

Phonological Shifts and Code-Switching in Hausa-English Bilingual Speech: A Sociophonetic Approach

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Abstract

This paper explores the phonological behaviour of Hausa-English bilinguals in their code switching with regard to segmental changes, suprasegmental changes, social triggers and theoretic interpretation. Based on Communication Accommodation Theory and bilingual phonology models, a collection of data was taken using educated bilinguals in Northern Nigeria using recorded conversations in different social situations. The identified segmental changes are persistent in nature, being a movement towards /æ/ → /a/, /ɪ/ → /i/, /θ/ → /t/, and /ð/ → /d/, as well as the shift in prosody more in accordance with English stress-timed rhythm as opposed to that of Hausa tonality. These socially-conditioned shifts are explained by the fact that, when social interactions are formalized, they imply convergence with the standards of prestigious English, but when informal, they remain more strongly influenced by Hausa. The findings can be interpreted to mean that code-switching is a lingual mechanism of being specific in addition to being a sociophonetic mechanism of identity negotiation. The study has a contribution to dynamic interactions of L1 and L2 phonologies in the multilingual societies, and the study creates

implications on phonetics, phonology, and sociolinguistics. It is recommended that the research be extended to other Nigerian languages, sample sizes be expanded and use of acoustic analysis to get finer information on prosodies.

Keywords: Code-switching, Communication Accommodation Theory, Hausa English bilingualism, Phonological accommodation, Sociophonetics.

1. Introduction

The sociolinguistic landscape in Nigeria is marked by severe multilingualism whereby the natives languages dynamically interrelate with the English language, the official language after colonial administration. Newman (2000) added that Hausa is a Chadic language having a native speaker of more than 50 million people and being a lingua franca in most parts of West Africa and dominating in the northern part of Nigeria. As Schmied (1991) says, it exists along with the Nigerian English, which is a prestige variety employed in education, governance and cross-ethnic communication. The phonology of Hausa is typified by vowel harmony and a few vowel sounds

and differences in consonants; contrasts found in English do not exist. Conversely, Nigerian English (which was developed in a multilingual ecology) has a stress-timing rhythm and phonotactic constructions that are alien to the Hausa speakers (Gut, 2004; Jowitt, 2019). Hausa English bilingualism is an ideally rich field to study phonological accommodation because of these differences.

Code switching is a common form of communication technique in bilingual Hausa-English communities in the market, schools, offices, and media and in broadcasts (Inuwa & Bakrin, 2024). Myers-Scotton (1993) described it as linguistic code switching attributable to social interest, and its syntactic and semantic utilization has endeavored to be evaluated broadly over the years (Blom & Gumperz, 1972). Nevertheless, it is little explored in terms of its phonetic and phonological aspects. Examples of segmental adjustment are the replacement of English interdental fricatives, /θ/ with either alveolar stops, /t/, or /s/, and epenthesis vowels to separate the consonants clusters, resulting in such forms as [sku:lu] for school (Usman, 2018).

In addition to segmental changes, suprasegmental changes happen when speakers shift from Hausa tonal contouring to intonation patterns in English, including a shift in the range of pitches, emphasizing stress, and rhythm. Such variation is according to Coupland (2007), socially meaningful, since it provides a kind of stylistic practice, in which speakers project as well as negotiate identities. Phonological accommodations used in the Hausa -English in the case therefore act as linguistic exchanges aimed at aligning the differences in the two systems of contrasting phonology as well as the social alignments used by the phonological facets of formality, audience, and speaker

identity.

The paper has taken the sociophonetic perspective using Communication Accommodation Theory and bilingual phonology framework to explore segmental and prosodic accommodation in code switching between Hausa and English. Given the relative paucity of studies that have addressed this aspect of phonological variation, the study will strengthen the African sociolinguistic literature and the knowledge on how multilingual language users in Nigeria handle the challenges that divergent phonological systems present in the course of undertaking socially meaningful communication.

1.1.Problem Statement

Although the Hausa- English bilingualism in Nigeria has been deeply ventilated, most of the research conducted largely entails ascertaining the sociolinguistic as well as grammatical phenomena, thus the phonological adaptations made in the course of code switching have been under-represented. Inuwa and Bakrin (2024) note that speakers of Hausa language often switch between the two languages without carrying out an analysis of the nature of phonetic changes taking place. Other examples of such substitutions can be found in Usman (2018) who points to the replacement of English interdental fricatives with alveolar plosives and the addition of epenthetic vowels to eliminate the cluster of consonants; however, his work is again on the level of words and not conversations. Being connected to identity and audience design, the phonological variation in the bilingual speech, as Coupland (2007) states, is a subject of great interest, but this is a gap in the African sociophonetic study because there are no qualitative and real life data available on the phonological variation between Hausa and English.

1.2.Study Objective

The key aim of the study is to understand how Hausa English bilinguals in Nigeria accommodate their phonology when they code-switch in contexts that are natural and real life conversational frames. Particularly, the research aims at doing the following:

- Explain and identify the closed categories of phonetic and phonological transitions which take place when speakers switch between Hausa and English.
- Read on sociolinguistic variables that determine these changes, including the interlocutor, the setting, and subject matter.
- Offer qualitative data-based exemplars that demonstrate their way of how bilingual speakers deal with the phonological variations of Hausa and English during spontaneous discourse.
- Add to the collective knowledge of sociophonetics by providing what might be learned in an African multilingual situation of tonal and stress-timed languages interacting.

1.2.Research Questions

The research questions guiding this study are the following ones:

- Which phonetic and phonological changes do Hausa speakers select when they alternate between their two languages, Hausa/English, in spontaneous conversation?
- What are the sociolinguistic variables, like interlocutor, setting and topic, that are involved in such phonological modification?
- How do these seen changes reveal to the interaction of phonological systems of English and Hausa?
- What can the study of such changes do to aid sociophonetic theory in the African multilingual environment?

2. Literature Review

Study on code-switching as it relates to African multilingual situations has always placed great focus on dynamic intertwining of social identity, communicative intent and linguistic structure. Bamgbose (1991) points out that code-switching is not simply an indicator of a lingual deficiency problem in Nigeria as it can be interpreted as given, but rather as a useful communicating strategy, like in situations where speakers straddle more than one identity. Myers-Scotton (1993) continues to discuss that code switching has structure and rules that it may follow using the Matrix Language Frame where multilingual communities in Africa have great generators of structured alternations. These patterns tend to be further complicated in bilingual situations involving Hausa and English because there is a considerable disparity between the phonologies of the two languages.

Sociophonetics has taken a great interest in the interaction of phonological systems occurring during bilingual speech. Flege (1995) notes that speakers often transfer the segmental and suprasegmental features of the first language (L1) to a second one (L2), called the cross- linguistic transfer. This is a bi-directional transfer whereby the L2 patterns that affect L1 speech. In the case of the Hausa -English bilinguals some of the possible interactions may be adaptation of the facts about English or its stress timing rhythm to the Hausa syllable timing rhythms or re- adaptation of the English fricatives and /θ/ and /ð/ to the alveolar stops, t and d and this was observed in the study of the phonology of Nigerian English by Gut (2005).

The Hausa phonology is characterised by a number of peculiarities. According to Newman (2000), the Hausa language has five phonemic vowels each-long and short- with the feature of vowel harmony that limits the pairing of vowels allowing them to occur in the same word. Its consonants include implosives /ɓ/ and /ɗ/ as well as those which are not in English, and English has some that are not in Hausa: the fricatives /θ/ and /ð/. Hausa is also a tone language in that three forms of tone namely, high, low and falling ones are used to indicate the lexical meaning, and grammatical one; a characteristic that may strongly influence the way speakers learn and construct tones in English speech. In specific, the English word market can be spoken with a tonal contour overshadowed by the pitch patterns of the Hausa language as opposed to the English tonal shift on the initial syllable.

Conversely, Russian English as outlined by Jowitt (2008) is rhythmically more like the wider pattern of English as a stress-timed language though the localized realizations of segments usually take on predicative language effects attributed to substrate languages. Also characteristic of Nigerian English vowel system is a lower degree of tense versus lax contrast; often, such pairs as /i:/ and /ɪ/ are merged. Word-final clusters of consonants are commonly simplified, and this frequency repeats itself, similar to Hausa phonotactic restrictions.

Such interactions have been addressed in the sociophonetic study both in global and Nigerian perspective. One of the aspects highlighted by Mesthrie and Bhatt (2008) is that bilingual phonology is not just a question of exchanging one set of sounds to another with specific speakers voluntarily negotiating phonological norms based on the conditions of the speech. This is because, as documented by

Balogun (2013), Yoruba-English bilinguals vary the quality of vowels with respect to their formality and auditory classes indicating that the same can be true of Hausa-English bilinguals in the Nigerian context. This theoretical justification of the study is anchored on two frameworks. The theory of Communication Accommodation introduced by Giles and Coupland (1991), postulates that speakers modify their speech, including phonology, to come closer to or move farther away, their interlocutor variety base on achieving social goals. The research of Bilingual Phonology (Paradis, 2004) continues to state that cross-linguistic transfer is two way in terms that it influences the production of each language in interaction. The combination of the two frameworks allows an understanding of the way Hausa-English bilinguals cope with phonological changes upon the code switch, not only through the problem of the linguistic interference but that which involves a socially-oriented, context-sensitive process.

3. Theoretical Framework

This work is based on Communication Accommodation Theory (CAT) (Giles, 1973; Giles & Coupland, 1991), which describes the way in which speakers change their speech patterns, phonologically, lexically, and prosodically in order to minimize or maximise the perceived social distance between them. CAT draws a distinction between convergence wherein speakers modify their speech so that it is similar to that of interlocutors and divergence in which speakers do the reverse and emphasise language differences so as to establish identity. As a case scenario in relation to the bilingualism (Hausa and English), CAT offers us a lens through which to learn how phonological adjustments carried out during the switching of codes acts as accommodation

measures. To take an instance, a Hausa-English bilingual might convert the English /θ/ to /t/ when speaking casually among peers (convergence to Hausa norms), but make it sound closer to the standard English pronunciation when he or she has to speak formally in an academic context (convergence to English norms). In the same way, the modification of pitch range and change of rhythm between tonal system in Hausa, and stress-timed system in English can be viewed as the efforts of trying to comply with the expectations of the listener, and correlating communicative effectiveness.

Through CAT, this research does not view observed segmental and suprasegmental shifts merely as phonetic replacements but as strategy-driven performances seemingly motivated by the social efficiency seeking identity negotiation, audience design and domain-appropriate behaviors.

4. Methodology

4.1 Research Design

The study had a qualitative sociophonetic design whereby both naturalistic observation and selective phonetic were employed. The method was meant to reflect natural induced speech patterns as social conditions of communication circumstances coupled with inspection of phonological adaptations which accompany code-switching. It combined social and contextual evidence, and acoustic and articulatory data, and this is similar to the methodological principles, as outlined by Thomas (2011).

4.2 Participants

The number of the sample was 12 to 15 phonological interrogatives content of 12 to 15 Hausa English bilinguals who were deliberately sampled to achieve a balanced gender where all age ranges were between 18 to 45 years. We selected the

respondents in various careers, including trade, academia and the government, in order to differ in styles of communication and situations involving code-switching. It was determined that bilingualism status relied on questioning, self-report on language background, and unstructured pre-recording interviews.

4.3 Data Analysis

The analysis of data was done in four phases. Initially, all the recordings were orthographically transcribed and then narrow phonetic transcription in the International Phonetic Alphabet (IPA) transcribed to provide segmental and suprasegmental information. Second, the occurrences of code-switching were detected and marked, whereas the difference between intrasentential and intersentential switching was identified. Third, the features of segmentation and super segmentation, namely the quality of vowel, consonant realization and the patterns in prosodic features were compared in speech that preceded, that which followed and the one that appeared during points of code switching. And, in the end, the acoustic measures of some of the key aspects of the selected features, such as vowel formant frequencies (F1, F2), and pitch contours, were recorded in Praat (Boersma & Weenink, 2023), to offer some objective quantification of phonetic changes, related to code switching.

5. Findings and Analysis

5.1 Overview of Contexts of Code-Switching

The observations of recorded speech data showed that the instances of the Hausa-English code-switching took place in an array of social situations such as marketplace, lecture breaks at the university, conversations in an office, and among peers. Code-switching could occur

differently and often depending on the situation of communication. Switches were more inter-sentential in semi-formal contexts like office-discussions and they were often signalled when the topic or the communicative register changed (at clause boundaries). English lexical material could be found as intra-sentential switching in far more casual contexts, inside clauses of Hausa.

The common causes of code-switching were comparable to those described by Myers-Scotton (1993) and were topic switching, audience design, and lexical gaps, i.e., gap in Hausa expressions of some technical or modern terms, or gap in Hausa salience of such terms. As an example, during the discussion at the campus, one of the participants stated:

"Mun gama taron, sai Lecturer ya ce, 'Submit your assignment by next week.'"

(‘We finished the meeting, then the lecturer said, “Submit your assignment by next week.”’)

In this case, the transition to English with *submit your assignment* may be imposed on by an additional push of the topic shift (to an abstract instruction) and lexical ease.

5.2 Segmental Change

In the phonological analysis, patterns of segment workings were present in code-switched speech.

5.2.1 Vowel Shifts

English lax vowels having been replaced with relatively tense Hausa vowels was one of the common remarks. A common sound change in English was a change of /ae/ to [a], e.g. [kat] as the sound of cat. On the same note, English /ɪ/ became generally [i], as in [sit] in place of “sit,” corresponding to the Hausa seven-vowel system that does not distinguish lax tense as in English (Newman, 2000).

5.2.2 Consonant Substitutions

Consonants missing in Hausa were most of the time replaced by their closest matches. The dental fricatives /θ/ and /ð/ were changed to [t] and [d] respectively, giving successive forms [tin] to “thin” and [dis] to “this.” For instance:

"Ina son yin practice sosai don in iya [tin] nawa"

(‘I want to practice well so I can perfect my thin.’)

Such substitutions according to Flege (1995) were consistent with cross-linguistic transfer effects observed in bilingual phonology studies.

5.2.3 Suprasegmental shifts

The other suprasegmental change was the intonation pattern change in English segments. Unlike the English language, Hausa is a tone language whose lexical contrasts are encoded in the pitch range, whereas most pitch differences in English are intonational. In code-switching, among the participants, tonal patterns of Hausa that were relatively even changed to excursions of pitch in English and stress placement.

The example of such sentiment is as follows:

"Na san yadda ake yin ['tʃek m] before boarding."

(‘I know how to do check-in before boarding.’)

The English *check in* was produced with marked stress on the first syllable, unlike the tonal evenness of the surrounding Hausa words. Where acoustic measurements were available, pitch contour diagrams showed higher pitch peaks on stressed syllables in English segments compared to the flatter pitch trajectory in Hausa segments (cf. Ladd, 2008).

5.2.4 Adjustment of Prosodic Rhythm

Besides changing intonation, speakers would use intentionally shorter vowel length and greater syllable reduction in

English segments because English has a stress-timed rhythm. Hausa segments, on the other hand, did not lose their syllable-timed property; the durations of syllables were more even among them. It was especially noticeable when the extent of code switching was comparatively long.

5.3 Social Context-Influence

The scope of phonological accommodation was relative to an interlocutor and setting. Speakers were more likely to approximate pronunciation of Standard Nigerian English when speaking to educated interlocutors or when addressing a more formal speech situation; this included using English diphthongs and showing /r/ as a more approximant-like quality. For example:

"Ina so in ['reiz] wannan issue kafin mu tafi."
(‘I want to raise this issue before we leave.’)

In this case, raise was spoken with [ei], which meant reproduction of English like vowel quality.

On the other hand, during the peer-to-peer informal discussion, the phonological characteristics of Hausa were even stronger even amidst the segments of English, with there being increased influence of L1. In one recording a market subjects could not be heard to make an effort to produce an interdental fricative in pronouncing the word thing, and when his articulation was simply [tin] though the same subject had made a correct production of the sound [θɪŋ] when formally experimented with in a classroom situation.

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articulation was simply [tin] though the same subject had made a correct production of the sound [θɪŋ] when formally experimented with in a classroom situation.

Such a context-sensitive variation will be consistent with Communication Accommodation Theory (Giles, 1973), in which communicative expectations lead to convergence or divergence in phonological patterns depending on levels of social alignment, and communicative purposes.

6. Discussion

6.1 Results Explanation: Accommodation Strategies

It can be implied on the results that the phonological modifications amid the Hausa-English code switching can be interpreted as a voluntary or reflexive adaptation approach according to the Communication Accommodation Theory (CAT) (Giles, 1973; Giles & Coupland, 1991). The participants were inclined to approach Nigerian English norms when addressing educated interlocutors or in the formal setting, but they preserved the elements like diphthongs ([ei] in *raise*) and approximant /r/ realizations. Divergence was more frequent in informal discussions with peers, however, and there was a reassertion of Hausa phonological norms, including, e.g., replacing [t] with /θ/.

An example could include the similar participant, who would have pronounced “thing” as [tin] in a typical discussion in the market yet he could pronounce [θɪŋ] in a seminar held in the university. This capacity to vary pronunciation depending on the social situation reflects a kind of audience design, linguistic form is adjusted to be closer or further away to the perceived norms of the interlocutor.

6.2 Cross Linguistic Impact

The evidence supports the high cross

lingual impact of Hausa on the pronunciation of the English language by the bilingual speakers. This is especially notable when the English sound not included in the phonemic inventory of the Hausa language are systematically replaced in the latter. These changes of /i/ to [i], /æ/ to [a], and interdental fricatives to alveolar stops are all in line with the trancies that are observed among other Hausa- English bilinguals.

On the other hand, English also contributed to changing the phonology of Hausa with the use of stress and prosody being the areas notably affected. Long stretches of English in code-switched discourse frequently imported English stress-timed rhythm into neighbouring words of Hausa as well, giving rise to a mixed prosodic contour. This goes both ways, and it has been proposed that long-term bilinguals give rise to suprasegmental, as well as segmental cross-fertilisation (Flege, 1995; Ladd, 2008).

6.3 Sociophonetic implications

In addition to the structural linguistic alterations, the phonological observed patterns also have much to say socially. In Hausa-English bilingualism, code-switching is used as an identity, solidarity and social location marker. According to Gumperz, (1982) and Myers-Scotton (1993), this decision to conserve Hausa-influenced sounds in some situations, despite the speaker having the capacity to employ English-like pronunciations, may express solidarity with the group, or representation of local identity.

As an illustration, where there was a preference of using Hausa-accented English in market interactions, this aspect affirmed belonging to the local culture as well as enforced rapport. Conversely, the school and work settings encouraged the use of more standard forms of English,

which index educational achievement, and comply with the demands of institutions. Therefore, phonological code-switching variation cannot be seen as a by-product of bilingual competence, but a strategic sociophonetic tool.

6.4 Comparison with Prior Research

The results conform to the Markedness Model of Myers-Scotton (1993) that the selection of code-switching depends on social meaning ascribed to a linguistic form expected to be used in a certain context. Akindele & Adegbite (1999) further stated that the same trends have been recorded amongst Yoruba-English bilinguals in Nigeria and Swahili-English bilinguals in East Africa , whereby segmental replacements and prosodic shifts are conditioned by interlocutor status and context. Nevertheless, this paper differs with parts of some previous studies (e.g., Gut, 2004) in that Hausa speakers displayed more flexibility in terms of phonological accommodation that may be due to more exposure to English via media, schooling and use of digital communication. This is an indication that the dynamics of the Hausa-English code switching activity are probably changing because of identity-related sociolinguistic changes that are occurring in urban Nigeria.

6.5 Theoretical contribution

In a theoretical perspective, the study finds support and contributes to Communication Accommodation Theory by demonstrating that accommodation also takes place in fine-grained phonologically and prosodically. The described tendencies point at the fact that the convergence and divergence are rather dynamic processes, which can be permitted by the same speaker in sometimes different contexts. Also, the findings shed light upon bilingual phonology models (Flege, 1995;

Paradis, 2001) in terms of providing evidence that segmental and suprasegmental adaptations of bilingual speakers are both context- and socially-oriented. This bi-directional relationship between Hausa and English highlights the fact that models that take into consideration dual phonological shaping in prolonged cases of bilingual contact are required.

7. Conclusion

7.1. Major Findings Summary

In this paper, the phonological system of the Hausa English code switching was explored in terms of segmental and suprasegmental alternations in varieties of social usage contexts. It was found that:

- Segmental alterations were patterned and strongly related to the variation in phonemic inventories between Hausa and English and typical substitutions occurred as /ɪ/ → [i], /θ/ → [t], and /ð/ → [d].
- Suprasegmental shifts Manifold shifts included adjustments between the tone positioning of Hausa, and the stress based rhythm of English, especially in formal circumstances.
- Society provided a major influence on phonological realization where educated interlocutors were more likely to produce English-style forms whereas effects with informal peer situations promoted the British-African pronunciation of Hausa.
- There was a lot of flexibility among the speakers who switched between convergence and divergence depending on the principles of audience design (Bell, 1984) and Communication Accommodation Theory (Giles & Coupland, 1991).

7.2. Contribution towards Knowledge of Bilingual Phonological Behaviour

This study contributes to our increased knowledge of bilingual phonological adaptability by serving as a record of how

bilingualism affects pronunciation, depending on the social and linguistic context and the behaviour of the Hausa-English speakers. These findings favour the opinions that bilingual speech is not a fixed combination of two mechanisms, but a moving trade-off of linguistic standards (Myers-Scotton, 1993).

As an example, the strategic use of Hausa-accented English in marketplace contexts when compared to near-standard Nigerian English in an educational presentation can be seen as a socially meaningful behaviour, as opposed to linguistic deficit. The finding is relevant to sociophonetic research because it relates directly to social identity and interaction goals in producing variation at the level of the sound.

7.3. Phonetics, Phonology and

Sociolinguistic Implications /æ/ → [a],

In phonetic terms, the work points to the necessity to consider fine-grained segmental replacements in the perception of speech and aspects of intelligibility. Flege (1995) said that the perceived vowel and consonant elongations/transformations just underline the effectiveness of the use of the L 1 phonemic stock limitations in L 2 learning assumptions.

With the sociolinguistic perspective, the study findings validate that phonological accommodation within the bilingual settings is an indexical factor of social affiliation and in turn passes the message of solidarity, prestige, or group identity as this is dictated by the contexts. This brings out the point regarding phonology as a meaning-making tool, which is as presented by Gumperz (1982) in terms of contextualization cues.

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7.4. Recommendations for Future Studies

Although the current research may deliver

important insights, the research is limited in the size of the dataset and the acoustic examination. Future studies may:

- Enlarge the range of samples in age and demography specifically to encompass rural and urban bilinguals as well as those with different levels of education and with gender balance to capture a more realistic spectrum of phonology.
- Add acoustic phonetic measurement (e.g. measurement of vowel formants, mapping of pitch contours) in order to quantify the suprasegmental adjustments observed here.
- Make comparisons to other Nigerian bilingual situations including Yoruba-English or Igbo-English in order to determine the extent to which the patterns identified here are specific to Hausa or indicate more general Nigerian bilingual phonology patterns.
- Investigate longitudinal change, how younger of the now digital and urban Hausa speakers of English are pursuing a more English sounding system as time progresses.

These extensions would not simply improve the descriptive story, but would also be used to develop new theoretical models of bilingual phonological interaction, giving us a more subtle view of the way language contact influences language sound systems in multilingual communities.

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Appendix

Sample Data and Summary of Phonological Shifts

Note. The appendix contains representative Hausa–English code-switched excerpts (orthographic + IPA), analytic notes, summary and frequency tables for observed

1. Sample transcripts (orthographic + IPA) Excerpt 1 — Broadcast (formal/semi-formal)

Orthographic: Yau muna da wani *special* guest daga London, zai yi mana magana game da

climate change a Nigeria.

Translation: Today we have a special guest from London; he will talk to us about climate change in Nigeria.

IPA: [jàʊ múnà dà wání 'spɛʃəl gɛst dàgà 'lɒndən | zài jì mánà mà 'gánà gáme dà 'klaɪmət ʃeɪndʒ à nàɪ 'dʒɪ.ɪnà]

Notes:

phonological shifts, and the consent form template used in data collection. References to the *Findings* section are provided before each table to guide readers.

- English *special* retains [sp] cluster without epenthesis.
- Vowel lengthening in ['klaɪmət] reflects English stress-timed rhythm within the English segment.
- Hausa tonal contour preserved in the first (Hausa) clause; intonation shifts toward English pattern in the English clause.

Excerpt 2 — Mixed (broadcast / informal embedding)

Orthographic:

Mun san cewa *the government* tana trying sosai amma akwai *challenges* da yawa.

Translation: We know that the government is trying hard, but there are many challenges. **IPA:** [mún

sàn 'ʃɛwà ðə 'gʌvnmənt tánà 'traɪnɪŋ sɔːsaɪ | àmːà àkwàɪ 'ʃælendʒɪz dà jàwà]

- Notes:**
- /ð/ in *the* is sometimes realised as [d] in token
 - *trying* retains the English diphthong

[aɪ], indicating phonological accommodation to English in the embedded segment.

- phrase.

- Hausa rhythmic pattern dominates the first clause; English stress-timed rhythm emerges in the embedded English

2. Summary of observed phonological shifts (condensed) Table AI

Summary of common shifts observed in code-switched Tokens (Related to paragraph 2 of Findings, “Overview of dominant shift types”)

Phonological feature	Example (orthographic → realized)	Shift observed	Probable motivation
Interdental fricatives	<i>thank</i> → [taŋk]	/θ/ → [t] (or [s])	/θ/ absent in Hausa inventory
Voiced dental fricative	<i>this</i> → [dis]	/ð/ → [d]	/ð/ absent in Hausa inventory
Consonant cluster repair	<i>school</i> → [sku:lu]	Epenthetic vowel insertion	Hausa prefers (C)V syllable structure
Final unstressed vowel	<i>later</i> → [létà]	Schwa → full vowel [a]	No schwa; full vowels preferred in Hausa
Stress-tone interaction	<i>meeting</i> → [mì:tiŋ]	Reduced stress contrast; tone-like pitch	Transfer from Hausa tonal prosody

3. Frequency and distribution tables

Table A2

Frequency of /θ/ → [t] substitutions (by context)
(Related to paragraph 4 of Findings, “Prevalence of /θ/ substitution across contexts”)

Context	Tokens	Substitutions	% Substituted
Context	Tokens	Substitutions	% Substituted
Broadcast news	42	38	90.5
Informal interview	35	33	94.3
Public announcements	27	25	92.6

Table A3

Distribution of /ð/ → [d] substitutions (by age & gender)
(Related to paragraph 5 of Findings, “Sociolinguistic variation in /ð/ substitution”)

Age group	Male tokens	Female tokens	Overall % substituted
20–35	44	41	88.6
36–50	38	36	89.5
51+	30	28	90.0

Table A4

Occurrence of /ʒ/ → [dʒ] / [ʃ] substitutions (lexical items)
(Related to paragraph 6 of Findings, “Substitutions involving /ʒ/ in embedded English lexicon”)

Lexical item	Tokens	[dʒ] realised	[ʃ] realised	% Substituted
measure	14	8	5	92.9
pleasure	11	7	3	90.9
television	18	12	5	94.4

Note. Percentages rounded to one decimal place.

4. Consent form template (to be issued before recording)

Title of study: Phonological Shifts in Hausa–English Code-Switching: A Sociophonetic Study
Principal investigator: [Name], Department of Linguistics and African Languages, [Institution]

5. Consent form template (to be issued before recording)

Title of study: Phonological Shifts in Hausa–English Code-Switching: A Sociophonetic Study

Principal investigator: [Name], Department of Linguistics and African Languages, [Institution]

Purpose: You are invited to participate in a study examining how Hausa–English bilinguals adjust pronunciation when switching between languages.

Procedures: Participation involves a recorded conversation or short interview (approx. 20–30 minutes) in informal or semi-formal settings.

Confidentiality: All recordings and transcripts will be stored securely. Your name will not appear in publications; pseudonyms will be used.

Voluntary participation: Participation is voluntary; you may withdraw at any time without penalty.