Phonetic Variation Within the Ǹkọ̀rọ̀ọ̀ Speech Community

Ebitare F. Obikudo

Department of Linguistics & Communication Studies, University of Port Harcourt, Nigeria

Abstract: Nkọrọọ is an Eastern Ijoid language spoken in Rivers state, Nigeria, West Africa. Phonetic variation that correlates with both linguistic and social factors were observed in the speech of speakers from the three sections that make up the Nkọrọọ speech community within Opu Nkọrọọ. The sections include Kpokpo, Otoni-ama, and Ọpọrọkunọ, divided along the lines of kinship affiliation which serves as the social variable. Data was elicited from competent native speakers from each section via participant observation and with the aid of the SIL comparative African word list and a Marantz digital audio recorder. Word-final lip rounding assimilation, intervocalic consonant deletion, and intra-word and boundary CV syllable deletion were identified as the linguistic variables that affect phonetic variation. The findings revealed that while speakers from Otoni-ama could be identified by lip rounding assimilation, speakers from Kpokpo employed all the deletion processes. These variables served as markers for both sections. Speakers from Ọpọrọkunọ represent the unmarked section. No reasons were established for the choices made by each section thus affirming that the relationship between linguistic form and social category is arbitrary. The paper concluded that the variations observed are a pattern of learned speech behavior that aid the expression of group identity as exhibited by each kinship affiliation.

Keywords: Nkọrọọ, Ijoid, phonetic variation, intra-community variation, lip rounding assimilation, and CV syllable deletion.

1. Introduction

Variation is an inherent feature of human language. The way a language is spoken does not vary across speakers alone but also within the speech of a single speaker. When language varies across speakers, it is referred to as inter-speaker variation and as intra-speaker variation when it is observed within an individual speaker. Various factors such as internal change, geographical location (in terms of distance from other speakers), social class, speaker's age, sex or degree of education contribute to give rise to variation in language (Holmes and Wilson, 2017; O'Grady et. al., 2011; Velupillai, 2012; Wardhaugh and Fuller, 2015). Variation manifests in different realizations of speech, phonetically, phonologically, and lexically. However, the most obvious linguistic variation involves pronunciation (Hay and Drager, 2007; Holmes and Wilson, 2017).

The different patterns exhibited in linguistic variation carry social meanings that serve as motivations for speakers to feel a common bond, and the linguistic features that characterize variation patterns correspond with membership in particular social groups (Wardhaugh and Fuller, 2015). According to O'Grady et. al. (2011, p. 477), "details of word choice, syntax or pronunciation reveal us to be members of a particular speech community, a group of people who share social conventions, or sociolinguistic norms, about language use." This means that both linguistic and social factors affect variation in language and contribute to marking social identity. Examples of linguistic factors that affect variation include word position, voicing, and boundary deletion (Eckert and Labov, 2017; Thomas, 2016) while social factors include geographical location, ethnicity, group affiliations, time, language contact, social class, speaker gender, age,

and speaking style (Foulkes and Docherty, 2006; O'Grady et. al., 2011). It is thus established that one of the major reasons for linguistic variation is the construction of group or social identity (Hay and Drager, 2007; Horsu et. al., 2022).

As mentioned earlier, linguistic variation is most pronounced at the level of phonetics, that is, pronunciation. Phonetic variation is a situation where the choice of expression among speakers is conditioned by phonetic contexts. In other words, the variation is based on the sounds found within a particular phonetic environment. Phonetic variation can be used for the construction of social identity. The relationship between phonetic variation and social identity has been a subject of investigation over the years (Wells, 1982). As a result, a framework for investigating the relationship between sound (the phonetic or phonological form) and social meaning, called sociophonetics, has evolved (Zimman, 2021). According to Foulkes and Docherty (2006, p. 411), sociophonetic variation "refers to variable aspects of phonetic or phonological structure in which alternative forms correlate with social factors." The social factors reflect how speakers use sounds for the purposes of inclusion or exclusion within a social group, while the variable refers to the sound or feature that can be realized in several possible ways. This work draws insights from the underpinnings of the sociophonetics framework in its investigation, although it may not be considered a sociophonetic research in its strictest sense.

Phonetic variation may occur at the levels of sound segments, suprasegments, or subsegments. However, the majority of works on phonetic and sociophonetic variation deal with segmental variation. There are four main types of segmental variation established by Wells (1982) which Foulkes and Docherty (2006) adopt as parameters for describing sociophonetic variation. They are variation in the phoneme inventory, allophonic variations, phonotactic distribution of phonemes, and lexical distribution of phonemes. Variation in the phoneme inventory is systemic and involves a dialect or speech form having some phonemes in its inventory that are absent in another dialect. For instance, Defaka is reported to have the glottal stop [ʔ] in its consonant inventory (Essien, 2013), a sound that is absent in other Ijoid dialects. Allophonic variations are quite common in languages and can be seen in the use of different pronunciation variants (known as allophones) for the same distinctive sound segment (known as a phoneme). In the Igboid language group (Benue-Congo subphylum), some dialects employ [ɛ] where others use [a] as in [ɛ́ká] and [áká], both meaning 'hand'. Phonotactic distribution is concerned with the occurrence of sound segments within the word. The distribution of phonemes in word-initial, word-medial, word-final, and intervocalic positions can determine variation patterns. This is the variation type that pertains to this study. Lastly, speech forms may vary based on the phoneme used in lexical items.

It is important to note that the patterns of variation in language are not haphazard but patterned and rule-governed. The essence of a research such as this is to describe the variation patterns that can be observed within the Nkọrọọ speech community and identify the rules that order the patterning with a view to seeing how variation relates to social identity within the community.

2. The Nkọrọọ speech community

The Nkọrọọ people are located in the Niger Delta region of Nigeria, specifically in Opobo/Nkọrọọ local government area of Rivers state located on latitude 4° 32' 46.79' N and longitude 7° 27' 56.93' E. Their geographical neighbors include the Obolo speakers on the south and west, the Kana speakers on the north, and the Ịbanị people of Opobo kingdom and the Ibibio on the east. The language is also referred to as Nkọrọọ (sometimes, wrongly spelt Nkoro) in the official records but the people call it Kirika language (Obikudo, 2013, 2022). In this work, the term Nkọrọọ is used to refer to the people and community while Kirika is used to refer to the language. Kirika is a small group Eastern Ịjọ language that belongs to the Ijoid language cluster within the Niger-Congo phylum. Its closest linguistic relatives are Kalaḅarị, Kịrịkẹ (Okrika), and Ịbanị, a mutually intelligible dialect cluster that together with Nkọrọọ form the Eastern Ịjọ branch (Jenewari, 1989; Williamson and Blench, 2000).

The Nkọrọọ community is governed by a monarchy system and the seat of power, where the King resides, is at Nkọrọọ town, otherwise called Opu Nkọrọọ. In addition to Opu Nkọrọọ, the speech community extends to three other smaller villages; Olom Nkọrọọ, Iwọama Nkọrọọ, and Olom-ama Nkọrọọ. Opu Nkọrọọ is divided into four sections or wards namely, Kpokpo (also called Pọkọye), Otoni-ama, Ọpọrọkunọ (also called Diepriye), and Defaka. The Defaka people, who are called *Afakani* by the Nkọrọọ, have a distinct identity from the Nkọrọọ people and speak Defaka, an Ijoid language. Defaka is severely endangered and although the people recognize their Defaka heritage, they all speak Kirika. Only a few of them can actually speak Defaka (Essien, 2013; Jenewari, 1983; Obikudo, 2013). The focus of this study however, is on the Kpokpo, Otoni-ama, and Ọpọrọkunọ sections that belong to the Nkọrọọ people. These three sections are located on the same land mass alongside Defaka.

Opu Nkọrọọ is a small community and the Kirika language is the mother tongue of the people, so one would expect the community to be homogeneous, but this is not the case. Apart from Kirika, other languages spoken within the community include Defaka, Igbo (especially the Bonny/Opobo variety), Obolo, Ibibio, Kana, Ịbanị, Kịrịkẹ, Kalaḅarị, Nembe, Ịzọn, English, and Nigerian Pidgin. Kirika is used alongside English and Nigerian Pidgin for social events such as marriages and funerals. English is used as the medium of instruction in the nursery, primary, and secondary schools. Kirika is also used to teach at the nursery and primary levels, when necessary. Kirika and English are used for christian worship, while Kirika alone is used for traditional worship. The Nkọrọọ community is thus a multilingual state.

The Nigerian society does not operate an elaborate social class system as is evident in some other non-African communities (Oladipupo and Akinjobi, 2015). However, there are still ways in which a society can be stratified. The division into sections within the Nkọrọọ community is not based on a social class system but on kinship relations. Hence, one can only become a member of the Kpokpo, Ọpọrọkunọ, and Otoni-ama sections either by ancestry or by marriage. Kinship ties are a type of social relations because they are the basic building blocks of the society and form the fundamental framework for organizing people into social groups, constructing their identity and roles, and integrating them into the society. Kinship is "one of the most vital features of the African heritage" (Kanu, 2014, p. 1) and constitutes the social variable for this study. There are observable sound variations in the speech of the speakers that belong to these Nkọrọọ kinship groups. It is a case of variation across speakers (that is, inter-speaker variation) and variation within a community located in the same geographical location (that is, intra-community variation).

Fig.1: The location of the Nkọrọọ people (circled in blue) within Rivers state (available online at www.nigerianfinder.com).

3. Materials and methods

The SIL comparative African word list (Snider and Roberts, 2006) is a thematic list of one thousand seven hundred words (1,700) in English and French. The list was used to elicit data from competent native speakers from the three sections who served as language consultants. Not all the words in the list had Kirika equivalents and as is the case with data elicitation on the field, additional words which were not originally on the list were also gathered. All the data collected were recorded with a Marantz PMD 660 digital audio recorder and later transferred to a computer for playback and transcription. Additional data were gathered through participant observation, by engaging in the communal life during field trips to the community.

4. Results and discussion

This section presents language data that show evidence of segmental variation based on phonotactic distribution of phonemes within the Kpokpo, Otoni-ama, and Ọpọrọkunọ sections of the Nkọrọọ speech community.

4.1. Phonetic variation within the Nkọrọọ community

The variations observed in the speech of Nkọrọọ speakers are minimal and so are not perceived by the people as dialectal differences. They are phonetic and do not affect the meanings of the words or the sentences in which these words occur. However, these phonetic variations are socially conditioned as they serve to identify the ward of the speech community that a speaker comes from. The variations observed occur at the segmental level only. No variations at the suprasegmental level, that is, tone, were observed. The linguistic variables that affect phonetic variation are lip rounding assimilation and deletion.

4.1.1. Lip rounding assimilation: [i] ~ [u] variants

The Kirika vowel system consists of seven oral vowels and seven corresponding nasal vowels (Harry, 1987; Obikudo, 2008, 2022). The seven oral vowels and their corresponding nasal vowels are [i e ɛ a ɔ o u] and [ĩ ẽ ɛ̃ ã ɔ̃ õ ũ] respectively. All seven oral vowels occur word-medially and word-finally. The vowels [ɛ] and [u] do not occur word-initially. From the data gathered, the vowel [e] rarely occurred in the word-initial position. The non-occurrence of [ɛ] in word-initial position is as a result of vowel mergers with [e] and [i] in this position (Obikudo, 2008). On the other hand, [u] never occurs word-initially in the Eastern Ịjọ group. All the nasal vowels do not occur in word-initial position, but they all occur in word-medial and word-final positions except for [ɛ̃] which does not occur word-finally.

We observe vowel variation between the oral vowels [i] and [u] at word-final position that is based on the shape of the lips parameter. The close front unrounded vowel [i] and the close back rounded vowel [u] are phonetically similar. Both vowels are of approximately the same height but vary in the shape of the lips parameter, in other words, lip rounding. In some lexical items, [i] in the speech of speakers from Kpokpo and Ọpọrọkunọ varies with [u] in the speech of speakers from Otoni-ama word-finally. The variation is as a result of [u] agreeing in lip rounding with the vowel in the penultimate syllable, which is either [o] or [ɔ]. Whereas speakers from Kpokpo and Ọpọrọkunọ retain the vowel [i] in the last syllable of the word, speakers from Otoni-ama assimilate the rounding feature of either [o] or [ɔ] in the preceding syllable but retain the same vowel height as [i], thus becoming [u]. This implies that the variable of lip rounding is sensitive to vowel height. The use of word-final lip rounding assimilation thus distinguishes speakers from Otoni-ama from the Kpokpo and Ọpọrọkunọ sections. Examples are shown in the table below.

Table 1: [i] ~ [u] vowel variation as a result of lip rounding

Kpokpo	Ọpọrọkunọ	Otoni-ama	English gloss
ŋḿgbɔ́lí	ŋḿgbɔ́lí	ŋḿgbɔ́lú	'seed'
gbòlì	gbòlì	gbòlù	'be short'
Kórí	kórí	kórú	'wait, remain, stay'

lɔ̀kì ~ lɔ̀ɣì	lɔ̀kì ~ lɔ̀ɣì	lɔ̀kù ~ lɔ̀ɣù	'want'
sòkì ~ sòɣì	sòkì ~ sòɣì	sòkù ~ sòɣù ~ sòwù	'dig'
tòkòrì ~ tòɣòrì	tòkòrì ~ tòɣòrì	tòkòrù ~ tòɣòrù	'chew'

We can posit a rule that states that at word-final position, the close front unrounded vowel [i] assimilates the lip rounding feature of the vowel in the preceding CV syllable. The rule schema is presented as R₁.

R₁: [i] → [+ round] / [C V₊ round] ___ #

4.1.2. Deletion

There are twenty seven consonant (27) phonemes in Kirika language consisting of five nasals [m n ɲ ŋm ŋʷ], ten plosives [p b t d k g kp gb kʷ gʷ], one implosive [ɓ], one affricate [dʒ], six fricatives [f v s z ɣ h], three central approximants [ɹ j w], and one lateral approximant [l] (Obikudo, 2022). All the consonant phonemes can occur in word-initial and word-medial positions. The only exceptions are the voiced labiodental fricative [v] which does not occur word-medially (actually, the occurrence of [v] is rare in the language) and the voiced velar fricative [ɣ] which only occurs in word-medial position (that is, intervocalically). The palatal nasal [ɲ] rarely occurs word-initially. The only instances of the voiceless glottal fricative [h] in word-initial position are in the words [hɛ́ḿ] and [hí̋̃] used as a call and response respectively when telling stories. Kirika consonants generally do not occur word-finally. The bilabial nasal [m] and the alveolar nasal [n] that appear to occur word-finally are usually syllabic when they are found in this position. In other words, they do not function as word-final consonants.

The intervocalic position is a natural phonetic environment that triggers consonant weakening. According to Thomas (2016), weakening and strengthening refer to changes in the manner of articulation of a consonant sound. In Kirika, the voiceless velar plosive [k] may be weakened to its voiced counterpart [g] and to the voiced velar fricative [ɣ] intervocalically. This process is technically known as spirantization. The fricative may in turn be weakened to a labial-velar approximant [w]. This weakening may eventually lead to consonant deletion and sometimes the deletion of a following vowel, that is the CV syllable that hosts the consonant. Deletion is the ultimate kind of weakening. Examples (1) – (3) provide insights to the weakening process in Kirika.

Voiceless velar plosive weakened to a voiced velar plosive and to a voiced velar fricative

(1)**k>g>ɣ**

pìkì→pìgì→pìɣì'turn'

lìkì→lìgì→lìɣì'look at, watch'

pòkì→pògì→pòɣì'listen'

dʒìkè→ dʒìgè→dʒìɣè'shake, shiver, tremble'

ólókó→ólógó→ólóɣó'law, command'

Voiceless velar plosive weakened to a voiced velar fricative

(2)**k>ɣ**

pɔ̀kɔ̀→pɔ̀ɣɔ̀'throat'

fùkù→fùɣù'jump'

jɔ́kɔ̀ríjɔ́kɔ̀rí→jɔ́ɣɔ̀ríjɔ́ɣɔ̀rí'be slippery'

fìkífìkí→fìɣífìɣí'saw' (n)

Voiceless velar plosive weakened to a voiced velar fricative and to a voiced labial-velar approximant

(3)**k>ɣ >w**

tòkú → tòɣú→ tòwú'child'

sòkù→ sòɣù →sòwù'dig'

On the strength hierarchy, voiced sounds are weaker than their voiceless counterparts. So when a voiceless sound becomes voiced, it has undergone weakening. Also, stops are stronger than fricatives and fricatives are stronger than approximants. This process of consonant weakening and deletion applies generally in the language. As an indicator of kinship affiliation within the Nkọrọọ speech community, deletion processes are employed as linguistic variables. The variation variables include intervocalic consonant deletion, intra-word CV syllable deletion, and boundary CV syllable deletion. Intervocalic consonant deletion occurs when a consonant that occurs in between two vowels is deleted.

Table 2: **Variation as a result of intervocalic consonant deletion**

Kpokpo	Ọpọrọkụnọ	Otoni-ama	English gloss
dáá	dáá	dáɣá	'arrow'
míɔ́kù	míwɔkù	míwɔkù	'now'

On table 2, Kpokpo deletes a syllable-initial consonant that occurs in between two vowels, while Otoni-ama retains the consonant. Ọpọrọkụnọ alternates between both choices. The deletion of the consonant intervocalically results in vowel hiatus, a phenomenon that is attested in Ijoid languages. Thus, a CV·CV syllable pattern becomes CV·V. The rule schema for the intervocalic consonant deletion is presented as R_2.

R_2: C → Ø / V__V

A second type of deletion involves a CV syllable either within the word as in mɔ́·ɣɔ̀·nɔ̀·mà (CV·CV·CV·CV) which becomes mɔ́nɔ̀mà (CV·CV·CV) when the second CV is deleted, or word-finally as in ò·ŋʷɔ̀·kù (V·CV·CV) which becomes ò·ŋʷɔ̀ (V·CV) after the final syllable has been deleted.

Table 3: **Variation as a result of CV deletion**

Kpokpo	Ọpọrọkụnọ	Otoni-ama	English gloss
mímɔ̀	mímɔ̀ɣɔ̀	mímɔ̀ɣɔ̀	'sugarcane'
õŋʷɔ̀	õŋʷɔ̀kù	õŋʷɔ̀kù	'tobacco pipe'
mɔ́nɔ̀mà	mɔ́nɔ̀mà	mɔ́ɣɔ̀nɔ̀mà	'secretly observing human behavior'

As seen on table 3, Kpokpo consistently deletes CV syllables while Ọpọrọkụnọ retains the CV syllables. On the other hand, Otoni-ama employs only intra-word CV deletion. We can posit two rules to capture the processes of intra-word CV deletion as in R_3 and word-final CV syllable deletion as in R_4.

R_3: CV → Ø / CV__CV

R_4: CV → Ø / CV__#

Seeing that parts of the conditioning environment for the application of the rule in R_3 are contained in R_4, both rules can be collapsed into one as presented in R_5. R_5 may be stated thus; a CV syllable is deleted either intervocalically or word-finally.

$$R_5: CV \rightarrow \emptyset\ /\ CV\_\_ \left\{ \begin{matrix} CV \\ \# \end{matrix} \right\}$$

In many languages, the syllable is a key factor that determines the application of certain phonological rules. According to Katamba (1989, p. 166), "Syllable structure often plays an important role in conditioning the application of phonological rules internal to a language." The deletion rules apply within the syllable and affect the structure of the syllable indicating that the process is sensitive to a domain that is larger than the sound segment. Most languages employ ways in which to resolve the issue of vowel hiatus, but in the data presented, intervocalic consonant deletion is used to create vowel hiatus. As such, a CVCV syllable structure is realized

as CVV. We observe that Kpokpo consistently employs intervocalic consonant deletion, intra-word CV deletion, and word-final CV syllable deletion, while Otoni-ama does not apply any deletion processes. Ọpọrọkunọ falls in between both ends of the scale, applying intervocalic consonant deletion arbitrarily and intra-word CV syllable deletion, but never applies boundary syllable deletion. The use of the deletion variable thus serves as an identity marker for the speakers from Kpokpo section, distinguishing them from the Otoni-ama and Ọpọrọkunọ sections.

5. Conclusion

It has been established that linguistic variation is most pronounced at the level of phonetics and that phonetic variation can be used for the construction of social identity by relating linguistic variables to social variables. This paper discussed the phonetic variation patterns that occur amongst the Nkọrọọ people of Rivers state, Nigeria, located at Opu Nkọrọọ, a community that is divided into three sections, namely Kpokpo, Ọpọrọkunọ, and Otoni-ama, on the basis of kinship affiliation which was identified as the social variable. The language data presented reveal segmental variation based on phonotactic distribution of phonemes. The linguistic variables that affect variation are lip rounding assimilation and deletion.

Phonetic variation based on lip rounding assimilation occurs at word boundary, specifically at the word-final position. The variants are the vowels [i] and [u]. While Kpokpo and Ọpọrọkunọ employ the use of [i], Otoni-ama employs lip rounding to derive [u], making [u] the marked variant. Consequently, the lip rounding variable serves to identify Otoni-ama as the marked section. Lip rounding assimilation in the data presented is also sensitive to vowel height, hence the choice of [u] and not [ɔ] or [o] which are the vowels that condition the assimilation. The process of deletion is evident in intervocalic consonant deletion, intra-word CV syllable deletion and boundary CV syllable deletion. While speakers from Kpokpo section consistently employ all the deletion processes, speakers from Otoni-ama never elide in the words presented in the data. Speakers from Ọpọrọkunọ engage in random intervocalic consonant deletion and intra-word CV deletion but not in boundary CV deletion. Rules were posited for each linguistic variable.

The findings revealed that speakers from Otoni-ama may be identified by their engagement in lip rounding assimilation while speakers from Kpokpo may be identified via their engagement in the deletion processes. Speakers from Ọpọrọkunọ employ intervocalic consonant deletion randomly and intra-word CV deletion, making them the unmarked section of the community. There are no established reasons for the choices made by each section thus confirming that the "relationship between linguistic form and social category is arbitrary, and sociophonetic variation represents a pattern of behavior learned by speakers through the experience of using language in social interaction" (Foulkes and Docherty, 2006, p. 411). This paper corroborates that the variations observed are a pattern of learned speech behavior exhibited by each kinship affiliation. That this speech behaviour is learned, is buttressed by the fact that speakers are able to maintain these variation patterns that can be used as identity markers for each kinship group in spite of the Nkọrọọ community being a multilingual one where the people are exposed to other languages in addition to their mother tongue, Kirika. This observation not only lends credence to the behaviorist theory of language development but also raises questions about the cognitive abilities of the human mind, especially the multilingual mind, thus providing a basis for further research.

We ascertained that the relationship between linguistic and social variables is arbitrary. However, this does not apply to the patterns of phonetic variation which are systematic, enabling the formulation of rules that help capture the phonetic processes. The linguistic processes observed are consistent with natural phonology and help to describe linguistic generalizations which are useful for studies in language typology.

Finally, the paper demonstrated how speakers can combine vocalic features and phonetic/phonological processes to construct styles that are relevant to their kinship identity within the speech community thus establishing that phonetic variation can be used for the

construction of social or group identity, and that there can be considerable internal variation even within a small group (minority) speech community.

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