

Preface

The papers in this volume are based on talks presented in the Lexicon Seminar at MIT in the fall of 1987. These papers explore a range of approaches to aspect and examine its place in generative grammar. Aspect, by which we mean the internal temporal structure of events, is a fundamental feature of natural language, but it has received little attention in many current theories of generative grammar. This is unfortunate, because aspect is a meeting ground of syntax and semantics, and therefore a fertile area for study.

The papers fall into two general categories. The first group places its main emphasis on lexical semantics; the second on syntax. The first three papers focus on issues surrounding the representation of meaning. Tenny proposes that the mapping between thematic roles and syntactic structures is mediated by the aspectual properties of thematic roles, and particular aspectual properties are associated with particular syntactic positions. Pustejovsky discusses a calculus for the event structures of verbs, which permits a fine-grained and restrictive characterization of the lexical semantics of verbs. In Pustejovsky's calculus of aspect thematic roles are derivative notions. Hale and Keyser do not specifically mention aspect in their paper, but they are concerned with elucidating the internal structure of the events expressed by verbs that participate in ergative and middle constructions. They represent these events as complex structures, organized in such a way that certain syntax-semantics linkings may be predicted. All three papers include proposals for constraints on or principles governing the internal structure of events as expressed by natural language.

The second group of papers approaches aspect from a more syntactic perspective. Cheng discusses the "ba-" construction in Mandarin and shows that this syntactically interesting construction correlates with certain aspectual properties. Roeper discusses the changes in aspect that accompany nominalization of English verbal compounds, and proposes that these changes arise from syntactic constraints on their derivation. Manfredi looks at verb movement in Åbø, and proposes an account of that phenomenon which entails a syntactic projection of aspect. Each of these three papers focuses on some correspondence between aspect and syntax.

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Lexicon Project
Center for Cognitive Science
MIT
Cambridge, MA 02139

Table of Contents

Victor Manfredi

Harvard University and Projet de linguistique africaniste, U. Q. à M.

Preface	i
The Aspectual Interface Hypothesis: The Connection between Syntax and Lexical Semantics Carol Tenny	1
The Geometry of Events James Pustejovsky	19
Explaining and Constraining the English Middle Ken Hale and Samuel Jay Keyser	41
Aspect and Compounds: Syntactically Constrained Semantics Thomas Roeper	59
Aspects of the Ba-Construction Lisa Lai Shen Cheng	73
Aspect, V-movement and V-incorporation in Àbẹ̀ Victor Manfredi	85

1. The complementarity hypothesis

Àbẹ̀, a western Kwa language of Côte d'Ivoire, is consistently head-final in its nonverbal projections. There is also evidence that its phrasal V-projection is head-final, but surface OV order is observable only in 'tenseless clauses' (Tellier 1986), as in (1a). Otherwise, Àbẹ̀ is consistently verb-second (V2), as in (1b):

- | | |
|------------------------|--|
| (1a) m̄ dá [sáká dí] | 'I (have) started to eat rice' |
| 1sg begin rice eat | |
| (b) mà dí sáká | 'I did not eat/have not eaten rice' |
| 1sg eat rice | |
| (c) m̄ yē dá [sáká dī] | 'I did not start/have not started to eat rice' |
| 1sg NEG begin rice eat | |
| (d) m̄ yē dí sáká | 'I did not eat/have not eaten rice' |
| 1sg NEG eat rice | |

(Lexically, the verb 'eat' bears high tone. The 'mid'-high contour tone on dī 'eat' is one puzzle, to be discussed in section 2.3 below.)

A traditional analysis of the bracketed construction in (1a, c) calls dí/dī an infinitive (N'Guessan, p. c.). One could alternatively regard it as a participle heading a nominal compound, to be glossed 'rice-eating'. Let us however follow Tellier in assuming that the lower verb in (1) is not nominalized.¹ Because of the absence of ECM phenomena (which are missing in Kwa languages quite generally), it is possible to analyze OV cases like (1a) as deriving from a

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¹Àbẹ̀ allows [O Det] V, and it would be important to try this structure in an example like (1a). A grammatical result would argue decisively against a nominalization.

complex predicate as in (2), where the higher verb, which selects for a VP complement, is affixed to the lower one:

- (2) [[sáká dí] -dá] [VP_i [VP_j rice eat] begin] 'start eating rice'

From head position, the verb 'begin' moves to V2, leaving behind a trace governing the lower verb.

There is no reason not to regard examples like (1a) as monoclausal in Àbẹ̀, because there is never an overt embedded subject without a complementizer, and 'control' of the lower verb by the matrix subject is automatic. In this situation, postulating PRO-plus-infinitive is unmotivated.

Evidently, V-movement has occurred in both (1b) and (1d).

The neighboring Kru languages share with Àbẹ̀ a pervasive V2 pattern, although its exact distribution differs both within Kru and between Kru and Àbẹ̀. Koopman 1983 reports a complementary distribution between S V O and S Aux O V sentences in Vata (Vátawì, Dida cluster of Eastern Kru) and Gbadi (Bete cluster of Eastern Kru). This can be seen in (3):

- (3a) n lì saká 'I ate rice' (Vata)
1sg eat rice
- (b) n ká saká li 'I will eat rice' (Vata)
1sg FUT rice eat

Koopman develops a V-movement account of Kru V2 whereby the structure S INFL O V requires that an empty INFL be filled in order to assign Nominative Case. INFL is empty, requiring V-movement, just in case there is no Aux (as in 3a). I will refer to this generalization as the complementarity hypothesis.

This complementarity is not complete in Kru, however, unless certain aspectual morphemes are analyzed as something other than Auxes (i.e. as 'particles' or aspectual affixes). The issue is difficult to judge from published evidence (I have no direct knowledge of Kru languages). But it is clear that the non-circular assignment of a given aspectual element to Aux cannot be based simply on the diagnostic of V-movement.

- (3a) e ne fe ka 'I am not strong' (Neyo, Eastern Kru)
1sg NEG strength have
- (b) ma ne wa yo la 'But I didn't bring the child' (Neyo)
but 1sg.NEG PAST child bring
- (c) né mla dili-no 'I don't drink raphia wine' (Neyo)
1sg.NEG-IMPF drink raphia-wine

To explain this difference, Marchese regards the imperfective morpheme as a non-Aux, an affix on the subject, while the negative morpheme must be for her an Aux (at least in (3a)). The problem then is why NEG is not also an Aux in (3c). In this example, therefore, V-movement seems to depend primarily on an aspectual difference, which is translated only with difficulty into Aux/non-Aux complementarity.

Again, in (4), from Western Kru (Marchese 1981:16), V-movement applies to the aspectual verb 'finish' despite the presence of a perfective Aux. (Àbẹ̀ and Eastern Kru lack perfective auxiliaries, so this combination cannot be tested there.) But the similar, non-aspectual verb 'stop' does not move, as predicted.

- (4a) ɔ nà kwɛ wólò tɔ 'He has stopped washing clothes' (Dewoin, Western Kru)
3sg PERF clothes wash stop
- (b) ɔ nà gwɛ kwɛ wólò 'He has finished washing clothes' (Dewoin)
3sg PERF finish clothes wash

It is possible to fit these facts into the complementarity hypothesis, by treating gwɛ as an affix in a complex Aux, as in (5):

- (5) [Aux [Aux PERF] -finish]

And an analysis appealing to (5) would still be consistent with gwɛ as a head verb (although no example is given).

While the complementarity hypothesis can thus be maintained within Kru, at some minimal cost, the same cannot be said for Àbẹ̀. But without this hypothesis, the theory of V-movement as a structure-preserving, "NP-type" of movement fails completely (Koster 1986). In the following section, I briefly review the anomalous facts as N'Guessan and I have uncovered them. Then in section 3, I will attempt to save the complementarity hypothesis for Àbẹ̀, by extending the representational framework in ways suggested by Fukui 1986, Pollock 1987 and Tenny 1987.

2. Four puzzles in the Àbẹ̀ verb

2.1. Exceptionless S Aux V O

In Àbẹ̀, the presence of an Aux never 'blocks' V-movement, unlike the situation in Kru which occasioned the complementarity hypothesis. Thus, despite the OV evidence of (1a, c), the full set of aspect morphemes all occur strictly with VO:

- (6a) mò dí sáká 'I ate/have eaten rice'
1sg eat rice

- (b) m à y ē d í s á k á 'I did not eat/have not eaten rice'
 1sg NEG eat rice
- (7a) m ē d í s á k á 'I (habitually) eat/ate rice'
 1sg.IMPF eat rice OR 'I am [in the process of] eating rice'
- b) m à y ē d í s á k á 'I do/did not habitually eat rice' (e.g. for 'totemic reasons')
 1sg NEG IMPF eat rice OR 'I am not [in the process of] eating rice'
- 8a) m á d í s á k á 'I am going to eat rice'
 1sg arrive eat rice
- (b) m à y ē ē d í s á k á 'I am not going to eat rice'
 1sg NEG arrive eat rice
- (9a) m à n é d í s á k á... 'I am/was [in the process of] eating rice...
 1sg PROG IMPF eat rice [when something happens/happened]'
- (b) m à j á ā d í s á k á. 'I am just about to be eating rice'
 1sg PROG.IMPF arrive eat rice

Vowel elision has occurred in (7b), and palatalization in (9b), between aspect morphemes which may be considered to form a complex aspect-word. Otherwise the morphemes are readily separable. The future Aux in (8) and (9b) is glossed as the verb 'arrive', with which it is phonologically identical. The question is why V-movement takes place, exceptionlessly, in all Aux sentences of the language.

2.2 'Meeuwsen's rule' in 'INFL'

A number of tonal alternations are visible in examples (6-9). These can be accounted for if 'Mid' is derived by an accentual process which lowers one of two adjacent H tones (in these examples, within the Aspect domain) under the relation of government. It is therefore not so much (10) as (11):

$$(10) [_{\alpha} H [_{\alpha} H]] \rightarrow [_{\alpha} M [_{\alpha} H]]$$

$$(11) [_{\alpha} H [_{\alpha} H]] \rightarrow [_{\alpha} \bar{H} [_{\alpha} H]]$$

The macron in (11) indicates accentual lowering of a toneme, thus a 'local downstep' which is restricted to exactly one tone-bearing unit. (A similar process in Bantu languages has been called 'Meeuwsen's Rule', and I will adopt this label for convenience.)

Notice that Meeuwsen's Rule applies in two directions: leftward from ['] to V (1c), leftward from V to Asp (6b, 7a); rightward from Asp to Aux (8b) and from Aux to V (8a, 9b). The

direction would follow from the relation of government, under the "affix = head" notion of morphology, if Aux and V are affixes on Asp, and Aux is an affix on V.

Meeuwsen's Rule fails to apply in (7b, 9a), where two Asp morphemes combine, evidently creating an opaque domain.

2.3 'Meeuwsen's Rule' in final position

As seen in (1c), Meeuwsen's Rule applies 'leftward' to a verb in final position, which means a verb V2 'stranded' by V-movement out of a head-final V2-V1 complex predicate. This effect is limited to negative sentences with either a complex verb, as in (1c), or a WH extraction, as in (12). Both these structures contain a predicate-final H tone. Note also the 'doubling' of NEG in (12b). (In (12), 'arrive' is used as a main verb not as an Aux):

(12a) m ā b ū á g ē k ū é 'What arrived/has arrived at market?'

WH-thing arrive market

(b) c ā y ē d í s á k á y ē é (* y ē, * y é) 'Who didn't eat/hasn't eaten rice?'

WH NEG eat rice NEG

The final high tone seen in these contours also appears, apparently optionally, in negative clauses with a final NP which ends in a nonhigh tone.

(c) m à y ā á g ē k ū / g ē k ū 'I did not arrive/have not arrived at market'

1sg NEG arrive market

Meeuwsen's Rule requires two conditions: an adjacent, governing V, and an adjacent governing H tone. Usually both conditions are fulfilled by one and the same morpheme: an adjacent, governing H-toned verb. But in this instance, the relation of syntactic adjacency existing between controller verb and contree verb is maintained via the trace, while the H tone, phonologically adjacent on the tonal tier, is supplied by the 'focus' marker. Because the second condition relies on the focus marker, the alternation is observed only in negative sentences and in WH-questions.

[To describe this phenomenon as related to variable binding, reminiscent of the effects discussed by Haik 1988, the subject-WH counterpart of (12) should show the Meeuwsen-type lowering – thus it would predict (13)]

[(13) - hypothetical for the time being]

c ā d á s á k á d í é

'Who (has) started to eat rice?'

WH begin rice eat

2.4 Aspect doubling in serial constructions

As just seen in (12b), NEG is 'doubled' in a WH extraction. Other aspectual elements are obligatorily doubled (or 'tripled') as in (14a-c):

- (14a) M á bọ sáká ó lọ Yàpí. 'I will give rice to Yapi'
 1sg FUT take rice IMPF give
- (b) Yàpí yó ọ ọ sé yé ē yí. 'Yapi will not be able to go'
 NEG FUT have power NEG FUT go
- (c) M̀à yó ọ ọ sé yó ọ bọ sáká yó ọ lọ Yàpí.
 1sg NEG FUT have power NEG FUT take rice NEG FUT give

'I won't be able to give rice to Yapi'

The double/triple aspect-word is an exact copy in negative sentences (14b-c), although this is not the case for the 'double' in affirmative sentences, e.g. (14a).

Welmers 1977 (cited by Marchese 1982) records a superficially similar fact in Western Kru:

- (15) ọ ọ mū sāyè pi-i mū 'He's going to cook meat' (Dewoin)
 3sg IMPF FUT meat cook-NOM FUT

3 Making V-movement work

The four puzzles above all require a modification of Koopman's framework. They strongly suggest that the representation of phrasal constituency assumed by Koopman, even if extended with phrasal projections of functional categories as in *Barriers* (an extension already envisaged in Koopman's book), is not rich enough to yield the facts of Àbẹ under the complementarity hypothesis. Yet this hypothesis is probably the only one which can motivate V-movement.

3.1 Empty INFL and the category V

To pursue the complementarity hypothesis in the problematic Kru cases cited above, Koopman could avoid base-generating Auxes in INFL by treating them as verbs. This would assume that Kru INFL was, parametrically, empty. She does not make this assumption, which is, however, a possible one for Àbẹ and a necessary one for other Kwa languages where a strong case can be made for zero TNS and AGR, i.e. for empty INFL.²

The generality of Meeuwse's Rule across Àbẹ Asp elements, 'Auxes' and verbs, observed above, is further evidence for this move. There is no question that some 'verbs' are strictly aspectual in meaning, cf. the elements IMPF, NEG, PROG in Àbẹ. Yet these verbs constitute the same domain D, with each other or in combination with a 'main' verb, as do two 'main' verbs together.

3.2 Another functional projection

But other verbs are ambiguous between aspectual and 'main' interpretations: e.g. gwẹ 'finish' in Dewoin Kru, and á 'arrive' in Àbẹ. The interpretation of these latter verbs must be the compositional product of their lexical semantics and their configurational position. How is this possible if verb movement is structure-preserving?

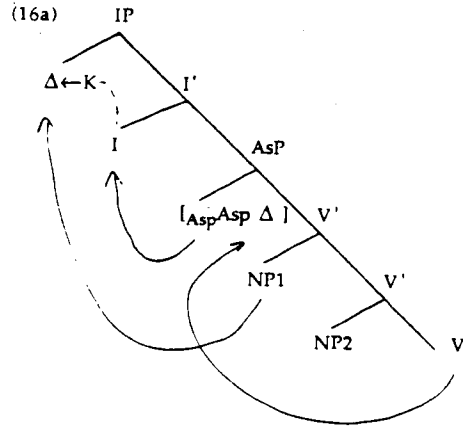
Evidently, empty INFL is necessary, but the standard X-bar hypothesis which has VP as the complement of I is not rich enough. Following Fukui 1986, let us assume that a lexical projection is "closed off" by a functional category which acts as its specifier. A functional category has its own 'specifier position' which, in the absence of expletive material, is the landing site of head movement. Fukui assumes that the functional head of V-bar is INFL, parallel to Det as the functional head of N-bar. I have just shown the insufficiency of this proposal for Àbẹ, but the insight can be carried over to some additional functional head.

We have seen that the elements which are not accommodated by making INFL the specifier of the verb projection are aspectual. Aspect is therefore a natural proposal for the functional head which acts as specifier of the verb projection.

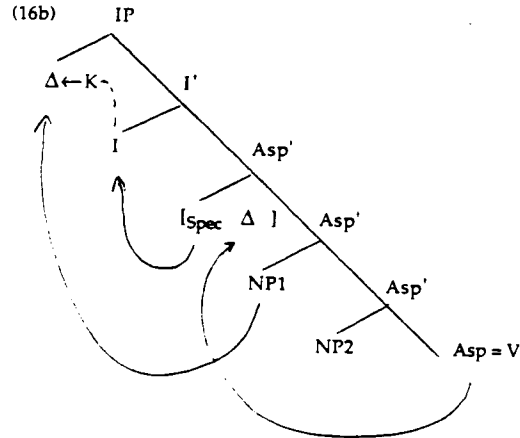
Various D-structure implementations of this idea suggest themselves. (16a), parallel to DP, is the most direct extension of Fukui's ideas.

²Koopman (1983:30) lists a handful of "tense particles" for Vata, although these are unlike English tense in that they are not obligatory for respectively anterior or posterior interpretations. In their fine gradation, and their evident optionality, they resemble adverbs more than tense.

In Kwa languages like Igbo, where lexical membership of the category TNS is claimed by writers such as Winston 1973 and Nwáchukwu 1976, tense effects can be derived, without adverbial mechanisms, from the interaction of aspect with lexical semantics (Welmers 1973, Ézikeòjiàkú 1978, Òwaláàka 1981, Manfredi 1987).



In (16a), aspect is a 'structural' element external to the verb projection. Tenny 1987 has proposed that aspect is immediately implicated in the combination of the verb with its direct argument, the argument that potentially "delimits" it. Extending aspect further down the tree could produce the following representation (Tenny, p.c.):



This tight representation of 'inherent' aspect expresses Tenny's observation that aspect mediates between a verb's lexical representation (i.e. its lexical conceptual structure and argument projection) and its syntax.

In both frameworks, two assumptions hold: that NP1 raises to the SPEC of IP position to receive Nominative Case, and that INFL must be filled to assign this case. The last two sections of this paper examine these alternative D-structures with respect to the Àbẹ̀ data.

3.3 Two-stage V-movement, through Asp

V-movement now emerges as a special case of head movement. Since some aspectual verbs are defective lexical heads, these must be the members of the category Asp. Other verbs' lexical semantics permits them either to be lexical heads or to fill Asp.

When a lexical verb incorporates with an Asp, triggering what descriptively is Meeuwse's Rule in 'INFL', (but actually in Asp), the domain D is simply the word domain. Meeuwse's Rule is thus possibly the simplest morphological tone rule imaginable, comparable to English 'stress subordination'. Its directionality follows from ordinary head government.

Zero Asp with a stative verb receives an unambiguous, and unsurprising, stative interpretation, in every Kwa language with which I am familiar. Zero Asp with an action verb is ambiguously past/perfect in Àbẹ̀, but it is ambiguously past/present in Yorùbá. In the system developed here, this difference must result from the fact that Yorùbá has an overt perfective Asp, while Àbẹ̀ lacks one.

These phonological and semantic facts apparently do not distinguish between (16a) and (16b), although it is perhaps not too strong to say that they are predicted by either one.

3.4 Serialization as lexical affixation of V projections

Aspect 'doubling' in serialization may favor (16b), on the assumption that a serial construction results from the co-linking of the arguments projected two or more verbs (Déchaine 1987a, b). This is because, under (16b), these arguments cannot be projected without Asp.

The challenge is then twofold: how to prevent aspect doubling, in those languages such as Yorùbá which prohibit it; and how to ensure that only aspectual anaphors appear on non non-initial verbs, in languages such as Igbo. These restrictions are probably related to the relative 'freedom' of serialization in each language, which in turn reflects the inversely powerful role of V-incorporation in their grammars.

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