FUT-come house

'Kofi will bring the book home.'

- d. Kòfi t_k báá-bàshía
Kofi INFL move-FUT-come house

'Kofi will bring it home.'

Since the past tense is not overtly marked in the language, it can be concluded that the structure of a sentence indicating past tense will be the same at both the D-structure and the S-structure. Like the perfective, the progressive marker "mii" lowers unto the verb as shown in (18):

- (18) a. Kófik káklá l mii-fòlòól
Kofi move knife DET PROG-cut meat DET
'Kofi is slicing the meat with the knife.'

3.1.2 Movement in the positive imperative mood

Using the inflectional affixes as motivation for movement in the language, the imperative mood can be exemplified as in (19) below:⁴

- (19) a. t_kkw m shikp_η (singular imperative)
look-IMP ground
'Watch out.'
- b. t_i hálà-m jw il
collect-IMP grass DET 'Collect the grass.'
- c. t_bá_i (singular imperative by tonology)
come-IMP 'Come.'
- d. t_i táshì
sit-IMP down 'Sit down.'
- e. t_itú -ú_ilál (singular imperative by doubly vowel)
jump-IMP fire DET 'Jump over the fire.'
- f. t_kkw tsòl

⁴ Pre-verbs in Gã do not bear tones, they acquire tones from the floating tones. For example, with the deletion of perfective affix, its floating high tone automatically moves unto 'k' to become 'ké' in example (17b) above.

climb-IMP tree DET

'Climb the tree.'

Tone plays a very important role in movement in the singular imperative. In (19c&d), it is a floating high tone representing the INFL that moves on to the subject. Examples in (20) show imperative clauses in the plural.

- (20) a. ny á-tù-à áfábánl
2PL INFL-jump-PL wall DET
'Don't jump over the wall.'
- b. ny á-kpà-à jòòl
2PL INFL-stop-PL dance DET
'Stop the dance.'

Two movement operations are carried out to derive the S-structure. First, the second 'à' of the INFL moves to adjoin to the verb. Then the first 'á' of the INFL is deleted leaving a floating high tone. This is docked on the last vowel of the preceding pronoun replacing its low tone as in the examples in (21):

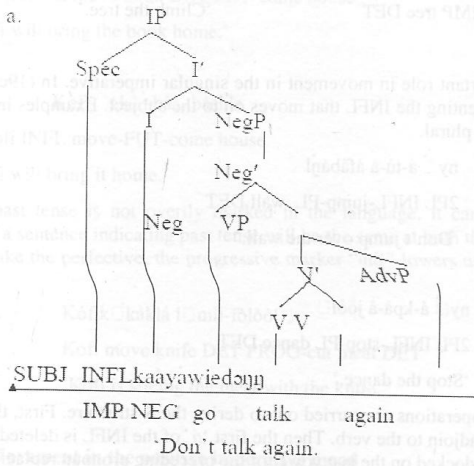
- (21) a. nyéttt.kéfs-à jèi
2PL INFL PreV-PL put here
'Put it there.'
- b. nyétttù-à áfábáñle
2PL INFL-jump-PL garden DET
'Don't jump over the garden.'

3.1.3 Movement in the negative imperative mood

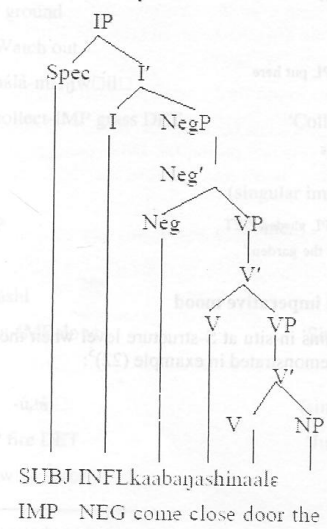
The negative singular remains in-situ at S-structure level when the pre-verbs 'ba' or 'ya' are part of the construction as demonstrated in example (22)⁵:

⁵ In the subjunctive mood, the negative affix tends to remain in-situ. This puzzling behaviour of negation in the subjunctive is left for further research.

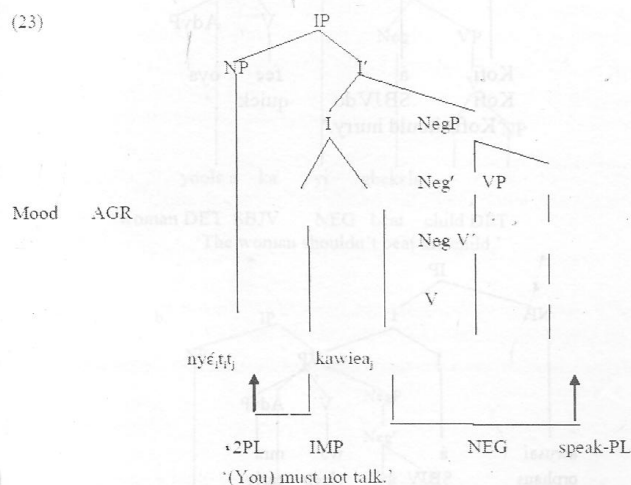
(22) a.



b.



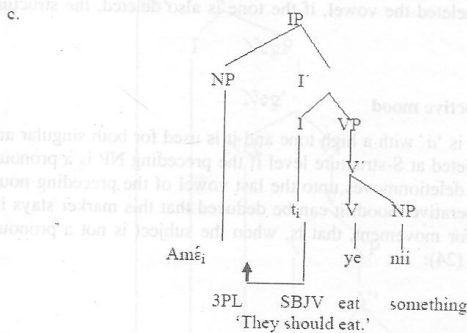
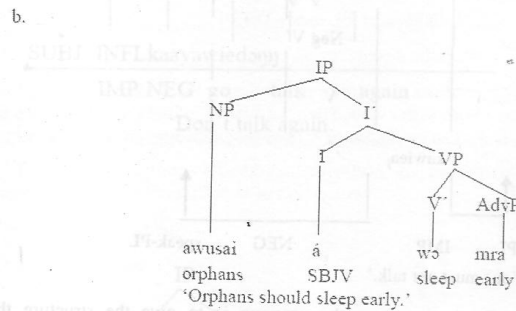
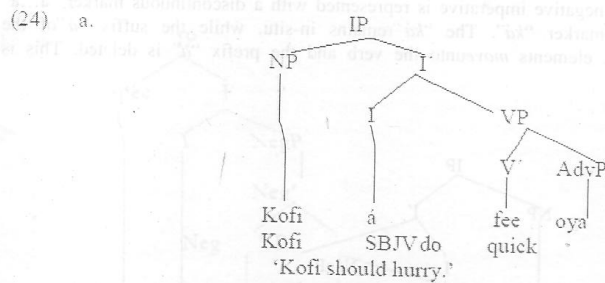
The plural negative imperative is represented with a discontinuous marker "á...à" plus the negative marker "ká". The "ká" remains in-situ, while the suffix "à" of the discontinuous INFL elements move onto the verb and the prefix "á" is deleted. This is illustrated in (23):



The motivation for the high floating tone on the pronoun is to give the structure the imperative mood because having deleted the vowel, if the tone is also deleted, the structure would be a declarative.

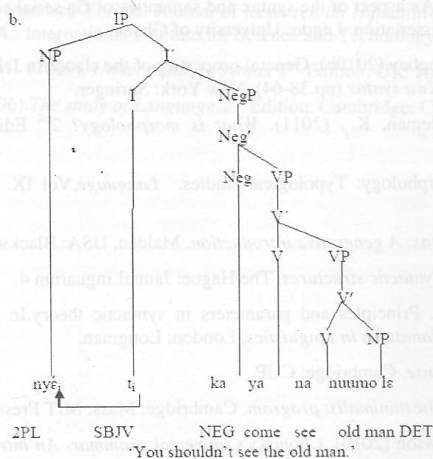
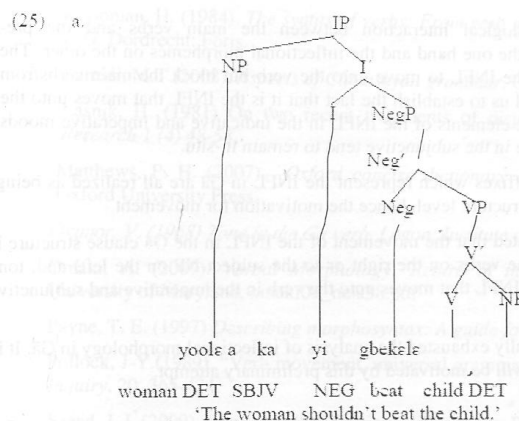
3.1.4 Movement in the subjunctive mood

The marker for this mood is 'á' with a high tone and it is used for both singular and plural. This marker is normally deleted at S-structure level if the preceding NP is a pronoun. The floating tone left behind after deletion moves onto the last vowel of the preceding noun. Based on what happens in the imperative mood, it can be deduced that this marker stays in-situ when there is no motivation for movement, that is, when the subject is not a pronoun. These phenomena are illustrated in (24):



For both the singular and plural negative constructions, the negative morpheme "ká" follows the subjunctive marker "á". When the "á" follows a subject pronoun, the first vowel (representing mood) is deleted and the floating tone moves unto the preceding vowel but the "ká" remains in its original position at S-structure level. When the subject is a noun, the mood which is represented by the affix "á" is not deleted and there is also no movement.

Examples showing the two types of negative subjunctive at S-structures are shown in (25).



In a construction where the pre-verbs "ya" and "ba" are present, they give credence to the fact that the INFL does not move unto the verb but remain in its original position. If the negative marker is to move to the prefix of the verb, the sentence would be ungrammatical.

4.0 Conclusion

In this paper, an attempt has been made to briefly describe the general features of the inflectional morphology of the Gã verbs. Gã language has affixes for tense/aspect, and mood and they are projected from the INFL node. The component parts of the INFL node with which the main verbs relate include tense, aspect, mood and polarity.

There is a morphological interaction between the main verbs and the pre-verbs: "k", "ba" and "ya" on the one hand and the inflectional morphemes on the other. The fact that the pre-verbs allow the INFL to move unto the verb but block the main verbs from moving unto the INFL enabled us to establish the fact that it is the INFL that moves unto the verb and not vice versa. While elements of the INFL in the indicative and imperative moods are subject to movement, those in the subjunctive tend to remain in-situ.

The morphological affixes which represent the INFL in Gã are all realized as being syntactically dependent at S-structure level, hence the motivation for movement.

Finally, it can be stated that the movement of the INFL in the Gã clause structure is bi-directional (ie, either to the verbs on the right or to the subject-NP on the left) and, tone represents the element of the INFL that moves unto the verb in the imperative and subjunctive moods.

This paper has not fully exhausted the analysis of inflectional morphology in Gã. It is hoped that other researchers will be motivated by this preliminary attempt.

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