Nothing in context: Variation, grammaticalization and past time marking in Nigerian Pidgin English

Shana Poplack
Sali Tagliamonte

1. Introduction

As grammatical morphemes develop from lexical material, a form may become so intimately associated with a particular meaning that its absence is likewise interpreted to signal absence of that meaning. Once an overt morpheme becomes obligatory, or at least highly frequent, the listener is entitled, by conventionalization of implicature, to infer that if it was not used, the inferences associated with it were not intended (Bybee 1994:235). Beginning with the occasional use of a lexical item, the candidate for grammatical status gains frequency, undergoes erosion of its original lexical meaning and comes to occupy a fixed syntactic slot. Concomitant with generalization in meaning is increased appropriateness and use. Eventually, the grammaticalized form may appear not only in contexts where it signals a particular meaning, but also entirely redundantly, whenever its meaning is simply compatible with the general meaning of the utterance (Pagliuca 1994:ix). The more grammatical processes a given linguistic unit undergoes, the more its use becomes obligatory in certain contexts and ungrammatical in others (Heine & Reh 1984).

The changes associated with grammaticalization do not come about abruptly, but may perdure for centuries, as forms pass through a series of transitions from content word to morphological affix. Various stages of this process may therefore be observable in any synchronic state of the language (Hopper & Traugott 1993:3). This is why the concept ofcline – defined historically as a path along which forms evolve, and synchronically, as a continuum – is basic to its study (ibid.:6). In the early stages a lexical item may be associated with, but not yet embody, a grammatical meaning; its absence cannot yet be taken to signal absence of the meaning.

Creole languages provide an excellent locus for the study of grammaticalization. Because of the extreme sociohistorical circumstances under which they typically develop, normally gradual processes of linguistic restructuring are compressed. Diachronic evidence may thus be telescoped in a single stage of the language, with attendant advantages for linguistic

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1 The support of the SSHRC, in the form of grants #410-90-0336 and #410-95-0778 to both authors, is gratefully acknowledged. We thank E. Eze for his participation in coding the data, and for useful discussions about the Past. Marjory Meehan for insightful comments on an earlier version of this paper. Salikoko Mufwene for suggesting a new way of looking at the materials we report on here and Philip Baker, whose aid in the preparation of this manuscript went far beyond his editorial duties.
analysis. In addition, the contact languages contributing to the formation of the Creole (lexifier, substrate) often continue to coexist with it, offering valuable comparative evidence for the behavior of the forms in question (Mufwene 1996). Perhaps most important, due to no doubt to the widespread variability in Pidgins and Creoles of overt and null expressions of grammatical meaning, the above-mentioned scenario, whereby absence of a mark is imputed with a unique semantic interpretation (i.e. absence of the meaning associated with the mark), is often invoked. Arguably most influential is Bickerton’s Creole “prototype” (Bickerton 1974, 1979, 1981), which predicts that stative verbs in [-anterior] and punctual verbs in [+anterior] temporal relationship to a preceding reference verb will receive an overt grammatical mark (in English-based Creoles, usually *hin* or *ben*); zero is interpreted in this schema as marking [-anterior] relationship in punctual verbs.

In this study we examine the interplay of linguistic variation, ongoing grammaticization and tense/aspect marking through empirical study of past time expression in Nigerian Pidgin English (NPE), an extended Pidgin widely held to exhibit prototypical Creole features (Agbayisi 1984; Farclas 1987; Singler 1992). Taking the entire past temporal reference sector as a point of departure, our approach is innovative in examining both (a) the extent to which a given form, once selected, actually signals a given context, as well as (b) the extent to which each context is preferentially associated with any of the forms occurring in it. Moreover, we contend, and will demonstrate, that only such a multidimensional analysis can reveal the true relationship between form and function, and hence, the degree to which each candidate for morpheme status may appropriately be characterized as marking a given function. Special focus on the absence of a mark, i.e. zero, in contexts where overt forms are also attested, permits us to determine whether the former in fact has a unique semantic interpretation. An added bonus of the analysis is the synchronic portrait it affords of the grammaticization continuum, and the position on it of the different forms within a well-demarcated sector of the NPE grammar at a given point in its evolution.

Typically grammaticization is studied diachronically. From a synchronic point of view, however, it may be viewed as a special case of form-function asymmetry (Heine et al. 1991b:2). As such we submit that it can be profitably treated within the variationist framework we adopt here, although with the notable exception of Sankoff's work (e.g. 1976, 1977a/b, 1979, 1990), the variationist approach to grammaticization is greatly underrepresented. The analyses that follow will contribute to filling that gap.

2. Past time marking in English-based Creoles and NPE

Perhaps most salient of the properties Creoles share is their tense-modality-aspect (TMA) system (see Muysken (1981) for summary). Creole languages are widely characterized as being aspect-prominent, expressing aspecual distinctions by means of preverbal particles, whose use is said to interact
with temporal reference and stativity (Bickerton 1974, 1979, 1981). Those expressing past temporal reference in English-based Creoles typically include forms like \textit{don}, \textit{bin} and zero. These, as well as other particles occurring in past temporal reference contexts, are illustrated with data from NPE in the following six examples:

(1) \textit{kom} wi \textit{kom} dr\textit{ik} \textit{am} w\textit{it} ev\textit{it}i\textit{g} \textit{wey} i \textit{g}r\textit{io} os (04/256)³
\begin{quote}
'We drank it with everything he gave us'
\end{quote}

(2) \textit{d\textit{on}} i \textit{d\textit{on} d\textit{ai}} (1/013)
\begin{quote}
'He has died'
\end{quote}

(3) \textit{de} a \textit{de} \textit{wa\textit{k}a} \textit{fo} \textit{not} \textit{lef} \textit{rait} an \textit{se\textit{nta}} (3/103)
\begin{quote}
'I was walking about in the North, left, right and centre'
\end{quote}

(4) \textit{bin} a \textit{bin} orij\textit{inali} \textit{kom} from \textit{Inglan} (01/7-8)
\begin{quote}
'I originally came from England'
\end{quote}

(5) \textit{f\textit{ai}ś} a \textit{f\textit{al} f\textit{aiś}} (2/152)
\begin{quote}
'I fell'
\end{quote}

(6) zero imidet\textit{li wey} de \textit{sī} di dem\textit{ə}s\textit{retas}, de \textit{šut} (0/270)
\begin{quote}
'Immediately they saw the demonstrators, they shot'
\end{quote}

Although the inventory of attested forms is quite consistent across Creoles, their functions, and thus the grammatical mechanism underlying them, remain controversial.⁴ In particular, researchers have tended to equate like surface forms with like functions, although a number of factors (e.g. differential input of substrate and lexifier languages) may result in use of similar forms for different functions (e.g. Mufwene 1996, Myhill 1991, Sankoff 1990, Singler 1990, Winford 1985).

The few existing characterizations of the contemporary past temporal reference system of NPE, such as those of Agheyisi (1971) and Fairclaus (1987), basically endorse Bickerton's (1974, 1981, 1984) conception of the interaction of an action/state distinction and anterior, rather than past, tense in overt and zero marking of past. Thus Fairclaus states that "zero marked action verbs are [+past], while zero marked nonaction verbs are [-past]", predicting that only [+punctual] verbs with past temporal reference will surface with no overt morphology. Overt marking of past time is said to be accomplished by the "tense auxiliary" \textit{bin}, denoting "anterior past with action verbs and simple past with non-action verbs" (Fairclaus 1987:46). Agheyisi interprets \textit{bin} as a marker of remote past for active verbs, but simple or remote past for statives.⁵ \textit{Don} is unanimously characterized as a completive aspectual

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² Though identification of the interaction between temporal reference and stativity as a particularly "Creole" characteristic is usually attributed to Bickerton; it was already noted in Agheyisi's (1971) description of NPE as well as in Weiser's (1973) descriptions of West African languages.

³ Codes in parentheses refer to speaker number and location of her/his utterance in the NPE corpus. Transcription protocol generally follows Agheyisi (1971) where possible.

⁴ Recent work in creolistics makes clear that Pidgins and Creoles in fact exhibit far more diversity in their TMA systems than previously assumed (e.g. (Mufwene 1986; 1991) Singler (1990:4xii) and several of the papers therein).

⁵ Schneider (1966) equates \textit{bin} with undifferentiated past.
marker, and Faracas (ibid.) attributes this meaning to finiš as well. Non-punctual aspect (either durative, iterative or habitual) is said to be encoded by the continuative marker de. Another form, km (ka), is characterized by Faracas as having no direct bearing on time reference or sequence; he interprets it as “a marker of objectivity or realis modality” (ibid.:50).

Figure 1 summarizes these predictions for past time marking in NPE. In what follows we compare them to the forms actually used in our past temporal reference data.

<table>
<thead>
<tr>
<th>PUNCTUAL</th>
<th>STATIVE</th>
</tr>
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<tbody>
<tr>
<td>anterior/remote</td>
<td>none</td>
</tr>
<tr>
<td>simple past</td>
<td>bia</td>
</tr>
<tr>
<td>sequential</td>
<td>none</td>
</tr>
<tr>
<td>completive</td>
<td>don/finiš</td>
</tr>
<tr>
<td>durative/iterative/habitual</td>
<td>de</td>
</tr>
<tr>
<td>objective/realis</td>
<td>km</td>
</tr>
</tbody>
</table>

3. Data and Method

3.1 The corpus
The data on which this study is based are drawn from a corpus of informal conversations among a social network of 12 Nigerians. All had emigrated to Ottawa, Canada within five years of this writing, but were born, raised and/or long-time residents of predominantly NPE-speaking areas of Nigeria (e.g. Bendel, Rivers, Lagos). Though the speakers are highly educated and multilingual in a number of Kwa languages, as well as in NPE and Standard English, the interaction between them and Ejike Eze, an in-group member who collected the data, took place in NPE.

3.2 Coding and analysis
This study (v. also Tagliamonte & Poplack 1988) differs from its predecessors in that the locus of variation includes all verbs with past temporal reference, here defined as any event or state occurring prior to speech time. All eligible contexts, whether overtly marked or not, were extracted from the tape-recorded conversations constituting the NPE corpus, giving a total of 4,759 verbal structures referring to events or states in the past.

Each main verb was systematically coded according to nearly a dozen linguistic features extrapolated from the literature on past temporal reference.

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6 See Tagliamonte et al. (in press) for detailed description of the corpus.
in Creoles and related vernaculars, as well as the relevant African substrate languages, where available. Most central – and elusive – of these are the interrelated features of stativity and temporal relationship. Claims about the links between them are tricky to validate, because (i) their interaction must be taken into account (Tagliamonte & Poplack 1993), and (ii) it is difficult to identify non-applications (Sankoff 1990:307). The validity of any analysis of these issues resides, in large measure, in the resolution of the above problems. In ensuing sections we describe the methods we have developed to deal with them.

3.3 Temporal relationship
Available characterizations of bin’s role as anterior marker provide no discovery procedure for point of reference in its absence. As previously (Tagliamonte 1991, Tagliamonte & Poplack 1993), we adopt for this purpose the framework of Lo Cascio and associates for identifying temporal structure in discourse (e.g. Lo Cascio & Co Vet 1986). Following this model, which permits identification of temporal relationships according to consistent and systematic criteria, each verb was categorized according to the temporal relationship it entertained with its preceding reference verb, viz. anteriority, sequentiality, coincidence, repetition or reorientation. Verbs were coded as ANTERIOR when Event 2 was ordered before Event 1, as in (7a-b), and SEQUENTIAL when Event 1 was ordered before Event 2, as in (8). For present purposes, the residue were classed as OTHER NON-ANTERIOR, as in (9).7 This categorization schema enabled us to test the requisite application and non-application sites for anterior tense marking in the data. Inclusion of non-application sites permits comparison of marker usage in anterior and non-anterior temporal relationships in the semantic domain of past time.

(7a) a no wan kom a bin de kom go (8/147)
    ‘I did not want to come. I had been coming and going’

(7b) i kom go fo dat ples wey i kom di tri (4/019)
    ‘He went to the place where he had cut the tree from’

(8) a kom ma sista ma sista ri jem mi (1/066)
    ‘I called my sister, my sister rejected me’

(9) i dos beta wak i fas fo tuten so di go vo m (7/110)
    ‘He did a good job. He lasted for two terms of government’

3.4 Stativity
In order to capture the elusive category of STATIVITY, we coded each verb both in terms of its inherent punctual or stative qualities and in terms of sentential aspect. Following Quirk et al. (1985), we categorized as stative, verbs representing mental perception, states of emotion or attitude, sensory perception and bodily sensation, as well as verbs of relationship and measurement, as in (10).

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7 The few verbs for which one of these relationships could not be inferred were excluded from the calculations. Further information regarding our coding of temporal relationships in discourse can be found in Tagliamonte (1991) and Tagliamonte & Poplack (1993).
(10a) a no laik as di ples dey (1/016) 'I did not like how the place was'
(10b) a his sey na dem fait agers as (5/363) 'I heard that they were the ones who fought against us'
(10c) di tiq las tri yias oh (7/053) 'The thing lasted for three years'
Punctual verbs included those representing events understood to have occurred once, as in (11).
(11a) i kom tel mi im nem (12/137) 'He told me his name'
(11b) ma perens a no no hu tel dem (1/194) 'I don't know who told my parents'
(11c) god giv mi pis wen a ripent (12/232) 'God gave me peace when I repented'
(11d) ma hosban kom sesi mi di pepas (13/112) 'My husband sent me the papers'
Verbs were also coded as continuous or iterative according to contextual indicators such as adverbs, conjunctions and other disambiguating information, but tabulated separately according to whether they were lexically stative, as in (12), or nonstative, as in (13).
(12a) a kom de respe dat won (5/373) 'I was respecting that one'
(12b) im de spoil mi (12/152) 'He was spoiling me'
(12c) a don de his dat kain tiq (3/287) 'I have been hearing that kind of thing'
(13a) so wi kom de draiv de go (13/035) 'So we were driving on'
(13b) winta kom de kom (2/130) 'Winter was coming'
(13c) i du beta wok fo dem oh (7/109) 'He did a good job for them'
(13d) evri dey na im a de krui (12/037) 'I cried every day'

This permitted us to disentangle the (often confusing) interface between the stative/non-stative and punctual/non-punctual dichotomies. Because our schema considered each distinction independently, an exhaustive four-way comparison among factors could be achieved.8

3.5 Temporal distance
To test whether verbal marking is sensitive to temporal distance, as (at least implicitly) suggested for NPE by Agheyisi (1971:134), we categorized verbs in terms of both their relative remoteness from each other and their absolute

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8 Pilot tests of all possible resulting combinations yielded substantively similar results; in what follows we present those for lexical stativity, distinguishing only punctual and stative verbs.
remoteness from speech time. This permitted us to distinguish events and states that had occurred in the remote past, as in (14a-b), from more recent ones, as in (14c-d).

(14a) a se wai yu bai tri pikin? (9/182)
    "I said, "why did you give birth to three children?"

(14b) na di mont ma fada dai de bon am (8/350)
    "It was the month my father died that he was born"

(14c) wanwav ma fren sen dia dya, yu no (1/181)
    "One of my friends fainted the other day, you know"

(14d) di boi kil im fren an kil imself albo (6/139)
    "The boy killed his friend and killed himself also"

3.6 Contextual disambiguation
A recurrent characterization of Pidgins is that context disambiguates temporal reference (e.g. Bakker 1995:37); functional effects on marking have also been invoked with regard to Creoles in general (e.g. Mufwene 1983) as well as to to early varieties of West African Pidgin English (WAPE), a presumed precursor of NPE (Fayer 1982). Such observations suggest that overt morphological marking is promoted by lack of other disambiguating information in the surrounding discourse. To test the effect of local disambiguation on past marking, we examined co-occurrence patterns of verbs with temporal adverbs in the immediate clause, as in (15).

(15a) a kom hia etiet (7/470)
    "I came here in eighty-eight"

(15b) a don ripen tru tru dat taim (12/199)
    "I had truly repented that time"

(15c) dat sait im no slip wit am shaa (1/269)
    "That night he did not sleep with her"

Our own earlier studies of verbal marking in Early Black English in the Americas (Poplack & Tagliamonte 1989; Tagliamonte & Poplack 1993) revealed a counterfunctional trend, whereby an overt mark on a preceding reference form favoured an overt mark on the current verb or noun, as exemplified with NPE in (16). We also examine the applicability of this copying, or "parallel processing" (Scherre & Naro 1991) effect in NPE.

(16a) i kom piti di hol kanda of di banana na im i kom tek am kip am to insaid pot (4/032)
    "He peeled off all the banana peels and put them in a pot"

(16b) a kal ma sista, ma sista riject mi (1/066)
    "I called my sister, my sister rejected me"

(16c) a don rejista. a don bikam kanedian man (7/036)
    "I have registered. I have become a Canadian"
3.7 Other factors
Because marking patterns in NPE could conceivably have been transmitted by the lexifier, the substrate(s) or both, we also examined features found to affect variability in these and related vernaculars, available information permitting. For example, in Igbo, the first language of most of our speakers, the verb surfaces bare in negative sentences with past temporal reference (Emenanjio 1985; Nwachukwu 1983; Okeke 1984). We tested the effect of NEGATION in NPE by distinguishing affirmative, as in (17a-b), from negative (17c-d) sentence types.

(17a) i kom ope to fo mi (13/047) 'He opened the door for me'
(17b) i sey tudey na ma husban tan (6/548) 'She said today is my husband's turn'
(17c) i no rejist wutin im hol (7/118) 'He did not register what he had'
(17d) ma'gik së si enitiig wey i go it (4/009) 'The monkey did not see anything to eat'

PHONOLOGICAL CONTEXT, both preceding and following, has been shown to affect past tense marking in English (e.g. Guy 1980; Neu 1981), Jamaican Creole (Patrick 1991), and Early Black English (Tagliamonte & Poplack 1988; 1993); VERB CLASS (as inferred from morphological patterns across the verb paradigm) and VERB TYPE (i.e. "strong" vs "weak") conditions past tense marking in vernacular varieties of English (e.g. Cheshire 1982; Christian et al. 1988; Hughes & Trudgill 1979) as well as Early Black English (Tagliamonte & Poplack 1993). Results of preliminary analyses showed that none of these features had a significant effect on overt marking in NPE; we do not discuss them further in what follows.

3.8 Analyzing variability
To detect which of the remaining factors contribute statistically significant effects to the presence of each of the past temporal reference options when all are considered simultaneously, as well as the relative importance of each, we made use of the multiple regression procedure incorporated in GoldVarb 2.0 (Rand & Sankoff 1990), a variable rule application for the Macintosh. The alert reader will note that the "variable context", or locus of variation, we have defined for this study – viz., the entire past temporal reference system – is somewhat unorthodox in comparison to those traditionally featured in variation studies.\(^9\) This is intended as a heuristic device, warranted by the nature of the problem. To Bickerton's characterization of the opposition between bin and zero as privative, Sankoff (1990) had already objected that testing whether use of a marker conforms to the prototype, while ignoring whether the non-uses so conform could be misleading. We agree. Any accountable report on the relationship between, for example, bin and anterior time requires isolating all anterior contexts (regardless of the presence in them of an anterior [or any other] marker), although this has rarely been attempted

\(^9\) Moreover, the overt marks surfacing in this domain will be observed in ensuing analyses to be used to say different things. Thus they do not correspond to the strict definition of variants of a variable as alternative ways of saying the same thing.
Nothing in context

(see Myhill 1991, Tagliamonte & Poplack 1993). But we submit, and will
demonstrate, that the problem is far more complex. The principle of
accountability requires that all the other temporal relations bin enters into be
examined as well. No particular propensity for a form to mark one temporal
relationship can be established in the absence of information on its
propensity to mark all of the other temporal relationships. There are at least
three reasons for this. First, the semantic categories are themselves fuzzy.
Thus anterior, for example, may also be remote or non-remote, punctual or
static. Second, the forms, zero included, are inherently variable, and
therefore may appear not only in their preferred contexts, but elsewhere as
well. A unique association between form and context can only be posited
after establishing that the form is not likewise associated with other contexts.
Finally, as a result of their inherent variability, as well as for other reasons
detailed above, there is no a priori means to determine which form, if any,
zero is a "non-application" (or variant realization) of. The only solution is to
take as denominator the entire past temporal reference space, and as
numerator, all the forms attested within it. Section 4 presents the results of
this exercise.

4. Results

Table 1 displays the overall distribution of forms across past temporal
reference contexts in NPE.

<table>
<thead>
<tr>
<th>VARIANT</th>
<th>N</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>zero</td>
<td>2612</td>
<td>55</td>
</tr>
<tr>
<td>kom</td>
<td>1087</td>
<td>23</td>
</tr>
<tr>
<td>don</td>
<td>485</td>
<td>10</td>
</tr>
<tr>
<td>de</td>
<td>372</td>
<td>8</td>
</tr>
<tr>
<td>bin</td>
<td>73</td>
<td>1.5</td>
</tr>
<tr>
<td>finiš</td>
<td>68</td>
<td>1.4</td>
</tr>
<tr>
<td>English morphology</td>
<td>62</td>
<td>1.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4759</td>
<td></td>
</tr>
</tbody>
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A large proportion of the semantic domain of past is occupied by kom (23%),
and somewhat lesser parts by don (10%) and de (8%). bin and finiš account for
little more than 1% each of all forms used in past temporal contexts. English
morphology, as in (18), is equally sporadic, and is virtually always confined
to irregular forms, such as vowel change or syllabic pasts, the majority of which occurred with one speaker.\(^{10}\)

(18a) a wen dia as e sevinti yia ol (3/565) ‘I went there as a seventeen year old’

(18b) wen god trried e man, de giv am wuman (2/315) ‘When God created man, they gave him woman’

Perhaps the most striking finding of Table 1 is the revelation that more than half of the past temporal reference contexts feature no overt mark at all. This raises the question of whether the verbs in these contexts are marked with zero. If so, what is the sense of the zero mark? Does it systematically convey a reading of non-antecedent past for punctual verbs, as would be predicted by the Creole prototype? Or are these verbs simply unmarked?

In determining the function of linguistic forms, there are two logical possibilities. The first is that any difference in meaning is embodied in a difference in form. This is the position, implicit or explicit, of, e.g., Agheyisi (1971), Bickerton (1975) and Faradas (1987; 1989), as well as of the traditional and generative linguistic enterprise more generally. The second, as is more typical of spoken language, is that features of the environment will co-occur with these forms in such a way as to indicate whether they are used for similar or different functions. Variable rule analysis enables us to characterize precisely the nature of these co-occurrence patterns by calculating which features of the environment are important and to what degree. Such features will be shown to exert effects that are both statistically significant (as determined by the stepwise selection procedure incorporated in the variable rule program) and important (as judged by the relative range of factor effects).

4.1 Multivariate analysis

Table 2 depicts the results of six independent variable rule analyses of the contribution of the same six factors (i.e. TEMPORAL RELATIONSHIP, TEMPORAL DISTANCE, LEXICAL STATIVITY, TEMPORAL DISAMBIGUATION, MARK ON PRECEDING VERB and NEGATION) to the probability that each of \textit{kam}, \textit{dan}, \textit{bin}, \textit{fini}s, \textit{de} and zero will be selected in a given past temporal reference context. The interpretation is as follows. If, for example, sequential temporal relationship contributes a substantially higher effect (when compared with other possible temporal relationships) to the choice of a form, then that form (whether overt or null) may be inferred to signal, or \textit{mark}, that relationship.

\(^{10}\) Combination of more than one form (often cited in the literature) are extremely rare and are limited to \textit{dan} + \textit{kam} sequences (0.08%, \textit{N}=4). The only exception is \textit{de}, which co-occurs with all the other forms. Recall that \textit{de} is a continuous marker which, unlike the other marker examined here, has no independent connotation of past; we include it only by virtue of it occurrence in past temporal reference contexts. In Tables 2 and 6, members of 89 sequences were examined independently with the remain der of their cohort.
Table 2
Six independent variable rule analyses of the contribution of factors selected as significant to the probability that each form will be used in past temporal reference contexts in NPE\textsuperscript{11}

<table>
<thead>
<tr>
<th></th>
<th>kor</th>
<th>don</th>
<th>bis</th>
<th>fiast</th>
<th>de</th>
<th>zero</th>
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<tr>
<td>CORRECTED MEAN:</td>
<td>.19</td>
<td>.07</td>
<td>.004</td>
<td>.012</td>
<td>.07</td>
<td>.37</td>
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<tr>
<td>TOTAL N = 462</td>
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Temporal relationship

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<td>Anterior</td>
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Temporal distance

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<tbody>
<tr>
<td>[+Remote]</td>
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<td>.58</td>
<td>.46</td>
<td>.54</td>
<td>.51</td>
</tr>
<tr>
<td>[-Remote]</td>
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<td>.32</td>
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<td>.47</td>
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<td>15</td>
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</table>

Lexical stativity

<p>| | | | | | | |</p>
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<tbody>
<tr>
<td>[+Stative]</td>
<td>.55</td>
<td>.48</td>
<td>[ ]</td>
<td>.32</td>
<td>.38</td>
<td>[ ]</td>
</tr>
<tr>
<td>[+Punctual]</td>
<td>.48</td>
<td>.51</td>
<td>[ ]</td>
<td>.57</td>
<td>.54</td>
<td>[ ]</td>
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<td>3</td>
<td></td>
<td>25</td>
<td>16</td>
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</tbody>
</table>

Temporal adverb

<p>| | | | | | | |</p>
<table>
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<tr>
<td>Adverb present</td>
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<td>.17</td>
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<td>.59</td>
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<tr>
<td>No adverb</td>
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<td>.51</td>
<td>.49</td>
<td>.54</td>
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<td>.49</td>
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<td>15</td>
<td>16</td>
<td>37</td>
<td>14</td>
<td>10</td>
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</tbody>
</table>

Mark on preceding verb

<p>| | | | | | | |</p>
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<thead>
<tr>
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<tbody>
<tr>
<td>Parallel mark</td>
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<td>.82</td>
<td>.95</td>
<td>N/A</td>
<td>.75</td>
<td>.60</td>
</tr>
<tr>
<td>Other mark</td>
<td>.45</td>
<td>.4</td>
<td>.48</td>
<td>.46</td>
<td>.46</td>
<td>.40</td>
</tr>
<tr>
<td>Zero mark</td>
<td>.43</td>
<td>.46</td>
<td>.51</td>
<td>.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RANGE</td>
<td>31</td>
<td>36</td>
<td>44</td>
<td>19</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

Negation

<p>| | | | | | | |</p>
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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative verb</td>
<td>.14</td>
<td>0</td>
<td>[ ]</td>
<td>0</td>
<td>.38</td>
<td>.86</td>
</tr>
<tr>
<td>Affirmative verb</td>
<td>.53</td>
<td>.50</td>
<td>[ ]</td>
<td>.50</td>
<td>.51</td>
<td>.47</td>
</tr>
<tr>
<td>RANGE</td>
<td>39</td>
<td>13</td>
<td></td>
<td>13</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{11} Square brackets indicate that the factor group was not selected as significant.
We first note from inspection of the ranges that the greatest contribution to the selection of each overt form but one is contributed by the factor of temporal relationship. This suggests that the particles do indeed play a role in delimiting temporal space. Examining factor effects within this factor group for each form, we observe that kom is promoted in sequential temporal relationship (with a contribution of .70), contrary to Faracas’ claim (1987:49) that it has no bearing on time reference. Both dan and bin are favoured in anterior contexts (with contributions of .76 and .90 respectively), while de is preferred in non-anterior contexts (.64).

The factor of TEMPORAL DISTANCE also exerts a strong effect on dan and bin. The former is associated with proximate (or non-remote), and the latter, with remote, anterior time. Note that LEXICAL STATIVITY, to which the expression of anteriority is said to be sensitive, is not selected as significant to the occurrence of either bin (the putative anterior marker), or zero (its putative counterpart). Moreover, the effect of stativity on the occurrence of kom and dan is smaller than that of any other factor. It is moderate at best with respect to de. Only the completive marker finis displays a strong influence of this feature, not surprisingly: states tend not to reach completion.

Two additional factors test more general predictions about the role of contextual disambiguation in marking variability in Creoles: PRESENCE OF A DISAMBIGUATING TEMPORAL ADVERB and PARALLEL PROCESSING. Contrary to the functional effect, whereby grammatical forms would surface only when absolutely required for informational purposes, disambiguation from adverbs contributes a probability that is not only moderate, but also inconsistent, that any of the options will appear. This is because the strongest predictor that each will be selected, zero included, is after a verb on which it has already occurred.

Taken together, the results in Table 2 reveal the existence of pervasive variability in the past temporal reference sector of NPE. Aside from this, however, they confirm the received wisdom. The NPE past temporal reference system is clearly relational rather than absolute, and some of the overt forms are sensitive to features like temporal distance and temporal disambiguation.

How do these observations apply to zero? If zero is a variant of one or more of the overt forms, the contribution of factors to its presence should be in inverse relationship (caeteris paribus) to the same factors’ contribution to the presence of the other forms. From perusal of the last column of Table 2, it is plain that the factors affecting selection of the overt forms have virtually no effect on zero. First, the effects of TEMPORAL RELATIONSHIP and TEMPORAL DISTANCE are exceedingly small in comparison with each of the other forms. LEXICAL STATIVITY was not selected as significant at all. Only two factors exert any influence on the choice of zero: the PARALLEL PROCESSING effect, whereby one zero leads to more, and especially, NEGATION: zero is strongly favoured when the verb is in the negative. We have already suggested that the interdiction against overt marking of past temporal negatives is likely a substratum effect of Igbo, the L1 of most of the speakers. We return to the role of zero below.

We observed earlier that bin and dan appeared to be functioning as anterior markers, given the great contribution of that factor to their selection
(Table 2). But recall from Table 1 that bin is exceedingly rare, only accounting for 1.5% of the data. How can these apparently conflicting effects be reconciled? As noted above, to assess the true role of these forms in marking anteriority (or any other segment of the past time domain), we must take the semantic context as a reference point, and examine the distribution of forms across them. Consider Tables 3 - 6.

Table 3 confirms that of 867 anterior contexts isolated, bin marks no more than 5% of them. Interestingly, don marks many more, 19%. Table 4 repeats this exercise by examining TEMPORAL DISTANCE contexts.

<table>
<thead>
<tr>
<th></th>
<th>ANTERIOR</th>
<th></th>
<th>NON-ANTERIOR</th>
<th></th>
<th>SEQUENTIAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>zero</td>
<td>60</td>
<td>523</td>
<td>57</td>
<td>868</td>
<td>51</td>
<td>1049</td>
</tr>
<tr>
<td>kom</td>
<td>7</td>
<td>60</td>
<td>16</td>
<td>240</td>
<td>38</td>
<td>791</td>
</tr>
<tr>
<td>don</td>
<td>19</td>
<td>169</td>
<td>14</td>
<td>209</td>
<td>3</td>
<td>65</td>
</tr>
<tr>
<td>bin</td>
<td>5</td>
<td>44</td>
<td>1</td>
<td>19</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>de</td>
<td>7</td>
<td>65</td>
<td>11</td>
<td>176</td>
<td>5</td>
<td>112</td>
</tr>
<tr>
<td>finiš</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>19</td>
<td>2</td>
<td>39</td>
</tr>
<tr>
<td>TOTAL</td>
<td>867</td>
<td>1531</td>
<td>2059</td>
<td></td>
<td></td>
<td></td>
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</table>

Table 4
Percent distribution of forms by TEMPORAL DISTANCE

<table>
<thead>
<tr>
<th></th>
<th>REMOTE</th>
<th></th>
<th>NON-REMOTE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>zero</td>
<td>56</td>
<td>819</td>
<td>51</td>
<td>723</td>
</tr>
<tr>
<td>kom</td>
<td>23</td>
<td>753</td>
<td>25</td>
<td>358</td>
</tr>
<tr>
<td>don</td>
<td>8</td>
<td>264</td>
<td>15</td>
<td>211</td>
</tr>
<tr>
<td>bin</td>
<td>2</td>
<td>66</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>de</td>
<td>9</td>
<td>287</td>
<td>6</td>
<td>83</td>
</tr>
<tr>
<td>finiš</td>
<td>1</td>
<td>37</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3226</td>
<td>1410</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12 Percentages may not add up to 100 due to rounding.
Observe that *dan* occurs relatively frequently in (anterior) non-remote contexts as compared to *bin* (which never occurs here), explaining the preponderance of the former in anterior relations in Table 3. But *dan* is still only used in 15% of non-remote contexts, the remainder of which either co-occur with another overt form, usually *kom*, or, even more typically, remain unmarked. Of course it may be objected that the overall rates of occurrence depicted in Tables 3 and 4 obscure any differential usage of forms according to the stativity of the predicate. Accordingly, we now examine their distribution as a function of stativity, as in Table 5.

<table>
<thead>
<tr>
<th></th>
<th>PUNCTUAL</th>
<th>STATIVE</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>zero</td>
<td>54</td>
<td>1872</td>
</tr>
<tr>
<td><em>kom</em></td>
<td>25</td>
<td>879</td>
</tr>
<tr>
<td><em>dan</em></td>
<td>10</td>
<td>336</td>
</tr>
<tr>
<td><em>bin</em></td>
<td>1</td>
<td>46</td>
</tr>
<tr>
<td><em>de</em></td>
<td>8</td>
<td>293</td>
</tr>
<tr>
<td><em>tiniš</em></td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3486</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 confirms that lexical stativity is not a distinguishing factor in the choice of any of the forms: the percentages across punctual and stative contexts are essentially the same.

An inescapable finding of Tables 3 through 5 is that zero is by far the most frequently used option in each of the contexts examined. This is of course also evident from the very disparate corrected means, or overall tendencies of occurrence, in the six independent variable rule runs in Table 2. The corrected mean for zero is the highest, at .57, while that of the overt forms ranges from a high of only .19 for *kom* to a low of .004 for *bin*. The likelihood that any of the overt forms will surface is thus very small.

Without taking into account disparities in overall rate of occurrence, the analyses in Table 2 obscure the fact that while *bin*, for example, was shown to be highly favoured in anterior contexts (with a probability of .90), it actually marks only a very small percentage of such contexts (Table 3). To permit comparison of the probabilities that each of the forms will occur in a given context while at the same time controlling for their overall frequency of occurrence in that context, we reanalyzed the data according to the combined effect of CORRECTED MEAN and FACTOR WEIGHT, as in Table 6. This allows us to compare the probabilities for a given factor across independent runs, in addition to the more traditional comparison of factor weights within a single
run. The result is a composite picture of the entire past temporal reference system, permitting assessment of the true role of each form in it.

### Table 6

Six independent binomial variable rule analyses of the contribution of factors selected as significant to the probability that each form will be used in past temporal reference contexts in NPE, considering the combined effect of corrected mean + factor weight.

<table>
<thead>
<tr>
<th></th>
<th>kom</th>
<th>döa</th>
<th>biu</th>
<th>finiš</th>
<th>de</th>
<th>zero</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL N</td>
<td>.19</td>
<td>.07</td>
<td>.004</td>
<td>.011</td>
<td>.07</td>
<td>.57</td>
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</table>

**Temporal relationship**

<table>
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<th>.04</th>
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<th>.07</th>
<th>.62</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sequential</td>
<td>.35</td>
<td>.03</td>
<td>.00</td>
<td>.01</td>
<td>.05</td>
<td>.53</td>
</tr>
<tr>
<td></td>
<td>Non-anterior</td>
<td>.14</td>
<td>.12</td>
<td>.01</td>
<td>.01</td>
<td>.12</td>
<td>.58</td>
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</tbody>
</table>

**Temporal distance**

<table>
<thead>
<tr>
<th></th>
<th>[+remote]</th>
<th>.19</th>
<th>.06</th>
<th>.01</th>
<th>.01</th>
<th>.08</th>
<th>.58</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[-remote]</td>
<td>.20</td>
<td>.12</td>
<td>.00</td>
<td>.02</td>
<td>.05</td>
<td>.53</td>
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**Lexical stativity**

<table>
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<th>.01</th>
<th>.01</th>
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<th>.56</th>
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<tbody>
<tr>
<td></td>
<td>[+Punctual]</td>
<td>.18</td>
<td>.07</td>
<td>.00</td>
<td>.01</td>
<td>.08</td>
<td>.56</td>
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</table>

**Temporal adverb**

<table>
<thead>
<tr>
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<th>Adverb present</th>
<th>.10</th>
<th>.04</th>
<th>.01</th>
<th>.00</th>
<th>.11</th>
<th>.55</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No adverb</td>
<td>.20</td>
<td>.07</td>
<td>.00</td>
<td>.01</td>
<td>.07</td>
<td>.55</td>
</tr>
</tbody>
</table>

**Mark on preceding verb**

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<tr>
<th></th>
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<th>.08</th>
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<th>.66</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(kom)</td>
<td>(döa)</td>
<td>(biu)</td>
<td>(finiš)</td>
<td>(de)</td>
<td>(zero)</td>
<td></td>
</tr>
<tr>
<td>Other mark</td>
<td>.16</td>
<td>.07</td>
<td>.00</td>
<td>.06</td>
<td>.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zero mark</td>
<td>.14</td>
<td>.06</td>
<td>.00</td>
<td>.06</td>
<td>.46</td>
<td></td>
<td></td>
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**Negation**

<table>
<thead>
<tr>
<th></th>
<th>Negative verb</th>
<th>.04</th>
<th>0</th>
<th>.00</th>
<th>0</th>
<th>.04</th>
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<td>Affirmative verb</td>
<td>.21</td>
<td>.07</td>
<td>.01</td>
<td>.01</td>
<td>.07</td>
<td>.53</td>
</tr>
</tbody>
</table>
Table 6 gives strong confirmation of our impressions based on the percentages in Tables 3, 4 and 5. The results for TEMPORAL RELATIONSHIP, TEMPORAL DISTANCE and MARK ON PRECEDING VERB make clear that certain contexts highly favour certain forms. But even the most apparently specific of these forms — bin — whose probability of occurrence in (remote) anterior contexts we have seen to be very high, is actually extremely infrequent even in this most favoured context. The probability that bin will occur, when its overall tendency of occurrence is factored in, is now only .04. Compare this with the vastly increased probability (.62) that zero will occur in the same anterior context! This observation can simply be repeated across the board, as can be seen by inspecting the rows featuring the probabilities of occurrence of forms across contexts. In every context and for every form, the probability that the overt form will be selected is negligible when compared to that of zero. How can these results be interpreted?

4.2 Tense/aspect forms in NPE

It is clear that NPE makes productive use of tense/aspect distinctions like temporal relationship, temporal distance and extended processes. We have demonstrated that some of the forms examined here are highly associated with such distinctions, e.g. bin with anterior remote past, don with anterior proximate past, and kom with sequential past. It is equally clear that overt marking of these distinctions is far from obligatory, as most descriptions of Creoles in general, and NPE in particular, would have it, but rather, variable. Any suggestion that the bare verbs have been contextually disambiguated, as is said to be typical of overt morphological marking in Creoles, does not apply here. On the contrary, the contributions of factors testing this effect (i.e. DISAMBIGUATING TEMPORAL ADVERB, and especially, MARK ON PRECEDING VERB in Table 2) reveal no tendency for overt forms to surface when they are sole bearers of grammatical information. Moreover, most of the past temporal reference contexts we have isolated carry no grammatical indication of tense or aspect at all, other than what is encoded in the (bare) verb itself. This is in striking contrast to the behaviour of fully (or even highly) grammaticized morphemes, which are used not only when the meanings they supply are necessary, but also entirely redundantly (e.g. Bybee 1994:235). The fact that none of the overt forms predominates in any of the contexts it is said to “mark” is damaging to the claim that these are structurally specified grammatical markers.

What then is the status of the overt forms? Our findings suggest that they are forms with grammatical meaning, albeit ones that have not yet completely grammaticized formally to the status of full-fledged morphemes. To evaluate this proposal, we now operationalize a number of indices of grammaticization and apply them to these candidates for marker status.

4.3 Measuring grammaticization

Although any attempt at precise segmentation of the continuum resulting from grammaticization processes remains arbitrary, there is general agreement (e.g. Bybee 1985; Bybee et al. 1994; Heine et al. 1991a; Heine & Reh 1984; Lehmann 1982; 1986) on the most salient characteristics associated with them. These include semantic bleaching, increase in syntactic significance,
fixation of syntactic position, obligatoriness in some contexts and ungrammaticality in others, semantic, morphosyntactic and phonetic coalescence, loss of phonetic substance and increase in frequency of use.

Table 7 applies to the overt forms used in NPE past temporal reference contexts five indices adapted from Bybee et al. (1994) measuring, respectively, frequency, phonological reduction, and rigidification of syntactic position. These include: 1) overall frequency of occurrence, 2) frequency of occurrence in the specific semantic context with which the form is purportedly associated, 3) consonant assimilation, a measure of phonological reduction, and two measures of syntactic placement: whether open class items are permitted to intervene between the particle and the main verb, and position of the particle with regard to the main verb.

<table>
<thead>
<tr>
<th>INDEX: Form</th>
<th>OVERALL FREQUENCY</th>
<th>FREQUENCY IN ASSOCIATED SEMANTIC CONTEXT</th>
<th>PHONOLOGICAL REDUCTION</th>
<th>RIGIDIFICATION OF SYNTACTIC POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>finiš</td>
<td>1.4%</td>
<td>N/A</td>
<td>0%</td>
<td>47%</td>
</tr>
<tr>
<td>bin</td>
<td>2%</td>
<td>5% (anterior)</td>
<td>7%</td>
<td>3%</td>
</tr>
<tr>
<td>don</td>
<td>10%</td>
<td>15% (non-remote)</td>
<td>13%</td>
<td>3%</td>
</tr>
<tr>
<td>kom</td>
<td>23%</td>
<td>38% (sequential)</td>
<td>44%</td>
<td>.5%</td>
</tr>
</tbody>
</table>

The regularity of the relationship between indices and forms is striking. The form that is highest in overall frequency - kom - also scores highest on each of the other measures. It occurs in specifically sequential contexts exponentially more than any other overt form, it undergoes far more phonological reduction, it is virtually never separated from its main verb by intervening material and almost always appears in the fixed position preceding the main verb. Compare bin which we have seen to be extremely rare, not only overall, but also in specifically anterior contexts. bin may be observed to undergo far less phonological reduction, admit more intervention of open-class material between it and the main verb, and to be placed in more syntactic positions. And the other forms are neatly ranged around these, forming a continuum, with the intermediate don scoring higher, and the rarer finiš, lower, on these measures. Thus, if there is any candidate for morpheme status in the NPE past temporal reference system, it certainly is not bin, contra claims to that effect in virtually all the literature on NPE in
particular, and English-based Creoles more generally. The most highly
grammaticized form in the system is clearly *kom*\(^{13}\).

This observation is bolstered by a comparison of the distribution of
forms across the individuals in our sample, as in Table 8. It is clear that *kom*
is abundantly used by most speakers. In contrast, two thirds of the tokens of
*bin* come from the same two. A full third of the speakers never used *bin* at all.

<table>
<thead>
<tr>
<th>Speaker #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>TOTAL</th>
</tr>
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<td><strong>Variant</strong></td>
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</tr>
<tr>
<td>zero</td>
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<td>200</td>
<td>108</td>
<td>133</td>
<td>417</td>
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<td>342</td>
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<td>154</td>
<td>124</td>
<td>42</td>
<td>272</td>
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<tr>
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<td>36</td>
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</tr>
<tr>
<td><em>de</em></td>
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<td>13</td>
<td>5</td>
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</tr>
<tr>
<td><em>bin</em></td>
<td>28</td>
<td>2</td>
<td>7</td>
<td>-</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>20</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>1</td>
<td>73</td>
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<tr>
<td><em>maḭ</em></td>
<td>5</td>
<td>7</td>
<td>4</td>
<td>13</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>14</td>
<td>14</td>
<td>68</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>385</td>
<td>357</td>
<td>200</td>
<td>349</td>
<td>593</td>
<td>233</td>
<td>425</td>
<td>434</td>
<td>212</td>
<td>177</td>
<td>82</td>
<td>696</td>
<td>547</td>
<td>4690</td>
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</table>

Figure 2, based on Tables 3 and 4, provides perhaps the first empirically-
motivated portrait of a grammaticization continuum, illustrating with the
NPE past temporal reference system. The bars indicate the portion each form
currently occupies of the subdomains representing the different temporal
relationships and distances.

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\(^{13}\) To any suggestion that the discrepancy between our results and the claims made for NPE
may be due to the contact these speakers have had with Ottawa English over the past five
years, we respond that even if contact-induced grammatical change were possible over a time
span of five years or less (itself highly doubtful), the behaviour of *kom* has no counterpart in
English. It thus cannot be attributed to this source. See Tagliamonte et al. (in press) for fuller
discussion of this issue. Rather, discrepancies of this sort are often observed when empirical
analyses of spoken language data are compared with other types of analysis. (Cf. Bickerton
(1975) with Sankoff (1990) and Myhill (1991) for another case in point.)
Because grammaticization involves diachronic change, it is most meaningfully assessed by comparing different stages of a language. Especially instructive in this regard are Fayer's (1982; 1986) analyses of 18th and 19th century WAPE texts. Interestingly, throughout the period she studied, there was almost no evidence of the cohort of markers typical of Creoles. *da* is the only form denoting aspect attested in the early data, is vanishingly rare, with an overall frequency of only 3% (Fayer 1982:313). *bin* increases from a low of 2% in the 18th century to a high of 4% in some of the 19th century texts. At the outset, verbs were normally disambiguated by temporal conjunctions and prepositional phrases occurring in sentence-initial position. By the 19th century, Fayer notes a qualitative change in distributional patterns: temporal modification appears in other sentence positions (p. 286), and preverbal markers increase in frequency (p. 313).

These data, taken together with the contemporary distributions in Table 1, provide unequivocal evidence that use of overt forms in NPE has increased dramatically over the duration.\(^\text{14}\) Observe that *dan*, once accounting for no more than 3% of the past temporal reference space, has now risen to a full 10%; *da* with no earlier textual attestations, now occupies

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\(^{14}\) In contrast, English-like inflectional and auxiliary constructions, which make up the balance (nearly 30%) of the tense and aspect markers in the *Diary of Antea Duke* (Fayer 1982:270) have all but disappeared.
8%; even bin has increased from near non-existence to 1.5%. But zero still accounts for most of the conceptual space.

4.4 The role of zero and overt forms in marking past time
We may now return to the question raised earlier regarding the function of zero in NPE. Can we infer from the progression of overt forms along the grammaticization cline that zero signals the absence of one of them? To qualify as a zero marker, according to Bybee et al. (1994:239), the interpretation of the zero-marked form must be “specific and unambiguous”, and the inferences speakers make regarding its choice should form part of its explicit meaning. If this were the case, we should observe a particular association of zero with one or more of the semantic subdomains we identified. None obtains. Our finding that zero is preferred over every overt form in each context, with no particular favouring effect for any (except the substratal negation effect) militates against identifying it as the specific marker of any one of them. Because the overt forms occupy such a small part of each semantic subdomain (Figure 2), and – even more damaging to their identification as grammatical morphemes – because they occur in several of them (albeit with differing degrees of frequency), none can be said to unambiguously signal a specific meaning. It follows that zero cannot signal the absence of that meaning (Labov 1984).

What then is the function of these forms in marking past time? Bybee (1994:239) distinguishes “zero meaning”, i.e. the meaning expressed by a zero marker, and “open meaning”, conveyed by the absence of an (optional) grammatical morpheme. We suggest that zero has “open meaning”: it functions as the default marker of past temporal reference. In this sense its use is similar to the “neutral” form described by Welmers (1973) for Efik, which is used simply to state what happened without any particular emphasis, or the NPE “invariant form” described by Aghayan (1971:133), which contrasts with those conveying “tense and aspect variations”. In order to divert the basic tendency toward the neutral, or default, interpretation of past time to, say, a narrative or sequential one, kem can be employed. For a continuous reading, die may be selected. For an anterior remote meaning, bin is an option, and so on. As pointed out by Sankoff (1990:309) in connection with ben in Sranan and Tok Pisin, selection of an overt form is not an automatic part of the syntax, but proceeds according to an optional system, as is typical of the initial stages of grammaticization. While semantic distinctions are being created, use of the forms expressing them must be sensitive to discourse-pragmatic concerns.

Open meaning may develop into zero meaning via some of the same mechanisms motivating grammaticization of overt material (Bybee 1994). Chief among them are increased frequency of an overt form and concomitant licensing of the inference that, in its absence, the meaning associated with it was not intended. Eventually, other senses come to be conventionally associated with the absence of the form. This has not yet occurred in NPE.

15 The most dramatic change would appear to involve the current front-runner, kem, although it is unclear whether its absence from Fayer’s counts is due to its absence from the texts or to its not having been considered.
The distribution of zero and overt forms in NPE bears little resemblance to the Creole prototype. Nor does it derive from the superstrate, which has an entirely different system of past time marking via inflection, i.e. -ed, as the default option. We suggest that the observed variability in zero marking is a residue of the substrate. A number of independent lines of evidence point in this direction. For one thing, the conceptual space covered by zero in NPE corresponds closely to that covered by the unmarked past in at least some West African languages. For another, the strong effect of negation (Table 2) is a known characteristic of Igbo. Finally, we have already observed significant substratum effects on other unrelated areas of the NPE grammar (Tagliamonte et al.: in press).

5. Conclusions

By taking past time as our reference point, rather than the markers said to encode it, we have succeeded in delimiting the different semantic subdomains making up the NPE past temporal reference sector. This in turn enabled us to scientifically test the role of each, as well as that of lexical stativity, in predicting the occurrence of overt and zero forms in discourse. We have established that relative tense organization of the past temporal reference system is certainly operative in NPE. On the other hand, our findings do not support the characterization of aspect prominence typically associated with Creoles in general, and NPE in particular. This can be inferred from the findings that (i) overt aspectual forms are rarely used, and (ii) LEXICAL STATIVITY does not distinguish among them or zero.\textsuperscript{16} We stress that these results could only have been revealed by examination of the different temporal contexts, in addition to the usual analysis of the distribution of forms across them.

Categorical perception coupled with the structuralist tendency to ascribe a single function to each form – like bin embodying anterior temporal relationship – together conspire in promoting the widespread notion that the forms studied here are grammatical markers of specific meanings. We have shown that only a small minority of NPE contexts with a particular semantic reference are accompanied by an overt form claimed to encode this reference. Moreover, the overt forms typically appear in more than one context. Thus although they have grammaticized considerably over the past couple of centuries, none of the forms considered here, zero included, may be said to have as yet attained the status of grammatical marker. Rather we have suggested that selection of an overt form may serve special discourse-pragmatic needs, typical of earlier stages of grammaticization. It follows that the selection of zero cannot be inferred to unambiguously signal the absence of a specific meaning, pace the Bickertonian scenario, whereby each form, overt and null, has a unique interpretation.

\textsuperscript{16} Nor is this a recent innovation. Fayer’s early WAPE data include (extremely rare) attestation of only one aspect marker, \textit{dos}. Interestingly, there is no evidence of a LEXICAL STATIVITY effect there either (ibid.: 313-14). These findings challenge the characterization of aspect as the major underlying mechanism of the past temporal reference system in (earlier or contemporary) NPE.
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Shana Poplack & Sali Tagliamonte


