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Parameter setting and feature mismatch in a Yoruba-English bilingual child

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Abstract: Language acquisition studies on bilingual children within the African context are rare. Furthermore, studies based on parental diaries of children's development have the advantage of providing details that other methods will miss. This paper presents an analysis of the speech of a bilingual child acquiring Yoruba and English concurrently. Data were collected from age two years, four months and two weeks (2;4.2) to three years, eight months and two weeks (3;8.2). The pattern observed was that the matrix language of the subject, code-named BM, switched between Yoruba and English, an indication that she might not be distinguishing between the two languages at this stage of her language acquisition. Grammatical themes of head position, null preposition, wh-questions, yes/no questions, finite/non-finite clauses, serial verb constructions and feature mismatch all present data in support of the conclusion that the child was still trying hypotheses, developing the grammars of the two languages, and was also in the process of working out the distinctions between them.

Keywords: Bilingualism, Children, Code-mixing, Language acquisition, Matrix language, Parental diary

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1. Introduction

According to King (2006: 222), bilingual children go through a period of code-mixing, when they move back and forth between their two languages, seemingly without discrimination. This phenomenon is distinguished from code-switching, which involves the intentional use of more than one language for symbolic strategies or communicative purposes by bilinguals. If King's idea is in the right path, code-mixing is the more appropriate term to use in this study.

A number of assumptions on language acquisition with respect to children having access to more than one language exist and, each human language has a set of apparatus which it uses to organize its grammar; the said apparatus may or may not resemble those of other languages available to the children. Under this kind of situations, young bilingual children's code-mixings become inevitable, and the ultimate is the emergence of mixed language utterances. The birth of this manner of incidence is often attributed to mixture in the input from parents, and possibly the availability of other bilingual speakers of the two languages within the communicative setting under reference. This is the case with the child, code-named BM, who is the subject of this research. She was introduced to Yoruba at home; the parents both speak Yoruba to her frequently and they speak Yoruba in her presence always. She was introduced to English in her pre-school classes and her elder brothers also speak English to her at home. The child's language development was followed by her father from the age of two years, four months and two weeks (2;4.2) to three years, eight months and one week (3;8.1).

In light of the aforesaid, debates about cross-linguistic influence in bilingual first language acquisition are suggestive of the creation or formation of a dual system, where transfer of structure or form exists between the two languages. However, the transfer system appears not to be entirely unique; it varies from one individual to another. And, this is the basis for investigating the subject of this study. Data at this stage show that our subject was acquiring

both Yoruba and English concurrently, and possibly as one language, implying that she possibly has not begun to draw a line of distinction between the two languages. Similarly, code-mixings in her utterances occur to different extents in the two language contexts, pointing to the direction that she is still able to distinguish between the two languages. This is the main thrust of this study, which we undertake within the parameter setting model of language acquisition.

2. Literature review

There is a large body of studies on language acquisition (Clark, 1973, 1982, 1993; Braine, 1976; Vihman, 1981, 1996; Pierce, 1992; Buckley, 2003; Dinnsen, 2002; Rose, 2009; Rose and Inkelas, 2011; Demuth, 2011; Isaiah, 2023, Jilali 2023, Lin 2023, among others). While many of these studies focus on phonological development, others focus on other aspects of language acquisition (Salawu, 2005; Meisel, 2011; Aboh, 2015). However, Nigerian languages have not been sufficiently represented in the child language literature. Among previous studies on the acquisition of Nigerian language are Adeniyi (2015), Adeniyi and Adeniyi (2017) on phonological acquisition; Salawu (2005, 2006), Jayeola and Adeniyi (2016) on semantic acquisition; Onidare (1988) on communicative competence, and Isaiah (2023) on vocabulary development, among others. This makes the study of code switching in the speech of children acquiring Yoruba and English desirable. One, this will contribute to the corpus on the subject, and also provide a platform to explore how children navigate the acquisition of two significantly different languages and introduced for different purposes in their early stages of language acquisition.

There are a number of postulations and hypotheses that have emerged from substantial research conducted by sociolinguists and psychologists into code-mixing in young children. One of them is the Unitary System Hypothesis (USH) which predicts that a bilingual child begins with just one grammar and lexical system that later becomes differentiated as the child learns to draw distinctions between the two languages. Considering the data available for this study, the unitary system hypothesis appears relevant. This opinion finds support in Kupisch (2008: 209) who avers that code-mixing as a contact phenomenon serves as evidence in favour of the Unitary System Hypothesis, while its absence is a possibility that children are able to keep the two languages separate. This is the thrust of another hypothesis, which is the direct opposite of the USH mentioned above. It recognises a bilingual child as having two grammatical and lexical systems from the outset, and it is called the Separate Systems Hypothesis. This may be difficult to prove if we placed the data in this study beside the defining characteristic of code-mixing as a feature of bilingual children. This has implications for research in bilingualism, probably serving as the main reason for conflicts in results of studies in bilingualism (King, 2006:223). Without any forms of prejudice to the Unitary System Hypothesis (USH) and the Separate Systems Hypothesis, we will draw largely on a different theoretical tool to analyse the data for this study.

According to Meisel (2011:145-6) parameterized principles of UG can still be considered to be the most adequate theoretical tool when it comes to accounting for universals as well as particulars of grammatical development in children's first languages. The Principles and Parameters Theory (PPT) developed by Chomsky (1981) considers the aspects of syntactic structure which are invariant across languages as attributable to principles of Universal Grammar (UG), while those that vary from one language to another are described in terms of (binary) parameters (Radford et al., 2009:325). The major thrust of this framework provides a subtle account of the data for this study.

Code-mixing, which is our focus in this study, has direct relationships to the syntax of English and Yoruba that the subject of this study is learning. But, generally speaking, the building block for acquiring any language at all is learning the words and their idiosyncratic properties and later, information about structural learning. Structural learning deals with what a child needs to learn about the structure of sentences in the language(s) they are acquiring. Thus, within the PPT model, a number of aspects of the structure of sentence are said to be determined by UG principles, and that these principles are part of the child's innately endowed language faculty. It then means that children have to learn the aspects of the structure of the language which vary in a parametric way from one language to another. Among the set of parameters to be learned in this case are the head position parameter and the null subject parameter. Therefore, in acquiring their first languages, children are faced with the task of determining the appropriate value of each of the structural parameters along which the languages vary. Once the condition of setting a number of structural parameters at their appropriate value is set, structural learning becomes a rapid and seemingly error-free process.

3. Research methodology

Data were collected from a female child code-named (BM) between the ages of two years, four months and two weeks (2;4.2) and three years, eight months, and two weeks (3;8.2). Of the three main methods of collecting and analysing children language: parental diaries, observational studies and experimental studies (King, 2006:206-10), we used the parental diaries in this work. This choice, on the one hand, is based on the main subject of the study who is so young, and second, on the naturalness of the approach we prefer to adopt in this study. Thus, the parental diaries provide us with the parent's detailed descriptions of the child language development with particular reference to the feature of code-mixing in her utterances.

The setting for the collection of all the data was the home, where the child interacted with her father, mother and two elder brothers. The child was introduced to Yoruba at home. The parents both speak Yoruba to her frequently and they speak Yoruba in her present always. She was introduced to English in her pre-school classes. The elder brothers also speak English to her at home. Recording was not always possible because of the momentary nature of a lot of the data items. Rather, data were written in the father's research notebook, which was kept handy throughout the period of

collection. At a certain point, the child became aware of the data collection process and was both fascinated and cooperative. Evidence of this is the utterance you want to kọ [write] data "you want to document data" which she first said at age two years, six months and three weeks (2;6.3) and the fact that she was often the one who fetched the research notebook for her father to write.

4. Findings and discussions

4.1. Head position parameter and lexical learning

The predominant contact phenomenon found in the utterances of our subject is code-mixing, where we see the use of utterances containing elements from English and Yoruba languages. The pattern of the code-mix is phrasal and sentential in nature. Consider the following examples.

1a. It's my ìgbálẹ̀
3SG-be 1SG broom
"it's my broom"

b. My ọ̀bẹ
1SG knife
"my knife"

c I will gbá etí ẹ o
1SG FUT slap ear 3SG EMPH
"I will slap you"

d. Já it
tear 1SG
"tear it"

In (1a) my ìgbálẹ̀ "my broom" is a determiner phrase (DP) which contains an English pronominal determiner, my, serving as the head, and a Yoruba noun phrase, ìgbálẹ̀ that complements the head. The entire phrase functions as the complement of the subject it, whose presence is meant to satisfy the EPP requirement (Liu 2025). This same pattern applies to the DP in (1b), where the head D is a pronominal possessor that occurs before its possessed NP. In (1c), the subject and the modal auxiliary are English words while the VP gbá etí ẹ "slap you" comes from Yoruba. Example (1d) consists of a Yoruba verb that takes an English pronominal DP as its complement. The positioning of the DPs in (1a&b) and the VPs in (1c&d) is indicative of the child's consciousness of head parameter in the two languages. However, the pronominal possessor in the DP complement of the verb gbá "slap" in (1c) occurs after its NP complement etí "ear" to produce etí ẹ "your ear"; same as the pattern found in adult language. This means that the child is not oblivious to the fact the two languages do not have a uniform head-first word order. In essence, the child is by extension able to relate to the reality that both Yoruba and English have subject verb object order. Thus, in (1a), we have an expletive subject it and a predicative DP my ìgbálẹ̀ that is assigned an accusative case by default. In (1c), I, first person singular pronoun, serves as the subject, and by virtue of the tense value of the clauses, each of the subjects is assigned a nominative case. Example (1d) does not have an overt subject, not due to subject-drop (Liu 2025: 105-109) but because the position is not governed.

The child, from the illustrations above, shows in her acquisition of word order the evidence of knowing that, verb phrases in English and Yoruba are consistently head-first i.e. she has mastered the verb position parameters whereas, determiners in English are positioned before their complements while the opposite order is found in Yoruba. Also, in learning Yoruba and English, the child demonstrates her tacit knowledge of words and their idiosyncratic properties. We consider this aspect of her acquisition skill in (2).

2a. Give me my ìgbálẹ̀
Give 1SG 1SG broom
"Give me my broom"

b. Take your iṣẹ́
take 2SG work
"take your work"

c. Let me já tissue
let 1SG cut tissue
"allow me to cut tissue"

d. Wear your bàtà
put on 2SG shoes
"wear your shoes"

Example (2a) indicates that the subject has learned the idiosyncratic property of the verb give, which is that, it is a ditransitive verb. Here, give takes two internal arguments, me and my ìgbálẹ̀ "my broom". What our subject shows here, according to Elasri et al (2025:41), may be one of the universal aspects of languages with respect to the argument structure of verbs. It is not clear whether the child applies dative shift in this construction, because the goal occurs before the theme or relates with the idea of null preposition as it is usual with children's grammars. What we have in this example may be considered a subjectless sentence because it has been reported that children acquiring English at around two years of age do omit sentence subjects (cf. Radford et al., 2009:351). However, our subject does not appear to produce a variant of (2a) where the subject is made explicit. So, it is not a possibility to propose a null nominative little pro subject, rather, we see this as an imperative sentence which does not require the subject to be overt because the entire clause is headless i.e. it is non-finite. The same condition applies to examples (2b-d), where the verbs take, let, and wear are used imperatively. The phenomenon in (2a - d) is different from (3), where, as it is in adult language, non-finite clauses allow a null PRO (big PRO).

3a. I want to kásọ
1SG want INF fold-clothe
"I want to fold (my) clothe"

b. I want to pa-lẹ̀-mọ́
1SG want INF clear-ground-clean
"I want to clear the table"

c. I want to mu ún
1SG want INF drink 3SG
"I want to drink it"

d. I want to wẹ̀
1SG want INF bath
"I want to bath"

Each of the sentences in (3) consists of two clauses; a matrix clause that has I as the subject and takes the verb want as its predicate and an embedded infinitival clause, which is headed by to infinitive. The nature of the mixing in (3) appears to be suggestive of English being the child's dominant language at this stage. Generally speaking, tense is not overtly marked in Yoruba (Adebayo 2021: 150), as such verbs in the language do not take inflectional affixes but speakers know when they function as finite verbs, and when they do, they require an overt subject to take the nominative case. The child is aware that the complement of the matrix clause is non-finite, thus its subject position is not meant to be filled by an overt nominal or pronominal item. This is the same as what adult language will show. The understood subject of each of the infinitival clauses is I which controls the null big PRO subject of the embedded clause. What is intriguing about the sentence is that the predicate of the embedded clause is from Yoruba. The child is able to determine that the verb phrase is head first as earlier pointed out, such that the verb ka "fold" in (3a) occurs before its complement asọ "cloth". The verb ká "fold" is a transitive verb that requires a complement to take its accusative case feature, the lack of which makes the structure ungrammatical. The same thing is applicable to (3b, c) where pa "clear" and mu "drink" take their appropriate complements respectively. The verb wẹ̀ "bath" in (3d) is used intransitively, explaining why it does not require a complement. This implies that the child has learned that some verbs are accusative while some are unaccusative. We find a further piece of evidence in support of the claim about the child's knowledge of the lexical properties of words in (4) as well.

4a. Go and ṣàn án
Go.IMP CONJ rinse 3SG
"Go and rinse it"

b. Come and sàn my ìdí
come.IMP CONJ rinse 1SG buttocks
"come and clean-up for me (after defecating)"

c. Come and pa-lẹ̀-mọ́
come.IMP CONJ clear-ground-clean
"come and clear the table"

d. Come and bomi
come.IMP CONJ scoop-water
"come and pour water"

Sentences (4a-d) are clear examples of imperative sentence; the verbs go and come do not have an agreement feature. Thus, the subject positions of the four clauses are not meant to be filled by overt nominal elements. The use of the conjunction and to join the VP go in (4a), which has its root from English with another VP ṣàn án "rinse it" from Yoruba is a manifestation of the child's innate understanding of the grammar of English which is the matrix language in this context. In this case, she knows that elements of equal grammatical rank are supposed to be conjoined with the use of the conjunction and. The idiosyncratic property of the verbs go and come as ones that can be used with and plus another verb or verb phrase to tell somebody what to do is known to the child. Thus, her use of the VP ṣàn án "rinse it" in this context is in order. Also, while the verbs go and come are unaccusative in the constructions, the child is aware that its clause mate ṣàn "rinse" is inherently accusative, and so the need for it to have a complement, represented by án "it" in (4a), which is a form of the 3rd person singular object noun that takes the same form as the vowel of the verb it complements. So also, the same verb ṣàn in (4b) is used with a DP headed by the pronoun my, an English word, which in turn selects a Yoruba NP complement ìdí "buttocks", palẹ́ mọ́ "clear the table" functions as the coordinated VP in (4c) while it is bomi "scoop water" in (4d).

5a. You have bọ́ your cardigan
2SG PERF take-off 2SG cardigan
"you have taken off your cardigan"

b. Iyin has pa the television
PSN PERF kill DET television
"Iyin has switched off the television"

In example (5a), we find a case of nominative you subject, where the pronoun you occurs because we have a finite clause that is headed by the finite perfective auxiliary have, while it is has in (5b) which takes Iyin, a nominal item as its subject. However, the head of the VP in each sentence comes from Yoruba whereas its complement is an English DP. This complements our earlier claim that the child at this stage of her acquisition is able to determine that the VP is uniformly head initial, and that the head V, though from Yoruba, is accusative, thus it must take a complement so that its case requirement could be met. Nonetheless, the finite perfective auxiliary have/has in adult language is supposed to have its affix attached to the following verbal element; this is not the case with our examples. The Yoruba verbs as used in (5) do not inflect for the perfective aspect, which is what the language allows or permits. That the child does not, at this stage of her learning, produce the verbs with the aspectual suffix form may point to the child's ability to distinguish the features of Yoruba verbs from those of English. There is however, a puzzling counter-evidence to this assumption if we consider the examples in (6).

6a. He's gbé-ing your ògì
3SG-be carry-CONT 2SG pap
"he's carrying your pap"

b. I am already ká-ing my own
1SG be ADV pack-CONT 1SG own
"I am already packing my own"

c. Daddy is jó-ing the grass
daddy be-PRS burn-CONT DET grass
"daddy is burning the grass"

As we have in adult structure, examples in (6) form a set of finite clauses, each headed by the finite auxiliary is/am with a nominative he/I/daddy subject in (6a, b & c) respectively but the child instead takes her main verbs from Yoruba just as in (5) above. In (6a) the verb gbé meaning to carry in Yoruba is rendered to bear the continuous aspect marker as applicable to the English grammar. The same occurrence is found in (6b, c) where the verbs ká "pack" and jó "burn" respectively take on the continuous aspect form. It may then be plausible to assume that the child, in this case, is not able to discriminate Yoruba from English, showing why she decides to implement the English morphological process relating continuous aspect derivation on Yoruba verbs. In (6b), the child demonstrates that the word already belongs to the class of adverbs which cannot prevent the affix-hopping rule from applying. So, in spite of the distance, she knows that the finite auxiliary am in this situation requires its main verb to be in the continuous form. Though the sentences in (6) are in a way consistent with English grammar, they do not correctly mimic the adult type. Consequently, we keep the examples in (5) apart, and consider them somewhat acceptable, because we find similar occurrence in adult sentences as in (7); we take (6) as an instance of overgeneralisation errors; an indication that the child is in the process of testing hypotheses and acquiring the rules of English and Yoruba. This account is in line with the nativists' account of children language acquisition (King, 2006: 227).

7a. Mo ti realise àṣìṣe è mi
1SG PERF realise error POSS 1SG
"I have realised my mistake"

b. Kunle ti drop owó yẹn
Kunle PERF drop money that
"Kunle has dropped the money"

The sentences in (7) are adult code-mixed Yoruba-English expressions where the VP is headed by English verbs realise and drop in (7a) and (7b) respectively. The particle *ti* in (7) functions as the perfective marker (Adebayo 2021: 151) but it does not cause the verbs realise and drop to take the usual perfective form. This means that Yoruba grammar is actually in force even in adults; thus, examples in (5) are assumed to conform. A direct reference to our immediate claim is given by the example in (8) below where we feel that the English grammar is in force.

8. Iyin has finished gbá-lẹ̀
Iyin PERF complete.PST sweep-ground
"Iyin is done sweeping"

The sentence in (8) would lead us to predict that the child knows that the perfective auxiliary should change the form of the main verb as it is in adult language, and that the main verb in the sentence, finished requires a nominal item to complement it. In the ordinary English structure, a gerund or a canonical DP is suitable for that position, but the child mixes the sentence with a Yoruba verb phrase which although is not a gerund, because it does not take the usual gerundive form in Yoruba, which is gbígbá "sweeping", it still minimally fits into the adult structure.

4.2. Null preposition

According to Fromkin et al. (2000:350) young children frequently drop functional elements from their utterances. We find, as (9) illustrates, that preposition, a functional category, is missing from a position in which it would be obligatory in the adult language. In fact, (9) indicates that the child's mixing is not unidirectional.

9. Ó ti do-mi floor
3SG PERF pour-water floor
"he has spilled water"

The sentence in (9) largely consists of Yoruba words and phrases with a nominal complement "floor", an English word. The sentence is a bit odd because the verb in the sentence which is da meaning "to spill" takes omi "water" as its complement, and it equally requires a locative complement to make it more sensible. The location in this context is "floor" which, as it appears, is not assigned any case nor received any theta role because there is no governor in the neighbourhood (Yusuf 1998). In adult structure, we expect to find a word like si in between the VP domi "spill water" and "floor" to function as the locative marker. But this is missing from the child's structure, showing the tendency for a null preposition account in the child language, where we will assume that the DP "floor" is headed by a null preposition that selects the floor as its complement. The nature of the code-mixing in (9) may on the one hand be explained to be a reflection of the child's developing grammar and lexical system as well as the lack or absence of differentiation between Yoruba and English. On the other hand, it may be due to the child's limited vocabulary; probably she does not know the equivalent of the word floor in Yoruba.

The proposal for null preposition in the child's sentence does not mean that this category of words must be absent at all times. We find in some of our subject's sentences the appropriate fixing of preposition. There is a mixture of matrix and embedded language in (10a, b); while it is convenient to describe English as the matrix language in (10a), the reverse is the case with (10b).

10a. I want to bọ́ sí-ta
1SG want INF go PREP-outside
"I want to go outside"

b. Mummy ká a sí there
Mummy fold.PST 3SG PREP there
"Mummy folded it there"

In (10a), the verb bọ́ "escape", a sister to the to infinitive, selects a prepositional phrase complement síta "to outside" headed by the preposition sí. The constituent is decomposable into sí "to" and ìta "outside". If the preposition is omitted the expression will be short of the standards because ìta will not be governed and theta marked (Yusuf 1998). Although the PP sí there in (10b) consists of a Yoruba prepositional head and an English complement, it is an adjunct; the absence of the head preposition will not allow the complement there to stay. In all, we recognise the use or non-use of prepositions by our subject as depicted in (9&10), as a developing stage in her learning of Yoruba and English. This phenomenon seems to resemble what Elasri et al (2025:60) describe as a demonstration of developmental behaviour in the acquisition of unaccusative alternation.

4.3. Wh- and Yes/no questions

Wh-question is one of the different forms of interrogative construction (Eleshin-Ajikobi, 2025: 18). Radford et al. (2009: 353) report that children often omit subjects in wh-questions. In the case of our subject in this study, such a

situation is not recorded although the number of wh-questions made by her is largely infinitesimal. Consider the examples in (11) that consist of wh- and yes/no questions.

11a. Who is this you are putting inside your abọ́
What be this 2SG be-CONT put inside 2SG plate
"What are you serving"

b. Have you ti lẹ̀kùn
have 2SG lock.PART door
"have you locked the door?"

c. Have you pè Ima
have 2SG call.PART Emmanuel
"Have you called Emmanuel"

Examples in (11) consist of wh- and yes/no questions in the child's code-mixed structure. For instance, (11a) correctly keeps with the assumption that the principle of Universal Grammar will make available to the child that wh-phrases must move to clause initial position in the Spec-CP. So, what we have in (11a) clearly shows that the child's grammar already recognises this at this stage of her acquiring English simultaneously with Yoruba. However, her choice of the wh-item is not as it will be in adult language, pointing to the possibility that, differentiating the various wh-items may not be determined by any innate UG principles but requires some amount of reinforcement, needed to shape her structure to be able to fit the standards as she acquires the languages. In (11a), the wh-item originates as the direct object of the ditransitive verb put, but it has to wind up at the clause initial position because it is the constituent that is questioned. The child has the appropriate lexical information about the verb put; giving rise to the two internal arguments found in its vicinity although one has moved, leaving a phonetically null copy at its extraction site. The second complement of the verb is a PP, headed by the preposition inside, which in turn takes the DP your abọ́ "your plate" as its complement. The DP takes its head from English while the complement is a Yoruba noun phrase. The mixture may be due to her inability to separate English from Yoruba.

In (11b, c), we have samples of yes/no question where the usual Aux-NP inversion rule is required. The use of the perfective auxiliary have and the pronoun you in both examples shows that the questions are English based. By the configuration, the child already knows that a yes/no question requires inversing the position of the aux with that of the subject. Thus, the pronoun subject you comes after the finite perfective auxiliary have, immediately followed by the main verb ti "lock", a transitive verb and its complement ilẹ̀kùn "door" which are Yoruba words (11b). The only difference between (11b) and (11c) is the VP pè Ima "call Immanuel". The child is mindful of the agreement relation usually drawn between the subject and auxiliary or the main verb of the English sentence.

4.4. Finite/non-finite clauses and evidence of language reversal

Our subject in this study does not show any evidence for us to buy into the claim that children produce non-finite wh- or yes/no questions. But we find supporting evidence in the line of the argument that children produce non-finite clauses, which are in adult cases finite. This is exemplified below.

12a. I will not kàbùkù
1SG FUT NEG touch-embarrassment
"I will not be embarrassed"

b. I will not tẹ̀lé mummy
1SG FUT NEG follow mother
"I won't follow mother"

c. Don't tì-lẹ̀kùn
do.NEG.IMP lock-door
"don't close the door"

d. Don't ṣi-ṣẹ́
do.NEG.IMP do-work
"don't work"

The examples in (12) show that she alternates between finite and non-finite clauses as opposed to constant finite clauses in adult structures. Examples (12a, b) are negated by a finite negative auxiliary will not but mixes the structures with Yoruba verb phrases kàbùkù and tẹ̀lé in (12a) and (12b) respectively. Similarly, the finite auxiliary don't is used to negate the Yoruba verb phrases tilẹ̀kùn "close the door" in (12c) and ṣiṣẹ́ "do work" in (12d). We consider this so, because in (12a-d), the negative auxiliaries scope over the VPs. Conversely, it may be argued that the auxiliary don't in (12c&d) is not finite because we can analyse them as imperatives, but they can still accommodate the presence of a nominative subject as in (13a, b).

13a. I don't ṣi-ṣẹ́
1SG do-NEG do-work
"I don't work"

b. I don't ní it
1SG do-NEG have 3SG
"I don't have it"

c. No wọ-lé
NEG enter-house
"do not enter"

d. I no má-a lọ
1SG NEG be-FUT.CONT go
"I will not be leaving"

Examples (13a, b) sharply contrast with (13c) with respect to the use of finite and non-finite auxiliary in the child's sentences. (13c) will technically disallow the presence of a nominative subject because the tense therein is not governed. It is therefore not only convenient but appropriate to say that the child makes use of non-finite auxiliary negative no in (13c).

On the basis of the aforesaid, we consider the structure in (13d) as odd. The DP I, found in the subject position is a violation of the case filter because it takes the phonological form of a nominative subject but the entire clause is not finite, making the position case less. It is difficult to clearly situate the sentence within the grammar of Yoruba or that of English. For instance, the variant of the future tense marker má a found in (13d) is not the form usually or generally used in Yoruba adult's negative sentences (Adebayo 2021; Abimbola 2024). Although the child shows the correct positioning of the negative morpheme, the sentence looks hybrid; neither conforms to Yoruba grammar nor agrees with English rules. This is a possible indicator to the interaction between universal syntactic challenges and language-specific typological influences in the acquisition of complex grammatical structures (Elasri et al., 2025: 61-62). However, the child's utterance in (14) has its base in English.

14. There is no omi in my cloth
There be NEG water PREP 1SG cloth
"my dress is not wet"

The particle no is correctly placed before omi "water", a nominal item as opposed to VP in (13c), to form lexical or constituent negation. There is no feature mismatch here, as it conforms to the standard. In all, we consider the non-conformed sentence or the incorrect usage in (13d), as reflecting the child's developing systems for both English and Yoruba.

Apart from (9) and (10b), our subject largely follows the rules of English in her code-mixed structures, making English the matrix language while Yoruba serves as the embedded language. In the discussion below however, there is a reversal of this trend, where we now have the rules of Yoruba in force. The matrix versus embedded language follows from Myers-Scotton's (2002) Matrix Language Framework model (Isaiah, 2022: 68).

15a. Kò sleep
3SG.NEG sleep
"he is not sleeping"

b. Ade kò sleep
Ade NEG.PST sleep
"Ade did not sleep"

If we put (15a) in particular, beside (12-14), there seems to be a reversal of the matrix language in (15). We view (15a) as a finite clause in the negative form, where the negative morpheme kò is a Yoruba word (Adebayo, 2021; Abimbola, 2024). This looks like a demonstration of the null subject parameter (Liu, 2025) whereas neither Yoruba nor English activates the null subject parameter. Liu (2025:105) confirms that English is not a pro-drop language. Thus, one may be tempted to suggest that the child has mis-set the parameter. However, this type of utterance is also found in the adult language, in which case, the subject of the sentence is recoverable from the discourse. In fact, an overt nominal item can function in the subject because the position is a formidable case-marked position. This account provides the necessary explanation for the appropriateness of (15b) which is not from our subject of study. So, we conclude that the child is already aware of the seemingly subjectless structure (not imperatives as in 4 above) exemplified by (15a).

Sentences in (16) are a reversal of English as her dominant language; they follow the rules of Yoruba though the English first person singular pronoun functions in the subject position of the finite clauses headed by the finite verbs da "pour" in (16a) and fọ̀ "wash" in (16b).

16a. I do-mi sá-ra

1SG pour-water PREP-body
"I poured water on my body"

b. I fọ-wọ́ o!
1SG wash-hand EMPH
"I washed my hands!"

The use of I instead of mo "I" may be that she is unable to separate Yoruba from English or that English is her stronger language and, incidentally we observe her productive use of English pronouns.

17a. I want to ló my oògùn
1SG want INF take 1SG medication
"I want to take my medication"

b. I will ló my drug
1SG FUT take 1SG medication
"I will take my medication"

Given the situation under which the sentence in (17a) was uttered, we like to recognise the code-mixed structure here as an output of reinforcement from her mother. The child uses the two key words: lo "use" and oògùn "medication" in the sentence as a means of shaping her expressions to fit those of her mother, who speaks Yoruba to her, and is also responsible for administering the medication on her. However, while conversing with her elder brothers who find it convenient to make use of English, she reduces her code-mix to only the verb ló "take" and replaces oògùn with "medication", this is exemplified in (17b).

4.5. Verb series versus embedded infinitival clauses

Arguments surround how serial verb construction (SVC) is viewed cross linguistically; whether as a property of universal grammar (UG) (Aboh 2009, 2015) or limited to certain languages (Creissels et al., 2008). As much as this study is not interested in taking sides on the argument, it appears from the discussion below that the child's grammar recognizes the feature of Yoruba as a serializing language, setting it apart from English.

18a. Mo fẹ́ eat
1SG wish eat
"I want to eat"

b. I jẹun tán
1SG eat exhausted
"I am done eating"

The sentences in (18) provide another interesting phenomenon in the child's learning of Yoruba and English, which reinforces the opinion that her mixing is not unidirectional. Here, the child reveals her knowledge about serialisation of verbs in Yoruba. The subject and the first verbal element in (18a) are from Yoruba while the second verb in the series is from English, and the mirror image of (18a) is found in (18b). This is another example of a switch from English base to Yoruba. If we relate (18) to other structures where we explain that non-finite clauses are in use, this example is clearly a strong indicator to her knowledge of Yoruba grammar which allows verbs to form sequences without intervening conjunctions. Typical English children acquiring only the English language will make use of the examples of the kind in (19),

19a. I want to eat
b. I want to wash my hands

This is because, English as a language does not show a feature where two or more main/finite verbs form a series. Thus, in (18), where we have verb series, Yoruba serves as the matrix language whereas in (20), English is the matrix language; if we removed to between want and kọ "write", it is ungrammatical.

20. You want to kọ data
2SG want INF write data
"you want to write data"

The interesting conclusion which our discussion of sentences of the type in (18-20) will lead us is that the child reflects the differences in the nature of Yoruba and English which she is acquiring. She is conscious that conveying the same meaning in the two languages requires seemingly different patterns, though in both languages they come through complex structures (sentences). The structures in (21) further reinforce our claim about her reflection of differences between Yoruba and English being acquired.

21a. Come and wò ó
Come.IMP CONJ look 3SG

"come and see it"

b. Go and jẹ indomie
go.IMP CONJ eat indomie
"go and eat indomie"

c. Wá jẹ indomie
come.IMP eat indomie
"come and eat indomie"

d Wá wò ó
come.IMP look 3SG
"come and see it"

(21a, b) are English based expressions mixed with Yoruba. Each of them is an imperative expression with a compound predicate; the predicate to the left takes the English structure and the one to the right of the conjunction and, takes its constituents from Yoruba. This is to show that the child knows that English will ordinarily not permit the lack of the conjunction and, thus making it the matrix language in this case. A verb series would have been formed if Yoruba is the matrix in this case because it will not require any conjunction to stand between the two predicates. This is exemplified by (21c, d) though not from our subject. We interpret what we find in (18-21) as evidence that the child has detected the difference between verb series in Yoruba and coordinated VPs in English, and is able to discriminate. As such, it seems improper to speculate that she has a fused language system.

4.6. Mismatch of features

One of the implications of the Principles and Parameters Theory to the task of acquiring the syntax of their language(s) is that, children need to learn words as well as their properties (Radford et al. 2009). We earlier in this paper reveal that the child (our subject) demonstrates her tacit knowledge of words and their idiosyncratic properties, making her utterances to often mirror those of the adults. However, we find in her sentences, as shown below, some combinations of lexical items whose features do not agree.

22a. It is the lamp that só o
3SG be DET lamp DEM flatulate.PST EMPH
"it is the lamp that flatulated!"

b. It's me that pá the fan
3SG be 1SG DEM switch off DET fan
"It was me that switched off the fan"

c. It's you that dé-bẹ̀
3SG be 3SG DEM get.PST-there
"It's you that tampered with it"

d. Mummy said I should bù ú small-small (while eating)
mummy say.PST 1SG FUT scoup 3SG moderately
"mummy said my bolus should be moderate"

e. Your laptop has kú
2SG laptop PST die
"your laptop has shut down"

According to Fromkin et al (2000:342), children's early sentences do not typically contain subordinate clauses such as those in (22a-d). However, this is not the case with our subject. In each case, the main clause has its root in English while the predicate of the subordinate clause takes its head from Yoruba. In (22a), the verb só "flatulate" is unaccusative but it is followed by the vowel o, which is used to mark emphasis; this is not against the standards. On its part, pa "kill" in (22b) is accusative and it takes the fan as its complement. However, semantically speaking, the structure in (22a) does not fit into that of the adult because of the utter violation of selectional restriction rules. The description of the DP "the lamp", the complement of the main clause, in the subordinate clause, using the verb só "flatulate" is improper. The verb só cannot be used to say something about the DP "the lamp". However, at the level the child's language acquisition is, she might have ascribed ONLY the audible quality to flatulence (without the smell and the fact that it is animate objects that engage in the act); in that case, any similar sound would be seen as flatulence, even if from an inanimate object like a lamp. This may explain why the child would use the utterance despite the fact that the features of lamp and flatulence do not collocate.

As for (22e), it is a simple sentence that is largely English based; except for the main verb kú "die" which is Yoruba. English seems to be the matrix language here because removing the finite auxiliary has may not make the sentence to converge. Despite this claim, the sentence has its origin in Yoruba grammar. Kú is not a transitive verb; it is used in the sentence to describe a laptop, the NP complement of the D head in the subject position. The child, in this case, is not selective in her use of the verb kú, to describe the state of the laptop. Interestingly, this kind of expressions is also common among adult speakers who are Yoruba-English bilinguals. So, what we find in (22e) is a reflection of a novel coding of meanings, even in adult language. This is the same with the use of pa "kill" in (22b) to say something about the DP the fan. No native speakers of English, even children, will produce an utterance like: "It's me that killed the fan", which is the direct translation of (22b).

Although the main clauses in (22) point at English as the matrix or the dominant language, the entire sentences have their meanings rooted in the Yoruba verbs in the subordinate clauses. So, as (22c) for instance suggests, its basic meaning centres on the VP, débẹ̀ "get there" though it does not point at any forms of mismatch. Similarly, the meaning of (22d) largely derives from the Yoruba verb bù "scoop". Our conclusion on this discussion is that, at this stage, the child is reflecting her learning experience and patterns of using Yoruba and English.

23 i. DAD: Kí lò ń ya
What that-2SG CONT tear
"what are you tearing?"

ii. BM: I am not yá-ing anything
1SG be NEG tear-CONT anything
"I am not tearing anything"

What we have in (23i) is a question from her father, demanding to know what she was tearing. The question is entirely rendered in Yoruba and the verb ya "tear" has a continuous reading due to the presence of the continuous aspect marker n that occurs before it. This is the case with Yoruba verbs which neither inflect for tense nor for aspect. She uses the same Yoruba verb, in her answer, and mixes it with the English finite auxiliary am, prompting her to attach the –ing suffix to the verb, which is the standard in English. This may be due to the child's inability to discriminate tense/aspect marking between Yoruba and English or as a result of what Fromkin et al. (2000:337) describe as regular occurrence of progressive -ing during this stage of her acquisition. If we considered examples (24) alongside (23), it might be desirable to see the situation as a product of her limited knowledge of features that distinguish the two languages.

24a She's ké
3SG-be cry.CONT
"she's crying"

b. It's on-ning lẹ̀
3SG-be switch on.CONT ground
"it's left switched on"

c. Mummy is nú-ing the house
mummy be mop.CONT DET house
"Mummy is mopping the floor"

In (24a), the child seems to have learned the grammatical morphology of the Yoruba verbs by not marking the –ing suffix on the verb *ké* "cry". As contained in the parent's diaries, example (24a) was uttered after the one in (23ii) making us to assume that the child at that stage is able to draw distinctions in that regard between Yoruba and English. However, she appears to still play around with her overgeneralisation technique in (24b &c), which she produced about a month after the one in (24a). The observed irregularity in the pattern of her acquisition is further supported by (25) which she uttered even before (23ii).

25a. My bata is rùn
1SG shoe be smell
"my shoes are smelling"

b. i. DAD: ta ló ni àkàrà tó wà ńlẹ̀ yìí?
Who FOC-PRO own beancake that-be lay on-floor this
"who owns this beancake?"

ii. BM: the àkàrà is not on the floor; it is on the table

The subject DPs in (25a & bii) above take their head determiners from English while their complement NPs are from Yoruba, similar to what we have previously witnessed. The finite auxiliary is c-selects the verb rùn "to smell" from Yoruba in (25a). The NP bata as used in this sentence is supposedly plural, because she is making reference to her pair of shoes. It however appears as if the child knows that number or agreement is not marked in Yoruba, making her use of the auxiliary is conform to the adult structure. The same thing occurs in (25bii), where in the response to her father's query, she makes use of the DP the àkàrà "the bean cake" alongside the copular verb is. Given the foregoing, as well as

the consistency she demonstrates in (5), where she is able to show the difference in her use of the auxiliary has/have to distinguish singular from plural, the child shows evidence of learning the properties of number in Yoruba as well as in English. Finally, there is no trait of overgeneralisation here because the verb rùn does not take the aberrant morphological form as in (24b & c). However, it may as well be that she mislabels the verbs ké "cry" (24a) and rùn "smell" (25a) as adjectives. On the other hand, her use of the verb rùn instead of smell may be due to her lack of the appropriate English equivalent or inability to put the two languages apart, resulting in a fused language system.

5. Conclusion

Code-mixing between Yoruba and English in the speech of one child has been discussed in this study. It has been shown that the child's matrix language was not yet fixed at the stage of acquisition that the child was (ages 2;4.2 – 3;8.2). Following from the series of back-and-forth movement between Yoruba and English in her utterances, we align with the assumption that the child, regarding some of her utterances, is still trying to test hypotheses and developing the grammars of the two languages. This position finds support in Fromkin et al, (2000:355), who opine that "children are not born speaking an adult language; hence, something must mature to make that possible".

While this result is not from a longitudinal study, it made significant contribution to scholarship on the children acquiring multiple languages concurrently. Furthermore, it deepens understanding on children acquiring African tone languages concurrently with English, which is not tonal. The different grammatical constructions that were shown to illustrate the child's progress in her acquisition of the two genetically unrelated languages reveal how much understanding is still lacking in the study of language acquisition. The results therefore suggest that a longitudinal study will be desirable to track the progression of the linguistic development of children acquiring African tone languages and English concurrently to determine at what point such children are able to fully work out a separation between the grammars of the two languages.

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