

**The Interaction of Declarative & Procedural Memory in the
Process of Creolization: The Case of
Sierra Leone Krio.**

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Abstract

This paper is an exposition of learning models of declarative and procedural memory and its application in the fields of first and second language acquisition and by extension Creole genesis. It provides detailed information on the Declarative/Procedural (DP) Model of Memory and how the model can be used to account for the process of creolization. Both declarative and procedural memories, sometimes associated with explicit/conscious or implicit/unconscious learning respectively, are proposed to play a significant role in daily human learning experiences, including the acquisition of languages. The development and utilization of first and subsequent languages are proposed to be governed to a large extent by the declarative and procedural memory systems, which interact in complex ways to generate words, phrases, and sentences during verbal (and to some extent written) communication. The paper adopts the substrate view of creolization as a process of second language acquisition and highlights how shared linguistic memory (declarative and procedural), cultural backgrounds, and

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experience in pre-enslavement West African communities helped develop and reshape the primary medium of communication (Creole languages) among slaves and their descendants during and after the period of enslavement. The process of creolization is discussed at length to underscore parallels with the process of second language acquisition, and in effect, to demonstrate how the process of creolization and the linguistic properties of emerging Creoles can be accounted for as an interaction of declarative and procedural memory.

I. Introduction

This paper explores the view of creolization as a process of second language acquisition and attempts to explain the notion of Creole genesis within the framework of models of declarative and procedural memory. The substrate account of creolization argues for significant influence of African substrate languages (particularly those belonging to the Kwa language subgroup from which a majority of enslaved West Africans were argued to have been obtained) in the shaping and reshaping of the grammar of Creole languages (particularly the Atlantic varieties). Enslaved Africans transported to the Americas had limited or no proficiency in English and, in their attempts to communicate in English, consciously and subconsciously transferred linguistic properties from their native (West African) languages into emerging Creole languages, which later became their primary medium of communication. That is, the enslaved Africans and their descendants utilized declarative and procedural linguistic memory acquired through their native languages in the construction and reconstruction of a new language. native languages in the construction and reconstruction of a new language.

II. Cognitive Models of Memory & the Nature of Second Language Acquisition

Declarative/Procedural Memory Model and Language Development, Processing and Use

The Declarative/Procedural (DP) Model proposes the existence of two largely independent but interactive brain memory systems or capacities that play crucial roles in language development, processing and use. This model further predicts dissociation between a memorized mental lexicon (i.e. vocabulary system), which is generated by declarative memory, and a computational mental grammar (i.e. grammatical system), which is generated by procedural memory.

The declarative memory system is proposed to be specialised for learning and storing ‘arbitrarily related information’ (Ullman 2001: 37) and governs memorized lexical items, the recall of past events and factual knowledge.

According to Ullman (2005), this memory system underlies the learning representation and use of semantic and episodic memory, including a memorized mental lexicon (i.e. the vocabulary system in the brain). Memorized forms (for which the relationship between form and meaning is arbitrary, as in the meanings of lexical items) are hypothesised to be generated by declarative memory. As such, declarative memory is sometimes referred to as explicit or conscious knowledge and is proposed to be acquired consciously.

The procedural memory system is proposed to be activated in the gradual acquisition and control of new and existing cognitive skills through practice and experience. According to Litman & Reber (2005: 440), this form of memory ‘exists in a tacit form, influencing thought and behaviour while itself remaining

mostly concealed from conscious awareness.’ Procedural memory is thus sometimes referred to as implicit memory and is proposed to involve the efficient and automated processing of information (Anderson 1980; Gupta & Dell 1999; Litman & Reber 2005; Ullman 2001, 2004, 2005; Wood Bowden et al. 2005). The procedural memory system is thus proposed to be activated in the learning and control of new and existing cognitive skills, including linguistic memory, and, according to Ullman (2001:38), ‘sub-serves syntactic as well as morphological (and possibly also phonological) computations.’ That is, the procedural memory system specializes in the acquisition and processing of productive, rule-governed and systematic aspects of language. This includes the application of grammatical rules and constraints that generate morphological transformations, complex words, phrases and sentences in a language.

2.1. The DP Model, Cross-Linguistic Influence & the Process of Second Language Acquisition

2.1.1. Declarative/Procedural Memory & the Process of Second Language Acquisition

Cognitive models have been used in second language (L2) acquisition research to articulate the role of memory in the acquisition of knowledge. The Information Processing Model (McLaughlin 1987; McLaughlin & Heredia 1996) propagates the view of learning in general as a cognitive process and L2 learning as acquisition of complex cognitive skills. Central to this concept are the notions of control, restructuring, and automaticity. Cognitive skills (including linguistic knowledge) are initially developed through controlled memory processes. That is, acquisition of new linguistic knowledge is conscious and

deliberate and involves conscious thought processes (i.e. declarative memory) during the early stages of L2 acquisition. New linguistic information is constantly integrated into the learner's current and developing L2 knowledge, which is constantly restructured and reorganized during which changes are made to its internal representation. The knowledge later becomes routinized or automated with practice and experience.

McLaughlin & Heredia (1996: 218) draw a parallel between controlled/automatic processing and declarative/procedural memory. They state:

Procedural knowledge is thought to be acquired through extensive practice and feedback and, once learned, is more easily activated in memory than declarative knowledge. This approach is in many respects similar to [the] distinction between controlled and automatic processing in that both account for the progression from a more cognitively demanding to an autonomous state of learning.

2.1.2. Declarative/Procedural Memory & Transfer of First Language (L1) Memory in Adult Second Language Acquisition

L2 acquisition research indicates difficulty experienced by adult L2 learners in developing knowledge of some grammatical structures in L2, resulting in persistent grammatical errors in spite of increasing L2 competence. This may stem from difficulty by L2 learners to produce and comprehend appropriate structures that reflect word order patterns in the L2 that are different from those in their native or first language (L1). One proposal stipulates that the development of native-like ability in L2 is impossible or extremely unlikely after puberty because of age-related changes in the way the brain processes language. This results in a decline in, or loss of, ability by post-puberty learners to produce and comprehend accurate L2 structures that

are assembled differently in L1 and L2. That is, processing linguistic information may be less automatic in L2 than in L1 because of maturational constraints that may become active after a biological period and may make it extremely unlikely for L2 speakers to utilize the same processing mechanisms available to L1 speakers. Clahsen & Felser (2006: 568) also propose that differences in L1 and L2 processing may persist, particularly 'in the domain of complex syntax, even in highly proficient L2 speakers' (564). They further maintain that 'a high degree of proficiency in the L2 does not necessarily lead to native-like processing ... [and that] experience and practice might not be enough to develop native-like grammatical processing skills in the L2'.

Memory in one's native language (L1) and in adult L2 learning is proposed to be procedural and declarative respectively (Anderson 1980, 1983; Wood Bowden et al. 2005; Ullman 2001, 2005). Children acquire L1 implicitly and in effect develop implicit (procedural) memory of L1 rules and constraints. According to Ullman (2001, 2005) and Bowden Wood et al. (2005), the processes of L1 and L2 development are fundamentally different depending on the age of L2 exposure with a shift in learning strategy from implicit acquisition in L2 to explicit memorization in L2. Older L2 learners depend upon declarative memory in processing L2 grammatical forms. They compute L2 grammatical forms consciously using L1 procedural memory. This is due to the fact that the acquisition of procedural (grammatical) memory becomes much more challenging than the acquisition of declarative (lexical) memory in L2 with increasing age. The procedural memory system becomes less efficient in abstracting L2 rules while the declarative memory system becomes enhanced. This results in the successful

memorization of idiosyncratic lexical items and some L2 grammatical forms though these forms are not internalized.

Paradis (2009) corroborates the notion of procedural acquisition of L1 and explicit learning of L2 by adults. Less availability of procedural memory to L2 learners, Paradis claims, makes them more dependent on declarative memory and some consciously learned rules in L2. The gap in the implicit linguistic competence (the rule system) of adult L2 learners is compensated by a reliance on their explicit memory of L2 – that is, conscious application of an L2 rule. In short, L2 speakers do not use implicit linguistic competence (procedural memory) in L2 but rather ‘controlled meta-linguistic knowledge (Paradis 2009: 30), which is declarative memory. The difficulty in developing procedural memory in L2 may condition adult learners to become more reliant on L1 procedural memory especially in computing complex L2 lexical items and structures. This is acknowledged by Anderson (1980) who proposes that L1 cognitive knowledge is likely to influence L2 cognitive knowledge negatively when these forms of knowledge are directly incompatible. He states that this negative transfer of cognitive skills ‘can be quite significant when a skill is placed in direct conflict with a well-engraved old skill’ (1980: 247).

In a similar vein, Paradis (2009) proposes that repeated and consistent use of L1 results in its ongoing entrenchment, which may have detrimental effects particularly on the development of L2 grammatical properties and less so on vocabulary development. As a result, ‘a small system of artificial grammar rules may be syntactically instantiated by the adult speaker in a way that strongly resembles native-like sentence

processing (Paradis 2009: 134). Paradis concludes that ‘maintenance of L1 interferes with appropriating L2; the continued experience with L1 is entrenched; [and] proactive interference from L1 affects appropriation of L2’ (2009: 134).

The implication then is that L2 development primarily involves the utilization of declarative memory, and L2 learners either consciously memorize and apply the linguistic properties or consciously apply their procedural memory of L1 (i.e. the grammatical rules and constraints in L1) in their computation of the grammatical rules and constraints of L2. That is, cognitive skills implicitly developed in L1 (including grammatical rules and constraints) as procedural memory may be incompatible with L2 grammatical rules and constraints resulting in the negative transfer of L1 grammatical rules and constraints in the computation of L2 grammatical properties.

III. A Second Language Acquisition Approach to Pidginization & Creolization

3.1 Pidgin & Creole Languages

A pidgin is a language that emerges as a result of contact (generally through trade, enslavement, or colonization) between two or more groups that are socially distant from each other and speak mutually unintelligible languages with little or no desire to learn the language of the other. One group is numerically smaller but socially and politically powerful and dominant, and its language is considered prestigious. The other group is numerically larger but is considered socially and politically inferior. The pidgin vocabulary is mainly derived from the prestigious (lexifier) language and other aspects of grammar may be incorporated from local languages. In spite of borrowings, pidgins develop a linguistic system that is distinct from the languages that

contributed towards its existence. Over time, a pidgin may become the primary medium of communication in a multilingual setting. It may become the predominant language incross-linguistic relationships and is acquired as a native language and used as the primary means of communication by the next generation in the community. The pidgin has now evolved into a Creole. As the predominant language, the Creole is used in all aspects of communication, and it becomes expanded and more elaborate to accommodate the complex and intricate linguistic structures required to express a wide range of issues. This expansion and elaboration involves creation of new words and grammar rules as well as borrowing and modification of existing forms and grammars from multiple languages.

3.2. Pidginization & Creolization as Processes of Second Language Acquisition (SLA)

Neuman-Holzschuh and Schneider (2000: 3) outline crucial issues that researchers need to address in order to provide a comprehensive account of the origins, development, and restructuring of Creole grammar. Included among these issues are the roles of bilingualism and second language acquisition. Most of the enslaved Africans transported to the Americas were adult native speakers of West African languages that primarily belonged to the Kwa language subgroup used predominantly in West Africa. Such languages, including Yoruba, Igbo, Akan, Twi, Nupe and Ewe (among others), are generally referred to as West African substrate languages in Creole studies. Newly arrived slaves had minimal or no grammatical competence in English. They were additionally placed in groups that were linguistically diverse and were further prohibited from using their primary West African languages in an effort to quell conspiracies to rebel or escape.

According to Myers-Scotton (2002: 272), substrate influence was necessitated by the following linguistic and social conditions under which Creole languages emerged:

- i) Speakers of different languages, mostly not mutually intelligible, were brought together in a plantation setting.
- ii) With an obvious need for some communication with each other, they need a lingua franca.
- iii) In almost every case, no L1 from among the slaves/workers had numerous enough or powerful enough advocates to make it a choice for this role.
- iv) Another language, whatever variety the overseers/owners spoke, was another candidate; just because it was their language and therefore had a utilitarian value in the setting, it had the measure of prestige to make it an attractive candidate.
- v) At the same time, the slaves/workers did not necessarily spend much time in earshot of these overseers/owners; therefore they had few opportunities to acquire this language.

The notion of creolization as a process of adult L2 acquisition is best articulated by Siegel (1999: 2) who states that:

... in the early stages of language contact, individuals attempt to speak a common second language (L2), either the superstrate language itself or a newly emerging contact variety using its lexicon, and doing so, transfer features from their first languages (L1), the substrate languages, onto forms of the L2. These L2 forms with some L1 properties join the pool of variants which are available as potential models when social conditions are right for the stabilization of a new contact variety, such as a pidgin or a Creole.'

Siegel (1999) further identifies situational factors that generally trigger transfer. Some of these are evident in both L2 acquisition and creolization. They include the proposal that transfer is more likely to occur in naturalistic, unfocused and untutored settings, especially during the early stages of exposure when learners are under pressure to communicate using complex constructions but with little knowledge of L2. Learners thus fall back on L1 rules in L2 use.

Support for the substrate proposal is generally drawn from evidence of systematic parallels not only between linguistic structures of substrate and lexifier languages (such as English) but also between the social contexts of creolization and adult L2 acquisition. According to the substrate account, slaves and their descendants in the American South East plantations developed a pidgin, which later became a Creole, in attempts to communicate with plantation owners and other slaves from different linguistic backgrounds in English. They were compelled to borrow phonological, lexical, and grammatical properties from their primary (substrate) languages, which were incorporated into the pidgin and emergent Creole. Thus, though the Creole vocabulary was derived primarily from English, its structure, pronunciation (including intonation), and idiomatic expressions were significantly influenced by linguistic properties of substrate languages transferred into the Creole by the enslaved Africans. Development and restructuring of the Creole grammar continued to be influenced by substrate languages with continued transportation of enslaved people from West Africa to the

Americas. As a result, the underlying Creole grammar exhibited forms and structural properties whose functions parallel those of similar properties in substrate languages (Arends 1993; DeGraff 2001; Holm 1988; Lefebvre 1993; Lumsden 1999; Mather 2006; Myers-Scotton 2002; Siegel 1999).

Advocates maintain that adult non-native speakers were the predominant users of emergent Creoles and features of substrate languages were incorporated into Creoles through L1 transfer, a very common process in second language acquisition (SLA), over multiple generations. After a period of time, some substrate features were adopted while others were eliminated. However, the transfer of substrate morpho-syntactic features was proposed to be a transfer of the functions (functional transfer) and not necessarily the forms.

Arends (1993: 374) draws linguistic support for this position from data from multiple studies involving a number of pidgins and Creoles including Tayo, Solomon Island Pidgin, Krio, Nigerian Pidgin, Cameroonian Pidgin, and Sranan to make the claim that ‘creolization is largely a matter of SLA by adults, since only then can there be any conflict at all between first and second language. On the basis of an exhaustive study of Sranan, Arends (1993: 376) later concludes that ‘the creolization of Sranan must have been largely a process of SLA by adult speakers which extended over several generations, say, between one hundred and two hundred years.’ This view of creolization, according to Arends, provides a natural explanation for most of the West African substrate features that are still present in a number of Atlantic Creoles. These are relics of features of substrate languages used by adult slaves and transferred into the Creoles used by slaves over multiple generations.

3.3. The Transfer of L1 Memory in the Processes of Pidginization/Creolization and L2 Acquisition

The processes of pidginization/creolization and language (L1 and L2) acquisition are similar in a number of ways. These processes initially start with limited input and limited output, which generally involves the simplification of input received from the target language. That is, a pidginized grammar is initially developed primarily from declarative memory of properties of the target language (i.e. English). This simplified input is inadequate to serve the communicative needs of its users. Expansion and elaboration of this initial grammar is triggered by the linguistic resources available to the speakers. For children in L1 acquisition, additional linguistic resources become more available with continued exposure to and input from the target language. For L2 and pidgin/Creole speakers, besides the target language, additional linguistic resources become available through knowledge or memories of previously learned languages. That is, linguistic memory from L1 or substrate languages is transferred and utilized in attempts to become more expressive in the target language.

In this respect, the process of creolization is subjected to cross-linguistic influence or transfer. Enslaved Africans and their descendants fall back on declarative and procedural memory of substrate languages in attempts to communicate in and approximate properties of English, a language in which they demonstrated minimal or no competence. This resulted in conscious transfer of the concepts of substrate lexical items and subconscious transfer of substrate grammatical properties which were superimposed on English lexical items. That is, they utilized both declarative (conscious) and procedural (subconscious)

memory of their primary languages in the creation and expansion of the Creole that later became their lingua franca and that of their descendants.

IV. Origin of Substrate Influence: The Case of Sierra Leone Krio

There are two major proposals advanced to account for the origins of Krio, a Creole of English origin used as the lingua franca in Sierra Leone. The more popular account argues for the emergence of Krio from Creoles of the Americas (i.e. Atlantic Creole varieties), with which Krio shares some linguistic similarities. According to Opala (1987), enslaved people from West Africa and their descendants worked in plantations in the American South East and developed a pidgin, which later became Gullah Creole – a mixture of English and West African languages. Though its vocabulary was derived primarily from English, its structure, pronunciation (including intonation), and idiomatic expressions were heavily influenced by the West African languages that the enslaved people used as primary languages. Huber (1999: 59-65, 2000: 276-277) proposes that Krio emerged from varieties of Creoles used primarily by groups of mostly freed slaves, who were resettled in the Sierra Leone peninsula, including Freetown, between 1787 and 1850. One significant group (in terms of linguistic contributions) arrived in Sierra Leone in two separate shipments: the Nova Scotians (freed slaves relocated in Nova Scotia, Canada) in 1787 and the Jamaican Maroon settlers in 1796. Creoles from the West Indies, particularly the variety brought by the Jamaican Maroon settlers, are proposed (Huber 1999) to have had significant input into what has now evolved into present-day Krio. Another group – the Liberated Africans (or Recaptives) – were mainly recaptured would-be slaves from intercepted slave ships by the British fleet

patrolling the West African coast that were released and resettled in the Sierra Leone peninsula. These were by far the largest group and were resettled over a period that stretched from 1808 (when Sierra Leone was declared a crown colony) to 1863. They brought along a variety of West African languages, with Yoruba being the most influential. The linguistic contributions of West African languages to Krio are well documented. The language and traditions of the Yoruba settlers have had a strong influence on the language, social life and customs of Krio speakers in Freetown. Yoruba is second only to English as the largest contributor to the Krio lexicon (Bradshaw 1966, Fyle 1994, Fyle & Jones 1980, Jones 1971).

V. Substrate Influence and the Role of Declarative Memory in Creolization: Declarative Memory and the Transfer of Substrate Lexical Properties in Exocentric Compounds: The Case of Krio

A pidgin, as mentioned earlier, eventually develops a distinct linguistic system that includes borrowed lexical items from its lexifier language. When the pidgin was acquired as a primary language by the next generation and evolved into a Creole (Krio), it increasingly became the primary medium of communication and the predominant language in cross-linguistic relationships. The need thus arose for the emerging Creole to become more complex and elaborate lexically to accommodate the wide and expanding variety of linguistic functions in the community. Adult pidgin users partially remedied this situation by consciously transferring lexical concepts from their primary languages (i.e. substrate languages) into the lexifier language (i.e. English), using existing English lexical items. The new lexical items were thus integrated into the mental lexicon of the Creole acquired by subsequent generations of Creole speakers.

Krio has a rich system of idiomatic expressions in the form of compounding, which have parallels in some West African languages from which they were likely derived. In this situation, the lexical concepts developed in L1 (substrate languages), not the linguistic forms, were transferred into Krio using words of English origin. For example:

IGBO:	<i>anya uku</i> (eye + big)	‘greed’
KRIO:	<i>big yay</i> (big + eye)	‘greed’
YORUBA:	<i>ehnu didu</i> (mouth + sweet)	‘persuasiveness’
GA:	<i>na mo</i> (sweet + mouth)	‘flattery’
TWI:	<i>ano yehdeh</i> (mouth + sweet)	‘flattery’
KRIO:	<i>swit mot</i> (sweet + mouth)	‘persuasiveness’
KRIO:	<i>swit yay</i> (sweet + eye)	‘womanizing’
KRIO:	<i>swit pis</i> (sweet + urine)	‘diabetes’
KIKONGO:	<i>kanga ntima</i> (tie + heart)	‘adamant’
KRIO:	<i>tranga at</i> (strong + heart)	‘adamant’
KRIO:	<i>big-at</i> (big + heart)	‘proud’, ‘stubborn’
KRIO:	<i>bad at</i> (bad + heart)	‘envy’, ‘jealousy’

VI. Substrate Influence and the Role of Procedural Memory in Creolization: Procedural Memory and the Transfer of Substrate Morpho-Syntactic Properties in Creoles

Substrate proponents argued that the development and restructuring of Creole grammar were significantly influenced by substrate languages, and that the underlying grammar of current Creoles (Atlantic varieties) exhibits structural properties resembling those of substrate languages. The linguistic system of the original pidgin also initially consisted primarily of grammatical rules of English. Its evolution into a Creole and its new status as the predominant language and primary medium of communication resulted in an increasing need for it to become

more structurally complex and elaborate to accommodate the intricate linguistic structures required in this new capacity. The difficulty, however, in developing procedural memory in L2 (Anderson 1980; Paradis 2009) made it extremely difficult for adult pidgin users to acquire and internally increasingly reliant on L1 procedural memory. As native speakers of substrate languages, and because of minimal grammatical competence in English, they were compelled to borrow grammatical structures from their primary (substrate) languages into which they superimposed lexical items derived from English, in attempts to communicate in English. This resulted in the subconscious transfer of morpho-syntactic properties of substrate languages, which formed part of the L1 procedural knowledge of the slaves, into the emergent Creoles. Influence of such substrate morpho-syntactic properties is evident in a number of Atlantic Creoles, including the following structural properties.

6.1. Focused (Cleft) Constructions

In focused constructions, a segment of the sentence is fronted (i.e. appears at the beginning of the sentence) for emphasis and introduced by a cleft marker. The functions of such constructions in Creoles arguably originated from substrate languages and were transferred into Creoles during early creolization. The focus marker in Creoles (/na/ or /a/) is identical or similar in form and function to those in a number of substrate languages (/na/ or /ni/). Such constructions are present in English, where they emphasize nominal phrases. In Creoles and substrate languages, however, focused constructions additionally emphasize wh-interrogatives and verbal/adjectival predicates.

6.1.1. Nominal Clefting

Nominal clefting in Creoles, as with English, involves the fronting of a nominal phrase. However, the use of a wh-element or complementizer, which is optional in English, is prohibited in Creoles and substrate languages. For example:

English

2. It was John (whom/that) we saw
3. It was to John (that) I spoke

Creoles

Krio

4. na jɔn wi bin si
It-is John we PAST see
'It was John (whom/that) we saw'
5. *na jɔn we wi bin si
It-is John COMP we PAST see
'It was John (whom/that) we saw'

Sranan (Alleyne 1980)

6. a so a pisi tori kom kaba
It-is so the piece of story come finish
'So the story ends'

Jamacian Creole (Alleyne 1980)

7. a big im big
It-is big he's big
'He's really big'

Substrate Languages

Twi (Alleyne 1980)

8. kwadwo na ɔ baa ha
Kwadwo it was came here
'It was Kwadwo who came here'

Yoruba (Holm 1988)

9. aso ni mo ra
cloth it was I bought
'It was cloth that I bought'

Wolof (Allsopp 1976)

10. ragal la ragal rek
fear it is fear only
'He is/they are really frightened'

6.1.2. Wh-Interrogative Clefting

In wh-interrogative clefting, a focused wh-interrogative phrase is introduced by the focus marker and, as in nominal clefting, the use of an overt complementizer is prohibited. Wh-interrogative clefting is productive in Atlantic Creoles and substrate languages but is not allowed in English:

Creoles

Krio

11. na udat bin kam
it-is who PAST come
'Who was here?'
12. na wetin dEn de du
It-is what they PROG do
'What are they really doing?'

Jamaican Creole (Alleyne 1980)

13. mi no nuo a we im go
I don't know (it is) it is where he has gone'

Guyanese Creole (Alleyne 1980)

14. a wisaid dem da lib naw
It-s which-side they Prog live now
'Where do they live now'

Substrate Languages

Twi (Alleyne 1980)

15. hae na o huu o
whom it-is he saw him
'Whom did he see?'

Yoruba (Alleyne 1980)

16. ti taa ni
for who it-is
'Whose...?'

6.1.3. Predicate Clefting

The focused constituent in predicate clefting is a verbal or adjectival predicate, which is also introduced by the focus marker. As with other cleft constructions, the use of an overt complementizer is prohibited. However, unlike other cleft constructions, the focused constituent is both fronted and copied in its original position in the sentence. This type of clefting is productive in Creoles and substrate languages but is not allowed in English:

Creoles

Krio

17. na waka nī mī wi bin de waka
it-is walk only we PAST PROG waka
'We were only walking around'

18. na gladi dɔn gladi
it-is happy they happy
'They are really happy'

Jamaican Creole (Alleyne 1980)

19. a wan ple mi bin ple
It-is one play I PAST play
'I really played'

Sranan (Alleyne 1980)

20. a soso pley mi ben pley
It-is mere play I PAST play
'I merely played'

Substrate Languages

Yoruba (Alleyne 1980)

21. mi mu ni won mu mi
me take it-is they took me
'They actually arrested me'

Twɪ (Alleyne 1980)

22. hwe na kwasi hwe ase
fall it-is Kwasi fell down
'Kwasi actually fell'

Yoruba (Williams 1976)

23. akɔwe ni nwɪ n kpa a
killing it is they kill him
'They actually killed him'

Nupe (Allsopp 1976)

24. wuwu a wu wun o
kill-kill they kil + emphatic terminal
'He was definitely killed'

6.2. Verb serialization

This is one of the most distinguishing features of Atlantic Creoles differentiating them from English. Such constructions generally contain one syntactic subject and a series of lexical verbs that are not linked by an overt conjunction (subordinate or coordinate) or complementizer. A lexical subject is prohibited from appearing in front of subsequent verbs in the series. In addition, one verb does not serve as an auxiliary or infinitival complement to other verbs in the series. This construction type is common in Creoles and substrate languages. For example:

Creoles

Krio

25. di uman kuk rɔs sɔl
The woman cook rice sell
'The woman cooked some rice which she sold'
26. i bai klos gi in pikin
he buy clothes give his child
'He bought some clothes which he gave to his child'
27. a tek nɔf kɔt di bred
I take knife cut the bread
'I cut the bread with a knife'

Jamaican Creole (Alleyne 1980)

28. im tak naif kot me
he took knife cut me
'He cut me with a knife.'

Jamaican Creole (Alleyne 1980)

29. kya di buk dom gi me
'bring the book for me'

Saramaccan (Alleyne 1980)

30. de suti en kii
they shot him killed
'The shot him to death'

Substrate Languages

Yoruba (George 1975)

31. ajao ra epa je
Ajao bought peanuts ate
'Ajao bought some peanuts and ate them'

Twi (Lord 1993)

32. ɔyɔ adwuma ma me
he does-work give me
'He works for me'

Nupe (George 1976)

33. tsoda gi je afunin
Tsoda ate food full
'Tsoda ate and he is full'

Akan (Schachter 1974)

34. kofi yɔɔ adwuma wiece
Kofi did work finished
'Kofi finished working'

Yoruba (Awobuluyi 1973)

35. olu rin ti
Olu walked fail
'Olu was unable to walk'

Ewe (Lord 1973)

36. e no tsi ku
he drank water died
'He drowned'

All of the above examples contain only one syntactic subject and two verbs without any conjoining marker or complementizer. In some of the above examples, the two verbs in the constructions are lexically transitive but only one internal argument noun is phonetically realized, which is shared by both verbs. In other examples, the second verb meaning 'give' – a dyadic verb – has one argument phonetically realized but shares its other argument with the first verb. These constructions are not present in Standard English and may be used marginally in some non-standard English dialects, especially with the verbs 'come' and 'go'. They are however much more productive in Creoles and substrate languages.

6.3. Complementation involving the sentential complementizer /se/

These construction types are present in a number of pidgin and Creole languages, including Ghanaian and Nigerian Pidgin, Gullah Creole, Jamaican Creole and Saramaccan (Byrne 1987; Matthews & Yip 2005; Veenstra & den Besten 1995). Accounts of the functions of /se/ are perhaps the most controversial of syntactic properties in Creoles arguably borrowed from substrate languages. It is homophonous with the lexical verb meaning *say* though it also functions as a sentential complementizer in a number of Atlantic Creoles and substrate languages. Thus, there has been continued debate on the extent to which its lexical, functional, and syntactic properties are influenced by substrate languages. The form of /se/ and its functions as a verb in a number of Atlantic Creoles are very similar to its equivalent *say* in English. However, /se/ additionally functions as a

complementizer in such Creoles in ways different from the way the English complementizer *that* functions. Admittedly, the form *say* is used marginally as a sentential complementizer in restricted contexts in a few non-standard English dialects. Nevertheless, there are fundamental differences between the Creole /se/ and the English *that*-complementizer in terms of their functions and

The complementizer *that* could be optionally deleted in English, as in (37), (38) and (39), though it is required to be obligatorily overt in Creoles, including Jamaican Creole and Saramaccan (Byrne 1987; Veenstra & den Besten 1995). For example:

English

- 37 . John told me (that) Fred had broken his leg
- 38. I thought (that) they won the lottery
- 39. It's likely (that) my friend won the lottery

Creoles

Krio

- 40. a tɔl am se yu dī n go na os
I tell him that you Perf go Loc house
'I told him (that) you've gone home'
- 41. *a tɔl am yu dī n go na os
I tell him you Perf go Loc house
'I told him you've gone home'
- 42. a mɔmba se dī m bin win loto
I think say/that they Past win lottery
'I thought (that) they won the lottery'

- 43. *a mɔmba dɔm bin win loto
I think they Past win lottery
'I thought they won the lottery'
- 44. I laikli se mi padi win loto
It-is likely that my friend win lottery
'It's likely that my friend won the lottery'
- 45. *i laikli mi padi win loto
It-is likely my friend win lottery
'It's likely my friend won the lottery'

Jamaican Creole (Alleyne 1980)

- 46. i fieba sɔj ...
'It seems that ...'
- 47. a how sī yu no nuo im?
'How (is it) that you don't know him?'

Bislama¹

- 48. Peter I talem long mi se hem I gat sam watu
'Peter told me that he had some money'
- 49. Hem i promis se tumora
'She promised that it will be tomorrow'

Substrate Languages

Twi (Lord 1993)

- 50. ī yɔ nokware sī wī yare
it-be fact that they be-ill
'It is a fact that they are ill'

Ewe (Alleyne 1980)

51. Kofi wo susu be ye a yi ape
Kofi made up his mind say/that he go home

Ga (Lord 1993)

52. tete le ake aye tsu nii le
Tete know say Ayi work thing the
‘Tete knows that Ayi did the work’

53. *Efik* (Lord 1973)

- enye ete keetie ime nte imokut
He say say it-seemed-to him like he-see-I
‘He said that it seemed to him that he say it’

Yoruba (Lord 1976)

54. o sɲ kpe ade lɲ
He say (say) Ade go
‘He said that Ade went’

An additional difference between Creole /se/ and the English that-complementizer is that the former but not the latter can be stranded when a verbal or adjective complement is questioned, even though complementizer-stranding is generally not allowed in a number of languages including English. For example:

Krio

55. wetin yu mɔmba se
what you think that
‘What did you think?’

56. wetin i laikli se
what it-is likely that
‘What is likely?’

*Jamaican Creole*²

57. a we yu plan se?
‘What kind of planning is that?’
58. a we yu a rait se
‘What kind of writing is that?’

Apparently, the complementizer /se/ has properties in Creoles that make it possible for it to be used in syntactic configurations that are different from those in which the that-complementizer is used in English. It seems to exhibit properties that are generally attributed to verbs (in its ability to be stranded) and to complementizers (in its ability to introduce clausal complements). This dual property has been attributed to influence from substrate languages. In both Creoles and substrate languages, it is homophonous with the lexical verb meaning *say*; it does not take tense-aspect markings; and it is obligatorily overt. These are properties that are lacking in *say* when used as a sentential complementizer in non-standard English varieties. Phonologically, its form in Creoles is additionally similar to that in a few substrate languages, such as Twi – in the above examples – and Akan in general (Huber 1999). Huber (1999) further states that the complementizer /se/ is observed in Ghanaian Pidgin English and was probably consolidated in the language as a result of the presence of the near homophonous form /sɲ/ in Akan, a Kwa language used predominantly in Ghana. To account for the dual status of the verb meaning *say* in substrate languages, some researchers (Holm 1988; Lord 1973, 1976, 1993) propose that the verb underwent a diachronic process of reanalysis during which it

evolved from a verb to a sentential complementizer in substrate (predominantly Kwa) languages. Lord (1976, 1993) claims that over a period of time, such verbs (e.g. Ewe: *be*; Efik: *ke*; Yoruba: *kpe*) were bleached of their verbal properties and became grammatical function markers (i.e. complementizers). This resulted in a shift from lexical to grammatical function through the process of grammaticalization.

VII. Concluding Remarks

The primary aim of this paper was to use the Declarative/Procedural Model of Memory to highlight the role of memory in the development of Creoles (including Sierra Leone Krio). Krio currently exhibits characteristics of both English and multiple West African substrate languages, acquired through the interaction of declarative and procedural memory. Based on this model, the linguistic properties of early pidgins and Creoles of English origin consisted of linguistic information memorized from English (i.e. declarative memory). This information primarily included lexical and basic syntactic properties of English. New, and for the most part complex, linguistic information was transferred from substrate languages and integrated into the emergent and later Creoles, conditioning a restructuring and reorganization of the linguistic system until this knowledge became more subconscious and automated with practice and experience (i.e. procedural memory).

Endnotes

¹Information provided by Gerry Beimers on the Internet discussion group “CreoleTalk”.

²Information provided by Joseph Farquharson on the Internet discussion group “CreoleTalk”.

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