

# The Applicability of the Bioprogram to the Languages of Papua New Guinea

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## パプアニューギニア諸言語へのバイオプログラムの適応性

クレイグ・アラン・フォルカー

### Abstract

Bickerton's bioprogram hypothesis states that humans have an innate linguistic bioprogram that pre-determines certain linguistic outcomes in children's speech in the absence of other linguistic models. Although this hypothesis explains the characteristics of many creole languages, it does not accurately predict the grammatical structures in the three creole languages of modern Papua New Guinea: Tok Pisin, Hiri Motu, and Rabaul Creole German. This is because of the conflicting processes of creole relexification and substrate language influence.

ビッカートンのバイオプログラム仮説は、人間は生まれつき言語的バイオプログラムを持っているとし、そのバイオプログラムは、言語がなく育った子供たちの発話に特定の言語的結果をもたらすと提示している。この仮説は多数のクレオールの特徴を説明できるが、パプア・ニューギニアで話されている3つのクレオール（トク・ピジン語、モツ語系ピジン語、ラバウル・クレオール・ドイツ語）の文法構造を正確に予測することができない。これは、対立している語彙の入れ替え過程と基層語の影響によるものである。

### Key words

ビッカートン, バイオプログラム, 語彙の入れ替え, クレオール話, パプア・ニューギニア  
Bickerton, bioprogram, relexification, creole languages, Papua New Guinea

## 1. Introduction

In the years following the publication of Derek Bickerton's *Roots of Language* in 1981, his theory about an innate bioprogram and the genesis of creole languages have had a vitalising effect on not only pidgin and creole linguists, but also on linguists studying "natural" languages, such as the Romance languages (e.g., Ludwig 2003) and even psychologists (e.g., Bruner and Feldman 1982). It is to be expected that the bioprogram theory must have serious implications for the study of Papua New Guinean languages, just as those languages must be relevant to the evaluation and future elaboration of the theory. This paper will outline the degree to which this is the case.

In very simple terms, the bioprogram theory proposed by Bickerton attempts to account for certain common traits shared by genetically unrelated creole languages world-wide, but not necessarily their pidgin predecessors, as well as by children learning their mother language. The claim is made that these common traits are the result of a slowly developing, innate bioprogram. Normally, children's bioprogrammed errors are corrected when they clash with the grammatical rules of the target language, but in the first creolising generation in an environment where an unstable pidgin is spoken, errors will not be corrected, and the children will expand the language in accordance with the bioprogram to fit the needs of a natural language. Bickerton hypothesises that this bioprogram was a prerequisite for human speech in the first place, so the theory can account for the origin of language in the species, as well as its acquisition in children and its rapid development in the first generation of creole speakers.

The immediate relevance of the theory for language study in Papua New Guinea is, of course, its relevance for the creole languages of the nation. These are the two major *lingua francae* of Papua New Guinea, Tok Pisin (New Guinea Pidgin English) and Hiri Motu (based on the Motu language of Port Moresby), both pidgin languages that have been creolised to a growing extent, and Unserdeutsch or Rabaul Creole German, a small creole remnant of German colonialism. Creolisation has also been called upon to explain the so-called "mixed" languages of Milne Bay Province (e.g., Capell 1943). Of these Bickerton mentions the position of "mixed languages" as the possible result of "partial reemergences" (1981: 293) of the bioprogram as a result of contact between typologically different languages. Tok Pisin is discussed in several places, but Hiri Motu is not mentioned in Bickerton (1981) at all. The first data on Rabaul Creole German were published only after Bickerton (1981) was published (Volker 1989), so he was unaware of this language at that time.

## 2. Tok Pisin

Bickerton limits his discussion to "classic" creoles, those which arose within one generation after the pidgin appeared, i.e., before the pidgin was able to stabilise to such an extent that the first creole generation was presented with a linguistic *fait accompli* that could have interfered with the bioprogram. This excludes Tok Pisin, which has undergone large-scale creolisation only after several generations as a stable and expanded pidgin, and is even today much more a second than a first language for most of its speakers. Yet Bickerton's position is not entirely clear-cut on this point. On page 73 he dismisses the use of counterexamples to his theory of creole tense, modal, and aspect systems from Tok Pisin, but on pages 81 and 82 he admits that there is some similarity between the development of sequence markers (e.g., Tok Pisin *bai* 'later marker' and *pinis* 'earlier marker') in at least some of the "classic" creoles and Tok Pisin. Such an admission is important because, as Boretzky (1981: 3) points out, if Tok Pisin is not the result of language universals, it must be the result of the rather ad hoc mixture of rules from differing substrate languages, i.e., the "Cafeteria Principle" rejected by Bickerton on page 49.

Others have pointed out the many similarities that Tok Pisin shares with the bioprogram. Mühlhäusler (1985 b: 480), for example, shows that where Hawaiian Creole English, the archetypical "classic" creole, is like all other creoles, it is also like Tok Pisin. Similarly, Muysken (1983: 888 ff.) claims that in spite of the number of unique features of Tok Pisin, it shares many similarities with Bickerton's "classic" creoles, such

as verb serialisation, passivisation though diathesis, preverbal particles, and no adjective-verb distinction (although it must be pointed out that the New Guinea Island substrate languages such as Nalik also share most of these features (cf Volker 1998)).

Both Muysken (1983: 889) and Mühlhäusler (1986: 225) point out that not enough is known of early slave trade history to be able to rule out the possibility that the history of Tok Pisin is considerably different from that of the Atlantic creoles. Bickerton (1981: 82) himself alludes to the possibility of this when he discusses the fact that Portuguese-based Crioulo became creolised over a long period of time, or that native speakers of Papiamentu, now the national language of the Netherlands Antilles, were continually being outnumbered by large numbers of pidgin-speaking new arrivals from Africa awaiting transport to other islands. What he does not discuss is the possibility that perhaps a stabilised pidgin might have arisen early enough in the Atlantic slave trade to have spread and been stabilised aboard ships before the first creolising generation on each island emerged. Such a situation would be similar to that proposed by Keesing (1988), that Melanesian Pidgin may have stabilised in a matter of several decades in the nineteenth century, much earlier than previously proposed by Mühlhäusler (e.g., 1985), thereby presenting a finished product to the first creolising generation. This would have been a different situation from that which has been documented for Hawai'i, in which there apparently was no stable pidgin available for modelling when the first creolising generation was born.

Some evidence for such a situation in West Africa might be provided by a study of the history of the *lan-cadoes*. Stoller (1985: 7–12) claims that these European traders and their mixed-race descendants were the models for varieties of pidgins that had spread throughout West Africa by the sixteenth century. If this is the case, and these were indeed stable or even expanded pidgins, the difference between the origins of the Atlantic creoles and Tok Pisin would not be very great; both, of course, would contrast with the origins of Hawai'i Creole English.

In order to determine the extent to which the bioprogram can be applied to Tok Pisin, further research is needed in two areas of Tok Pisin studies. One is the rate of acquisition of Tok Pisin by children. If there is a bioprogram, Bickerton (1981: 210) suggests that creole languages, being closer to the bioprogram, ought to be acquired more quickly and with fewer errors by children as a first language than is the case with non-creole languages. This would be easier to test in Papua New Guinea than in many other areas because it would be relatively easy to eliminate many variables such as cultural differences or differing levels of formal education. Thus, one way to determine the degree to which Tok Pisin complies with the bioprogram would be to see whether Tok Pisin is acquired more quickly and with fewer mistakes than Papua New Guinean “natural” vernacular languages are.

A second area is the influence of substrate languages on the development of Tok Pisin. In this regard there are three competing claims that need to be sorted out. Bickerton (1977: 56) states that influence over the years from indigenous Papua New Guinean languages with “strong genetic and/ or areal resemblances” has had a continuing influence on Tok Pisin, this being one of the reasons for its divergence from other cre-

oles. Mühlhäusler (1985: 77) claims, however, that while substrate influence may have been influential in the development of Tok Pisin phonology and semantics, its influence was much more restricted in syntax, the area pertaining most to the bioprogram hypothesis. Moreover, he states that what influence there was could have been limited only to specific periods in the history of the language.

Keesing (1988) discusses both of these claims and tries to show that they need not be diametrically opposed to one another. He agrees with Bickerton that the substrate languages were both relatively homogenous and a great influence on Tok Pisin. He points out, though, that the languages of what was German New Guinea are very heterogeneous and, as Mühlhäusler claims, have been shown to have had only a relatively minor impact on Tok Pisin. He gives historical evidence that the ancestor of Tok Pisin and the other forms of Melanesian Pidgin such as modern Torres Strait Creole, Solomons Pijin, and Vanuatu Bislama had its origin aboard ships travelling in the early nineteenth century in the area where grammatically similar Eastern Oceanic languages are spoken and not, as Mühlhäusler and others have assumed, on linguistically heterogeneous Queensland, Samoan, and New Britain plantations. Thus Keesing shows that the reason the substrate influence from the languages of the Bismarck Archipelago seems minimal, is that these were not the original substrate. He does agree with Mühlhäusler that language universals were an important factor in the development of Tok Pisin, so that the bioprogram came into whenever it did not conflict with the basic patterns of Eastern Oceanic languages.

### 3. Hiri Motu

Neither Bickerton or Keesing discusses Hiri Motu, a pidginised form of the Motu language spoken near present-day Port Moresby. Known in the colonial period as “Police Motu”, this language is a major lingua franca of much of the southern part of Papua New Guinea and according to fieldwork this writer recently carried out, has had a limited number of native speakers since at least the 1950 s. Although its history has been shorter than that of Tok Pisin, it is similar to Tok Pisin in that it has stabilised and been lexically expanded for many decades and has been used for a wide variety of social purposes without having been creolised by any but a small proportion of its speakers. It differs from Tok Pisin in that its superstrate language, “true” Motu, is spoken by many of its speakers, and that a number of its native speakers come from families who were originally speakers of “true” Motu. There is evidence that, in spite of its official name, it is not a descendant of the Pidgin Motu spoken on the Hiri trading expeditions of the past, but is a relexification of a Papuan Pidgin English related to, but different from, Tok Pisin (Dutton 1985).

It is somewhat surprising that much of the criticism of aspects of the bioprogram have centred on the role of Tok Pisin without considering the presence or lack of collaborating evidence from Hiri Motu. Hiri Motu seems to conform to the bioprogram less than Tok Pisin. Like Tok Pisin it conforms by having movement rules to focus constituents to sentence-initial positions, a tendency to use subject copying for relativisation, no copula, no distinction between adjectives and verbs, no distinction other than intonation between yes/ no questions and statements, and no passive form as such. Like Tok Pisin it departs from the bioprogram by having no definite article, by not following the bioprogram’s tense-modality-aspect system, and by not distinguishing between realised and unrealised complements. But whereas Tok Pisin agrees with the bioprogram

in using the same lexical item for existentials (“there is”) and possession (“to have”), *gat*, Hiri Motu does not even have a word for “have”. If, as Bickerton postulates, Tok Pisin is deviant because of its long history as a stable pidgin before large-scale creolisation took place, one would expect it to be more, not less, deviant than Hiri Motu, since, if Keesing is correct, Tok Pisin has been stabilised since the middle of the nineteenth century, while Hiri Motu has been stable only since around World War I.

#### 4. Rabaul Creole German (Unserdeutsch)

The most promising candidate for the bioprogram in Papua New Guinea was Rabaul Creole German (called *Unserdeutsch* by its speakers), which developed during the German colonial period previous to World War I as the language in the dormitories of a mission orphanage for mixed-race children. It became creolised as it was developing, since many of the young children who arrived at the orphanage would not have been old enough to have much command of any other language, and virtually all the first generation speakers married within the group (Volker 1982: 9–13). Of the three documented creole languages of Papua New Guinea, it is the only one to fulfil Bickerton’s (1981: 4) narrow definition of a creole: it developed out of a pidgin that had not existed for more than one generation, and it arose in a population where not more than 20% were speakers of the superstrate language and the remainder spoke diverse languages (the older children who came spoke either Tok Pisin, an indigenous language such as Kuanua, and/ or the immigrant language of their fathers, such as German or Chinese). In many respects, Rabaul Creole German seems to have begun as a relexification of Tok Pisin, such as in its use of *alle* (cf. Tok Pisin *ol*) as a plural marker, and the distinction between inclusive and exclusive first person plural pronouns. But many of its features, such as its passive and tense systems, have a strong resemblance to Standard German or English as well.

In spite of the fact that its history makes it the only ideal example of a creole according to Bickerton’s definition, Rabaul Creole German conforms much less to the bioprogram than Tok Pisin or Hiri Motu. One possible reason for this could be the somewhat artificial nature of its origin; the oldest speakers interviewed for fieldwork in the 1970s reported that it began in the dormitories as a way of speaking “comfortably” and in a way that would emphasise the students’ separateness from their German caretakers. As Mühlhäusler (1984: 37) points out, however, such conscious artificial creation cannot be ruled out in other creoles. The conscious use of in-group terms and phrasing has been a means of survival for African Americans since the earliest days of slavery, for example, and Stoller (1985: 11) cites reports of sixteenth century slaves receiving language lessons in Pidgin English by slave traders who themselves spoke an already Africanised English.

A discussion of the lack of fit between the bioprogram and Rabaul Creole German is found in Mühlhäusler (1986: 222–225). He notes that where Tok Pisin deviates from the bioprogram, Rabaul Creole German does as well. Tok Pisin also deviates where Hiri Motu does, in not using the same form for existentials and possession. In addition, Rabaul Creole German deviates in that it has a copula, in that adjectives and verbs obviously belong to separate grammatical categories, and, as mentioned above, in that it has a passive construction that seems to be a calque of the English passive: copula + past participle + *bei* / *by* + agent. Mühlhäusler also mentions that it does conform to the bioprogram’s description of relativisation, but re-examination of the data has unearthed one example of relativisation through subject copying, which might in-

dicating the original form of the basilect.

In discussing the causes for this lack of fit, Mühlhäusler (1986: 225) notes that Pitcairnese, the creole language spoken by descendants of mutineers of the *Bounty*, shows a similar lack of fit. He suggests that this might be because both Pitcairnese and Rabaul Creole German grew out of pidgins unrelated to those which were the precursors of other creoles. With both there was also considerable exposure to the superstrate languages in the first generation, for the Rabaul Creole German speakers in the mission school and for the first Pitcairnese from their British mutineer fathers (before these fathers killed each other off!). This close contact was in direct contrast to the experience of the first generation of Hawai'i Creole English speakers, not to mention that of the first children of slaves in the Americas.

This would indicate a need for more research into the relevance of the degree of access to the superstrate language in the early stages of creolisation, and a closer look at the social factors that promote or hinder the bioprogram. Of course, much more data about Rabaul Creole German are also needed.

## 5. Conclusion

As has been seen above, there are discrepancies between the bioprogram hypothesis and all three creoles spoken in Papua New Guinea. Bickerton himself discussed reasons why Tok Pisin would not fit into the bioprogram hypothesis, and the same reasons could be applied to Hiri Motu. But there is little in the history of Rabaul Creole German to suggest why it, too, would not fit, much less why it would deviate from the bioprogram more than Tok Pisin and Hiri Motu. It would seem unlikely to be simply coincidental to have three mismatched creoles in one geographic area.

It may well be possible that factors will be identified to explain why the bioprogram could not apply to Rabaul Creole German, so that the bioprogram hypothesis can simply be judged irrelevant to research into the creole languages of Melanesia. If this is so, it would have the unfortunate effect of invalidating generalisations for use in Melanesia that are applicable elsewhere in the world. A more useful approach is that of Keesing, who recognises both bioprogram universals and substrate influences in the formation of Melanesian Pidgin English: "Substratophiles and universalists can... live together happily in Melanesia. We need, in fact, to be both at once." (Keesing 1988: 12). Such an approach explains the anomalous position of the creole languages of Melanesia while at the same time recognising their essential similarities with creoles elsewhere and not isolating research into their history and contemporary nature from the discourse on the Atlantic creoles.

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