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A PHONOLOGICAL ADAPTATION OF HAUSA LOANWORDS IN NGAMO LANGUAGE

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ABSTRACT

This study investigates the linguistic evidence for the influence of Hausa on Ngamo language being a language of wider communication all over the northern Nigeria since 20th century. The study highlights briefly on Ngamo language as well as reviews from some related literatures. The study uses both primary and secondary sources of data for the study. Unstructured interview and personal observation were used as instrument for data collection. The research area is based on Ngamo native speaking area of southern Yobe State of north-eastern Nigeria. It has become necessary to select a sample population of ten people out of the general population for their representation. Generative phonology is used as theoretical framework following the application of concepts and findings to the description and comparison of two different languages has proven effectively based on the two-level approach to phonology which posited an underlying form and phonological rule in the phonological processes such as palatalization, frication, aphaeresis & apocopation, develarization, syncope, delabialization I, delabialization II, monophthongization, consonant gemination, insertion, aphaeresis, complete adaptation, glottalization, affrication, apocopation and

consonant degemination. The paper is expected to provide a valuable information to research development especially on anthropology, sociology, archaeology, geography as well as general linguistics being one of the languages of northern Nigeria which have not received much research attention. The study concludes that the language contact between Hausa and Ngamo has an impact on lexical borrowing.

Keywords: Phonology, Adaptation, Contact, Influence, Loanwords.

1.0 Introduction

Ngamo called themselves as Ngàmò, Ngôi Ngàmò (m.), Àn Ngamò (f.), Ngàmaayè/Ngàmàayà (pl.). Hausa called them Gamo (m./f.) Gamawa (pl.), it is also that Fulani, Ngizim, Karekare, Bole and Bade called them Ngàmò (m./f./pl.). They are the settlers in some areas of Fafa and Soro Districts of Darazo Local Government of Bauchi State. They are also settlers in some areas of Guduku, Jigawa and Ɓarwo Districts of Nafaɗa Local Government and in some areas of Dukku and Jamari Districts of Dukku Local Government of Gombe State. More so, they are the settlers in some areas of Bara District of Gujba Local Government, Damagum, Daura and Ngelzarma Districts of Fune Local Government, they are also settlers in areas and some areas of Chana, Ɗozi, Dotto, Fika, Gana, Ganga, Godowoli, Gudi, Janga, Maluri, Ngeji, Ngalda, Soyo and Shembire Districts of Fika Local Government of Yobe State. Ngamo people are descendants of Gudi, Gamari, Gana, Biyo, Daba, Gosho, Jokre, Jombor, Kadî, Lewe, Bara, Ɗozi and Zobo hills. Others include Dotto Ja, Dotto Fara, Banga, Bengre, Bogoma, Dirjogo, Diri, Dirshukla, Gasoro, Gozombi, Kaisami, Kanda, Karte, Kawa, Kolom, Kurbi, Mele, Njabi, Shula, Tagoi and Bekande hills in an area of South and West of Potiskum. Ngamo people speak four varieties of Ngamo language namely, Dotto, Gudi, Janga and Yaya. These varieties are slightly different in phonetics and phonology, morphology, syntax and lexicons. Despite all these differences, there is mutual intelligibility among the speakers of aforementioned varieties which justify grouping them as dialects of one language. Language documentation on Ngamo language spoken in Yobe State have increased especially when Yobe State Languages Research Project emerged in the last decade, but our knowledge on Ngamo recently almost comes entirely from the works of (Gadaka, 2015, 2020, 2023a, 2023b, 2023c, 2024a, 2024b, 2025, Gadaka & Gambo 2012, Garba & Gadaka 2021a, 2021b, 2023a, 2023b, 2023c and Mu'azu & Gadaka 2024) which are all linguistic based. Apart from the above, the present research came across with Gashinge, I. A., Janga-Ɗole, J. A. Goge, U. M. (2003) who work on folktales in both Gudi and Yaya dialects of Ngamo language.

This paper is about phonological adaptation of the lexical borrowing of Hausa words into Ngamo language being that Hausa is a dominant language all over northern Nigeria which has a massive influence on other languages of the North. One finds that in urban areas like Gombe, Kaduna and Potiskum, Hausa is rapidly establishing itself as a mother tongue for many inhabitants. It is replacing indigenous language(s) and being used on a day-to-day basis as a lingua franca across the northern Nigeria (Newman, 2000:1). Therefore, this study arms to compare the Standard Hausa and the Hausa loanwords in Ngamo language with a view to suggest their phonological adaptation that exist on the process of word borrowing. Therefore, an attempt to document a phonological adaptation of Hausa loanwords in Ngamo language will bridge a wide knowledge gap which have not covered by Gadaka and others. It will provide a valuable information to research development especially on anthropology, sociology, archaeology, geography as well as general linguistics being one of the languages of northern Nigeria which have not received much research attention.

2.0 literature Review

Busa (2013: 26-37) examines Hausa loanwords in Gbagyi language which are being co-existing in virtually the same geo-political environment over the years. The paper traces historical background of the Gbagyi people and the relationships that exist between Hausa and Gbagyi as well as the influence of Hausa on Gbagyi language. The paper consider only Hausa adopted words in Gbagyi not any other aspects of borrowing of words from Hausa to Gbagyi. The paper reveals with clear example the Gbagyi loaned words from Hausa in relations to traditional names (proper names), names of animals, names of plants, trees and shrubs, names in relations to commerce and transport, names of traditional institutions, names of utensils, names in relations to human body and names in relations to colour.

Abbas (2013: 187-192) examines some linguistic aspects of Hausa-Islamic names especially in relations to their phonological adaptation. The paper states that whenever Hausa borrows a word, it undergoes phonological changes before it is finally put in use. This process has also been applicable to Islamic names adapted into Hausa as in syllable deletion through contraction for simplification in pronunciation on the part of the speaker. The syllable mostly deleted are the first one and last one. Some of the examples of contracted forms of personal traditional names includes: Anaaruwa > Aruwa, Ayaashe > Yaashe, Balaaraba > Laaraba, Ciitumu > Tumu, Ɗan'auta > Auta etc. some examples of Islamic names that undergo the same deletion process of phonological adaptation in Hausa to includes: Abubakar > Abu/Bubakar, Adamu > Ado, Abdullahi > Audu/Abdu, Aisha > Aa'i, Faatima > Faati etc. Another process of phonological adaptation of Islamic in Hausa discussed in the paper was substitutions, where some sounds of Islamic names (being originally Arabic names) are substituted with the closely related sounds in Hausa as in Thaalis > Saalisu, Thaani > Saani, Uthman > Usman.

Zubairu (2012:20-26) examines the loanwords that exist between Hausa and Yoruba from the phonological point of view being that the languages are two of the three major languages of Nigeria which each borrow words from one another. The factors that influence this loan suggested might be historical connection, political affiliation or trade contacts. The phonological adaptation process of Yoruba loanwords in Hausa includes vowel change, consonant replacement, syllabification, breaking of consonant cluster and nasalization. In the other hand side, the phonology adaptation processes of Hausa loanwords in Yoruba includes labialized-velarization, palatalization, vowel change, germination, vowel lowering, depalatalization etc.

In summary, Busa (2013) is related to the present study by means adaptation of Hausa loanwords in Gbagyi language. Whereas the difference is that the present research is more of investigating the way Hausa loanwords are adapted in Ngamo language. Abbas (2013) lays out a linguistic aspects of Hausa-Islamic names especially in relations to their phonological adaptation. This study is related to the present research in line with phonological adaptation of Hausa-Islamic names. But the difference is that the present research is based on the Hausa loanwords in Ngamo not Hausa-Islamic names. Zubairu (2012) examines the loanwords that exist between Hausa and Yoruba from the phonological point of view. This study is related to the present research in line with Hausa loanword in other language. But the difference is that the present research observes the phonological adaption of Hausa loanwords in Ngamo not Yoruba language.

3.0 Research Method

The materials used in this research came largely from Gadaka (2023a). The research collected nine hundred (900) wordlist. The research respondents were asked to verify the correctness and appropriateness of the data gathered from the mentioned published material on Ngamo language. The research also uses text books journals, dissertations, internet facilities and thesis on Ngamo language and other language studies on phonology and dialectology to obtain secondary data. Also tape recorder and handset facilities were used to record interviews and discussions as material source of data for the study. The research used unstructured interview as a method of data collection for the research. Questions were presented to the respondents in an informal and relaxed atmosphere, where some valid and significant data about Hausa loanwords in Ngamo were gathered. Such questions were presented to the respondents in a face-to-face encounter.

The population of this study comprises of all Ngamo native speakers of northern Bauchi State, southern Yobe State and northern Gombe State of north-eastern Nigeria. Being that it will not be possible to have the responses of the entire population, it has become necessary to select a sample population from the general population for their representation. Therefore, the research uses ten (10) native speakers of Ngamo Language in Yobe State as research respondents. See the tables below:

Table 1: Research Domain and Respondents

Village	**Dialect**	**Respondent**	**District**	**Emirate**	**L.G.**	**State**
Ɗinkiri	Gudi	2	Gudi	Gudi	Fika	Yobe
Falau	Gudi	2	Gudi	Gudi	Fika	Yobe
Garkuwa	Gudi	2	Gudi	Gudi	Fika	Yobe
Gudi	Gudi	2	Gudi	Gudi	Fika	Yobe
Shengile	Gudi	2	Gudi	Gudi	Fika	Yobe
5	**1**	**10**	**1**	**1**	**1**	**1**

The trip to above places has given the researchers the opportunity to make observation and to conduct an interview with Ngamo native speakers on the relevant data with regards to Hausa loanwords in Ngamo language in their respective destinations. The major aim was data gathering required for the study.

The analysis for this research was done based on generative dialectology as a method in synchronic approach which involves the application of concepts and findings from generative phonology to the description and comparison of two different languages. It is based on the two-level approach to phonology which posited (a) underlying form and (b) phonological rule. This technique has the advantage of making it easier to handle two varieties at a time. One problem of generative phonology is how exactly underlying form should look like and how it should be arrived at. An early assumption was that it would be possible to take a base form from Hausa as basic and borrowed Ngamo form in the other side (Chambers and Trudgill, 1998:39-42). This method was adopted by Abubakar (1983) and Bulakarima (1991). Therefore, the researchers feel that it is suitable to adopt this method as an approach to the present research.

4.0 Data Presentation and Analysis

The report of the findings from a survey made during field work of this research disclosed the phonological adaptation of Hausa loanwords in Ngamo to include the following palatalization, frication, aphaeresis & apocopation, develarization, syncope, delabialization I, delabialization II, monophthongization, consonant gemination, insertion, aphaeresis, complete adaptation, glottalization, affrication, apocopation and consonant degemination.

4.1 Palatalization

This is a phonological process whereby alveolar fricative consonant sound /s/ in Hausa becomes palatal fricative consonant sound /ʃ/ in Ngamo language. as in example (1) below:

Example 1:

	Hausa	**Ngamo**	**Gloss**
a.	[Sàamandʒà]	[ʃàamandʒà]	Sargent Major
b.	[Soodʒà]	[ʃoodʒà]	Soldier
c.	[Saadʒè]	[ʃaadʒè]	Sargent

Rule 1: This phonological process is captured in the following rule:

$$\begin{bmatrix} +\text{cons} \\ +\text{high} \\ +\text{ant} \\ -\text{pal} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{cons} \\ +\text{high} \\ -\text{ant} \\ +\text{pal} \end{bmatrix} \; / \; \# \; _____$$

The above rule asserts that alveolar fricative consonant sound /s/ in Hausa becomes palatal fricative consonant sound /ʃ/ in Ngamo language in the environment of word initial position. Note that these Hausa words in example (1ab&c) were originated from English language in relations to military.

4.2 fricative

This is another phonological process by which a palatal affricative sound /ʧ/ in Hausa becomes palatal fricative /ʃ/ in Ngamo language. This phenomenon can be demonstrated in example (2) below:

Example 2:

	Hausa	**Ngamo**	**Gloss**
a.	[ʧookàli]	[ʃookàli]	Spoon
b.	[ʧadʒì-Oɸìs]	[ʃaadʒì-Oɸìs]	Police Station
c.	[ʧandʒì]	[ʃandʒì]	Change

Rule 2: This phonological process is captured in the following rule:

$$\begin{bmatrix} +\text{cons} \\ -\text{cont} \\ +\text{del rel} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{cons} \\ +\text{cont} \\ -\text{del rel} \end{bmatrix} \; / \; \# \; _____$$

The above rule states that a palatal affricative sound /ʧ/ in Hausa becomes palatal fricative sound /ʃ/ in Ngamo language in the environment of word initial position. Note that example (2a) Hausa word was originated from Azbin in the 18th century as well as example (2b&c) Hausa words were originated from English language.

4.3 Aphaeresis & Apocopation

This dual phonological processes in the cost of Ngamo words adaptation in Hausa. The earlier process deletes a segment from the word initial position whereas the later process deletes a vowel phoneme from the word final position. These processes can be seen in example (3) below:

Example 3:

	Hausa	**Ngamo**	**Gloss**
a.	[ʔàlʔamàri]	[Lamàr]	Matter
b.	[Bàzawàra]	[Zawàr]	Divorcee
c.	[ʔàlƙʷùrʔaanì]	[Lùkʷùrân]	Qur'an

Rule 3: This phonological process is captured in the following rule:

$$\sigma \begin{bmatrix} -\text{cons} \\ +\text{syll} \\ +\text{voice} \\ -\text{vib} \end{bmatrix} \longrightarrow \emptyset \,/\, \# _____ \#$$

The above rule asserts that a segment which is present in Hausa becomes deleted in Ngamo language in the environment of word initial position. Likewise, a vowel which is present in Hausa becomes deleted in Ngamo language in the environment of word final position. One has to note that example (3a&c) were traced from Arabic language.

4.4 Develarization

This is a phonological process which velar ejective sound /ƙ/ in Hausa does not exist in Ngamo language and replace with a glottal stop /ʔ/ in the cost of adaptation as in example (4) below:

Example 4:

	Hausa	**Ngamo**	**Gloss**
a.	[Kàraagʷò]	[ʔàraagʷò]	Groundnut pulp
b.	[Kʷuusà]	[ʔuusà]	Nail
c.	[Kʷoosai]	[ʔoosee]	Bean-flour fritters
d.	[ʔàlƙaali]	[ʔàlkaali]	Judge

Rule 4: This phonological process is captured in the following rule:

$$\begin{bmatrix} +\text{cons} \\ +\text{high} \\ +\text{back} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{cons} \\ -\text{high} \\ -\text{back} \end{bmatrix} \,/\, \# _____$$

The above rule asserts that velar ejective sound /ƙ/ in Hausa becomes velar ejective sound /ƙ/ in Hausa becomes a glottal stop /ʔ/ in Ngamo language in the environment of word initial position. One has to note that in example (4b) the process is deglottalization rather than develarization. the velar ejective sound /ƙ/ in Hausa deglottalized to velar stop in Ngamo language instead of glottal stop /ʔ/. Diphthong sound /ai/ in Hausa becomes monophthong /ee/ in Ngamo in a process known as monophthongization in example (4c). However, Hausa word in example (4d) was originated from Arabic language.

4.5 Syncope

This is a phonological process where by a vowel in Hausa is deleted in Ngamo language in a word medial position in the cost of adaptation as in example (5) below:

Example 5:

	Hausa	**Ngamo**	**Gloss**
a.	[Sakatarè]	[Saktarè]	Secretary
b.	[Durùmi]	[Durmi]	Type of fig tree
c.	[Tàɸàsa]	[Tàpsa]	Senna plant
d.	[Leebùrà]	[Lêbrà]	Labourer
e.	[Hàƙuri]	[Hàɓrì]	Patience
f.	[Hùkuumà]	[Hukmà]	Government
g.	[Tàagʲijà]	[Tèijà]	Cap
h.	[ʤèekaɸadà]	[ʤèkɸadà]	Traditional tittle

Rule 5: This phonological process is captured in the following rule:

$$\begin{bmatrix} -\text{cons} \\ +\text{syll} \\ +\text{voice} \\ -\text{vib} \end{bmatrix} \longrightarrow \emptyset \;/\; C __ C$$

The above rule asserts that a vowel in Hausa is deleted in Ngamo language in the environment of word medial position. Note that example (5a&d) in Hausa were originated from English language as 'secretary' and 'labourer' respectively. Likewise, example (5f) in Hausa was loaned from Arabic language as 'hukumun'. Bilabial fricative sound /ɸ/ in Hausa becomes bilabial plosive sound /p/ in Ngamo in example (5c) in a process called defrication. Monophthong sound /aa/ in Hausa becomes diphthong sound /ei/ in Ngamo in example (5g) in a process known as diphthongization. As a result of this phonological process in example (5h), a vowel of the second syllable in Hausa become lost in Ngamo language, the first syllable becomes closed i.e. CVVC which deviates from CV, CVV and CVC Ngamo syllable structure. Therefore, the long front vowel /ee/ automatically become short /e/ to form CVC to avoid CVVC which is grammatically unacceptable in Ngamo syllable structure.

4.6 Delabialization I

This is a phonological process where by a labialized velar stop sound /kw/ in Hausa does not exist in Ngamo language whereby becomes velar stop sound /k/ instead as illustrated in example (6) below:

Example 6:

	Hausa	**Ngamo**	**Gloss**
a.	[ʔàkwàatì]	[ʔàkʷòotì]	Box
b.	[Kwaakʲi]	[Kʷookʲi]	Cassava flour
c.	[Kwaanò]	[Kaanò]	Pan
d.	[Kwaali]	[Kʷooli]	Packet
c.	[Kwalba]	[Kʷolba]	Bottle
e.	[Kwabò]	[Kʷobò]	Kobo

Rule 6: This phonological process is captured in the following rule:

$$\begin{bmatrix} +\text{cons} \\ +\text{round} \\ +\text{lab} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{cons} \\ -\text{round} \\ -\text{lab} \end{bmatrix} \;/\; \#\ _____$$

The above rule asserts that labialized velar stop sound /kw/ in Hausa becomes velar stop consonant sound /k/ in Ngamo language in the environment of word initial position. Note that automatic palatalization occurs in all instances in the environment after velar sounds /k, g, ŋg/, before a front vowel /i, e/. Also automatic labialization occurs in all instance in the environment before a rounded vowel /u, o/, hence after a velar sound /k, g, ŋg/ as in as in [Kwaakʲi] → [Kʷookʲi] 'cassava flour'.

4.12 Delabialization II

This is a phonological process where by a labialized velar stop /gw/ in Hausa which does not exist in the Ngamo language becomes velar stop /g/ as exemplified in example (12) below:

Example 12:

	Hausa	**Ngamo**	**Gloss**
a.	[Gwàdò]	[Gʷòdò]	Heavy blanket
b.	[Gwaŋgwani]	[Gʷoŋgʷoni]	Tin
c.	[Gwàni]	[Gʷòni]	Expert
d.	[Gwàndʒo]	[Gʷòndʒo]	Used materials

Rule 12: This phonological process is captured in the following rule:

$$\begin{bmatrix} +\text{cons} \\ +\text{round} \\ +\text{lab} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{cons} \\ -\text{round} \\ -\text{lab} \end{bmatrix} \; / \; \# \; \underline{\qquad}$$

The above rule asserts that labialized velar stop /gw/ in Hausa becomes velar stop /g/ alveolar fricative consonant sound /s/ in Ngamo language in the environment of word initial position.

4.7 Monophthongization

This is a phonological process which a diphthong vowel sound /ai/ in Hausa becomes monophthong vowel sound /ee/ or /i/ in Ngamo language as can be demonstrated in example in example (7) below:

Example 7:

	Hausa	**Ngamo**	**Gloss**
a.	[Zàinabù]	[Zèenabù]	Personal name (f.)
b.	[ʃùʔaibù]	[ʃàajibù]	Personal name (m.)
c.	[Kʷoosai]	[ʔoosee]	Bean-flour fritters
d.	[Nairà]	[Neerà]	Naira

Rule 7: This phonological process is captured in the following rule:

$$\begin{bmatrix} +\text{high} \\ +\text{tense} \\ -\text{round} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{high} \\ -\text{tense} \\ -\text{round} \end{bmatrix} \; / \; \text{C} \; \underline{\qquad} \; \text{C}$$

The above rule asserts that a diphthong vowel sound /ai/ in Hausa becomes monophthong vowel sound /ee/ or /aa/ in Ngamo language in the environment between two consonant phonemes. Note that monophthongization happens in the word initial position (example 7a&d), word medial position (example 7b) and word final position (example 7c).

4.8 Consonant Gemination

This is a phonological process which a single consonant in Hausa becomes consonant cluster in Ngamo in the word medial position as can be illustrated in example (8) below:

Example 8:

	Hausa	**Ngamo**	**Gloss**
a.	[Hadʒìja]	[Hadʒdʒà]	Personal name (f.)
b.	[ʔàkʷu]	[ʔàkkʷu]	Parrot
c.	[ʔàgʷoogʷo]	[ʔàgʷoggʷo]	Clock

Rule 8: This phonological process is captured in the following rule:

$$C \longrightarrow CC \quad V __ V$$

The above rule asserts that a single consonant in Hausa becomes consonant cluster in Ngamo in the environment between two vowels in the word medial position.

4.9 Insertion

This is a phonological process by which a consonant phoneme is added to Hausa loanword in Ngamo language in the word final position as exemplified in example (9) below:

Example 9:

	Hausa	**Ngamo**	**Gloss**
a.	[Dìgìrî]	[Dìgìrîn]	Degree
b.	[ʔàlbasà]	[ʔàlbasàr]	Onion
c.	[ʃàntu]	[dʒàltum]	Sound instrument
d.	[Maŋgwàrò]	[Moŋgìròŋ]	Mongo

Rule 9: This phonological process is captured in the following rule:

$$Ø \longrightarrow C \quad _____ \#$$

The above rule asserts that a consonant phoneme which is not present in Hausa loanword is added in Ngamo language in the environment of word final position. Note that Hausa example (9a&d) trace their history from English language, whereas example (9b) from Arabic language. Palatal fricative sound /ʃ/ in Hausa becomes palatal affricate sound /dʒ/ in the Ngamo language in example (9c).

4.10 Aphaeresis

This is a phonological process which a segment is lost in the Hausa loanword in Ngamo language in its initial position as can be seen in example (10) below:

Example 10:

	Hausa	**Ngamo**	**Gloss**
a.	[ʔàlʔaadà]	[ʔaadà]	Habitual
b.	[ʔàlwàla]	[Walò]	Religious ablution
c.	[ʔàlwalì]	[Luwâr]	Bride representative
d.	[ʔàldʒannà]	[dʒannà]	Paradise

Rule 10: This phonological process is captured in the following rule:

$$\sigma \longrightarrow Ø \quad \# \quad _____$$

The above rule asserts that a segment in the Hausa loanword is lost in Ngamo language in the environment of word initial position. One has to tote that example (10a-d) in Hausa were originated from Arabic language. Rotalization of alveolar trill sound /r/ occur in example (10c)

at the word final position in Ngamo [Luwar] 'bride representative instead of the placement of alveolar lateral sound /l/ as [Luwal].

4.11 Complete Adaptation

This is a process whereby Ngamo language adapts Hausa loanwords into its lexemes. This phenomenon can be illustrated in example (11) below:

Example 11:

	Hausa	**Ngamo**	**Gloss**
a.	[G^{w}òog^{j}e]	[G^{w}òog^{j}e]	Musical instrument
b.	[ʔaska]	[ʔaska]	Straight razor
c.	[ʔabàawa]	[ʔabàawa]	Coarse cotton
d.	[ʔàjàbà]	[ʔàjàbà]	Banana
e.	[Dànkalì]	[Dànkalì]	Potato
f.	[ʃaag^{w}ò]	[ʃaag^{w}ò]	Shop
g.	[Haraadʒì]	[Haraadʒì]	Tax

Rule 11: This phonological process is captured in the following rule:

$$\sigma \longrightarrow \sigma \;/\; _____$$

The above rule asserts that Ngamo language adapts Hausa loanwords with zero phonological feature into its lexemes in the environment of no specification position. Note that example (11f&g) in Hausa were originated from English 'shop' and Arabic 'kharaj' respectively.

4.13 Glottalization

This is a phonological process by which a bilabial fricative sound /ɸ/ in Hausa becomes glottal fricative sound /h/ in the Ngamo language as demonstrated in example (13) below:

Example 13:

	Hausa	**Ngamo**	**Gloss**
a.	[ɸuskà]	[Huskà]	Face
b.	[ɸìtilà]	[Hìtilà]	Lamp
c.	[ɸentì]	[Hentì]	Pent

Rule 13: This phonological process is captured in the following rule:

$$\begin{bmatrix} +\text{cons} \\ +\text{ant} \\ +\text{cont} \\ +\text{lab} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{cons} \\ -\text{ant} \\ +\text{cont} \\ -\text{lab} \end{bmatrix} \;/\; \#\; _____$$

The above rule asserts that bilabial fricative sound /ɸ/ in Hausa becomes glottal fricative sound /h/ in the Ngamo language in the environment of word initial position. One also has to note that example (13c) in Hausa was traced from English language 'pent'.

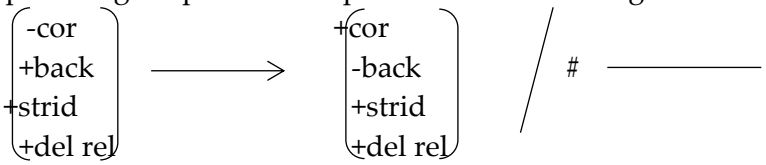
4.14 Affrication

This is a phonological process where by a palatalized velar stop sound /gj/ in Hausa becomes palatal affricate sound /dʒ/ in the Ngamo language as can be seen in example (14) below:

Example 14:

	Hausa	**Ngamo**	**Gloss**
a.	[Gjautò]	[dʒautò]	Wrapper
b.	[Gjaura]	[dʒaura]	Hawking food
c.	[Gjaara]	[dʒaara]	A little extra

Rule 14: This phonological process is captured in the following rule:



The above rule asserts that palatalized velar stop sound /gj/ in Hausa becomes palatal affricate sound /ʤ/ in the Ngamo language in the environment of word initial position.

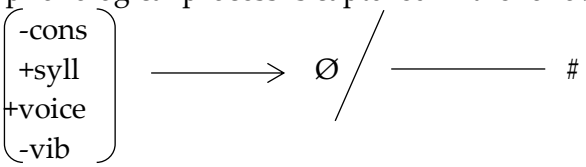
4.15 Apocapetion

This is a phonological process by which a vowel sound in the Hausa loanword in Ngamo is lost in a word final position as can be exemplified in example (15) below:

Example 15:

	Hausa	**Ngamo**	**Gloss**
a.	[Gaadàli]	[Gaadàl]	Spider lily
b.	[Làabaarà]	[Làbàr]	News
c.	[Sukàri]	[Sukàr]	Sugar
d.	[Maalàmi]	[Maalàm]	Scholar
e.	[Hàdiisì]	[Hàdîs]	Hadith

Rule 15: This phonological process is captured in the following rule:



The above rule asserts that vowel sound in the Hausa becomes lost in Ngamo language in the environment of word final position. Note that example (15c) in Hausa was loaned from English language 'sugar'. Likewise, Hausa example (15d&e) were loaned from Arabic language 'mu'allim' and 'hadith' respectively. A process technically known as vowel shortening occur in the first syllable of example (15b) whereas long low vowel /aa/ in Hausa becomes short low vowel /a/ in Ngamo language. In the same vain, loss of word final vowel /i/ in Ngamo language, the mid syllable becomes closed i.e. CVVC which deviates from CV, CVV and CVC Ngamo syllable structure. Therefore, the long low vowel /aa/ automatically become short /a/ to form CVC to avoid CVVC which is grammatically unacceptable in Ngamo syllable structure.

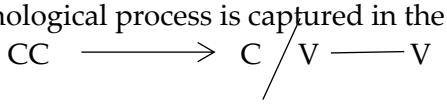
4.16 Consonant Degemination

This is a phonological process which a consonant cluster in Hausa becomes single consonant in Ngamo in the word medial position as can be shown in example (16) below:

Example 16:

	Hausa	**Ngamo**	**Gloss**
a.	[Haʤʤì]	[Haʤì]	Hajj
b.	[ʔàllaaro]	[ʔàlaaro]	Begging
c.	[ʔànnòoba]	[ʔàlòoba]	Disaster
d.	[ɸàllasà]	[Hàlasà]	Exposing secret

Rule 16: This phonological process is captured in the following rule:



The above rule asserts that consonant cluster in Hausa becomes single consonant in Ngamo in the environment of word medial position in between two vowels. Note that example (16a&b) were loaned from Arabic 'hajjù' and Kanuri 'allàrò' respectively. A process known as glottalization occur where a bilabial fricative sound /ɸ/ in Hausa becomes glottal fricative sound /h/ in the Ngamo language.

Discussion of Findings

In analyzing Hausa loanwords in Ngamo language, application of concepts and findings from generative phonology to the description and comparison of two different languages has proven effectively. It is based on the two-level approach to phonology which posited an underlying form and phonological rule. Using the phonological processes, the present research categorized phonological adaptation of Hausa loanwords in Ngamo language under palatalization which is a process whereby alveolar fricative consonant sound /s/ in Hausa becomes palatal fricative consonant sound /ʃ/ in Ngamo language as in [Sàamanʤà] → [ʃàamanʤà] 'Sargent Major'. Affrication is another process by which a palatal affricative sound /ʧ/ in Hausa becomes palatal fricative /ʃ/ in Ngamo language as in [ʧookàli] → [ʃookàli] 'spoon'. Aphaeresis and Apocopation this is a dual phonological process in the cost of Ngamo words adaptation in Hausa. The earlier process deletes a segment from the word initial position whereas the later process deletes a vowel phoneme from the word final position as in [ʔàl'amàri] → [Lamàr] 'matter'. Other phonological process includes develarization which is a process where a velar ejective sound /ƙ/ in Hausa does not exist in Ngamo language and replace with a glottal stop /ʔ/ as in [Kàraagʷò] → [ʔàraagʷò] 'groundnut pulp'. Syncope is a process where by a vowel in Hausa is deleted in Ngamo language in a word medial position as in [Sakatarè] → [Saktarè] 'secretary'. Delabialization is a process where by a labialized velar stop sound /kw/ in Hausa does not exist in Ngamo language whereby becomes velar stop sound /k/ instead as in [ʔàkwàatì] → [ʔàkʷòotì] 'box'. Delabialization is a process where by a labialized velar stop /gw/ in Hausa which does not exist in the Ngamo language becomes velar stop /g/ as in [Gwàdò] → [Gʷòdò] 'used materials'. Monophthongization is a process which a diphthong vowel sound /ai/ in Hausa becomes monophthong vowel sound /ee/ or /aa/ in Ngamo language as in [Zàinabù] → [Zèenabù] 'personal name (f.)'. Consonant germination is another process which a single consonant in Hausa becomes consonant cluster in Ngamo in the word medial position as in [ʔàkʷu] → [ʔàkkʷu] 'parrot'. Insertion is a process by which a consonant phoneme is added to Hausa loanword in Ngamo language in the word final position as in [Dìgi̇̀rî] → [Dìgi̇̀rîn] 'degree'. Aphaeresis is a process which a segment is lost in the Hausa loanword in Ngamo language in its initial position as in [ʔàlʔaadà] → [ʔaadà] 'habitual'. Complete adaptation is another process whereby Ngamo language adapts Hausa loanwords with zero phonological feature into its lexemes as in [Gʷòogʲe] → [Gʷòogʲe] 'musical instrument'. Gottalization is a process by which a bilabial fricative sound /ɸ/ in Hausa becomes glottal fricative sound /h/ in the Ngamo language as in [ɸuskà] → [Huskà] 'face'. Affrication is a process where by a palatalized velar stop sound /gj/ in Hausa becomes palatal affricate sound /ʤ/ in the Ngamo language as in [Gjautò] → [ʤautò] 'wrapper'. Apocopetion is a process by which a vowel sound in the Hausa loanword in Ngamo is lost in a word final position as in [Sukàri] → [Sukàr] 'sugar'. Consonant degemination is a process which a consonant cluster in Hausa becomes single consonant in Ngamo in the word medial position as in [Haʤʤì] → [Haʤì] 'hajj'.

Conclusion

The study concludes that the language contact between Hausa and Ngamo has an impact on lexical borrowing being that Hausa is a Language of Wider Communication (LWC) all over the northern Nigeria which has a massive influence on other languages of the North. The possible factors for this great influence might be social, political, economic and religious activities. The phonological adaptation of Hausa loanwords in Ngamo language are based on the Ngamo sound system, Ngamo tone system, Ngamo syllable structure and Ngamo grammatical word formation. Finally, most of Hausa loanwords in Ngamo were borrowed from either Arabic, English or Kanuri language.

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