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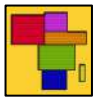

Synchronic and diachronic strategies of mora preservation in Gújjolaay Eegimaa

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ABSTRACT

The purpose of this study is to provide an overview of the synchronic and diachronic strategies that have led to the preservation of moraicity in noun and verb roots' syllable structure among Gújjolaay Eegimaa (Bak, Atlantic, Niger-Congo) varieties spoken in southwestern Senegal. Two dialects, or varieties, of Eegimaa are geographically delineated along a peninsula of the Casamance River, locally known as The Kingdom. Cognate noun and verb roots between the two varieties differ phonemically on the basis of geminate consonants versus long vowels. Speakers of the more geographically isolated and conservative variety of Eegimaa use geminate consonants to the exclusion of long vowels, which are witnessed among speakers closer to the river's borders. An otherwise productive process of lenition fails to apply in both instances: singleton consonants followed by long vowels that correspond with cognates with geminate consonants unexpectedly fail to weaken intervocalically. The under-application of lenition in the variety with long vowels leads to a postulation that geminates were the predecessor to long vowels in the Proto-language, yet no other attested Jóola variety contains contrastive geminates. A comparison between the Eegimaa dialects and more-widely spoken Jóola languages shows that nasal-voiceless plosive clusters are banned only in Eegimaa. Instead, cognates between Eegimaa and other Jóola languages consistently display a geminate or a long vowel in place of an impermissible nasal-consonant cluster. The study appeals to mora preservation through both language contact and historical development as an explanation for the otherwise unusual appearance of geminates in the single Eegimaa variety as well as provides avenues for further research into multilingualism in Casamance, Senegal.

KEY WORDS: language contact, language change, language identity, mora preservation, historical linguistic

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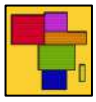


1. Introduction[1, 2]

Gújjolaay Eegimaa (hereafter Eegimaa) is a Gújjolaay, or simply Jóola, language spoken along a peninsula that terminates in the Casamance River. Jóola,[3] the dominant ethnicity and associated language group of the Casamance area of southwestern Senegal, comprises over 10 separate languages and numerous dialects currently classified by POZDNIAKOV and SEGERER (in press) as belonging to the Bak branch of their proposed Bak-North split of the Atlantic branch of the Niger-Congo language phylum.

Naturally, Jóola languages are differentiated by linguists on the basis of both vocabulary and grammatical distinctions, but Jóola speakers also recognize their languages as well as regional and village varieties, including accents. Just as most regional accents can be detected only by those intimately familiar with the language being spoken, Jóola speakers have the ability to recognize one another's speech attributes at a fine-grained level. One salient feature that differentiates both languages and dialects in the Jóola group in the minds of linguists and speakers alike is that of pronunciation. Whereas different words delineate Jóola languages, the pronunciation of the same word by different speakers, or the same speakers in different contexts, can denote, or index (cf. SILVERSTEIN 2003) a regional identity. The initial greeting sequence that starts every encounter provides such an example.

IRVINE (1974) has shown that the complexity of greetings in northern Senegal is performed based on pre-defined social hierarchies. In Casamance, the same boundaries do not exist; social stratification is associated with age-group. Greetings, as HANTGAN (2017a) argues, are linked to identity. Expressing the

[1] I am indebted to my patient primary consultants, David Sagna and Rémy Sagna, who provided much of the data for this research. I am also grateful to the SOAS-Crossroads and the Discourse Reporting in African Story Telling team members, and the anonymous reviewers for their comments and suggestions on this work. I also acknowledge the suggestions from the audience members at CALL 47 at Leiden University. All remaining errors and shortcomings are solely my own responsibility.

[2] This project has received funding from a Leverhulme Trust Research Project Grant, Crossroads - Investigating the unexplored side of multilingualism, which was led by Professor Friederike Lüpke and the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 758232) of which Tatiana Nikitina is the Principal investigator.

[3] The Jóola languages categorize most noun stems into a nominal class as morphologically marked by a prefix. Derivational and inflectional suffixes also contribute to the meaning of lexical stems. In the text, this paper follows the morphological and orthographic conventions for the Jóola languages by marking the first tense vowel of a word with an acute accent, examples in tables are provided in phonetic representation using the IPA.

concept of 'peace' within the obligatory greeting sequence that begins every new encounter can convey either solidarity or distance. Further, there exists a range within the greeting from being easily observed to being distinctly subtle.

The word **kásuumay** generally means 'peace' across Jóola languages and is heard throughout Casamance, not only as a greeting, but also as a marker of the Jóola identity. The response to the salutation is "peace only". The latter term, 'only', can be expressed in numerous ways, corresponding with that of the identified Jóola-speaking regional level. That is, the words for 'only' are quite contrastive, ranging from **keb** to **bare**, and even **lamba**, thus, a regional identity can be projected easily. Often, responses that are associated with the more prominent Jóola languages such as Kaasa spoken south and Fogny north of the Casamance River are used in contexts where the speaker simply wants to let the listener know that s/he is of the Jóola-speaking community.

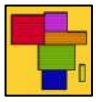
At the other end of the continuum, the word for 'peace' can be pronounced in such a way as to signal to a listener that a speaker is from a certain area, or even a specific village. A comparison between Jóola Fogny, a majority Jóola language spoken by an estimated half a million people and Jóola Kaasa, spoken by at least 50,000 people, with the Eegimaa varieties (spoken by around 13,000 people)[4] of the word 'peace' is given in Table 1.

Kaasa	Fogny	Essil	Banjal	GLOSS
kə-suum-aj	**kə-suum-aj**	**gə-suum-aj**	**gə-ssum-aj**	peace, wellness

Table 1 – Jóola pronunciation at the levels of language and dialect: word-initial [k] vs [g] correspondences between Kaasa, Fogny, and Eegimaa Jóola languages and word-internal [uu] vs [ss] between all the Jóola languages except the Essil dialect of Eegimaa.

A striking feature of Jóola Eegimaa in particular is its lack of an overt sound [k] at the beginnings of words. The Jóola languages Fogny and Kaasa are opposed to Eegimaa in their pronunciation of the initial sound [k] versus [g] in the word 'peace'. Both the phoneme's location at the beginning of the word and the difference between the features [± voice] make the distinction prominent. As discussed by Hantgan (2017a) the seemingly simple utterance **gásuumay** with [g] rather than [k], signifies one's association with the 21-kilometer peninsular grove known as **Mof-Ávvi**. Literally 'the king's land', also referred to as the Kingdom, in former times, the area was home to the seat of the King of area's ten villages. All inhabitants of the Kingdom share the Eegimaa language.

[4] Population estimates are from *Ethnologue* (EBERHARD et al. 2019).



In addition to the dichotomy between Eegimaa word-initial [g] and other Jóola languages' [k], another divergence is between geminate consonants on the one hand and long vowels on the other. Whereas Jóola Fogny, Kaasa, and Eegimaa of Banjal share the feature contrastive vowel length, represented by the double [uu] in the form for 'peace' in Table 1, in the Eegimaa dialect of those from Essil there is a double (geminate, phonetically long) consonant [ss] followed by a single [u]. The presence of word-initial voiced velars to the exclusion of their voiceless counterparts plus geminate consonants in a Jóola language is relatively rare, thereby rendering a unique Jóola Essil Eegimaa accent.

The small distinctions among **ká-ssum-ay**, **gá-suum-ay**, and **gá-ssum-ay** speak beyond the words' significance as a salutation to that of a cline from ethnic to village-specific, identity (HANTGAN 2015, 2017b). The most fine-grained level is that between **gá-suum-ay** and **gá-ssum-ay**, where the attuned listener will discern the difference and associate the speaker with a particular village, along with that village's collective cultural practices. Though the differences may seem subtle, these pronunciations are planned parts of a complex interactive sequence, designed to promote certain characteristics of an encompassing identity.

The divergences between this one word may not seem substantial to an outsider, but to the community of the Kingdom, these pronunciations of 'peace' carry a (albeit often subconscious) weight. NEWMAN (1972) first introduced the now frequently referred to concept 'syllable weight' to the linguistic community. Metrical structure of words is not only integral to the creation of literary texts but also plays a significant role in the phonology of spoken languages without a long tradition of writing such as those in Sub-Sahelian Africa (SCHUH 2017). In terms of syllable structure, the key component that these pronunciations of 'peace' have in common is that of weight.

Both speakers and researchers of Eegimaa are aware that consonant and vowel length play a role in distinguishing regional dialects and accents. In fact, two dialects have been delineated based on geographic grounds; TENDENG (2007) discusses how the more secluded Eegimaa speakers of Essil and surrounding villages use geminates where those that border the Casamance River, and thus are in more frequent contact with speakers of Jóola languages Kaasa and Fogny, use long vowels. Yet today, variation can be witnessed throughout the Eegimaa-speaking area. Furthermore, the reason for the disparity in the Essil variety of Eegimaa as having geminates rather than long vowels has remained an enigma.

Therefore, the purpose of this study is to contextualize the Eegimaa-speaking community within Casamance's larger Jóola-speaking language group by

providing an overview of the language from a historical, geographical, and ethnological point of view. From this angle, I hope to offer another perspective of Casamance diversity. Additionally, I propose a phonological trajectory for the evolution of geminate consonants in the Eegimaa Essil variety. I attempt to uncover the extent and motivation of speakers' variation while maintaining the balance between syllable weight and phonotactic restrictions.

The methodology used for the study is presented in section 2. As presented in the subsequent section 3, there are discrepancies as to the depiction of the most fundamental facts about the Eegimaa phonological system, that is, the phonemic inventory of consonants in the language and their phonetic realizations. Yet, HANTGAN (2017a, 2016) maintains that those who are familiar with these so-called dialectal differences are also capable of manipulating them in order to accommodate to other speakers. Therefore, the depicted dialectal differences are either less delineated than they were once thought to be, or there is variation that occurs at the level of the speaker and the conversational context. The theoretical frameworks employed for this study are presented in section 4. Newly analyzed data are provided in section 5. Section 6 offers a discussion about the study's findings with a conclusion in section 7 advocating for avenues of future research.

2. Materials and methods

Data come from fieldwork gathered by the author in Casamance from the Kingdom villages Essil, Enampore, and Banjal over the past four years. The author's Jóola Eegimaa data were obtained through elicitation with speakers as well as the collection of narratives and conversations for the ERC-funded Discourse Reporting project hosted by CNRS' LLACAN speech lab. Complementary data from the Leverhulme-funded SOAS Crossroads project on the study of multilingualism in Casamance are from the languages of villages immediately adjacent to the Kingdom: Baïnounk Gubëeher from Djibonker and Jóola Kujireray from Brin. Additional Jóola lexical items were found in the RefLex database (SEGERER and FLAVIER 2011-2019) housed at CNRS' LLACAN laboratory.

The Jóola Eegimaa corpus consists of audio-visual recordings, transcribed and translated in ELAN-CorpA (CHANARD 2015), glossed and annotated in FLEx (BLACK and SIMONS 2008), and stored in ELAN-CorpA using a harmonized tier structure that permits ease of searching. Words which had been previously provided in the Jóola Eegimaa literature with opposing long vowels or geminates were elicited from both varieties of the Eegimaa language in the villages of Essil and Banjal primarily. Subsequently, among those target words with relatively frequent

occurrence such as 'to do' pronounced as either [ɛ-kaan] ~ [ɛ-kkan] were searched for among narratives and conversational contexts. Vowel and consonant length were selected from words in the ELAN-CorpA corpus and then measured in Praat (BOERSMA and WEENINK 2017). Sample spectrograms are provided in the Appendix. No statistical tendencies of speaker variation are yet given as the purpose of this primary study is to contextualize the issue at hand rather than provide a survey of its current consequences.

3. Cultural context

Casamance, a region situated in Southwestern Senegal below the border with The Gambia, can be compared with other areas of the world in its residents' practice of *egalitarian multilingualism* (FRANÇOIS 2012). In Casamance, thus named because the Casamance River isolates the area apart from the north of Senegal, inhabitants barter and trade alliances based on shared culture and language, thus procuring goods and services through exchange networks (LÜPKE 2018).

In some parts of Casamance, children, even in small villages, grow up speaking upwards of six or seven languages with their playmates who come from various geographic areas throughout Senegal and beyond (SAGNA and HANTGAN 2019) The reasons for the complex patterns of language use in Casamance are varied, see COBBINAH et al. (2017: 81–83) for some explanations, but in many cases have to do with migration and movement. West Africans come to Casamance from neighboring countries to take part in the seasonal fishing activities on the river or the Atlantic coast: men journey out to sea or along the river catching fish and crabs with nets and traps, while women explore the mangroves in search of oysters, and children help to scale, shell, and dry the daily catch. These activities, plus those of selling and trading their gains with other villages, enable speakers to learn and engage with many languages on a daily basis.

Jóola people, despite being the dominant ethnicity in Casamance, make up an area with a long-standing history of multilingualism and multiculturalism (HAWTHORNE and NAFAFÉ 2016). BARRY describes the term Jóola as one which denotes a group of people who speak different languages yet, "...live together because of the need to defend themselves" (1987: 13). Rather than employing an outsider language such as Wolof, the majority language of the north of Senegal and parts of neighboring The Gambia, or the Portuguese creole of Guinea Bissau, Barry states that the inherent linguistic unintelligibility among the Jóola is solved by two local linguae francae: Jóola Fogny to the north and Jóola Kaasa to the south of the Casamance River. Even though DREYFUS and JUILLARD (2001)

noted the growing influence of Wolof on Jóola, BARRY (1987: 9) reminds us that Wolof is a relatively recent contender in Casamance's language competition; Wolof people were first introduced into the islands surrounding the mouth of the Casamance River as colonial administrators.

Figure 1 – Casamance language diversity: the map shows the impact of Wolof from the north of the country as well as Jóola languages spoken in overlapping spaces. Jóola Eegimaa varieties are represented as Gubanjalay and Gussilay for the villages of Banjal and Essil respectively. I created the map using GPS coordinates from RefLex (SEGERER and FLAVIER 2011-2019) with the Lingtypology Package (MOROZ 2017) for R (R CORE TEAM 2017).

Casamance's capital, Ziguinchor, is a meeting point of migrants speaking the many different Jóola varieties alongside languages from across the region. Inevitably, DREYFUS and JUILLARD (2005: 25) observed that a 'compromised' Jóola variety, a mix of the two majority Jóola languages, Kaasa and Fogny, was emerging in districts in Ziguinchor, particularly in markets. This mixed or pidgin Jóola variety was also mentioned by SAPIR (1971a: 59), but no researcher has investigated the presence or emergence of a Jóola pidgin or creole in Casamance nor what exactly previous studies identified as 'compromised' in the Jóola varieties spoken in Ziguinchor. One step towards understanding the variability that exists among Jóola varieties is to explore speakers' trajectories and historical pathways.

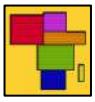
The journey begins by following the main road to the Atlantic coast, around 12 kilometers to the west of Ziguinchor, where one encounters a crossroads, the locus of the Leverhulme-funded "Crossroads – Investigating the unexplored side of multilingualism in Casamance" project (LÜPKE 2014-2018). The Crossroads

consists of the village of Brin which borders the main road that runs between the Atlantic Ocean coast and Ziguinchor, and is where another Jóola variety, Kujireray, is spoken. Immediately adjacent are the Baïnounk-speaking Djibonker residents and to the northwest lies the Kingdom. Jóola Kujireray has been documented by WATSON (2015) who shows that the language is heavily influenced by its Baïnounk Gubëeher-speaking neighbors. Baïnounk Gubëeher, described by COBBINAH (2013), is classified as another, albeit distantly related, language grouping in the Atlantic branch of Niger-Congo.

An unpaved path runs northwest from the Crossroads through the peninsula upon which sits the Kingdom. The Kingdom spans both land and water; the final northwestern village, Banjal, ends at the edge of the Casamance River's southern side. Consequently, speakers, including linguists who have studied the language in depth such as SAGNA (2008) and TENDENG (2007), divide the Kingdom into two regions based on a village's position relative to the river: **fásuga**, those who inhabit the 'earth' or mainland, and those of the **gállux**, literally meaning 'mud', referring to the islands.

Results from a comparative corpus study in the area (SAGNA and HANTGAN 2019) imply that the Kingdom is relatively linguistically homogeneous; the majority of speech in the Kingdom takes place in Eegimaa. BERNDT (2003) describes the Kingdom's linguistic homogeneity being due to its geographic seclusion. Within the Kingdom, however, variation exists. Certainly, as BARRY (1987: 197-200) notes, those who inhabit the islands have had much more frequent and long-standing contact with other Jóola (and non-Jóola) communities through their fishing voyages to surrounding islands and the adjacent mainland, and accordingly, their speech spans that of both Eegimaa features and those from other Jóola languages.

As with the terms for 'peace' among Jóola languages that appear in the greeting sequence shown above in Table 1, the borders of Eegimaa do not end at the beginning of the word. The two geographic regions are associated with two ways of speaking: the village Essil is the most central of the land villages and Banjal among the islands. The Essil variety of Eegimaa is associated with four, out of ten, of the Eegimaa-speaking villages. This variety displays patterns of pronunciation not found among any of the other Jóola languages, nor even the other six Eegimaa-speaking villages' variety known as Banjal. Representative examples are given in root form (the phonemic representation before phonological processes have applied and without noun class prefixes) in Table 2.



	Kaasa	Fogny	Eegimaa (Banjal)	Eegimaa (Essil)	GLOSS
a.	**-suum**	**-suum**	**-suum**	**-ssum**	peace
b.	**-siin**	**-siin**	**-siin**	**-ssin**	horn
c.	**-ŋiiŋ**	**-ŋiiŋ**	**-ŋiiŋ**	**-ŋŋiŋ**	tooth
d.	**-baak**	**-baak**	**-baak**	**-bbak**	be tall
e.	**-kaan**	**-kaan**	**-kaan**	**-kkan**	do, make
f.	**-saana**	**-saana**	**-saana**	**-ssana**	dugout canoe

Table 2 – Lexical correspondences across Jóola languages: lexemes with the same form and meaning, likely cognates, but possibly intra-group borrowings, are found throughout the Jóola languages except that in the Jóola Eegimaa variety spoken in Essil and environs a geminate consonant consistently corresponds with a long vowel.

Whereas in widely spoken Jóola languages Kaasa and Fogny, as well as minor ones such as Eegimaa as spoken in area of the village Banjal, long vowels exist to the exclusion of phonetically long (phonologically geminate) consonants in Eegimaa of Essil and neighboring villages. Although at one time a dichotomized split along geminate-long vowels may have once corresponded neatly with the village and language boundaries, the division is now losing ground, so to speak. I have found fluctuation in that which a speaker pronounces; many of the forms TENDENG (2007) lists as being strictly long vowels in Banjal are pronounced among my recordings as geminate consonants.

As the characteristic name 'mud' depicts, the island villages have little farmland. The speaker with whom I primarily worked in Banjal recounted to me stories of trading fish for fruits and rice with villages across the Casamance River; that is, with people who speak Jóola Fogny or Kaasa. As argued by HANTGAN (2015), these diverging pronunciations are flexible and can be better represented as regional accents.

In addition to a long history of linguistic and cultural study, literacy instruction has been provided in the Kingdom as well as Bible translation into Jóola Banjal. Literacy classes take place throughout the Kingdom, with a large church located in Essil. The image in Figure 2 with an inscription of the geminate variant **bussana** depicts the influence of the Essil variety on the orthography of the language.

Figure 2 – Kapok (*Ceiba pentandra*) dugout canoe carving by long-time Banjal resident Rémy Sagna.

Boats are an integral part of Senegalese life and are also illustrative of Jóola accents. Even the name of the country Senegal derives from the Wolof *sunnu gall*, 'our boat'. Especially because of the Kingdom's proximity to water, canoes are an essential part of everyday life, particularly for island inhabitants who use them for fishing, harvesting oysters from the mangroves, and travel.

Rémy Sagna is one of the language consultants with whom I conducted my fieldwork on Eegimaa. He learned to read and write in Eegimaa thanks to instruction and Eegimaa literacy materials provided by BERNDT (2004). In addition to being the village's primary fisherman, Rémy also promotes a cultural museum that showcases some of his own carvings, such as the picture of the dugout canoe. Not only is his true-to-life sculpture of the Jóola canoe carved from its original source, the ancient kapok tree (*Ceiba pentandra*), the inscription indicates his manner of speaking; in most of my recordings, he uses long consonants in words claimed to be typically pronounced with long vowels in the Banjal island variety. It is important to note that Rémy, by being my primary consultant for the Banjal village and variety, may have been conscious at some level of the depiction of his speech variety through his accent and is thus representing his interpretation of ideal Eegimaa.

Nevertheless, as noted in section 3, geminate consonants are marked relative to long vowels among Jóola languages; the sole language where geminates are found phonemically is Eegimaa, primarily in the Essil variety alone. Thus, geminates are not necessarily representative nor indexical (SILVERSTEIN 2003) of the Jóola group as a whole. As with stem-initial voiced plosives to the exclusion of their voiceless counterpart, Eegimaa distinguishes itself from the Jóola language grouping.

4. Theoretical underpinnings

As illustrated in section 1, and discussed by TENDENG (2007) and SAGNA (2008), there is a demarcation of two dialects within the Eegimaa language. Eegimaa linguists and speakers make a division along the boundaries that divide the land from the river, with those on land using geminate consonants where speakers on the islands use long vowels. The key component that remains the same across the phonemic representation of each root, however, is that of syllable weight. The analysis provided in this paper follows DAVIS (2010) and HAYES (1989) in analyzing geminates as projecting a mora, both lexical roots with long vowels and geminates are analyzed as containing the same number of morae.

HANTGAN et al. (2019) discuss in detail the role of mora preservation in Eegimaa through an exposition of alternations found in the perfective aspect. Hitherto analyzed as a process of assimilation by BASSÈNE (2012), the authors contend that reduplicated roots in the perfective aspect trigger resolution of impermissible consonant clusters with, in cases of the loss of a mora, subsequent gemination. Examples in Table 3 illustrate that the process in Eegimaa is not assimilation; the perfective aspect stem in (3a) would emerge as ***[ni-xok-kox]** rather than the actual output.

	GLOSS	ROOT	INFINITIVE	1S PAST	1S PERFECTIVE
a.	tie	/kɔk/	[ɛ-xɔx]	[nɪ-xɔɣ-ɛ]	[nɪ-xɔ-xɔx]
b.	be close	/kɔg/	[ɛ-xɔg]	[nɪ-xɔɣ-ɛ]	[nɪ-xɔ-kkɔg]

Table 3 – Eegimaa of Essil minimal pair verbs: roots that differ on the basis of voicing illustrate that only the verb root with a final voiced plosive geminates the root-initial consonant after deletion of the root-final consonant in the reduplicated stem.

Eegimaa-speaking linguists A. C. BASSÈNE (2007) and M. BASSÈNE (2012) have posited that the difference between the behavior of consonants such as those in final position of the infinitive stems in Table 3 is an underlying opposition between /x/ and /g/. However, based on the fact that a geminate *[xx] is unattested in the language, in lieu of [kk], we attributed the distinction to voicing. HANTGAN-SONKO (2017) discusses the conditions under which voiceless plosives in Eegimaa lenite; here it can be seen that /k/ becomes [x] stem-finally and [ɣ] in root-final position, post-vocalically, the latter rendering the voicing contrast between the velar plosive phonemes neutralized.

HANTGAN-SONKO (2017) analyzes the lenition process in Eegimaa as targeting non-moraic consonants following vowels. Geminates, by projecting a mora in the

syllabification of the stem, are not subject to lenition even in cases when they follow a vowel.[5]

It is essential to note that the process of lenition witnessed in Eegimaa does not occur in Jóola Kaasa nor Jóola Fogny. That is, the cognate root /**kɔk**/ 'tie' found among all three Jóola languages surfaces as the stem **[ɛ-k̲ɔk̲]** in Jóola Fogny and **[ka-k̲ɔk̲-ɔ]** in Jóola Kaasa, but in Jóola Eegimaa **[ɛ-x̲ɔx̲]**. The same lention process does not appear to apply to consonants among other Jóola languages. The surface stems of the examples from Table (2d-e) are shown with near-minimal pairs in Table 4.

	Kaasa	Fogny	Eegimaa (Banjal)	Eegimaa (Essil)	GLOSS
a.	**bu-b̲ak**	**bu-b̲ak**	**bʊ-β̲ʊx**	**bʊ-β̲ʊx**	baobab
b.	**ka-b̲aak**	**ɛ-b̲aak**	**ɛ-b̲aak**	**ɛ-bb̲ak**	be tall
c.	**ka-k̲ol**	**ɛ-k̲ol**	**ɛ-x̲ɔl**	**ɛ-x̲ɔl**	fear
d.	**ka-k̲aan**	**ɛ-k̲aan**	**ɛ-k̲aan**	**ɛ-kk̲an**	do, make

Table 4 – Jóola near-minimal pairs: Corresponding surface stems across Jóola varieties illustrate that intervocalic plosives lenite in Eegimaa monomoraic roots.

Whereas underlying cognate roots (4a,d) appear to be exactly the same between the Eegimaa variety Banjal and other Jóola languages, in fact, the representation of Eegimaa stems reveals a divergence from underlying plosives /b k/ to surface fricatives /β x/. The same plosives, when found in bimoraic roots, however, emerge across the Jóola varieties identical to their underlying forms.

One commonality among Jóola languages is that of mora preservation. Both my own data and BARRY (1987) confirm that the process found in Jóola Eegimaa of Essil exists in Banjal as well as among all Jóola varieties (even those without contrastive geminates); the deletion of a root-final consonant in reduplicated stems to avoid an impermissible consonant cluster results in the formation of a geminate. Comparative Kujamutaay (a Fogny variety) examples in Table 5 are extracted from BARRY (1987: 174) and are given in IPA format (rather than his original orthographic representations).

[5] The subsequent voicing witnessed in the final syllable of a stem such as that of the past tense stem in Table 3 (a) may be attributed to its post-tonic position but this has yet to be thoroughly examined.

	GLOSS	INFINITIVE	3S PERFECTIVE
a.	fight	[ɛ-tiik]	[na-tɪ-ttiik]
b.	kill	[ɛ-budʒ]	[na-bu-bbudʒ]

Table 5 – Jóola Kujamutaay verb stems: A stem-final consonant deletes and is replaced by an initial geminate in the reduplicant of the 3rd person perfective aspect.

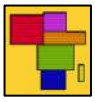
Although BARRY (1987: 174) refers to these as examples of assimilation, the data from Eegimaa argue in favor of a deletion and subsequent gemination analysis. The process differs slightly in Fogny in that both a voiceless plosive as well as a voiced one trigger gemination in the resulting reduplicant whereas in Eegimaa, only a voiced plosive in final position results in mora deletion, and thus, preservation.

Another point of interest is the long vowel that appears in the Fogny infinitive stem (5a). When the root is reduplicated, the reduplicant vowel shortens, but remains long in the base. As shown above, the two Eegimaa varieties diverge in this respect. While adjacent vowels are found in the Essil variety of Eegimaa, BASSÈNE (2012) argues that they are heterosyllabic and that the language has no contrast on the basis of vowel length.

The reduplicated perfective in Jóola Eegimaa is relevant to the current study as it provides evidence for the role of moraicity in the language, as well as the fact that the language relies on gemination to compensate for the loss of a mora in instances of impermissible consonant clusters and therefore deletion of a segment.

5. Analysis

Historically, long vowels actually preceded geminates in the development of Jóola languages (POZDNIAKOV and SEGERER, in press). At first glance, synchronic evidence seems to point in the opposite direction. Comparative Eegimaa examples are shown in Table 6.



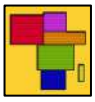
	Eegimaa (Essil)		Eegimaa (Banjal)	GLOSS
a.	[ɛ-ɸaŋ]	b.	[ɛ-ɸaŋ]	fetish
c.	[ɛ-ppan]	d.	[ɛ-paaŋ]	kind of fish trap

Table 6 – Minimal pairs in Jóola Eegimaa nouns: intervocalic lenition under-applies in the Banjal variety of Eegimaa suggesting that geminate consonants preceded long vowels in the language.

By comparing the first of the minimal pairs in both Eegimaa varieties in Table 6 (a–b), lenition occurs when plosive /p/ is in intervocalic position. Then, in (6c), as predicted by SELKIRK's (1991) inalterability principle, the geminate /pp/ is immune to lenition, in this case spirantization, as a geminate consonant does not meet the conditions of being intervocalic. Surprising, however, is the form in (6d) in which lenition continues to be blocked, despite the fact that the conditions for the process are met. In a rule based framework, lenition has opaquely under-applied to the inter-vocalic singleton consonant /p/. A diachronic account would presuppose that the original geminate consonants blocked the effects of lenition and that, even though the conditioning environment no longer exists in roots with singleton consonants and long vowels, the process still applies.

To account for this apparent discrepancy, I refer to a diachronic process with a synchronic outcome whereby historically, geminate consonants gave way to long vowels through Jóola Eegimaa Banjal speakers' contact with geographically proximate Jóola varieties in which only long vowels are attested. Cognate forms in Eegimaa Banjal with other Jóola languages as shown in Table 2 surface with a long vowel rather than the geminate found in Eegimaa Essil. Therefore, in Jóola Eegimaa varieties, geminates historically preceded long vowels.

An additional diachronic consequence of mora preservation is that of resolving disallowed consonant clusters. Not only do long vowels correspond with geminates between Eegimaa of Essil and other Jóola varieties, Table 7 compares roots with nasal-plosive clusters to those with geminates or long vowels. In examples (7a–b) note that a nasal-voiceless plosive cluster in Jóola Fogny corresponds with a long vowel in the Jóola Eegimaa spoken in Banjal and then with a geminate in Essil, but that a nasal-voiced plosive cluster such as in example (7c) yields no difference among the represented Jóola varieties.



	Kaasa	Fogny	Eegimaa (Essil)	Eegimaa (Banjal)	GLOSS
a.	/-fe**nk**/	/-pɛ**nk**/	/-pp**ɛk**/	/-p**ɛɛk**/	mat
b.	/-uu**ŋk**ul/	/-wu**ŋk**ul/	/-**ʊʊ**k**ʊ**l/	/-**ʊʊ**k**ʊ**l/	new
c.	/-fi**nt**ɔ/	/-hi**nt**ɔ/	/-**ff**ɪ**l**ɔ/	/-f**ɪɪ**lɔ/	lie down
d.	/-t**aa**m/	/-**n**tam/	/-**t**tam/	/-t**aa**m/	ground
e.	–	/-**mp**apa/	/-**pp**apa/	/-p**aa**pa/	papaya
f.	/-kɔ**nd**ɔr/	/-kɔ**nd**ɔr/	/-kɔ**nd**ɔr/	/-kɔ**nd**ɔr/	neck

	Bliss	Her	Eegimaa (Essil)	Eegimaa (Banjal)	GLOSS
g.	/-la**ŋg**ʊʊt/	/-laa**ŋk**ur/	/-ak**k**ʊt/	/-**k**ʊt/	scorpion

	Kwaatay	Karon	Eegimaa (Essil)	Eegimaa (Banjal)	GLOSS
h.	/-fe**ŋk**/	/-pa**ŋk**/	/-pp**ɛk**/	/-p**ɛɛk**/	mat

Table 7 – Nasal-consonant clusters versus long vowels versus geminates in Jóola lexical correspondences: a ban on nasal-voiceless plosive clusters in Jóola Eegimaa is realized as a geminate or a long vowel in the Essil and Banjal varieties respectively.

It is clear among these examples that, as with the long vowel-geminate correspondences, a mora is preserved. However, an issue that arises is that of alignment: examples (7a–c, g–h) contain root-final nasal-voiceless plosive clusters in the Jóola varieties where they are allowed whereas (7d–e) are featured root-initially; in all cases the Eegimaa Essil variety geminates its root-initial consonant. The reason for is attributed to a dispreference for stem-final geminates in the language (HANTGAN-SONKO 2017).

Cognates between Eegimaa and other Jóola varieties are found wherein both long vowels and nasal-voiceless plosive clusters align with geminates in the Essil variety. Geminates rarely occur root-finally in Eegimaa, but where they do, in all but one case, they only align with nasal-voiceless plosive clusters. Examples are provided in Table 8.

	Kaasa	Fogny	Eegimaa (Essil)	Eegimaa (Banjal)	GLOSS
a.	/-bu**nt**/	/-bu**nt**/	/-bʊ**tt**/	/-b**ʊʊ**t/	deceive
b.	/-so**nt**en/	/-so**nt**en/	/-so**tt**en/	/-s**oo**ten/	(to) close
c.	–	/-a**ŋk**/	/-a**kk**/	–	hard/difficult
d.	/-mu**ŋk**ɛn/	–	/-mʊ**kk**ɛn/	–	collect
e.	–	/-bɔ**ŋk**ɛt/	/-bɔ**kk**ɛt/	–	forgive
f.	/-lɔ**k**/	/-rɔ**k**/	/-dɔ**kk**/	/-rɔ**k**/	work

Table 8 – Roots with final geminates in Eegimaa: root-final geminates in Eegimaa Essil correspond with long vowels in Banjal, and nasal-voiceless plosives in other Jóola languages.

As noted, stem-final geminates in Eegimaa are uncommon; some of the forms in Table 8 contain frozen suffixes, and corresponding cognates were difficult to find. Not only are final geminates relatively rare in Eegimaa, they only include voiceless plosive phonemes /pp/, /kk/, /tt/ and are realized in stems as singleton plosives [p], [k], and [t]. That is, the stem for the lexical root in (8a) surfaces as **[ɛ-βʊt]** with the intervocalic /b/ lenited and the final /tt/ reduced to a singleton. This, coupled with the fact that all voiced plosives are phonetically devoiced, and nasal-voiced plosives reduce to singleton plosives stem-finally, led HANTGAN-SONKO (2017) to posit a process of de-moraicity.

Therefore, the final form, (8f), emerges in Jóola Eegimaa with inter-vocalic lenition as **[bʊ-rɔk]**, exactly the same as that of Jóola Fogny, **[bʊ-rɔk]**. It is quite possible that this form is a borrowing into Eegimaa from Fogny as there exists an additional word for 'work' in Eegimaa, **[bu-llər]**. Accordingly, the form could have been assimilated into the phonotactics of Eegimaa: a surface [k] is only possible in the language via an underlying geminate /kk/ since /k/ would result in [x] stem-finally (cf. 'dance' **/-bɔk/** 'to dance' **[ɛ-βɔx]**).

All present-day varieties of Jóola Eegimaa ban nasal-voiceless plosive sequences. Yet, SAPIR (1971b) shows evidence from KOELLE's (1854) word-lists from "Fullup" for the presence of nasal-voiceless consonant clusters. Although today Fulup is considered to be a Jóola language spoken in Guinea Bissau, according to BARRY (1987) and SAGNA (2008), the lexical items listed in *Polyglotta Africana* most closely resemble those found in current varieties of Jóola Eegimaa. Considering the presence of nasal-voiceless consonant clusters among the other Jóola languages, as well as in a probable early Eegimaa variety, it is reasonable to imagine that Jóola Eegimaa had the clusters but has now lost them.

BARRY (1987: 151) proposes that the resolution of the ban on nasal-voiceless plosive clusters in the modern form of Jóola Eegimaa was the deletion of the voiceless nasal, triggering subsequent a vowel lengthening.[6] Compensatory lengthening is a robust cross-linguistic process whereby a deleted weight-bearing segment in the input must be compensated in the output (DE CHENE and ANDERSON 1979). Since the variety of Jóola Eegimaa spoken in Essil lacks contrastive vowel length,[7] the language's only viable option to compensate for the loss of the nasal was gemination.

[6] Barry specifically references the form for 'new' in which he states an underlying /k/ also undergoes "softening" and thus surfaces as **[-ʋʋɡʊl]**.

[7] See BASSÈNE (2012) for a thorough overview of Eegimaa syllable structure and its ban on adjacent vowels tautosyllabically.

The data presented in Table 7 illustrate the phonotactics of each variety constrains cognates' surface realization. Recall that Jóola Kaasa is spoken directly north of the Casamance River from Banjal while Fogny is spoken further away to the southeast. One can infer that, historically from Jóola Fogny, the simplification of impermissible nasal-voiceless plosive clusters (7a–e) gave way to geminates in Eegimaa Essil, which are in turn realized through language contact with Kaasa as long vowels in Eegimaa Banjal. Crucially and consistently, a mora is preserved in each instantiation of the lexical stem.

Although no other Jóola variety is attested with contrastive geminates, the consequences of mora preservation extend beyond Eegimaa. Recall that at the other end of the Kingdom's peninsula from Banjal, Jóola Kujireray is spoken in Brin, which is located between Crossroads villages Essil and Djibonker. Somewhat surprisingly given their geographic distance, Jóola Kujireray speakers share the property of vowel length with that of Jóola Eegimaa of Banjal, however not with their closer neighbor Essil. Examples of comparative minimal pairs between Kujireray and Eegimaa in Table 9 illustrate differing synchronic and diachronic outcomes.

	Kujireray	Eegimaa (Banjal)	Eegimaa (Essil)	GLOSS
a.	[ɛ-ɸaŋ]	[ɛ-ɸaŋ]	[ɛ-ɸaŋ]	fetish
b.	[ɛ-paaŋ]	[ɛ-ppaŋ]	[ɛ-paaŋ]	fishing dam
c.	[ɛ-lat]	[ɛ-lat]	[ɛ-lat]	to refuse
d.	[ɛ-laat]	[ɛ-llat]	[ɛ-laat]	to hang

Table 9 – Jóola long vowel versus geminate distinctions: where there is gemination in Eegimaa of Essil, Kujireray of Brin and Eegimaa of Banjal contrast vowel length.

These underlying forms of verb and noun roots illustrate that the difference in either vowel or consonantal length (but not both) is phonemic not only in Eegimaa, but also in Jóola Kujireray. Kujireray displays long vowels which correspond with geminates in cognate forms with the Eegimaa variety spoken in Essil. Examples (9a–b) illustrate that across all three Jóola varieties, an underlying plosive /p/ in the root becomes a fricative [ɸ] in the nominal stem preceding a short vowel. However, even though the nouns in (9b) do meet the criteria for lenition (the plosives are all post-vocalic), the process does not take place. DIANDY (2005: 49) confirms that in Jóola Kujireray, an underlying plosive becomes a fricative only before short vowels, not long vowels.

The failure of the otherwise productive lenition process to apply in Jóola Kujireray and Jóola Eegimaa of Banjal implies that the form of the consonant was, at least for Jóola Eegimaa, diachronically, a geminate plosive. It is thus likely that, as with Jóola Eegimaa of Banjal, Jóola Kujireray once had geminate consonants but

that whether with contact with Baïnounk Gubëheer or at an even earlier stage, the geminates were lost in favor of long vowels. Based on my fieldwork and the depiction of Baïnounk Gubëeher provided by COBBINAH (2013), Gubëeher lacks phonemic geminates as well.

The supposition is that roots in (9b,d) project the same number of morae, irrespective of the overt vocalic or consonantal specification. Furthermore, WATSON (2018) presents lexical items in support of a closer connection between Kujireray and Eegimaa of Banjal than that of Essil. Thus, the phonology supports the lexical inferences even though historical substantiation is contested. WATSON (2018) argues against the generally accepted narrative that Brin was settled as part of the migration to the Kingdom; rather she presents evidence for deeper roots further back in time with Jóola communities to the north of the Casamance River.

However, a disparity is found among root-final consonants in one inflected stem. Compare the phonemic forms of the roots in (9c–d) with the stems' phonetic outputs in (10a–b).

	Kujireray	Eegimaa (Banjal)	Eegimaa (Essil)	GLOSS
a.	**[nɪ-lal-ɛ]**	**[nɪ-lal-ɛ]**	**[nɪ-lal-ɛ]**	I refused
b.	**[nɪ-laal-ɛ]**	**[nɪ-laat-ɛ]**	**[nɪ-llat-ɛ]**	I hung

Table 10 – Opaque outputs in Jóola varieties: inflected verb stems show the lenition intervocalically applies in Jóola Kujireray but not in Jóola Eegimaa.

In Eegimaa, a phonemic /t/ in root-final position weakens to [l] intervocalically in the verbal stem. As with the examples in Table 9, the process occurs across the board in the monomoraic root. Here, in Table 10 it can be noted that, in Kujireray, the lenition process transparently applies, but interestingly, the outputs in the two Jóola Eegimaa varieties in example (10b) are opaque in that the lenition process fails to apply as expected. That is, the root-final /t/ in Example (10b) in the Eegimaa verb stems was not part of a geminate and thus should be lenited as it was in Example (10a).

As this is the only example of an under-application of the lenition process, or, from another angle, an over-application of the blocking process, I attribute the unexpected outcome to the presence of the long vowel/geminate sequence preceding the target consonant. The reason for the root-final /t/ in 'hang' not being lenited to [l] in Eegimaa notwithstanding, it is well-documented that there is more variation in standard than in non-standard varieties of languages. The regular application of phonological processes can be referenced as a diagnostic

for determining a creole or mixed variety, and in this way view Jóola Kujireray in a mixed language model.

6. Discussion

BARRY (1987) makes little mention of underlying geminates in his reconstruction of the Jóola languages save for one important note. He states that in the languages "Banjaal" and "Kuluunaay" (Banjal and Kujireray respectively), [k] is pronounced in the root for 'push' as **[-fakɛn]** yet as **[-faŋkɛn]** in "Elana" (a village near Affiniam with which SAGNA (2008) states there is mutual intelligibility with Eegimaa) (BARRY 1987: 150).

Wolfgang Berndt has worked in Enampore for over ten years. The inland village is located at the heart of the Kingdom. The name Enampore is pronounced **[ɛ-nappɔr]** and comes from the verb 'to gather'. However, in his word-list and grammatical description (BERNDT 2003), he transcribes phonetic geminates as a singleton plosive and fricative or liquids as such. Thus, he differentiates what he terms a "strong" versus "weak" contrast between plosive and otherwise lenited consonants between vowels.

Based on length-measurements, it is clear that a phonetic difference exists between geminates and singleton consonants in the inland varieties of Eegimaa, but not in the outlier ones, nor in Kujireray, where a vowel-length distinction is visible. Phonologically, however, in both varieties of Eegimaa and the Kujireray language, a contrast persists between a geminate plosive and a singleton one that precedes a long vowel. Here, I offer a historical explanation for this consequence whereby geminates predated long vowels in Eegimaa. Evidence comes from the under-application of the lenition process among noun and verb roots with long vowels in the Banjal variety. Kujireray is likely an off-shoot of Eegimaa, with its speakers separating at a point after the evolution from geminates to long vowels occurred.

BARRY (1987) also discusses the "softening" process as affecting dialects of the somewhat geographically distant but genealogically related Affiniam Jóola languages. Therefore, other than Eegimaa and its potentially closely related languages, no other Jóola language is attested with lenition. Cognates with the widely spoken Jóola languages Kaasa and Fogny reveal singleton plosives in lieu of fricatives and liquids post-vocalically. However, these unlenited plosives did not result in geminates among any of the cognate forms with Eegimaa. Where cognates can be found, geminates in Eegimaa of Essil and environs align with either long vowels or nasal-voiceless plosive clusters. As both heterosyllabic vowels and nasal-voiceless plosive clusters are impermissible in the language, I

posit that Eegimaa geminates a moraic consonant as a solution that preserves the root's underlying moraicity.

All documented Jóola languages today rely on mora preservation strategies and make use geminates. Authors disagree if the geminate that is produced is done so by assimilation or deletion and subsequent gemination. In the Eegimaa variety spoken in Essil, HANTGAN et al. (2019) argue in favor of a gemination analysis as the language lacks a vowel length contrast. In light of this argument, it is postulated here that geminates arose in Eegimaa of Essil in order to preserve the underlying moraic status of a noun or verb root. However, an open question remains as to why do both varieties of Eegimaa make a moraic distinction at the level of voicing where the other Jóola languages categorically compensate for the loss of a mora?

7. Conclusion

POZDNIAKOV and SEGERER (in press) reconstruct long vowels for the Jóola languages with geminates as the innovation. Since their findings were obscured for the variety of Eegimaa spoken in Essil, it was necessary to compare the outcomes of impermissible nasal-voiceless plosive sequences across Jóola varieties, where an alternative explanation for the presence of geminates in the Essil variety of Eegimaa appears. The analysis put forth here attributes the lack of lenition in consonants proceeding long vowels in the Eegimaa Banjal variety to the fact that geminates were present in Eegimaa prior to long vowels. As no other attested Jóola language has phonemic geminates, it is probable that at least some of the geminates found in the Essil variety arose synchronically from the resolution of a ban on impermissible nasal-voiceless plosive clusters rather than through inheritance. The presence of long vowels in the Banjal dialect of Eegimaa inadvertently reverts the language back to the reconstructed Proto-Jóola pronunciation.

In support of this supposition, according to oral histories gathered during my fieldwork and those by PALMERI (1995), the village of Essil is the predecessor to Banjal. Prior to the villagers of Banjal leaving Essil, however, there was likely an interim period in which Jóola Eegimaa speakers split their language off from related Jóola languages like Fogny, and then further divided when the Eegimaa community itself moved from the forest to the river's border and thus speakers became in close contact with Kaasa speakers.

As noted in the introduction, attested variation within well-documented varieties of Jóola such as Eegimaa appears to be changing. In addition to the outlined differences witnessed between geminates and long vowels, there is a great deal

of discussion in the Jóola Eegimaa literature as to the phonemic representation of singleton consonants in the language, which certainly contributes to the confusion regarding the language's internal classification. Five key aspects about the phonology of Jóola Eegimaa are unlike that of other Jóola languages:

1. the presence of contrastive geminates (in the Essil dialect),
2. the lack of a vowel contrast,
3. an underlying contrast between moraic and non-moraic consonants,
4. severe restrictions on surface [k] (in part due to a process of lenition which occurs in Eegimaa),
5. a complete ban on surface nasal-voiceless plosive clusters.

And yet, these shifts are still in flux. Although no less than nine grammatical descriptions and many more word-lists have been collected from among the Kingdom's villages, the variety of Jóola Eegimaa spoken in Banjal has yet to be thoroughly documented, particularly within the domain of the phonological system. Based on the fact that the nine authors' disagree as to the basic facts of the phonological system of the language, an in depth comparative study of each village's pronunciation is required. Preliminary findings explored here have shown that even Banjal speakers may use geminate variants in their speech. The question to answer next is when and why do these changes occur. For the time being, this study has appealed to mora preservation and historical development through language contact as an explanation for the otherwise unusual appearance of geminates in Eegimaa Essil. Noun and verb roots with marked nasal-consonant clusters gave rise to geminates diachronically, which in turn became long vowels once again, although synchronically. In each case, an equal number of morae is preserved, whether through doubling of the consonant or lengthening of the vowel. Given this importance of syllable weight in Jóola varieties, all of which are a-tonal, a future study of interest will be the role of stress in the Jóola languages.

ABBIE HANTGAN-SONKO

Synchronic and diachronic strategies of mora preservation in Gújjolaay Eegimaa

Appendix

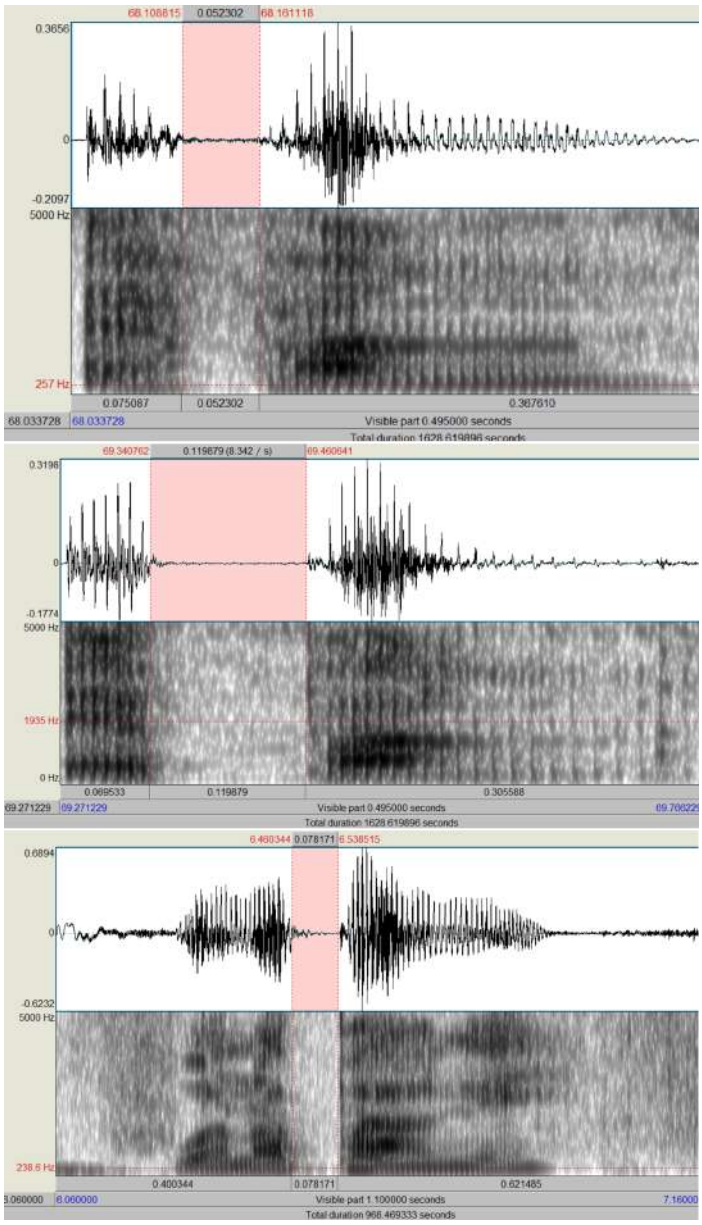
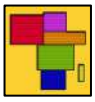


Figure 3 – Spectrograms of **[ɛ-ɸaŋ]** 'fetish', **[ɛ-ppaŋ]** 'fishing dam', and **[wa na-paaŋ-ɛ]** 's/he fished with a fishing dam': the phonological differences between /p/ and /pp/ are realized phonetically as spirantization and closure length respectively, even in the non-geminated [p] of **[na-paaŋ-ɛ]**. Note that these forms were all uttered by the same speaker on difference occasions.



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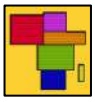

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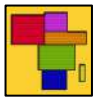

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