FUNCTIONAL CATEGORIES AND VERB MOVEMENT IN IVIE

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In this article, we examine the structure of Ivie verb and, in particular, the inflectional category: the realization of tense, mood, and aspect morphemes in the language. Current approaches to syntactic theory offer several proposals for the structure of the inflection phrase (IP) (Chomsky 1989; Pollock 1989; and Belletti 1990). The debates arising from the number of functional projections to be included in the IP, the order of such projections, and whether these characteristics are universal or language specific, have been very controversial. These have created problems of determining what the functional XP sequences are and how they co-occur and interact with various lexical projections (VP, NP) (see Abney 1987; Fukui and Speas 1986). We shall argue that there is no overt movement of lexical items to functional/inflectional categories (in particular verb movement) using available Ivie data.

Dans cet article, nous examinons la structure du verbe en ivié, et en particulier les catégories flexionelles: la réalisation des morphemes de temps, de mode et d'aspect. Les approches courantes de la théorie syntaxique présentent plusieurs propositions pour la structure du syntagme flexionnel (IP) (Chomsky 1989; Pollock 1989; et Belletti 1990). Le nombre de projections fonctionnelles que contient la catégorie IP, l'ordonnancement linéaire de ces projections, ainsi que la question de savoir si leurs caractéristiques sont universelles ou propres aux grammaires particulières demeurent controversés. Ceci a donné lieu a des questions sur la détermination de la nature des séquences de XP et sur la façon dont elles interagissent avec les diverses projections lexicales (VP, NP) (voir Abney 1987; Fukui et Speas 1986). Utilisant les données de la langue ivié, nous montrerons que le mouvement réel (overt movement) des catégories fonctionnelles/flexionnelles (en particulier celui du verbe) n'a pas lieu.

1. THE STRUCTURE OF IVIE VERBAL CONSTRUCTION

Welmers (1973) distinguishes two important types of verbal constructions in Niger-Congo languages, a group including Ivie.[1] PRIMARY CONSTRUCTIONS consist of one verb base and inflectional morphemes of definable classes such as construction markers and affixes. The second type is AUXILIARY CONSTRUCTIONS. These consist of two verb bases, one of which may be considered an auxiliary and the other the main verb.

What Welmers refers to as primary constructions is much like the basic projection sequence (BPS) proposed in Demuth and Gruber (1995). According to their proposal, the BPS constitutes a basic unit which is realized in the verbal domain as agreement phrase (AgrP), tense phrase (TP), and verb phrase (VP). The BPS thus constrains the order and composition of functional and lexical projections, both within the inflectional phrase and in the composition of extended projections generally (like complementizer phrases and determiner phrases).

1.1 IVIE VERB STRUCTURE

Like most Edoid languages, the verb stem in Ivie shows no inflection and therefore has only a base form, typically consonant vowel (CV) in structure as in (1a). Unlike nouns, verbs in Ivie are underlyingly toneless; verbal tone is dependent on the tense-aspect morphology of the verb. Tense, mood, and aspect are indicated by different functional prefixes which occur before the verb stem. It is very important to point out that these grammatical morphemes occur in a fixed order between the subject and

[1]Ivie is an Edoid language and a member of the Benue-Congo group of languages (Elugbe 1989). Syntactically, it is a strict SVO language. It manifests two level tones: high tone (H) and low tone (L). Tone markings will only be used when necessary.

the verb as (1b) shows. Examples (1b) and (1c) show the presence of these functional formatives in Ivie phrases.[2]

(1) (a) **gɛ́** 'bark'

(b) **ɔ̀nì áwòshì ɔ̀ lâ gɛ́**
the dog 3sg FUT bark
The dog will bark.

(c) **ɔ̀nì áwoshì ɔ́ shé gɛ́**
the dog 3sg ASP bark
The dog has barked.

In (1b), the verb is **ɔ̀lâgɛ́**. It forms a complex morphological item, made up of the following elements: the agreement marker **ɔ̀**, the tense marker **lâ**, and the verb stem **gɛ́**. So (1b) has the linear structure in (2).

(2) [Subject Agreement Tense Verb]

The verbal complex contains the verb stem **gɛ́**, and attached to it from left to right are the agreement marker **ɔ̀**, and the tense marker **lâ**. In Ivie, the inflectional properties of the verb are invariable, unlike what obtains in other languages where agreement, tense, mood, and aspectual morphemes form an integral part of the morphological make-up of the verb. In Italian and French, for instance, these present themselves in form of suffixal desinences as in **io parlo** 'I speak', **tu parli** 'you speak' (Italian); **tu viens** 'you come', **il vient** 'he comes' (French).

2. THE STATUS OF TENSE, MOOD, AND ASPECT

2.1 TENSE, MOOD, AND ASPECT MARKERS

Ivie verbal morphology is characterized by preverbal tense, mood, and aspect markers. These may occur at the same time with a given verb in a rigid order with respect to one another.

Generally, the system of tense, mood and aspectual marking is comprised of the morphemes presented in (3).

(3) Ivie tense\aspect markers[3]

Tense\aspect\mood	Aspectual markers
Past	Floating high tone (↑H)
Future	**lâ**
Present progressive	**à**
Past progressive	**kê**
Completive aspect	**shé**
Present Habitual	**lǎ**
Past Habitual	**lě**

[2]The following abbreviations will be used: AGR: agreement; ASP: aspect; COMPL: completive; FUT: future; HAB: habitual; PP: present progressive; and PST: past.

[3]Generally, the system of tense, mood, and aspectual marking is comprised of the markers in the table in (3). Only some of these are referred to in this article.

Negation	**òbó** **vhá**\\[4] floating high tone (↑H)
Imperative	Floating high tone (↑H)
Subjunctive	Floating high tone (↑H)

We observe that the composition of the future, the continuative aspect, the present habitual and the past habitual morphemes are characterized by floating tones. In Ivie and some other Edoid languages, tones are used to differentiate sentences with various types of verb tenses/aspects and mood.

We observe that Ivie verb roots exhibit exclusively grammatical tone. They do not have tonal representations in the lexicon, but acquire tonal representations at the syntactic level. These observations are due to the complexity of morphotonemic alternations in the verb phrase of Ivie. Tonal changes observed on the pronominal elements and the verb are generally effected by the tones of the tense-aspect-mood system. We shall not delve into great detail since tone is not the main object of this article.

Morphologically, Ivie distinguishes present, past, and future tenses. The simple past is peculiar in Ivie, in that it is the only marker that is segmentless. It is solely suprasegmental being represented by a floating high tone morpheme in (3a).

(3) **Oti ɔ̀ ↑H**[5] **le** → **Oti ɔ̌ lé**
Oti 3sg PST eat
Oti ate.

The underlying structure of (3a) is presented on the left in order to show the past-tense morpheme represented by the floating high tone. Despite the absence of a morphological marker of simple past between the subject and the verb, the phrase is interpreted as simple past due to the tonal marking on the preverbal pronominal element **ɔ̀** '3sg' and the verb **le** 'eat'. This is shown by the phonologically motivated surface realization on the right. We observe that the high tone past morpheme is attached simultaneously to the pronominal element to its left effecting a rising tone, and also to the verb to its right creating a high-toned verb. We assume that these changes are brought about through the process of bi-directional spreading of the floating high past tense morpheme and its subsequent linking to these morphemes.

The present habitual is expressed by **lǎ** as in (4).

(4) **Oti ɔ̀ lǎ lé**
Oti 3sg PRES.HAB eat
Oti eats.

The present habitual differs from the simple past in (3) only in respect of the tone of the pronominal element **ɔ̀** '3sg'. While the habitual has a low tone pronominal element, the one in the past tense bears a rising tone. We assume that the high tone that the verb eventually bears on the surface is phonologically conditioned by that of the high toned portion of the present habitual marker, which is actually represented as a floating high tone.

The past habitual is characterized by the aspectual morpheme **lě**. This morpheme is translated into English as 'used to'.

[4]The symbol **h** is used in some Edoid languages (Elugbe 1989) to indicate the difference between tense and laxly articulated consonants. /mh/ is a lax consonant, distinct from /m/, which is tense. **vh** corresponds to /ʋ/.

[5]The floating high tone ↑H combines with the low tone of **ɔ̀**, forming a contour tone **ɔ̌**.

(5)

Oti	**ɔ̀**	**lɛ̌**	**lé**
Oti	3sg	PST.HAB	eat

Oti used to eat.

The future tense is characterized by the presence of a tense marker **lâ** in (6), which indicates simple future with both action and stative verbs.

(6)

Oti	**ɔ̀**	**lâ**	**ná**
Oti	3sg	FUT	run

Oti will run.

Oti	**ɔ̀**	**lâ**	**vhésɛ̀shì**
Oti	3sg	FUT	sleep

Oti will sleep.

Contrarily, stative verbs are not expressed by the habitual markers **lǎ** and **lě** as the ungrammaticality of the examples in (7) illustrate.

(7)

***Oti**	**ɔ̀**	**lǎ**	**vhésɛ̀shì**
Oti	3sg	PRES.HAB	sleep

Oti sleeps.

***Oti**	**ɔ̀**	**lě**	**vhésɛ̀shì**
Oti	3sg	PST.HAB	sleep

Oti used to sleep.

The verbal complex in Ivie also consists of other morphemes which bear modality values in the language. As such, structures like those in (8) are attested in Ivie.

(8)

(a)

mhì	**nwémǎ**[6]	**lè**
1sg	must	eat

I must eat.

(b)

mhì	**mâ**	**lè**
1sg	quite.a.lot	eat

I eat a lot.

(c)

mhǐ	**mě**	**lě**
1sg	hardly	eat

I hardly eat.

(d)

mhì	**dóbɛ̀**	**á**	**lè**
1sg	can	PROG	eat

I can eat.

(e)

mhǐ	**dzìlě**	**lě**
1sg	dare	eat

I dare to eat.

Some of these markers like **dóbɛ̀** in (8d) indicate irrealis with future interpretation while the particle **dzìlě** expresses irrealis mood with conditional or subjunctive interpretation (8e).

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[6]An alternative analysis of the modal morphemes in (8) as verbs has not been considered yet. We hope to explore that possibility in another article.

There are three aspect markers: **à**, which indicates progressive aspect (9a), **kê**, past progressive (9b), and **shé**, completive aspect (9c).

(9) (a) **Oti ɔ̀ à lè**
Oti 3sg PRES.PROG eat
Oti is eating / Oti eats.

(b) **Oti ɔ̀ kê lě**
Oti 3sg PST.PROG eat
As Oti was eating.

(c) **Oti ɔ̀ shé lé**
Oti 3sg COMP eat
Oti has eaten.

In Ivie, the negative morphemes **vha** and **òbó** exist. In addition to these markers, negation can be derived tonally. This is characterized by a rising tone on the pronominal element as the examples in (10b) and (10e) show. In (10e), the rejection negative morpheme **òbó** precedes a sentence prior to discourse.

Only in the past negative, as in (10d), do we have a segmental representation **vha**.

(10) (a) **Oti ɔ̀ à kìà swɛ̀swɛ̀**
Oti 3sg PP walk sluggishly
Oti is walking sluggishly.

(b) **Oti ɔ̌ á kíá swɛ̀swɛ̀**
Oti 3sg NEG.PP walk sluggishly
Oti is not walking sluggishly.

(c) **Oti ɔ̌ ↑H kíá swɛ̀swɛ̀**
Oti 3sg PST walk sluggishly
Oti walked sluggishly.

(d) **Oti ɔ̌ vhá ↑H kíá swɛ̀swɛ̀**
Oti 3sg NEG PST walk sluggishly
Oti did not walk sluggishly.

(e) **òbó Oti ɔ̌ á kíá swɛ̀swɛ̀**
NEG Oti 3sg PP walk sluggishly
No, Oti is not walking sluggishly.

In examples (10b) and (10e), we observe that the pronominal elements bear a rising contour tone. Our assumption is that the negative morpheme, represented by a floating high tone, has become associated with the tone of the pronominal element to its left deriving a contour tone. Our conclusion is that when negation is represented segmentally as in (10d), it is associated with a high tone; otherwise it is a floating high when it is segmentless.

In Ivie, it is possible for more than one functional morpheme to co-occur with a given verb and when this happens, there is a rigid order in which the morphemes occur such that a mood particle occurs before an aspect particle, or negation before tense, or negation before progressive aspect. The sequence **dóbɛ̀** and **á** in (8d) illustrate the order mood-aspect. The combinations **vhá** ↑H in (10d) shows the relative order negation-tense.

The order of these functional morphemes of Ivie can be represented schematically as in (11). What is interesting about the verbal complex identified in (11) is that they occur in consonance with the rigid word order of the language (subject verb object) and equally mirrors the syntactic projection of functional heads in Ivie. Aspect is closest to the verb stem, then mood, then tense, and negation is the furthest from the verb stem.

(11) (a) Order of functional heads in Ivie:
Negation-Tense-Mood-Aspect (verb stem)

(b) Scope of functional heads:

```
Agreement Phrase = (AgrP)[7]
/ \
   Agreement = (Agr)
   / \
      Negation Phrase = (NegP)
      / \
         Tense Phrase = (TP)
         / \
            Mood Phrase = (MoodP)
            / \
               Aspect Phrase = (AspP)
               / \
                  Verb Phrase = (VP)
                  / \
                     Verb = (V)
```

The facts of Ivie illustrated in the foregoing show that the internal order of functional heads in Ivie does 'mirror' their scope order. This is in line with Baker's (1985) "Mirror Principle",[8] which states that the order of surface elements must reflect the order in which the derivations take place.

With the enriched syntactic structures introduced in the era of functional categories in generative grammar, the relationship between morphology and syntax has been arguably expressed as the concatenation of inflectional morphemes through syntactic head movement. Baker (1985) notes that syntactic head movement often "mirrors" the linear order of morphemes, especially in morphologically complex languages. But

[7]We shall adopt the general hypothesis of the 'Principles and Parameters' approach (Chomsky 1993, 1995) where the grammar of a given language is determined by a small set of invariant principles in combination with parameters of variation. In particular, we shall appeal to the 'Checking Theory'. This theory allows lexical items to be inserted from the lexicon fully inflected; and their morphological features (agreement and case features for arguments, agreement and tense features for lexical heads) must be checked off at some point of a derivation to the logical form (LF). Only compatible elements are combined so that all the relevant morphological features can be checked and the derivation does not crash. We therefore assume that, in Ivie, all predicates are inserted in fully inflected forms into the syntax. Thus, a verb like **kìà'** 'walk' in (10a) will be identified in the lexicon by a set of phonological features, and the categorial properties [+verb, –noun] and inflectional verb-features (number and person agreement, tense, mood, and aspect). But since the Ivie verb is invariable, our assumption is that these morphemes are represented by discrete functional elements. We have adopted the agreement phrase (AgrP) structure proposed in Chomsky (1993), where Agr(eement) is the node containing the features of agreement.

[8]The Mirror Principle (Baker 1985) stipulates that "morphological changes take place in exactly the same order as the associated syntactic changes".

Halle and Marantz (1993) and Noyer (1992) observe that this is not always the case. There may not be a one-to one relationship between a syntactic head and the position and form of its phonological realization.

However, we observe that the linear order of Ivie verbal morphemes illustrated by (11a) can be derived entirely in the syntax, since it is a direct mirror image of the morphological structure. Therefore, we hypothesize that the ordering of inflectional morphemes in Ivie is based on syntactic functions. This is in consonance with the hypothesis propounded by Bybee (1985) which states that the more relevant the meaning of the affix to the verb, the closer to the verb base the affix will appear (see 11b).

Ouhalla (1991) has used data from Berber and Arabic as morphological evidence for cross-linguistic variation in the hierarchical arrangement of functional heads. This is shown in (12) and schematized in (13).

(12) (a) Berber

ad-y-segh	**Mohand**	**ijn**	**teddart**
will(TNS)-3MASC:SG(AGR)-buy	Mohand	one	house

Mohand will buy a house.

(b) Arabic

sa-y-ashtarii	**Zayd-un**	**dar-an**
will(TNS)-3MASC:SG(AGR)-buy	Zayd-NOM	house-ACC

Zayd will buy a house.

(13) Arabic, Berber French, Italian

```
(a)  TP             (b)  AgrP
     /\                  /\
       T'                  AgrP'
      / \                  / \
     T   Agr             Agr  TP
```

Ouhalla's contention is that, in Arabic and Berber, Agr(eement) is ordered outside T(ense) since the future markers **ad** and **sa** (FUT) are realized at the left-edge of the verb, outside the marker for third masculine (-y-). This order is, of course, different from that observed in French and Italian.

We shall show in a later subsection that the sequences of formatives in (13b) reflect the basic underlying syntactic structure in Ivie. Using data from Ivie, we shall also show, in contrast to Travis (1984), Baker (1988), Chomsky (1989) and Pollock (1989), that the head-movement parameter has to be reset to accommodate language variations. In the next section, we shall propose a syntactic analysis of these tense-mood-aspect markers in Ivie.

2.2 SYNTACTIC STRUCTURE OF IVIE VERB

In this section, we adopt the layered VP analysis proposed in Chomsky (1989) and Pollock (1989), in which the component parts of verbal inflection (INFL) such as tense, mood, aspect, negation, and agreement (AGR) are split apart. Each is argued to head its own maximal projection. This analysis is motivated by word order facts of the language (SVO). In adopting this analysis, the morphemes representing tense-mood-aspect will be assumed to head their own maximal projection. We posit a NEG projection before mood, and aspect. Thus, the phrase structure of Ivie is presented as (14). All slots may or may not be filled at the same time in the language.

(14) [NEG [TP [MoodP [AspP [VP]]]]]

The markers of 'past' and 'future' are realized under the tense projection (TP).

(15)
```
   TP
  /  \
 T    VP
(↑H)
(lâ)
```

The mood projection (MoodP) hosts the modality markers **dóbɛ̀**, and others in this category.

(16)
```
 MoodP
 /     \
Mood   VP
[dóbɛ̀]
```

Following Kayne (1989) and Zanuttini (1991), we assume that negation is generated in the head of NegP in Ivie.

(17)
```
NegP
 /  \
NEG VP
[vhá]
```

Finally, The aspect projection (AspP) is the location of the progressive aspect marker, **à**, the past progressive, **ke**, and the completive aspect, **shé**.

(18)
```
AspP
 / \
   ASP'
   / \
ASP  VP
  |
[à, kê, shé]
```

To summarize this section, we have assumed based on cross-linguistic evidence (see Rottet (1992), Déprey and Vinet (1992)), that tense-aspect-mood and negation in Ivie should be analysed as heads of their own maximal projections.

2.3 VERB MOVEMENT IN IVIE

Within the minimalist framework of Chomsky (1993), overt movement of functional items is determined by the interplay between the constraining principle of last-resort ("don't move unless you have to"), and a set of TRIGGERS for movement ("you don't have to move"). But in Chomsky (1995), focus is shifted to the target, and it is the features of the target that trigger movement. Consider (19).

(19) X Y Z

X attracts the movement of Z. Z does not have to move if it is not attracted to do so by X, that is, the target. It has been shown in the literature that overt movement in one language, triggered by parameterized properties relevant at the phonetic form (PF), will correspond to covert movement in another (Ouhalla 1991; Wilder and Cavar 1994; Chomsky 1993, 1995).

In assuming the lexicalist treatment of the formation of inflected verb forms, finite verb forms are thus inserted in the syntax under the verb-node, and not created in the syntax via movement of a verb-stem into an uninflected-node containing inflectional affixes. In some languages like French and English, the inflectional heads (T, AGR, Asp, Mood) dominate feature matrices, but no (affixal) phonetic-forms. Raising of the finite verb into the inflectional-node(s) is therefore forced by the need for the morphological-features of the verb and those contained in it to be checked. This is illustrated from Chomsky (1993) by the structure in (20).

```
(20)      AgrP
          /    \
          Spec  Agr'
          |      / \
          |    Agr   TP
          |     |    / \
          |     |   T°   AgroP
          |     |   |      /   \
          |     |   |    Agro  VP
          |     |   |     |    / \
          |     |   |     |  DP    V'
          |     |   |     |  |     /  \
          |     |   |     |  |    V    DP
          |     |   |     |  |    |    |
    (a)   John 3sg PAST  3sg t  kissed Mary(English)
    (b)   Jean[embrasse] t    t  t  t  Marie (French)
```

In these examples, the subject has raised from its base position (specifier (SPEC), verb phrase (VP)) to the specifier of the agreement subject phrase (AgrP), while the object determiner phrase (DP) remains in the verb phrase (VP). We also observe that the verb-constituent adjoined to the agreement subject node (AGR) in (20b) is the complex verb-agreement object - tense [[V-AGRo] -T] formed by successive adjunction of the finite verb to the intermediate heads in the tree structure. In the Ivie example given in (21a) and structurally represented in (21b), we observe that only the subject is raised.

(21) (a) **Oti ɔ̆ lé émìnàlé**
Oti 3sg PST eat.food
Oti ate food.

```
(b)   AgrP
      /      \
  Spec      Agr'
   |        / \
   |     Agr  TP
   |      |   / \
   |      |   T°
   |      |   |      VP
   |      |   |      / \
   |      |   |    DP   V'
   |      |   |    |    / \
   |      |   |    |   V  DP
   |      |   |    |   |   |
  Oti_i   ɔ̌   PST  t_i  lé émìnàlé
```

Recall that past in Ivie is segmentless. In order for the derivation to converge, the phonological tone marking has to be checked in the phonological interface. If the high tone is not there, then there will be no convergence. Therefore, the absence of V-to-AGR movement in Ivie observed in (21b) is not due to absence in AGR of a functional element that requires to be bound. The element is quite present in AGR. We assume that movement does not take place because V checks for those features locally under adjacency since it is next to the inflectional node (I) and the maximal projection I is either [past, aspect, or mood]. The verb thus checks for the features it needs. The case of Ivie is different in that tense, aspect, and mood, as we have already illustrated, have phonetic forms. And since these are free standing, they serve as barriers to movement. In what follows, we provide evidence in support of the absence of V-to-I raising in Ivie.

2.3.1 The negation test

In a number of languages, it has been shown that negation has a blocking effect on movement. The presence of NEG as head of its functional category as evident in English DO-SUPPORT phrases, exemplified in (22), blocks head movement in that language (Ouhalla 1991).

(22) (a) Mary likes apples.
     (b) Mary does not like apples.

The same argument put forward for English by Ouhalla can also be extended to Ivie data in (23). We assume that 3sg, NEG, and PST as preverbal particles which are non-affixal since the verb in Ivie is invariable. Another reason for the blocking of movement by NEG could well be that the verb in this instance (23b) does not bear agreement features to motivate its raising to AGR. The structure of (23b) is illustrated by (24).

(23) (a) **Oti ɔ̌ lé émìnàlé**
     Oti 3sg PST eat.food
     Oti ate food.

     (b) **Oti ɔ̌ vhá lé émìnàlé**
     Oti 3sg NEG PST eat.food
     Oti did not eat food.

(24)
```
         AgrP
        /    \
     Spec    Agr'
      |      /  \
      |    Agr   NegP
      |     |    /   \
      |     |          Neg'
      |     |          /  \
      |     |        Neg  TP
      |     |         |   / \
      |     |         |     T'
      |     |         |    /  \
      |     |         |   T    VP
      |     |         |   |   /   \
      |     |         |   |  DP    V'
      |     |         |   |   |    /\
      |     |         |   |   |   V  DP
      |     |         |   |   |   |   |
     Oti_i  ɔ̃        vhá PAST t_i lé  émìnàlé
```

In this derivation, the presence of TP and NEG block the movement of the verb **le** 'eat', since head movement constraint and relativized minimality (Rizzi 1990)[9] require a head to move to the first adjacent head (that is, a head position cannot be skipped over). Thus, in (24), V cannot get to I without first landing in T and then NEG, the two intervening head nodes. Therefore, if T and NEG are already filled by non-affixal heads, the movement is blocked.

In our analysis above, we have assumed, following Kayne (1989), Pollock (1989), and Zanuttini (1991) that **vhá** 'not' is [+neg] and head of NegP. It cannot be modified like **pas** 'not' in French **(presque pas)**, and it is also not a specifier since the verb cannot move over it. But Di Sciullo and Tremblay (1996), based on data from Quebec French, argue that all heads of the category NEG cannot be specified always as [+neg]. They propose that, in Quebec French, **non** 'no' is [+neg] whereas **ne** 'not' is not. This will not be discussed since it does not form part of our analyses.

We observe, however, that there is a notable difference between the phenomenon observed in Ivie and languages like Louisiana Creole. Consider Rottet's (1992) examples in (25).

(25) (a) **mo** **mozh** **pa**
I eat NEG
I don't eat.

(b) **mo** **pa** **mõzhe**
I NEG eat
I haven't eaten.

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[9]Rizzi (1990) mentions a locality condition on chains for an element to move to the closest potential landing site, where "potential" means a c-commanding position and of the same type chain (A-, A'-, or head-chain). Thus, the derivation in (i) is a violation of the relativized minimality if the chains (α_i, t_i) and (β_j, t_i) are of the same type: α_i has skipped over a closest potential landing site, the position occupied by β_j.
(i) [XP α_i [YP β_j [ZP t_i [...t_j...]]]].

Ouhalla (1991) and Rottet (1992) explain this phenomenon in both languages by arguing that the negative morphemes observed in (25a) and (25b) are realized in [SPEC NegP], thus allowing for verb movement.

For Rottet (1992), the verb in Louisiana Creole in (25b) above has not undergone any verb movement and appears within the VP, as indicated by the fact that it follows **pa** 'not', the negative adverb. As a result, it does not bear tense features. In (25a), however, **mozh** has raised to T, as shown by its placement to the left of **pa** (26), and, as a result, bears tense features. Tense is not marked by any overt morpheme, but rather by the absence of the final vowel as seen in **mõzhe** 'eat' → **mozh**.

(26)

```
          IP[10]
         /    \
     Spec      I'
      |      /    \
      |     I     NegP
      |     |    /    \
      |     |    |    Neg'
      |     |    |    /  \
      |     |    |  Neg  VP
      |     |    |   |    |
     mo   mozhi  pa  t_i  t_i
```

Aside from the negative morpheme just illustrated by the structure in (24), it has been previously shown (10b) that there is yet another exponent of negation in Ivie which is represented only suprasegmentally. Compare (27a) and (27b).

(27) (a) **Oti ɔ̀ lâ bɛ́**
Oti 3sg FUT come
Oti will come.

(b) **Oti ɔ̌ lâ bɛ̀**
Oti 3sg NEG.FUT come
Oti will not come.

This is another instance showing that NEG occurs in a position other than the head of VP in Ivie. Observe that the function word that bears this negative marker is the preverbal pronominal element **ɔ̌**.

2.3.2 Placement of adverbs

Another piece of evidence against verb movement in Ivie comes from placement of adverbs. Chomsky (1993, 1995) maintains that adverbs are adjoined to VP. But we know that in languages like French, VP adverbs can adjoin to several different positions including VP, TP, and NegP (Ouhalla 1991 and Pollock 1989). In Ivie, the adverb is base-generated on the VP, and the position of the adverb relative to that of the verb as in (28), suggests that the verb has not moved.

(28) **Oti ɔ̀ kɛ̀lì dzè ókì**
Oti 3sg often go market
Oti often goes to the market.

---

[10]IP refers to the inflectional phrase, while I refers to the inflections.

A similar example in French shows that V moves to AGR over the adverb in the syntax, giving the order verb - adverb - object, as in (29).

(29) Jean embrasse souvent Marie.
Jean kisses often Marie.

Costa (1996) also provides evidence from Portuguese for the existence of short-verb-movement (that is, movement up to a functional projection which is not the highest in the structure) by assuming that the same adverb can be base-generated in different positions. Let us consider the Portuguese examples from Costa (1996) in (30).

(30) (a) o Paulo beija frequentemente a Maria
the Paulo kisses often the Maria
(b) o Paulo frequentemente beija a Maria
Paulo often kisses Mary.

According to Costa, the verb in (30a) has moved to an intermediate position based on minimalist assumptions. Though the structure in (30a) corresponds to that of French in (29), we note that (31b) does not exist in French (31a), just as (31a) does not exist in Ivie syntax. Ivie disallows a VP-adverb to appear between a verb and its object as (31b) exemplifies.

(31) (a) *Jeansouvent embrasse Marie
Jean often kisses Marie
(b) ***Oti ɔ̀ dzé kɛ̀lì ókì**
Oti 3sg go often market
(c) ***Oti kɛ̀lì ɔ̀ dzé ókì**
Oti often 3sg go market

The fact that the verb does not move over the adverb in Ivie accounts for the ungrammaticality in (31b) while the reverse is the case in the French example (31a). On the other hand, if an adverb or any other lexical material is allowed to intervene between the noun phrase and the agreement marker as in (31c), ungrammaticality sets in because the agreement marker must be obligatorily adjacent to the local subject noun phrase (Oti) with which it shares all the phi-features [αgender, βnumber, and person]. This accounts for agreement under a spec-head relationship which obtains in the language. The position of the adverb in (31) is illustrated by (32).

(32)
```
        AgrP
       /    \
   Oti_i    Agr'
            /  \
         Agr    AdvP
          |     /  \
          ò     Adv'
               /  \
            Adv   VP
             |   /  \
            klì t_i  V'
                    /  \
                  dzé   ókì
```

From the foregoing, we assume that since the position in (32) will place the adverb to the left of the verb, it follows then that when the verb does not move, it will always come after the adverb as the Ivie example in (28) shows. This also shows that the verb in Ivie does not overtly move in the syntax to agreement position to check for its morphological features but remains in place.

In summary, the facts discussed in this article lend support to the decomposition of IP into independent projections headed by the subcomponents of INFL (tense, AGR...) initiated in Pollock (1989).

In order to test verb-movement, evidence from adverb and negation placement tests show that main verbs do not overtly move in Ivie, but do so at the logical form. This is in line with Chomsky (1993).

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