8. Creole tense/mood/aspect systems: the unmarked case?

In this paper I will argue that the pre-verbal particles in the Creole languages that indicate tense, mood, and aspect constitute unmarked auxiliary systems, which have emerged in the process of the acquisition by pidgins of native speakers (Sankoff & Laberge, 1973).

After presenting some of the basic data (section 1), and earlier historical and universalist explanations for them (sections 2 and 3, respectively), I will try to elaborate a theoretical framework accounting for the data along the lines of Steele's universalist theory of Aux (Steele, 1978; Akmajian, Steele, and Wasow, 1979) and Woisetschläger's theory of aspect interpretation (section 4). In section 5 individual Creole auxiliary systems are examined, and in section 6 problems with the framework presented are discussed.

1. THE PROBLEM

We find in the Creole languages, which are only partially related to each other historically, and spoken in places widely distant from each other such as the Caribbean, the Gulf of Guinea, the Indian Ocean, South East Asia, and the South Pacific, pre-verbal particle systems that resemble each other closely.

Examples of these particles include the following:

(1)  \textit{m te vini} HAITIAN (Haiti) - French
    \text{I tns come}
    \text{‘I came’}

* This paper was presented at the Auxiliaries Festival, Salzburg, August 1979. Although the (ideosyncratic part of) the ideas defended here are my sole responsibility, the data presented in section 5 are based in part on research coming out of two seminars on Creole syntax, Fall 1973 and Fall 1978. I would like to thank F. Booij, M. van Diggelen, B. Jansen, C. Lie, G. Meijer, E. Muller, M. Middelkamp, L. Richardson, R. Römer, N.S.H. Smith, C.E. Snow, J. van Voorst, and M. Whitney for their help. and H. den Besten and C. Lefebvre for their comments on an earlier draft of this paper.
The underlined particles in (1)-(8) do generally not occur as main verbs in the languages cited, although some of them may be historically derived (albeit very indirectly) from verbs or auxiliary verbs in the European languages which have provided the vocabulary for the Creole languages.

The particles indicate tense, mood, and aspect, and in some languages also negation and predicate (such as the predicate marker *i* in (5)). Their similarity was noted quite early by creolists, not so much a phonological similarity as a functional similarity.
There are some distributional arguments for treating these particles as a class: all can occur in the position preceding main verbs in matrix clauses or tensed subordinate clauses (such as relative clauses and sentential complements of verbs of saying and thinking), but none can occur with fronted verbs in predicate clefts:

(9)  
   a. *Wanchu a ganjabo  [PAPIAMENTU]  
       John ASP lie-you  
       ‘John has lied to you’  
   b. ta ganja Wanchu a ganjabo  
       FOC lie John ASP lie-you  
       ‘John really has lied to you’  
   c. *ta a ganja Wanchu a ganjabo

All can occur with the first verb in a chain of serial verbs, but none with any other verb in the chain:

(10)  
   a. *Roy e tyari a pikin go na oso  [SRANAN]  
       Roy ASP carry the child go LOC house  
       ‘Roy takes the child home’  
   b. *Roy e tyari a pikin e go na oso  
      ASP_1 ASP_1  
   c. *Roy e tyari a pikin sa go na oso  
      ASP_1 MOOD_1

With tenseless complements it seems that the situation is more complicated: Some languages seem to allow particles with complements of verbs of wishing etc., others do not.

Thus we see that an argument can be made for treating the pre-verbal particles given in (1)-(8) as a class, in as much as the observations in (9) and (10) are generalizable: as a group, they are admissible in some contexts, but not in others. We do not find that some are possible, but not others, except where specific semantic constraints (involving e.g. stativity or modality) rule out a specific set, but not another one.

2. HISTORICAL EXPLANATIONS

Thompson (1961) and Taylor (1960) noted two facts about the particles:

(a) each Creole language tends to have three of them: a past tense marker; a potential mood marker; and a durative aspect marker;
(b) when we find more than one particle accompanying a verb, the particles always occupy a fixed order: tense, mood aspect, main verb. The combinations of the particles are interpreted in fixed, and rather complex ways.
The following list, which appeared in Voorhoeve (1973) and is based largely on Taylor (1960), gives the three particles for a number of Creole languages:

<table>
<thead>
<tr>
<th>Language</th>
<th>Tense</th>
<th>Mood</th>
<th>Aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saramaccan</td>
<td>bi</td>
<td>sà/ò</td>
<td>tá</td>
</tr>
<tr>
<td>Papiamentu</td>
<td>taba</td>
<td>lo</td>
<td>ta</td>
</tr>
<tr>
<td>Hongkong Macanese</td>
<td>ja</td>
<td>logo</td>
<td>ta</td>
</tr>
<tr>
<td>Indo-Portuguese</td>
<td>ja</td>
<td>di</td>
<td>ta</td>
</tr>
<tr>
<td>Philippine Creole</td>
<td>ya</td>
<td>de/ay</td>
<td>ta</td>
</tr>
<tr>
<td>Cayenne Creole</td>
<td>te</td>
<td>wa/ke</td>
<td>ka</td>
</tr>
<tr>
<td>Lesser Antilles</td>
<td>te</td>
<td>ke</td>
<td>ka</td>
</tr>
<tr>
<td>Haitian</td>
<td>te</td>
<td>ava</td>
<td>apé</td>
</tr>
<tr>
<td>Jamaican</td>
<td>ben</td>
<td>wi</td>
<td>a/da</td>
</tr>
<tr>
<td>Sranan</td>
<td>ben</td>
<td>sa/go</td>
<td>(d)e</td>
</tr>
<tr>
<td>Krio</td>
<td>bin</td>
<td>go</td>
<td>dè</td>
</tr>
<tr>
<td>Negerhollands</td>
<td>ha</td>
<td>lo</td>
<td>le</td>
</tr>
<tr>
<td>Caboverdiano</td>
<td>ja</td>
<td>lo</td>
<td>ta</td>
</tr>
</tbody>
</table>

This list, although in part inaccurate and incomplete, gives an impression of the remarkable uniformity existing in this respect among Creole languages of widely different areas and of widely different lexical origins.

Taylor and Thompson, and later Voorhoeve, tried to explain this similarity in historical terms, by appealing to the existence of a Portuguese-based trading and slaving pidgin in many parts of the world during the 16th and 17th centuries. This Portuguese pidgin would have possessed the tense, mood, and aspect particles, and the Creole languages listed in (11) would be historically derived from this Portuguese pidgin through the process of relexification. Relexification is the massive substitution of vocabulary while maintaining basic grammatical structure.

The historical explanation claims that the peculiarities of the Creole tense/mood/aspect system are a historical accident, going back to the Portuguese pidgin. No claims are made concerning the universality of this system.

3. UNIVERSALIST EXPLANATIONS

Bickerton’s paper ‘Creolization, Linguistic Universals, Natural Semantax and the Brain’ (1975) attempts to explain the similarities between the preverbal particle systems of the Creole languages by appealing to universal features of human perception.
The three distinctions which can be made, according to Bickerton, are:

(12) \[ \alpha \text{ anterior} \quad \beta \text{ irrealis} \quad \gamma \text{ nonpunctual} \]

These are precisely the distinctions necessary since (1975: 19):

In order to operate it, a speaker needs to be able (a) to know the order in which past events occurred (b) to distinguish between sensory input and the product of his imagination (c) to tell whether something happened once only, or was either repeated or protracted in some way (d) to distinguish states from actions. The first three capacities underlie the anterior, irrealis and nonpunctual categories respectively. . . .

In other words, just as our articulatory mechanism is secondary (i.e. based on adaptations designed for more efficient breathing, eating, etc.), so our semantactic mechanism is secondary, being based on perceptual and cognitive processes which are probably common to other higher mammals.

Bickerton makes no attempt to explain the position of the pre-verbal particles within the sentence, and he acknowledges that the order of the particles is unexplained in his theory. In fact, since he assumes left-to-right processes, ordering \( \alpha \text{ anterior} \) before \( \beta \text{ irrealis} \) is slightly unnatural, as he notes, since the speaker has to decide first whether an action takes place before another one before he has to decide whether the action takes place at all (1975: 21).

Another attempt to deal with the Creole pre-verbal particles in universalist terms is made in Labov (1971), ‘The Adequacy of Natural Language I: the Development of Tense’. Labov stresses the necessity for natural languages to have a range of stylistic options to express a given notion, e.g. futurity, and claims that auxiliaries, but not time adverbs, lend themselves to phonological reduction in a way which satisfies the requirement of stylistic adequacy. This requirement sets in motion a chain of auxiliary expansion and phonological reduction processes.

Labov’s theory contributes to an explanation of why we might have a category Aux, but not why certain elements would need to be part of that category. To be fair, Labov's theory does explain the fact that the particles appear adjacent to the verb: they do not form an independent stress-cycle and are cliticized to it.

4. A THEORY

The historical explanations sketched in section 2 are inadequate on three counts:
(a) There are, as Bickerton argues, Creoles which can be demonstrated to have no historical relation with the putative Portuguese pidgin, but which do show the relevant order of pre-verbal particles;

(b) It is highly unlikely that the Portuguese trading pidgin in use had anything like the developed tense/mood/aspect system that would lead to the similarities between the Creole systems. None of the pidgins known today has a tense/mood/aspect system comparable to that of the Creoles mentioned in (11).

(c) Why would the Creoles have inherited the complex pre-verbal particle system in its entirety, but not basic aspects of the grammar such as marking of grammatical relations, where we find differences between the languages cited? That the pre-verbal particles were relexified would only be plausible if the system constituted the unmarked case; this would lead us back to independently needed universalist explanations.

The universalist explanation given by Bickerton (1975) is inadequate because it only suggests that three particular semantic features, i.e. [α anterior], [β irrealis], and [γ nonpunctual] are needed. It does not explain why these features should be realized as particles which appear to form one constituent, why the particles should appear in pre-verbal position, and why they should be ordered in a particular way. Furthermore, his 'semantactic' account in terms of brain functions will remain arbitrary until we know a lot more about the functioning of the brain.

Labov's theory, as was noted before, does not explain all there is to explain.

The theory proposed here has the following features:

\[(13) \quad S \rightarrow NP, \text{Aux, VP, } \ldots\]

This base rule states that in every natural language there is a category Aux. While pidgins may or may not have an Aux, as soon as they become creolized, i.e. become native languages, they must have one.

We will assume that the elements exemplified in (1)-(8) and argued to form a coherent class in (9)-(10) are dominated by this Aux node. We would like to claim here, however, that the universal constraints on phrase structure rules do not specify which constituents Aux must or may have. From the point of view of the syntax, the node Aux may dominate any element. We could formulate a filter as in (13) ruling out Aux expanding to elements which are [+N] (presumably, NP and AP):
(14)  * Aux
      \[+N\]

This claim may be correct as far as NP's which arguments is concerned; these elements do not occur in auxiliary positions, as far as we know. It may be, however, or at least it is conceivable, that in some languages non-arguments such as two years ago or tomorrow could occur in Aux. Similarly, adverbs, which may have the feature specification \([+N, +V]\), could conceivably occur in Aux. We will argue below that the empirical claims which we want to make with filter (13) can also be made with an appropriate Aux interpretation rule.

It may be more plausible to impose the restriction on the expansion of Aux that it may not involve headed elements:

(15)  * Aux
      \[X^n\], where \(n \geq 1\)

This would guarantee that, whatever is the internal structure of Aux, it is a relatively shallow one. It may be, of course, that the restriction expressed in (15) is not specific to Aux, but holds for all minor categories. Thus we will hold on to the claim that the internal structure of Aux is unspecified in the syntactic component of universal grammar.

The second feature of the theory proposed here is:

(16)  Semantic interpretation involves two components (cf. Chomsky's 'Conditions on Rules of Grammar' (1976)): SI-1, constrained by principles of core grammar, and SI-2, determined by the interaction of pragmatic, lexical, cognitive, and other considerations. The elements in the auxiliary, which may include tense, mood, and aspect, are interpreted by component SI-1. The interpretation rule can roughly be formulated as follows:

\[
[S \ldots [\text{Aux} \ T_i, M_j, A_k, \ldots] \ldots]
\]

is interpreted as:

\[
T_i \ M_j \ A_k \ (P),
\]

where \(P\) corresponds to the propositional content of \(S\).

This claim runs counter to Labov's suggestion that (1971: 70):

'There is no basis for arguing that tense markers express the concepts of temporal relations more clearly than adverbs of time.'
I claim that the system of adverbs indicating time, mood, and aspect that we find in pidgins is not interpreted in SI-1, and is not determined by sentence grammar. Indeed we find that time etc. interpretation in pidgins is heavily dependent on contextual clues, discourse structure, etc. (Labov, 1971; Sankoff & Laberge, 1973).

Note that there may be other rules of interpretation that can have elements of Aux as part of their input, such as NEG interpretation in those cases where negation is dominated by Aux and has sentential scope. We would like to claim that in those cases the specification of the \([Aux \ldots]\) boundary is not crucial to the rule, and that only the boundaries of the higher category, that is S, count. The claim would be then, and this does impose limits on the internal constituency of Aux, that only those elements can appear in Aux that are interpretable at the S level, and that can have the proposition contained in S as their scope.

Features (13) and (16) provide an explanation for the fact that, as part of the process of creolization, we find a category Aux emerging in phrase structure, and an interpretation rule which can refer to the semantic categories of tense, mood, and aspect in the SI-1 component. (17) attempts to explain the particular position in the sentence of Aux, and the ordering of elements within Aux:

(17) The interpretation of the Auxiliary as described in (16) is constrained by two principles developed by Woisetschlaeger (1977): the TMA ordering principle, and the verbal hierarchy hypothesis.

A. The TMA Ordering Principle
If a and b are each syntactic formatives representing a verbal category, and a is 'closer' to the verb stem than b, then the translation rule for a precedes that for b.

B. The Verbal Hierarchy Hypothesis
Let a and b each be verbal categories. Then if A and B are the semantic domains associated with them, universal grammar fixes the scope relationship between A and B.

These two principles, combined with a principle of universal grammar that specifies that aspect is interpreted before mood, and mood before tense, make two orderings possible of the elements in Aux:

(18) a. T M A / _____VP, VP → V . . .
    b. A M T / VP _____, VP → . . . V

In both cases, Aspect would be contiguous to the verb stem. In (18a) Aux would precede the verb (the SVO case), and in (18b) Aux would follow the verb (the SOV case).
Of course, (17) and (18) claim that languages in which Aux does not occur contiguous to V fall outside the unmarked category of languages; at present we do not know how serious that is. More serious may be that there is no principled reason why Aux interpretation should be sensitive to the position of the verb within the VP; it may be that it is only sensitive to the relative position of Aux and VP, and that the contiguity of Aux and V is accidental from the point of view of the SI-1 component.

The relative order of Aux and VP, and the internal ordering of the Aux, would not be determined by some part of the X convention, but would be imposed by the way the SI-1 component functions. Note that Woisetschläger is quite vague about the notion 'closeness to the verb stem'. At least three possibilities come to mind:

(19a)

Here the categories of tense, mood, and aspect are expressed as suffixes on the verb (the reverse order with prefixes would also be conceivable), and Woisetschläger’s ordering principle would apply within morphology. (19b) is the case where the categories are expressed by elements dominated by Aux (here represented in preverbal position; the reverse order would be comparable). Presumably the Creole languages cited in (1)-(8) would be defined under (19b):

(19b)

In (19c) we find the categories as elements in a complex VP.

(19c)
It may be that the SI-1 rule translating the elements into specifications within a given semantic domain is blind to the non-trivial syntactic differences between these three possibilities, or that in case (19a), for instance, we have to postulate an abstract Aux, which is controlled by the verbal morphology.

I will assume that (19b), where all three categories are represented as part of a syntactically separate Aux, represents the unmarked case. Again, it is not clear to me whether this is an unreasonable assumption or not, given the fact that we know relatively little about the structure of auxiliary systems in different languages (but cf. Steele, 1978).

To account for the specificness of the tense/mood/aspect categories which emerged in the Creole languages, we claim that within each semantic category, tense, mood, and aspect, there is a hierarchy of distinctions, governed by a theory of markedness. This theory would guarantee that in the first stages of the development of a tense/mood/aspect system, as we find in the Creole languages, only unmarked distinctions appear, and that more complex distinctions appear only later.

We will suggest how such a markedness hierarchy might work for the categories tense and aspect; not enough is known about the category mood to draw up a similar system. For the moment it suffices to assume that the distinction between indicative and non-indicative is basic to it.

For the category tense we will assume a system of representation similar to the one proposed by Hornstein (1977), drawing on Reichenbach (1947):

<table>
<thead>
<tr>
<th>Tense/Aspect</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>simple past</td>
<td>E, R _____ S</td>
</tr>
<tr>
<td>past perfect</td>
<td>E _____ R _____ S</td>
</tr>
<tr>
<td>simple present</td>
<td>S, R, E</td>
</tr>
<tr>
<td>present perfect</td>
<td>E _____ S, R</td>
</tr>
<tr>
<td>simple future</td>
<td>S _____ R, E</td>
</tr>
<tr>
<td>future perfect</td>
<td>S _____ E _____ R</td>
</tr>
</tbody>
</table>

Here S refers to the moment of speech, E to the moment of the event, and R to a theoretical entity, the reference point. Thus, the notation S, R, E should be interpreted as the tense in which the reference point, the moment of speech, and the moment of the event temporally coincide, i.e. simple present. On the other hand, S _____ E _____ R, as the tense in which the event is posterior to the moment of speech, but anterior to the reference point, i.e. future perfect. And so on, and so forth.

By assuming ‘dissociation’, i.e. the separation _____ between two moments, to be marked, and ‘association’, i.e. the temporal coincidence of two moments, to be unmarked, and by making the additional assumption that all cases where the moment of the event is posterior to the moment of speech, i.e. S _____ E, are marked, we can draw up the following markedness index:
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This hierarchy of markedness indexes predicts that the present tense is the unmarked case, followed by the simple past, which is the least marked. Hence, the emergence of the feature anterior as the prime tense category in early Creole auxiliary systems would be predicted.

For the category aspect, we might use the theory of aspect proposed in Woisetschlaeger (1977). It will take too long to explain the theory here; we will limit ourselves to a schematic representation of the Woisetschlaeger system and a suggestion of how it might be interpreted by a markedness hierarchy. Nine aspectual categories are distinguished with the aid of six binary features:

We will assume that of the six binary features only two play a part in the markedness hierarchy: the reference to sequential information in the interpretation of the aspectual category is marked; no reference to sequential information is unmarked. Reference to pauses in the semantic interpretation of the category is marked, no reference is unmarked. It may be that additional features are involved as well, but in any case the assumption of these two features gives us the following results:
It falls out that two aspectual categories are unmarked: imperfective, and perfective. In Bickerton's framework, non-punctual, which corresponds roughly to imperfective, is the only unmarked category. We will see however in the next section of this paper that the category perfective is equally prominent in Creole auxiliary systems.

In this section we have tried to argue that a number of independent assumptions, for which we would like to claim initial plausibility, together explain the emergence of the pre-verbal particles as part of Creole genesis. While changing the framework proposed in Bickerton (1975) rather drastically, we have remained faithful to his basic assumption that a child of Pidgin speaking parents will have to use universal grammar directly in creating a Creole grammar, and that for this reason early Creoles give us insight into the unmarked case.

It may well be that other types of evidence will provide similar results, such as data from first and second language acquisition, data from emerging pidgin systems, and of course, cross-linguistic data from a wide variety of languages.

5. SOME DATA

Bickerton's framework is based on data from Hawaian Creole, Sranan, Guyanese, and Haitian. Here we will briefly analyze the system of pre-verbal particles in a number of other languages: Papiamentu, Negerholands, Sénégal Kriôl, Seychellois, Tok Pisin, and Sâo Tomense. We will limit ourselves to non-stative verbs, unlike Bickerton, and discuss mostly the formal properties of the systems involved.

The main question will be in every case: does the system conform to the model described in section 4, and if not, can we plausibly argue that the present Creole system is derived from a system conforming to the general model?
As has been repeatedly pointed out, it is not possible of course to compare contemporary Creole grammars and assume them to reflect early Creole systems. All Creoles, as other natural languages, have undergone changes and are still changing at different rates for different aspects of their grammars. Only very tentative conclusions can be drawn from the comparison attempted here.

**Papiamentu**

The Papiamentu particle system is formally quite straightforward, but its interpretation is complicated. The internal structure of the Aux is something like:

\[
\begin{align*}
\text{(lo)} & \quad \{ \emptyset \} \\
\text{(taba) ta} & \quad \{ \text{a} \} \\
\text{present} & \\
\text{past} & \\
\text{future} & \\
\end{align*}
\]

*Tabata* marks non-punctual past, *a* simple past. *Ta* marks indicative mood in the present tense, and non-punctual aspect when combined with *lo* and *taba*-. It is possible that *tabata* is only historically composed of the separate elements *taba* and *ta*. In that case, we would have *ta* and *tabata* alternating with each other in (18). Examples are:

\[
\begin{align*}
\text{(19)} & \quad \text{bo lo ta kanta} & \quad \text{‘you will be singing’} \\
\text{you} & \quad \text{sing} & \\
\text{bo lo a kanta} & \quad \text{‘you will have sung’} \\
\end{align*}
\]

Papiamentu as presented in (18) does not fit the model we have been arguing for, in that there is a future tense, no irrealis mood (unless one wanted to call the absence of *ta* in the present tense that), and no neat separation of the particles involved as to function. We do find the category tense preceding aspect, on the whole.

**Negerhollands**

In Negerhollands, which used to be spoken by the slaves on the Virgin Islands, we find the following auxiliary system:

\[
\begin{align*}
\text{(25)} & \quad \{ \emptyset \} \\
\text{sa} & \\
\text{lo:} & \\
\text{le/lo:} & \\
\end{align*}
\]
Here we find three possible positions, one past tense (anterior?) marker, one indicating an action in the future which is definite (lo:) or indefinite (sa), and one indicating either perfective or nonpunctual aspect. Examples:

(26) aster am ha ka: sit ne:r
    after he sit down ‘after he had sat down . . .’
    si bik ha lo: pin am
    his stomach hurt him ‘his stomach was hurting, him’

The Negerhollands system conforms fairly neatly to the grid presented before. We find that the aspect category includes two possibilities, and that there is a non-irreal future in addition to the irrealis.

Sao Tomense

In Sao Tomense, a Portuguese-based Creole spoken on Sao Tomé in the Gulf of Guinea, the major distinction is between completive and incompletive aspect, where the latter is marked with ka, and the former Ø. The past is marked with (š) tava, non-punctual with sa (only in the present), and the future tense is marked with te in the completive, and with bi in the non-completive. The positions in the Aux are the following:

(27) {
    (š) tava
    sa
    Ø
    past
    nonpunc.
    }
    ka
    Ø
    incompl.
    compl.
    future
    future
    '?

Examples include:

(28) e ka bi fla
    he speak ‘he will have spoken . . . . .
    nö 'tava ka mola 'petu do mali
    we live near the sea ‘we used to live near the sea’

The Sao Tomense system is a radical departure from the system suggested: the category mood is absent, tense and aspect markers precede and follow each other, there is a future tense.
Seychellois

Seychellois Creole presents a very elaborate particle system in which time adverbs can appear between the pre-verbal particles:

\[
\begin{array}{c|c|c|c|c|c|c}
\text{ti} & \emptyset & \{n\} & \{\text{ākor tultė}\} & \{\text{fek}\} & \{\text{pe}\} \\
\text{pu} & \emptyset & \{\emptyset\} & \{\text{deza}\} & \{\emptyset\} & \{\emptyset\} \\
\text{present} & \text{indicative} & \{\text{def; fut.}\} & \{\text{completive}\} & \{\text{incompl.}\} & \{\text{immed. past}\} & \{\text{nonpunctual}\} \\
\text{past} & \text{indef. fut} & \text{adverbs} & \text{?} & \text{punctual} \\
\end{array}
\]

We rarely find combinations of four or more elements, but examples as in (30) are acceptable:

\[(30)\]
\[
\text{za ti a n tultė pe māze} \quad \text{(John would always have been eating)}
\]
\[
\text{J. eat} \quad \text{he go store} \quad \text{‘John would always have been eating’}
\]
\[
\text{i n fek al labutik} \quad \text{‘he just finished going to the store’}
\]

If we assume that immediate past represents an aspectual rather than a tense category, the above system corresponds fairly closely to the tense/mood/aspect pattern. We find the same definite/indefinite future distinction as in Negerhollands, of course, and a rather more elaborate aspectual system.

Tok Pisin

The pre-verbal particle system of Tok Pisin is very complex, due to the internal variability in the language and the complex relations between pre-verbal particles and time adverbs. The following survey then is no more than preliminary.

We find a past tense marker \textit{bin}, and three markers of futurity: \textit{bai}, indefinite future, \textit{ken}, definite future, and \textit{klostu}, ‘immediate future’. \textit{Bai} and \textit{klostu} sometimes precede the subject if it is a short NP or a pronoun. Aspects include the habitual marker \textit{save}, inchoative \textit{kirap} or \textit{laik}. We also find aspectual adverbs such as \textit{pinis} ‘perfective’, \textit{gen} ‘iterative’, \textit{stap} ‘continuative’ (the later can be a serial verb).

Not much is known about the combinability of these elements, but the following array gives some idea of their distribution:
Some examples are:

(32) 
wanpela man i bin skulim mi long Tok Pisim
a man teach me prep. Tok Pisin
‘a man was teaching me TP.’

bas i save kam long hap pas seven samting
bus come around about half past seven
‘the bus usually comes around about 7.30’

The major way in which the Tok Pisin system deviates is the position of the futurity elements before the tense element bin. This may be due to their adverbial origin in pre-subject position.

Sénégal Kriôl

Sénégal Kriôl, a Portuguese-based inter-tribal lingua franca which may have had native speakers in the past and which has some recent ones now in urban areas, has been studied little. A first approximation of its particle system is given in (33):

(33) 
ka

Here the particles are often ambiguous: ka - negation marker; ta - habitual, future; na - nonpunctual, immediate future, obligation; tona - repetitive; du - passive; ba - past, irrealis.

We find examples such as the following:

(34) 
so mo ka ta toka pâlmu
one hand neg hab touch palm ‘one hand can’t touch its palm’

sacu ki na brika na ramu, na jukta du po na útru
monkey rel nonp. play in tree, obl. jump one branch to other
The particle \textit{na} is also the locative marker, as we can see in the second example of (34).

Clearly, the Sénégal Kriôl system is completely deviant from the model of Bickerton's. It was argued in Muysken (1977) that the post-verbal particles of Sénégal Kriôl, while linked directly to Portuguese verbal morphology, can be related to the verbal inflection of African languages of the region such as Fula and Mandinka. But the pre-verbal particles also show a distribution very different from the one predicted, and their interpretation is quite confused. This may be due to lack of data at this point, but is also quite possible that the use of the creole as a tribal lingua franca has given it a very deviant, marked character.

\section*{6. DISCUSSION AND SOME CONCLUSIONS}

We have surveyed briefly a number of Creole pre-verbal particle systems in the light of the theory presented in section 4. One finds that very few Creole languages actually conform to the very simple general pattern argued for in Bickerton. First of all, we often find the perfective/imperfective or completive/incompletive distinction in the aspectual system, next to, or instead of, the punctual/nonpunctual distinction. Second, often there is a future tense, in opposition to an indefinite potential category. Third, often there is a far more complicated interaction between tense, mood and aspect than was suggested before, although one might want to argue that a simple additive interpretative component without interaction represents the unmarked case.

On the whole, the idea that the category Aux as such is universally specified in the syntax, but not its components, finds support in the data: it seems that sometimes negation is part of Aux; we find a predicate marker in Aux in Tok Pisin. The elements in Aux would than be determined in semantics, where the categories of tense, mood, and aspect would be central, and for other categories, such as predicate, or negation, the Aux boundaries would be ignored. Thus the interactive view of Aux would find some support.

A host of problems have been ignored in the preceding analysis. They will be only briefly mentioned here. First of all, what is the relation between Aux and sentence adverbs? Suppose we would reformulate interpretive rule (12) so that all elements on the S level, except NP and VP, would serve as input to the TMA interpretation rules:
where $P$ corresponds to the propositional content of $S$.

This interpretive rule would range over auxiliary elements and sentence adverbs alike. This is the desired result if one can show that the interpretation of the two classes of elements constitutes a coherent phenomenon, but it does not help explaining why, in the process of creolization, sentential adverbs typically drift into the auxiliary position.

A second, quite major, problem concerns the interaction between the preverbal particles and the modal verbs, which have not been mentioned so far, but which occur in most Creole languages as well.

A third set of problems relates to the nature of the deviations of the schema expounded in section 4. We could plausibly see how the elaboration of the aspectual system in specific Creole languages could follow the lines of a hierarchy as in (17) of the aspectual system. Similarly, the way the tense system is elaborated could be interpreted in terms of a markedness hierarchy. What about other types of deviations? How does the interpretive component handle the reverse order of tense and aspect, etc.?

One tentative answer to this problem is that deviations from the unmarked order of the auxiliary categories can only be handled by the interpretive component when they are local. This is in accordance with the principle suggested by Emonds (1976) that languages may only differ in limited ways, i.e. when the differences are local. Thus, we might suppose that the interpretive component can handle a configuration as in (36):

$$
\text{(36) } \begin{array}{c}
T \\
M \\
A
\end{array}
$$

here mood is contiguous to Tense, and strict locality is obeyed. One might object, with some justification, to be sure, that nothing is known about locality principles as they apply to the interpretive component.

A fourth set of problems relates to the closeness principle described in (17). To what extent is the fact that Aux occupies a privileged position viz. the TMA interpretation rule independent of the Verbal Hierarchy Hypothesis in (17)? Are tense, mood, and aspect interpreted in a fixed order regardless of their being part of Aux?
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