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THE NATURE OF ALBANIAN NASAL-STOP SEQUENCES: PHONETIC, PHONOLOGICAL, SOCIOLINGUISTIC & HISTORICAL BEHAVIOR

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THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of the Arts in the
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at the University of Kentucky

By

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ABSTRACT OF THESIS

THE NATURE OF ALBANIAN NASAL-STOP SEQUENCES: PHONETIC, PHONOLOGICAL, SOCIOLINGUISTIC & HISTORICAL BEHAVIOR

The Albanian language is relatively unique among the Indo-European languages with its word initial nasal-stop sequences. Despite broad characterizations, the phonetic, phonological, and sociolinguistic properties of these sequences have not been analyzed with the same rigor as languages with similar sequences. I employ phonetic, perceptual dialectological and historical methods to examine not only how these clusters are employed by speakers in today's Albanian linguistic landscape, but also to the historical mechanisms and timing of the development of these clusters and their variants within Albanian. With a combined spectral and aerodynamic analysis, I have identified that these clusters are phonemically composed of a discrete nasal and stop, but phonetically are highly variable and do not fit neatly into any partially-nasal category outlined by previous research. In folk linguistics, the variants of these sequences are socially but not phonemically contrastive. This suggests a partially-nasal system in transition, but also challenges our categorical framework for partially-nasal sequences, which is currently uncorroborated by perceptual studies.

KEYWORDS: Albanian, Phonetics, Perceptual Dialectology, Nasals, Nasal-Stops Sequences, Partially-nasal.

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04/25/2024
Date

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CHAPTER 1. INTRODUCTION

The Albanian language is host to nasal clusters, one for each place of articulation found in their nasal system and occur in almost every position of the word. The core set of these clusters are at the bilabial <mb>, alveolar <nd> and velar <ng> places of articulation (Lowman, 1932). While there are also palatal variants of these clusters, I do not analyze them in order to limit the scope of my investigation.

1) mbret ‘king’
2) ndikoj ‘influence’
3) ngrij ‘freeze’

Due to their rarity within the broader Indo-European language family, the word initial nasal-stop clusters are of particular interest. Understanding the origins of these clusters and how they are used could be very informative to tracking how and why Albanian diverged from its linguistic cousins, and knowing how these clusters developed provides a window into how similar clusters develop in other language families (e.g. Bantu). Additionally, by examining Albanian’s divergence from the rest of Indo-European, we might eventually glean a more precise understanding of where and when Albanian diverged, which may have ramifications for the rest of the Balkan Sprachbund.

Despite the potential importance of these clusters for understanding historical Albanian, there is little to no literature formally investigating what these clusters are and how they are used. There has been cursory documentations of their distribution, denoting that the clusters are indicative of the southern Tosk variety of Albanian and its descendants (Dedvukaj & Gehringer, 2022, 2023; Demiraj, 2020; Lowman, 1932), but no close or dedicated examination of their phonetic composition, phonological behavior, or social usage, all of which are crucial for understanding their development. This is especially notable when compared with the extensive academic discourse contesting these same aspects of clusters found in the Austronesian, Bantu and Sino-Tibetan language families (Maddieson & Ladefoged, 1993).

In this thesis, I will begin such an investigation by surveying the phonetic and social properties of Albanian nasal-stop sequences and will integrate these findings into the phonological, sociolinguistic, and historical contexts and behaviors that have been observed. I will also make comparisons of these findings with other languages and language families with similar constructions to better contextualize Albanian and my findings with the broader typologies.

1.1 Overview of the Albanian Language

The Albanian language, Shqip, is an Indo-European language native to the Balkans and is primarily spoken in Albania, Kosovo, Montenegro, Greece, and to a lesser extent in other surrounding nations of the Balkans (Figure 1). There also exists a population of speakers living in the United States, which has provided the majority of the data examined in the current study.

Figure 1 Map of Albanian dialects in the Balkans (Canaj 2020)

The Albanian language is divided into two major dialect groups: the southern variety, Tosk, and the northern variety, Gheg.[1] These dialect groups in turn manifest as several localized and descendent dialects. The Tosk varieties include the Arbëresh Albanian spoken in Italy, the Arvanitika Albanian spoken in Greece, and several transitional dialects. Tosk Albanian is also the primary contributor to the Standard dialect employed by the Albanian government (Kryeziu, 2018). The Gheg varieties are organized by their geographic position and can be seen in Figure 1. Although the traditional boundary between the Albanian Tosk and Gheg dialects is placed at the Shkumbin River (Paçarizi, 2008), Tosk influence has since spread into the traditionally Gheg speaking regions of northern Albania due to its cultural prevalence as the basis of the standard variety, so it may be unclear where the transitional area begins and ends, since in most regions we must contend with both the local variety and the primarily Tosk-based Standard Albanian variety.

Albanian is widely considered to be an isolate on the Indo-European tree, though some research has posited that it belongs to the Illyrian branch, or even a wider (Paleo-)Balkanic branch along with Greek, Thracian, Dacian, and the Illyrian languages. Albanian may have some ancient relationship with the pre-Romance Romanian language and Armenian (Chang et al., 2015; Hyllested & Joseph, n.d.; Mallory & Adams, 2007;

[1] Also spelled “Geg”

Olsen & Thorsø, 2017). Its phylogeny (Figure 2), however, has been difficult on account of Albanian's reported high degree of lexical borrowing from its neighbors, starting with Greek, Latin, Turkish, Slavic, and Romance languages throughout its history (Mallory & Adams, 2007). While there is a growing consensus in the academic community about Albanian's origins, each of these claims about Albanian's relationship with the surrounding languages are still somewhat contested, especially in popular discourse where they are often tinged by the political, national, and ethnic attitudes within the Balkans.

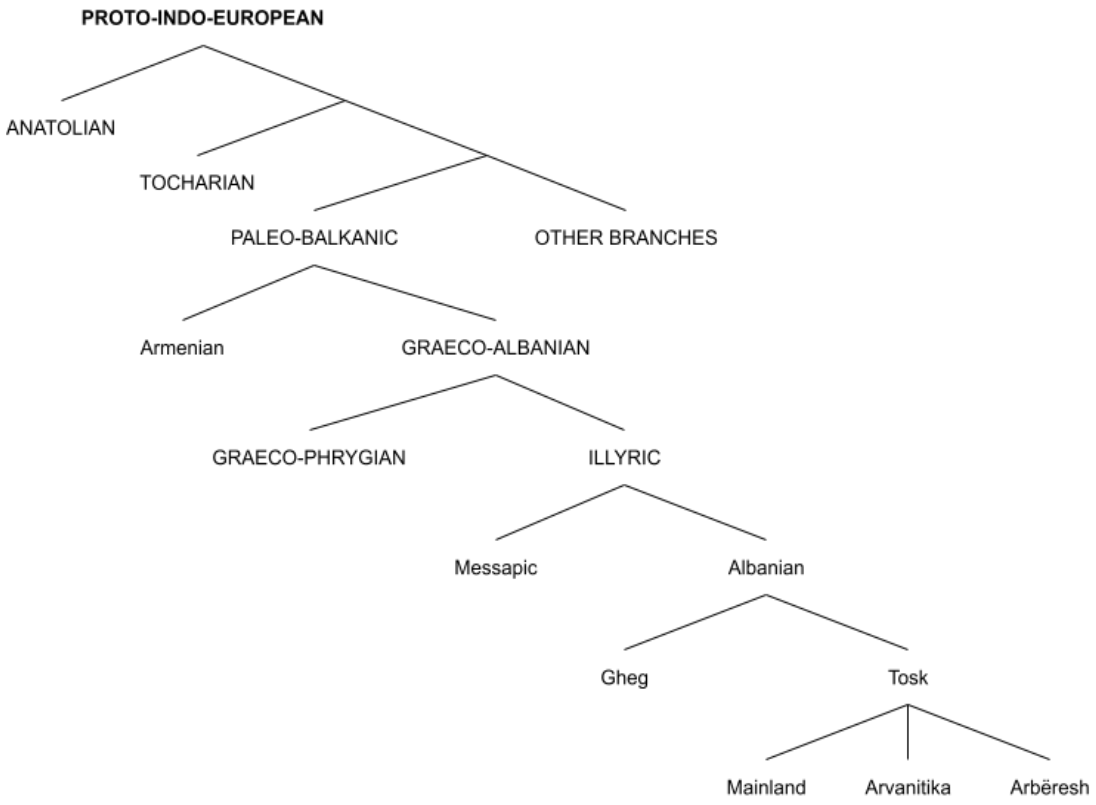

Figure 2 Phylogeny for Albanian in the Indo-European family adapted from Chang et al. (2015) and Hyllested & Joseph (2022)

CHAPTER 2. PHONETIC & PHONOLOGICAL LITERATURE IN REVIEW

The literature attempting to actually describe these sequences and how they behave is sparse. Most modern language learning materials do not even recognize the difference between singleton nasals, singleton stops, or nasal-stop sequences, regardless of their position within the word. Word initial <mb>, <nd> and <ng> almost never afford any additional instruction to the reader (cf. Beșleagă, 2022; Mayhew, 2012; Newmark, 1999). While this could be an indicator that these sequences do operate as simply a cluster of a discrete nasal segment followed by a discrete oral segment, the lack of treatment leaves

this far from conclusive. Lowman (1932)'s treatment of Central (Gheg) Albanian phonetics does distinguish between the "clear" nasals <<m, n, ŋ>>[2] with the "dark" or "velarized" nasals, which he transcribed with a horizontal bar bisecting the characters. According to Lowman's description of the "dark" <<m̶>>:

> The 'dark' or velarized bi-labial nasal has a secondary articulation with the back of the tongue raised toward the soft palate. It is somewhat longer than the 'clear' [m], and there is especially rapid and vigorous movement of the labial muscles during the last part of the sound, with a correspondingly increased force of exhalation of the breath. The nasal passages are wide open, and a much greater volume of air appears to pass through the nose than in the case of [m]. In very emphatic utterance the lips may be turned inward through the effort of producing the sound. This sound is never followed by [b] or [p], presumably because it was originally pronounced [mb], as is still the case in the south of Albania. Examples: *mbret* 'king' [m̶ret], *mbas* 'after' [m̶as], *kambë* 'foot' [ka:m̶], *shemba* 'I destroyed' ['ʃɛ̃:m̶a], *shembë* 'to destroy' ['ʃɛ̃:m̶].

Lowman clearly states that these forms occur word initially, medially, and finally and are not followed by any oral stop in this Gheg variety. Similar descriptions accompany the other nasal places of articulation. Lowman attributes the variation in his participants primarily to religion, with Catholic and Muslim speakers having different distributions of phonemes. We do however miss the Tosk distributions, save for a few mentions that the stops following the nasals are still pronounced in the south (Lowman, 1932). I was unable to locate sources to provide a comparable description of the Tosk distributions.

We are left therefore, with no available descriptions of Tosk, and a 92-year-old description of Gheg, and little to no differentiation between singleton nasals and stops and nasal-stop sequences in pedagogical literature. I will take the next section to review the analytic and theoretical frameworks employed in other language families to investigate similar sequences and discuss how these frameworks will be adapted and used in the current study.

2.1 Overview of potential study outcomes with phonetic & phonological theory

Part of the scope of this thesis is to determine what type of constructions are employed in nasal-stop sequences, and whether or not they observe any form of conditioned phonological variation. The outcomes of these investigations can be categorized as either possessing one or two segmental units. If a nasal-stop construction

[2] As well as the palatal <ɲ>. <<...>> brackets in this case indicates a phonetic transcription not in the 2015 International Phonetic Alphabet (International Phonetic Association, 2015).

is composed of two segmental units (N+C), this is properly a consonant cluster, which we could attribute to two discrete featural roots and would be expected to divide across syllable boundaries (G. Clements & Keyser, 1999; G. N. Clements, 1985). If a nasal-stop construction is composed of a single-segmental unit (NC), this is a partially-nasal consonant, which we could attribute to a single featural root (Ibid.; (Maddieson & Ladefoged, 1993). These outcomes of bisegmental clusters and unisegmental partially-nasal consonants can be seen in Figure 3 in a simplified featural model.

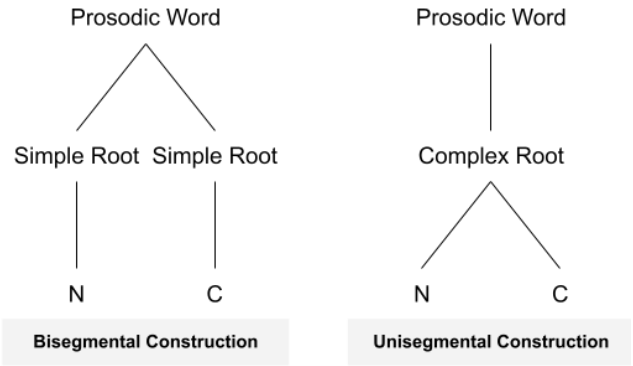

Figure 3 Simplified feature geometry of bisegmental and unisegmental nasal-stop constructions

If any of the outcomes are bisegmental partially-nasal consonants, then it must be ascertained if the recorded outcomes most closely reflect the phonetic and phonological composition of prenasalized stops [^{m}b, ^{n}d, ^{ŋ}g], poststopped nasals [m^{b}, n^{d}, ŋ^{g}], or some other form of partially-nasal consonant. A discussion on the development of these terms is found in section 2.2. A description of how they will be used in this thesis is found in section 2.5. The quantitative descriptions between these categories of partially-nasal consonants and the bisegmental clusters, however, are somewhat nebulous, leading to the contestation of what segments in which languages meet the qualifications of these categories.

2.2 Descriptions of prenasal constructions

Prenasalized consonants are not the most common type of nasal-stop sequence, but are prevalent enough to be found in an estimated 10-15% of the world's languages (Beddor & Onsuwan, 2003; Maddieson, 1991, p. 199). Phonetic and phonological investigations into prenasalization begin to coalesce in the 1970s onwards. These studies frequently investigated prenasalization's interactions with vowel length, prosody, and featural spreading. For example, in some languages prenasals block progressive nasal feature spreading (Anderson & Jones, 1974), or trigger compensatory lengthening in languages such as Luganda (Hayes, 1989).

Meanwhile, other researchers investigated how prenasals varied acoustically from their singleton nasal and stop counterparts. Both Herbert (1986) and Sagey (1986) predicted that the duration of single-segment constructions would be shorter than constructions with multiple segments, regardless of whether or not those segments were simple, such as singleton nasals, stops, and nasal-stop clusters, or complex, such as prenasals. However, other research observed that there was no timing difference between N+C and NC (Browman & Goldstein, 1986; Maddieson, 1989; Maddieson & Ladefoged, 1993). Maddieson & Ladefoged (1986)[3] in particular found that languages varied on the relative durations of discrete clustered N+C constructions compared to single-segment NC constructions, leading them to conclude that the phonotactic distinctions between the available constructions was a product of phonology, not phonetics, and therefore language specific (Maddieson & Ladefoged, 1993).

Maddieson, however, walks back Browman & Goldstein's syllogistic claim that because English N+C clusters had a comparable labial gesture as segments identified as prenasal in the Bantu language Kichaka, N+C clusters and prenasal NCs are equivalent (Browman & Goldstein, 1986; Maddieson, 1989). Maddieson analyzed 11 speakers of Fijian, finding that the duration of prenasal NCs was comparable to singleton nasals and stops as Herbert (1986) and Sagey (1986) predicted, nor did they meaningfully alter the duration of the preceding vowel (Maddieson, 1989). This was corroborated by Vatikiotis-Bateson's 1984 findings, as well as Burton, Blumstein & Stevens (1992)'s findings in Moru. It however contradicts findings in languages such as Luganda, which does exhibit compensatory lengthening before the prenasal (G. N. Clements, 1986; Hayes, 1989).

This cross-linguistic variation in prenasal NC behavior suggests either that in some languages segments documented as prenasal NCs have been mislabeled (i.e. either the documentation or the scope of the term prenasal is inadequate), or that per Maddieson & Ladefoged's suggestion, the differentiation of what does and does not qualify as a prenasal NC construction is under the purview of the phonology, and is influenced language-specifically by the phonotactic inventories of a given language. This discourse in the field led to Maddieson & Ladefoged (1993)'s paper outlining the types of "partially-nasal" sequences (NCs) along with a description of their phonetic and phonological behavior.

Maddison & Ladefoged (1993) defines partially-nasal consonants (NCs) as a "single consonantal element… which contain[s] a subpart during which the velopharyngeal port is open and the oral escape of air is blocked." They moreover repeatedly refer to, use, and emphasize duration as one of the primary diagnostics for contrasting N+C and different types of NC constructions, a practice which continues to pervade subsequent research.

They define prenasals where the nasal passage is closed by the velic gesture prior to the release of the oral articulation. This gestural alignment can be accomplished either by the shortening of the velic gesture, maintaining a gesture comparable to a singleton, or by extending the oral articulation, delaying the release and making the overall duration

[3] As described in Maddieson & Ladefoged 1993.

longer than a singleton. Because Maddison & Ladefoged define prenasals via gestural alignment, these two methods represent the durational variation observed in prior and subsequent research, by providing two gestural strategies to achieve the same gestural misalignment.

They then resolve the variation between prenasal languages which do and do not incite compensatory lengthening by comparing Luganda and Sukuma, whose prenasals are derived from separate segments in the phonology (G. N. Clements, 1986), to Fijian, whose prenasals are considered to be underlying (Geraghty, 1983; Schütz, 1985). Because the two languages with the derived prenasals have compensatory lengthening, but Fijian does not, it has been proposed that prenasal triggered compensatory lengthening in languages like Luganda are likely indicative of the derivations. Maddison & Ladefoged tested this, taking Fijian data from Maddieson (1990) and collecting data from Luganda and Sukuma, finding insignificant prenasal effects on preceding vowel length in Fijian, middling effect in Luganda, and a pronounced effect in Sukuma. They attributed these three different types of surface phonological structures and their interaction between the segments and the moraic level. Languages like Luganda and Fijian did not link a mora to the nasal, resulting in shorter durations, while languages like Sukuma link their nasal to the mora. While the construction of a nasal and a consonant interact with the moraic assignments described here, the compensatory lengthening does not occur in presence of a prenasal or other nasal-stop construction alone, but rather only in conspiracy with the syllabification strategies of a language. This again unifies the variation observed in previous and subsequent research on whether or not partially-nasal consonants trigger compensatory lengthening.

There appears to be little work into the perception of prenasalized stops. Browman & Goldstein (1986) do compare the labial gestures of Kichaka and English. While the highly visual nature of labial gestures observed would likely influence the perception of sounds (McGurk & MacDonald, 1976) but this work in the study by itself does not document any actual perceptual effects. Beddor & Onsuwan (2003) conducted a perception study for the Bantu language Ikalanga. They found that in Ikalanga, the perceptual distinction between prenasals and singleton nasals had interactions with both segment duration and the presence of carryover nasalization on the following vowel, which appears after Ikalanga nasals but not prenasals. However, this nasalization carryover was necessary for prenasal/nasal distinguishment, whereas segment duration was not. The inverse was true for the perceptual distinction between prenasals and singleton stops, where segment duration was the perceptual cue necessary for the prenasal/stop contrast. On the basis of Browman & Goldstein's findings and similar perceptual results when presenting the Ikalanga stimuli to English speakers, they speculated that the distribution and usage of these cues were likely consistent cross-linguistically with both partially-nasal consonant constructions and discrete consonant clusters (Beddor & Onsuwan, 2003).

I tentatively accept this assessment but base no larger claims about it without further corroboration in other languages, especially since Browman & Goldstein's equation of Kichaka prenasals with English clusters omits any consideration of the velar

gesture and the descriptive framework of later contributions to the field. While this is somewhat accounted for in Beddor & Onsuwan's acoustic descriptions in their paper, these only account for the perceptual effects of segment duration and coarticulatory nasalization. Their results lack aerodynamic descriptions to help inform the transitions between the velo-nasal and oral gestures, meaning we cannot definitively extrapolate whether or not the factors only visible in aerodynamic data affect the perceptual results. It would therefore behoove the field to examine perception with both stimuli from different types of velo-nasal/oral gestures (Chao 1948, Chao 1951; Chan 1980, 1987; Durie 1985; Coady & McGinn 1982; Maddieson & Ladefoged 1993; Hu 2007) and to test their cross-linguistic perception in languages with both different nasal-stop sequence constructions and distributions, as well as with different types of velo-nasal/oral gestures. Such a task, however, is not within the scope of this thesis.

Without considering the incomplete status of perceptual investigations in this topic, prenasals can therefore be described as a single-segment where the nasal gesture precedes the oral gesture, as opposed to singleton nasals where the velar and oral gestures are aligned. This gestural offset can be achieved either through the shortening of the nasal gesture or through the lengthening of the oral gesture, resulting in prenasals that are equivalent or longer respectively to their singleton counterparts. Prenasals are independent from, but otherwise interact with the syllabification strategy of a language, which can potentially conspire to assign moraic weight to the nasal segment and the preceding vowel.

2.3 Descriptions of poststopped constructions

A potential alternative realization for Albanian nasal-stop sequences is as poststopped nasals. Poststopped nasals have been documented in dialects of Chinese (Chao 1948, 1951; Chan 1980, 1987) and in the Austronesian languages Acehnese (Durie 1985) and Rejang (Coady & McGinn 1982). According to Maddieson & Ladefoged, Chao's original description of poststopped nasals did not distinguish them from prenasals (Chao 1948, 1951; Chan 1980). In their own gesture based definition, poststopped nasals enjoy a synchronized raising of the velum with oral release, where "air flow is shunted almost instantaneously from a nasal escape to an oral one, without the overlapping of nasal and oral closures that occurs in a prenasalized stop" (Maddieson & Ladefoged, 1993). Chan & Ren (1987) compare the features of poststopped nasals with those of prenasalized stops, noting that poststopped nasals in Chinese were relatively shorter than Malagasy prenasals. Poststopped nasals had a weaker nasal murmur than prenasals, and while they sometimes had an aptitude drop similar to that of prenasals after the nasal component, poststopped nasals also could have a (stop) burst in the same position (Table 1).

Based on the observations of Coady & McGinn (1982), Durie (1985), and Chan (1987), Maddieson & Ladefoged (1993) conclude that the velum is less open than in singleton nasals. The researchers note that while poststopped nasals can contrast with

singleton nasals in a language, this contrastive distribution is uncommon. Moreover, there is no extant example of prenasals occurring in the same language as poststopped nasals, where both constructions "share the property of orality of their release, in that nasality either terminates before or at the oral release and does not spread to the following segment" (Maddieson & Ladefoged, 1993).

Table 1 Comparing the acoustic features of poststopped nasals to prenasalized stops (Chan & Ren 1987)

Post-stopped Nasals	Prenasalized Stops
Burst/amplitude drop following nasal	Amplitude drop following nasal
Relatively weak nasal murmur	Relatively strong nasal murmur
Relatively shorter duration	Relatively longer duration

As noted, poststopped nasals can either occur with or without a stop or stop-like burst following the nasal (Chan, 1987), the latter of which Maddieson & Ladefoged 1993 prefer to label "orally released nasals" due to the lack of burst. More recent investigations into poststopped nasals identified two stages in the development of poststopped nasals, which correspond two these different varieties (Hu, 2007).

Hu notes that the singleton nasals of Middle Chinese remained singletons in the Wu dialects, "became conditionally changed into plain fricatives or approximants such as in the Mandarin dialects, or become post-oralized," where the post-oralized category encompasses both poststopped nasals and prenasalized consonants. We find prenasals in Shanxi, poststopped nasals in Zhongshan and Taishan Cantonese (Chao 1948, 1951), whereas the status in Southern Min is contested as prenasal (Hu, 2007). Hu 2007 measured oral and nasal airflow from speakers of the Zhanxi, Cantonese, Hakka, and Southern Min dialects.

The Shanxi, Cantonese and Hakka dialects were "characterized by a strong burst and an abrupt energy drop during consonant release, indicating an oral release of the stop" accompanied by nasal airflow during the consonant closure, where only the release is oral. While the (low) nasal flow is similar in Southern Min to the other dialects, "there is an interval between the diminution of the nasal flow and the stop release," suggesting that orality has progressed leftwards past the release. Hu posits that this reflects a two-stage denasalization process from Middle Chinese, where in the first stage orality (sourced from the following vowel) affects the release, causing a burst and leaving the nasal murmur intact. In the second stage, the orality has advanced back into the nasal portion, attenuating the release burst, which Hu proposes indicates that Southern Min is further along this denasalization change than the other dialects when viewed diachronically.

In this case, this would posit a diachronic progression from singleton nasal to prenasalized stops, with the poststopped nasals and orally released nasals serving as intermediate stages along this trajectory as outlined in (4), which might presumably culminate in a voiced stop *D. It should be noted that this is specific to the situation in China, and may not necessarily generalize to other languages, nor is it overtly claimed or demonstrated if the Zhanxi, Cantonese, Hakka and Southern Min dialects are undergoing a single inherited change or have developed these changes independently, or any other motivation that these languages will adhere to Hu (2007)'s proposed stages or the diachronic progression extrapolated in (4). It is, however, on both counts an observation and hypothesis worth testing elsewhere and a phenomenon that researchers should keep an eye out for in languages that possess or are developing post-oralized nasals.

4) $N > N^{D[-burst]} > N^{D[+burst]} > {}^{N}D > *D$

2.4 Separation of bisegmental clusters & monosegmental partially-nasal consonants

Finally, I must address how to distinguish between discrete bisegmental clusters (N+C) and unisegmental partially-nasal consonants such as the post-oralized stops (NC). Such a taxonomy must address the problem brought up by Browman & Goldstein (1986): what keeps any nasal-consonant sequence from being analyzed as single-segments? What prevents (or allows) constructions such as English *endure* /n̩duːrˈ/ from qualifying as prenasalized consonants? We find the echoes of the contradictory observations on prenasals actively debated in research pertaining to the Bantu languages, where some researchers have argued that there is little to no basis classifying certain constructions as prenasals (Downing, 2005; Kathleen Hubbard, 1995). These researchers cite pronounced variation in segment durations combined with a lack of evidence for compensatory lengthening, which has often been used as indicators of prenasals. I have already acknowledged that both practices alone are problematic and incomprehensive. While acknowledging that duration analysis alone is not sufficient to diagnose prenasalization, Morrison (2009) refutes several of these claims, reasserting prenasal status in the Bantu language Kibena, citing Maddieson & Ladefoged's language dependent stance on the relationships between segment duration and compensatory lengthening. Morrison supplies additional evidence to her durational analysis via native speaker syllabification judgements. While Downing claims that because #NC sequences in Bantu are always separated by a morpheme, they are underlyingly discrete units and therefore cannot be single-segment prenasals. Morrison challenges this, stating that "Downing provides no reasons why a proscription against underlying pre-nasalized consonants in word-initial position would mean that such segments could not be treated as unit segments on the surface (Morrison, 2009:237).

This necessitates discussing the single-segment's relationship between the phonetics and phonology of a language. If we accept Downing's definition, which coincides with Maddieson & Ladefoged (1986)'s relegation to the phonology, a prenasal

must be considered so phonemically and therefore underlyingly, excluding any morphophonological generations. While this is a possible definition, I do not find these parameters useful. They moreover, contradict Maddieson (1990)'s Fijian data, where "[n]o significant difference was found between underlyingly medial prenasalized stops and those which become medial through prefixation" (Maddieson & Ladefoged, 1993:270). We should not then exclude phonologically generated sequences from single-segment status if they otherwise meet the criteria of the single-segment taxon if the only qualification inhibiting this inclusion is to ignore that new phonetic properties emerge from phonological pressures.

In order to maintain the usefulness of our definition however, I will deviate somewhat from the usages applied elsewhere in the literature: given that a syllabified nasal segment that has received moraic weight neither meets the gestural description of a shortened nasal component nor a lengthened oral component (Maddieson & Ladefoged, 1993), I will exclude such constructions from single-segment status.

This is made not only firmly on the gestural grounds stated, but in accordance with my treatment on the eligibility of phonologically generated segments. If we must accept that two segments, as generated by phonological and morphophonological interaction can be rendered into a single-segment, then the reciprocate must be true that a single-segment by an morphophonological interaction can be rendered into discrete segments, and where both directionalities are necessary to permit historical change. Thirdly, this exclusion is made (and justifies the partial violation of the previous argument) in order to preserve the usefulness of this definition and prevent the aforementioned constructions such as English *endure* [n̥duːrˈ] from qualifying as prenasalized consonants, in partnership but without complete reliance on the phonotactics of the language, as proposed by Maddieson & Ladefoged (1986).

That is to say, if a language with a word initial nasal-stop sequence permits word initial vowels and syllabifies the nasal, it is indistinguishable from an identical construction in English. In which case, either both languages should be considered to possess prenasals, or neither should. I am inclined to say that the latter is a more useful, certainly a more powerful classification than the former, especially when, if we relinquish superfluous prenasal classifications such as those with syllabified nasals, we are licensed to look at languages where some speakers do and others do not syllabify and analyze the observed variation rather than forcing distinct varieties under a single, less useful category. Languages such as these, therefore, should not be excluded from being prenasal, but rather accurately described as having nasal-stop clusters with prenasal and syllabified variants in a manner that is useful not only for current taxonomy, but in later diachronic analyses dependent on our descriptions of today's languages, as exemplified in Hu (2007).

The same considerations should be maintained for all lexical and phonological positions available in a language – not to omit certain classifications, but to ensure thoughtful and accurate descriptions of how these nasals and oral components interact – secure, rather than in denial of the knowledge that our descriptions are always working with a moving target.

2.5 Theoretical conclusions & integration into the current study

In conclusion, in this study I will be analyzing the acoustic, durational, and aerodynamic properties of nasal-stop sequences in the Albanian language in order to determine how they should be classified, and how they might vary. It is necessary to employ these methods in tandem to avoid the pitfalls of relying on one of these methods alone, or rather, to capitalize on each method's capacity to document different aspects of variation within the system of nasal-stop taxa that previous research has outlined. Any proposed definitions should serve as robust definitions that are ideally both usefully selective in their constituents, but flexible enough to survive contact with cross-linguistic usage. My proposals are intended to be thorough enough to be replicable for those who would like to adopt them, and transparent enough for those who wish to convert them back into the systems I have problematized here. For the purposes of this study, I will be using the following definitions for those taxa:

Nasal-stop construction/sequence: Any sequence, whether phonemic or generated by (morpho)phonological processes where a nasal component is followed by an oral component. This includes both clusters and partially-nasal consonants.

Cluster: Any sequence where there is a nasal component followed by an oral component, where each component is a discrete segment belonging to its own consonantal root, regardless of whether it is phonemic or generated by (morpho)phonological processes. They are expected to be split along syllable boundaries with simultaneous release of the oral and velar gestures.

Partially-nasal consonant: Any sequence where there is a nasal component and an oral component represented by a single segment corresponding to one consonantal root, regardless of whether it is phonemic or generated by (morpho)phonological processes or the ordering of the nasal and oral components. This includes all post-oralized stops and postnasalized consonants.

Post-oralized consonant: Any sequence where a nasal component is followed by an oral component represented by a single segment corresponding to one consonantal root, regardless of whether it is phonemic or generated by (morpho)phonological processes. This includes poststopped nasals, orally-released nasals, and prenasals.

Poststopped nasal: Any sequence where a nasal component is followed by an oral component represented by a single segment corresponding to one consonantal root, where an attenuated nasal murmur and the velar gesture is released simultaneous to a stop or stop-like burst, regardless of whether it is phonemic or generated by

(morpho)phonological processes. Nasal and oral gestures are aligned. They are not expected to be split across syllable boundaries.

Orally-released nasal: Any sequence where a nasal component is followed by an oral component represented by a single segment corresponding to one consonantal root, where an attenuated nasal murmur is orally interrupted and not followed by a stop or stop-like burst, regardless of whether it is phonemic or generated by (morpho)phonological processes. Nasal and oral gestures are misaligned with a shortened nasal gesture and the oral gesture is lengthened. They are not expected to be split across syllable boundaries.

Prenasal: Any sequence where a nasal component is followed by an oral component represented by a single segment corresponding to one consonantal root, where a highly attenuated nasal gesture is misaligned with the oral gesture, either by the shortening of the nasal gesture (Type 1) or the lengthening of the oral gesture (Type 2). They are not expected to be split across syllable boundaries.

In order to represent the diachronic role of these partially-nasal forms in the changes between singleton nasals, singleton stops, and nasal-stop clusters, I have arranged these categories into a simplified bidirectional continuum that best demonstrates incremental changes between each category towards different ends of the continuum. I will discuss this thoroughly in Sections 4.2.11 and 6.2, especially where there is more nuance than presented here, but suffice it to say now that this likely does not represent all the possible stages between either side, nor are the stages as linear or obligatory as they appear here.

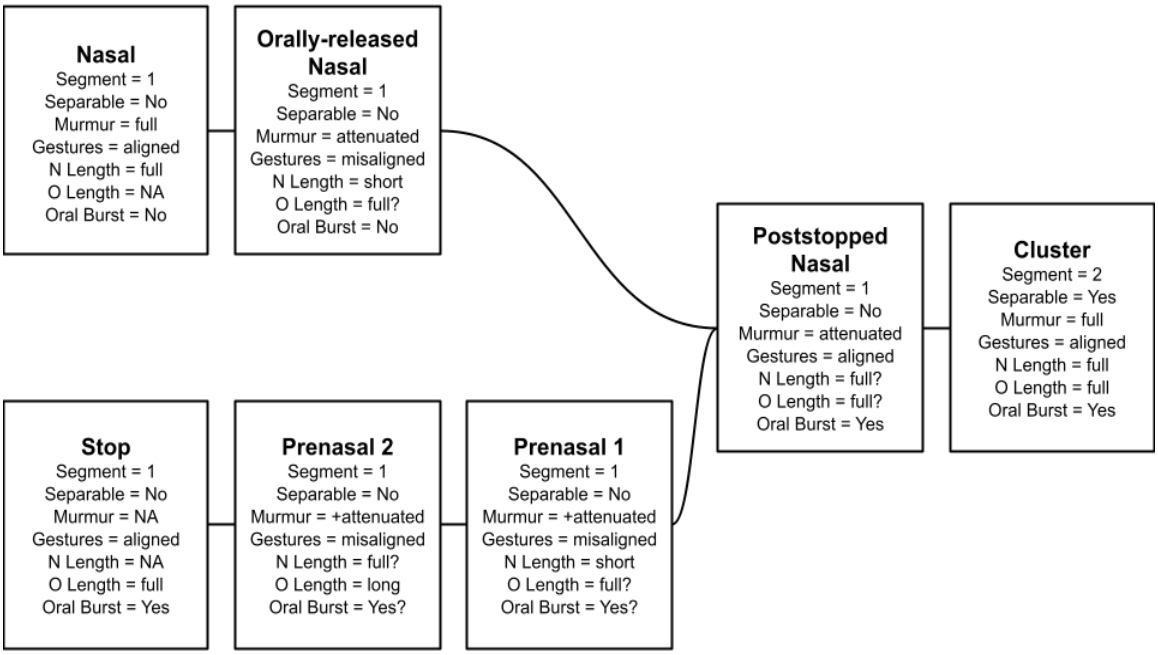

Figure 4 Simplified continuum of segment transitions between nasal/stop sequences

CHAPTER 3. OVERVIEW OF CURRENT RESEARCH

In order to determine how these nasal-stop sequences are realized in modern Albanian, I am conducting a two part study using surveys to examine both the phonetics and social usages of these clusters. The first component is the phonetic survey, which investigates the phonetic composition, phonological behavior and productional variation of Albanian nasal-stop clusters. This provides a window into how these clusters work and how they vary. Using the information gathered from the phonetic survey, I have then formulated a sociolinguistic survey, which investigates the socio-perceptual behavior of these clusters. These findings will demonstrate the social information entailed in the usages of the phonetic variants identified in the phonetic survey. Compiling the results of both surveys into a documentation of the production and perception of nasal-stop clusters in Albanian, I will then relate these findings with previous research on Albanian and other languages, as well as make historical inferences based on the data.

CHAPTER 4. PHONETIC SURVEY

The purpose of this phonetic survey is to record and analyze Albanian speakers' productions of nasal-stop sequences in multiple phonological environments along with other consonantal sounds in order to compare them. The results will employ spectrographic analysis along with analyses of segment durations and changes in oral and

nasal airflow in order to identify the phonetic composition of the nasal-stop clusters. By eliciting the target sounds in multiple lexical environments, the data will be compared across environments in order to observe any phonological variation. Finally, the data will be analyzed by the demographic features of participants in order to identify and analyze any social variation among the productions of the nasal-stop sequences.

4.1 Phonetic Survey Methods

The phonetic survey was conducted by eliciting and recording target words from Albanian speaking participants using a digital survey. Target words from the survey stimuli were recorded as both auditory and aerodynamic data. Participants were additionally asked to answer a survey concerning the demographics reported in 4.1.1 and elsewhere in the results.

4.1.1 Phonetic Survey Population

The phonetic survey has a population of eight talkers who speak Albanian as a first language, all of whom were currently residing in or near Columbus, Ohio. Participants were born between 1987-2005, with five out of eight participants being born in the early 2000s. All but one of the participants identified as women. Five participants were born in Albanian-speaking countries, and three were born in the United States.

The geographic distribution of participants can be found in Figure 5, where they are labeled by dialect and participant number. There were six speakers of Tosk dialects, and two speakers of Gheg dialects. Three of the Tosk speakers had grown up in northern Ohio. One of Gheg speakers had moved to Greece during their childhood. It must therefore be noted that all of these speakers were surveyed in a bilingual American English context, and we might therefore expect there to be influence from English – and in one instance, Greek – on the data in a way that cannot be reliably detected until this survey can be replicated in an Albanian speaking country. Conducting the research in an Albanian speaking country, however, was not within the time or budgetary scope of this research. All results are necessarily predictions based on a bilingual American English context that until otherwise confirmed or disproven correspond with the likely the same results elsewhere where Albanian is spoken. A simplified summary is found in Table 2, but more comprehensive discussions of speaker demographics are found under the individual analyses in section 4.2.

Table 2 Simplified demographic summary of phonetic survey participants

Participant	Gender	Year of Birth	Country	Region	City	Dialect
1	Female	2003	USA	North Ohio	Bay Village	Tosk
2	Female	1994	Albania	Lezhë	Lezhë	Gheg
3	Female	2004	Albania	Shqiperi e Mesme	Durrës	Tosk
4	Female	2003	Albania	Shqiperi e Mesme	Tirana	Tosk
5	Female	2002	USA	Ohio	Cleveland	Tosk
6	Female	2005	USA	Ohio	Cleveland	Tosk
7	Female	1987	Kosovo	Dukagjini	Gjakove	Gheg
8	Male	1991	Albania	Elbasan	Gramsh	Tosk

Figure 5 Map with the distribution of phonetic survey participants by origin

4.1.2 Phonetic Survey Materials

Three types of data were collected: demographic, acoustic, and aerodynamic. All three data types were elicited using a digital survey hosted on Qualtrics and proctored by the researcher. All advertisements, instructions and materials were always provided bilingually in both Albanian and English. The exception to this is the stimuli, which were provided in either Albanian or English in accordance with the function of the task (see below).

The demographic data was collected in order to record social categories that might socially correspond to phonetic variation observed within the data. This information will then inform our understanding of Albanian nasal-stop cluster usage, as well as inform the stimuli employed by the sociolinguistic perceptual survey that follows the this phonetic survey. The stimuli questions for these data were presented and responded to digitally in the survey.

Participants were asked for their year of birth, gender (open response), highest level of education (Primary School, High School degree or equivalent, Certification in a Trade, Bachelor's Degree, Master's Degree, Doctoral Degree), followed by questions about their linguistic communities. Participants were asked for the countries, regions/areas, cities/towns where they grew up, where their parents and grandparents grew up, where they live now, and whether they thought that they talked more like their parents, grandparents, or like most Albanian speakers from the cities/towns they grew up in. Likewise, participants were asked what dialect, area, or culture in the Albanian speaking world they associate their own speech with. These questions ascertained and tracked participants' geographic origins, as well as their linguistic attitudes/perceptions of how their language fits into their community. Participants typed their responses and marked on a map where they grew up. They also shaded what places spoke like they did.

The auditory data was collected in order to record the target language for spectrographic analysis. This data was collected with a Zoom H1 handheld microphone held approximately 4-8cm offset from the right of a participant's mouth. Aerodynamic data was collected in order to record the target language for an analysis comparing oral versus nasal airflow during the production of target sounds. This enables the comparison of airflow and gestural timing of nasal-stop clusters compared to singleton nasals and oral stops. These data was collected using a Glottal Enterprises MS-100 Dual Airflow system with an adult-sized oronasal mask. Both types of phonetic data were analyzed in Praat.

Because the mask worn during aerodynamic data collection inhibits clean recording of auditory data, the same stimuli eliciting the target sounds were employed twice, once for auditory recording destined for spectrographic analysis, and once for airflow data recording. The stimuli words for each recording type were split into two tasks: the Translation Task and the Production Task, which require some explanation.

The Albanian language has only one widespread standardized written form, and this form largely reflects the Tosk dialect. Albanians are generally taught to read this form in school, and so when presented with written Albanian words are apt to pronounce them as taught (i.e. as Standard Albanian)(Kryeziu, 2018). While written forms do exist for the other dialects, these are generally informal and unstandardized forms employed in activities such as texting. The aforementioned translation task is therefore designed to elicit target words in Albanian but circumvent the standard pronunciation that would be invoked by presenting participants with written forms. While this task was made optional, all the participants agreed to perform this translation task, and due to the differences observed between this task and the later task using written language and participant commentary, this task seems to be successful in eliciting their native local forms of these words. A summary of the stimuli for the translation task can be found in Appendix A.

However, several varieties of Albanian do not frequently use the target clusters being investigated by this study, so participants were then given a second task where they were instructed to read written Albanian words aloud. In contrast to the translation task, this production task leans into the literary bias of reading written Albanian as Standard Albanian and as a result elicited local interpretations of the Standard Tosk-like forms, ensuring that the target clusters would be produced by every participant. Because participants were reading words and not generating responses for themselves, this also provided me control over what words were being said. This allowed for several less common or niche words with interesting phonological properties worth investigating that would have otherwise been difficult to elicit during the translation task. A summary of the stimuli for the production task can also be found in Appendix A.

Data from both tasks were collected and subsequently measured in two different ways. For each task, participants would produce the target words into a microphone for spectrographic analysis, and the same words again into the airflow measurement system in order to compare the oral and nasal airflow during speech. The stimuli for both tasks were chosen to elicit bilabial, alveolar, and velar sounds as voiced and voiceless stops, nasals, and nasal-stop sequences. Each sound was represented in the stimuli at least once in the word initial, medial, and final positions.

4.1.3 Phonetic Survey Procedure

The auditory and airflow equipment was set up in a reasonably quiet space where recording could go uninterrupted. 20 seconds of silence was recorded on both channels of the airflow measurement system, which was later used to account for the atmospheric state of the testing space and any noise within the air pressure or equipment. Any of the above was filtered out prior to analysis and processed using Will Styler's Tripleview Praatscript. Prior to data collection, each transducer for the airflow measurement system was calibrated with 140mL of air per second using the calibration syringe.

Upon entry, participants were provided a study cover letter explaining the study in either English, Albanian, or both languages. All written instructions afterwards were provided in both languages, but oral instructions were conducted in English. Participants then filled out the demographic questions outlined above. Participants were then asked if they were comfortable translating a series of English words into Albanian. If they selected *yes,* then the survey began the translation task. All participants elected to do the translation task.

Participants were able to click linearly through screens displaying an English word and were instructed to provide the Albanian translation(s) of that word. In order to maximize the chances that the target words would be elicited, participants were encouraged to provide multiple corresponding Albanian translations if applicable. Participants proceeded at their own pace and could respond "I don't know" at any point where they did not know a word in either language. Following the translation task was the production task, where participants were presented with a list of words in Albanian and were instructed to read aloud from the list, regardless of whether or not they knew what the word meant. If any of the participants were to elect not to perform the translation task, the survey would have presented an expanded production task with all of the stimuli presented for them to read in Albanian. For all three of these potential tasks, participants responded to the stimuli once to the Zoom H1 microphone, and once for the airflow system so that both auditory and aerodynamic data were collected for all stimuli and tasks. For a complete outline of the flow of tasks, see Figure 6.

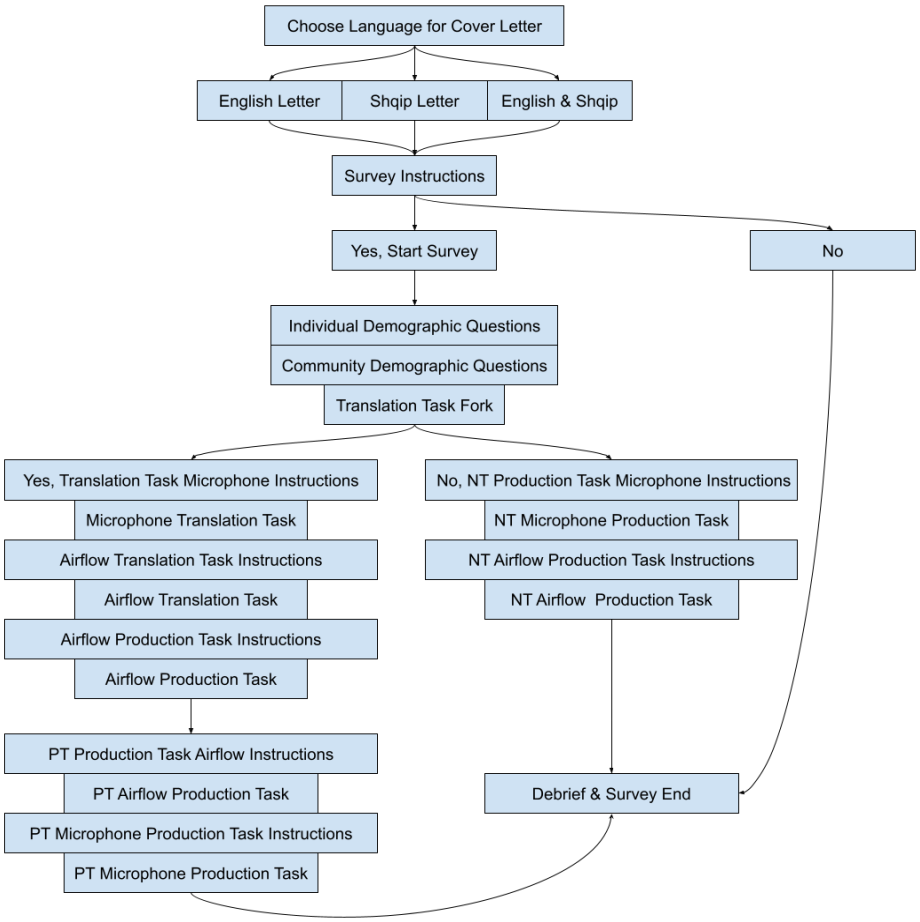

Figure 6 Flow of participant tasks during the Phonetic Survey

4.2 Phonetic Survey Results

For this section, I will first discuss the phonetic results for the auditory data. Aerodynamic results will be discussed in a subsequent section. Because there are so few participants, I will begin by analyzing the data from each of the eight participants before identifying if any broader pattern can be discerned across the data.

4.2.1 Participant 1

Participant 1 is a woman born to Albanian parents in 2003 and grew up in the United States in northern Ohio. She maintains that her speech is similar to that of her grandparents, citing Albanian spoken in Pogradec on the eastern border of Albania, within the southern Tosk speaking region.

The comparison of the duration of singleton nasals with those of nasal-stop sequences in Participant 1 can be found in Figure 7. The black solid line represents the participant's mean duration for singleton nasals. The black dashed line represents their mean duration for nasals in nasal-stop sequences (NT1). The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status.

In Participant 1's speech, NT type nasal segments are longer than singleton nasals, and have a duration roughly halfway between those of the vowels and singleton nasals. By position, this lengthening effect on NT1s is strongest in word initial position, while in the medial position singletons and NT1s are more similar in duration and have more duration overlap in the collected forms than those produced word initially. This would indicate that the word initial position yields a more dramatic contrast. Due to the distribution of the data, this appears to be achieved by constraining the durations available to the nasal, rather than the NT1, which remains relatively the same between the positions. This indicates that for Participant 1, the NT1 and N are equivalent in medial position due to their similar durational behavior. This means the medially, NT1 is likely a constituent of a nasal-stop cluster. Word initially, the NT1 is afforded a longer and more variable duration. The lower end of this range would suggest a partially-nasal single-segment, and the upper end of the range where the NT1 is near or in excess of the average vocalic duration indicates potential syllabification.

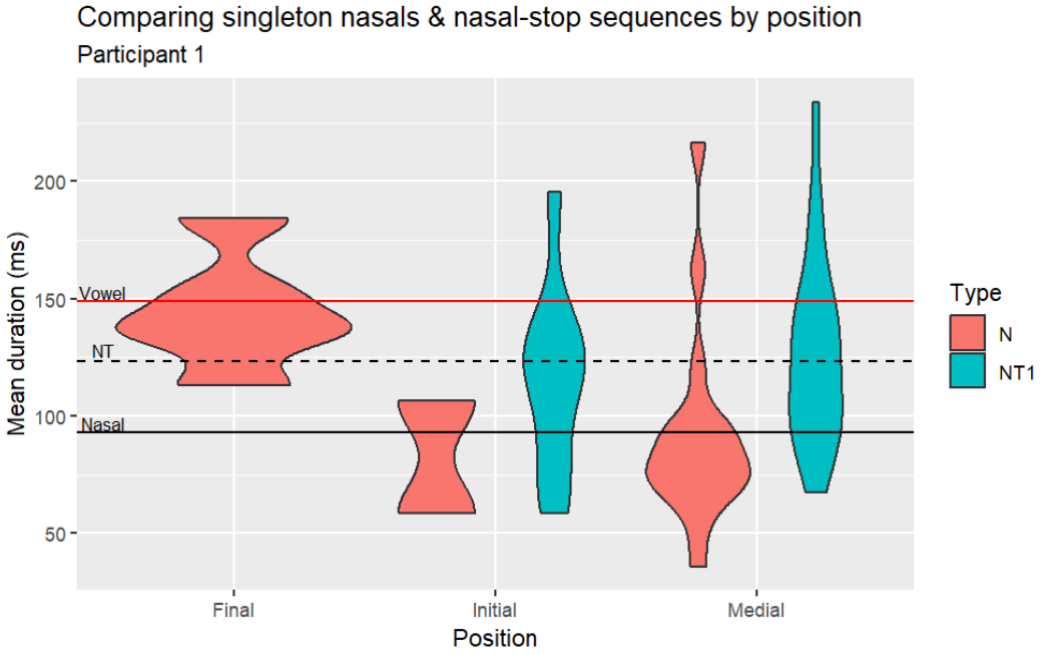

Figure 7 Durations of nasal segments for Participant 1

Splitting the NT1 data by the two tasks (Figure 8), we find that Participant 1's home dialect, as elicited in the translation task (indicated by TM in the chart) is much shorter word initially than medially, whereas when she is speaking Standard Albanian (PM), the durations are longer, but between the two lexical environments they are essentially equivalent.

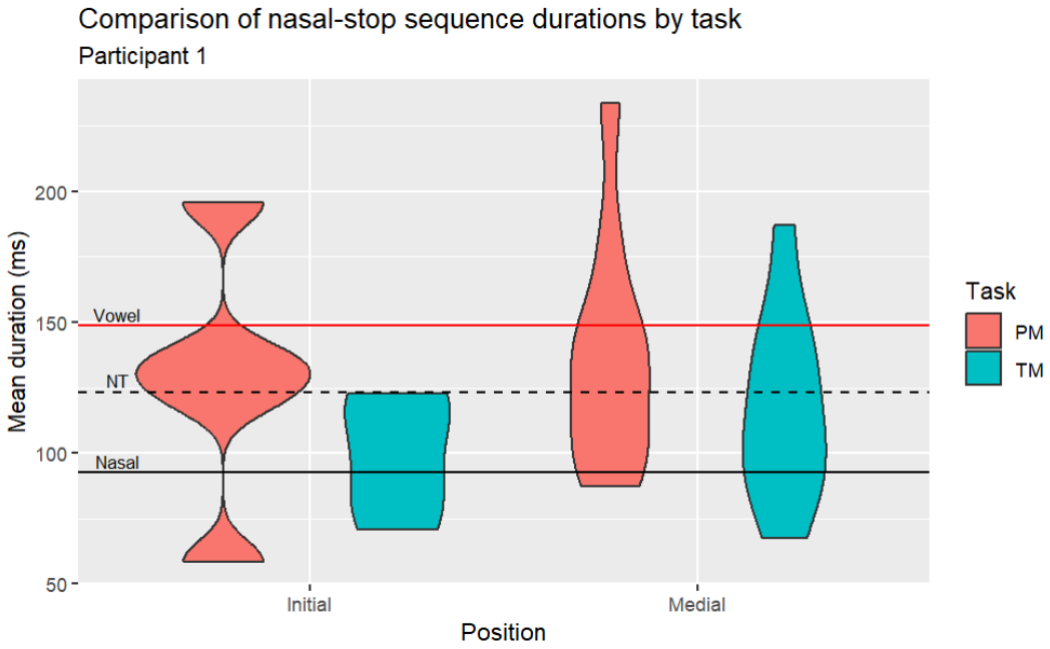

Figure 8 Duration of nasal-stop sequences by task for Participant 1

4.2.2 Participant 2

Participant 2 is a woman born to Albanian parents in 1994 and grew up in Lezhë Albania and Athens Greece. At the time of data collection, she lived in Columbus Ohio. She maintains that her speech is similar to that of her parents and identified herself as a Gheg speaker.

The comparison of the duration of singleton nasals with those of nasal-stop sequences in Participant 2 can be found in Figure 9. The black solid line represents the participant's mean duration for singleton nasals (N). The black dashed line represents their mean duration for nasals in nasal-stop sequences (NT1). The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status. One characteristic of Participant 2's speech consistent with the Gheg dialect was that in many places where in Standard Albanian one would expect to find a nasal-stop sequence, she has only a singleton nasal. These singletons that correspond to Standard Albanian nasal-stop sequences are recorded separately from other singletons as NTN (a nasal-stop sequence realized as a singleton nasal).

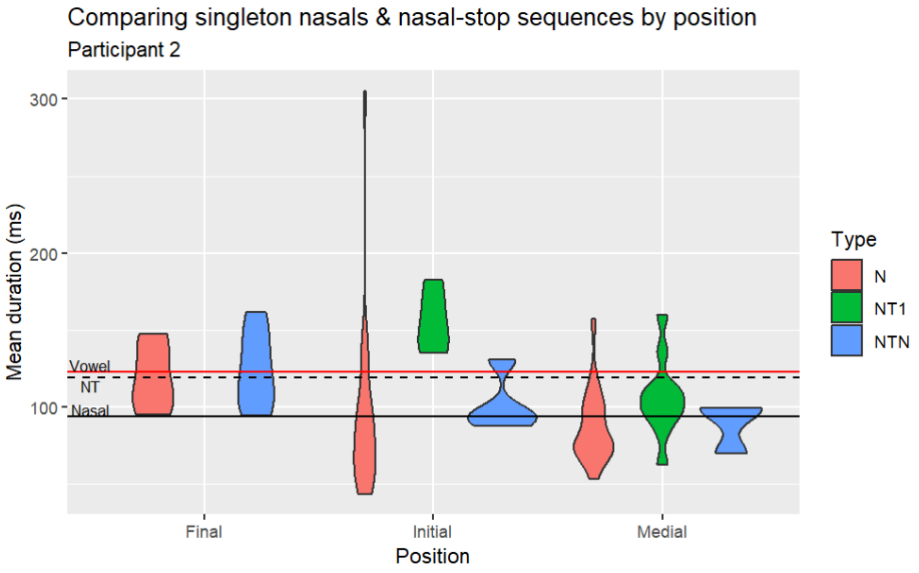

Figure 9 Durations of nasal segments for Participant 2

Examining the data, NTNs have comparable durations to singleton nasals (N), suggesting that they are produced and behave the same as singleton nasals. The nasal-stop sequences that are preserved, however, have very different durational behavior. The nasal portion of a nasal-stop sequence (NT1) is comparable to the nasals and NTNs word medially, suggesting that they are all complete nasal segments. However, word-initially the NT1s become longer than the other nasal types, exceeding the duration of an average vowel. This suggests strongly that for Participant 2, word initial nasal-stop sequences are syllabified as two discrete nasal and stop segments. Word-finally, the nasal-stop sequences disappear altogether, with all NT1s becoming expressed as singleton nasals (NTN), which are again, comparable to traditional nasals.

As a Gheg speaker, Participant 2 has two treatments for nasal-stop sequences: When preserved as nasal-stop sequences, NT1 lengthens word initially and is syllabified as two segments. Word medially it is also split into two segments, where the nasal portion is realized as a singleton nasal serving as the coda of syllable one, and the stop serving as the onset of syllable two. Obligatorily, in word final position even a nasal-stop sequence that is preserved elsewhere is simplified into a singleton nasal. When the nasal-stop sequence is not preserved, it is simplified into a singleton nasal, with durations and behavior equivalent to those of other singleton nasals.

Comparing the NT1 durations between the different translation task and the production task, we find that Participant 2 did not use word initial nasal-stop sequence forms in her home dialect, as elicited by the translation task, where they only appear word medially. In Participant 2's Standard Albanian, as elicited by the production task, the nasal-stop sequences occasionally appear word initially, and in excess of the mean vowel duration. Participant 2 therefore seems to equate the word initial nasal-stop sequences with Standard Albanian, where she syllabifies them into two segments as described above.

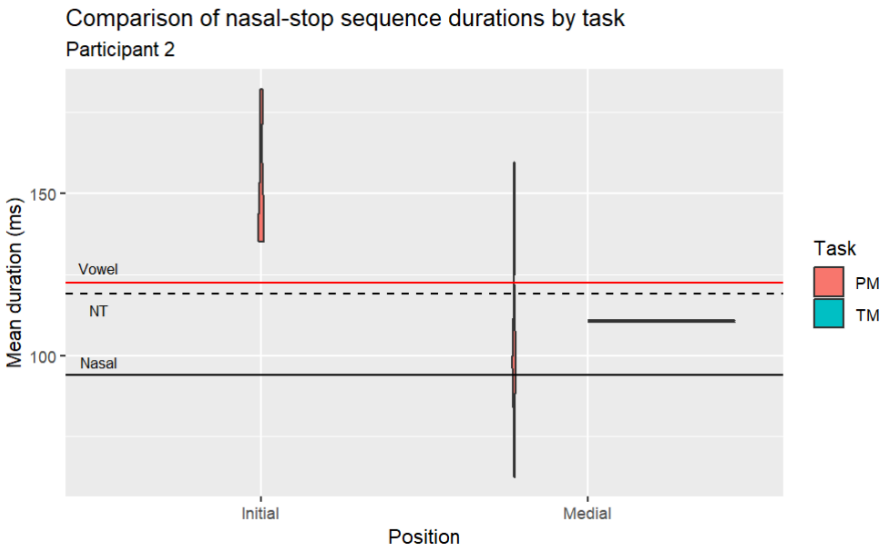

Figure 10 Duration of nasal-stop sequences by task for Participant 2

4.2.3 Participant 3

Participant 3 is a woman born to Albanian parents in 2004 and grew up in west central Albania in the coastal city of Durrës. At the time of data collection, her home was in Cincinnati Ohio, but she currently resides in Columbus Ohio. She maintains that she sounds like other speakers of Albanian from Durrës. She identified herself as a Tosk speaker.

The comparison of the duration of singleton nasals with those of nasal-stop sequences in Participant 3 can be found in Figure 11. The black solid line represents the participant's mean duration for singleton nasals (N). The black dashed line represents their mean duration for nasals in nasal-stop sequences (NT1). The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status.

The duration of Participant 3's NT1s is generally comparable to that of singleton nasals, although the NT1s do trend longer than nasals do in word initial position, and in excess of the average duration of vowels. Word initial NT1s are therefore likely syllabified, but the duration difference that this creates is much less pronounced than in some other speakers, as the duration of vowels, singleton nasals, and NT1s are similar.

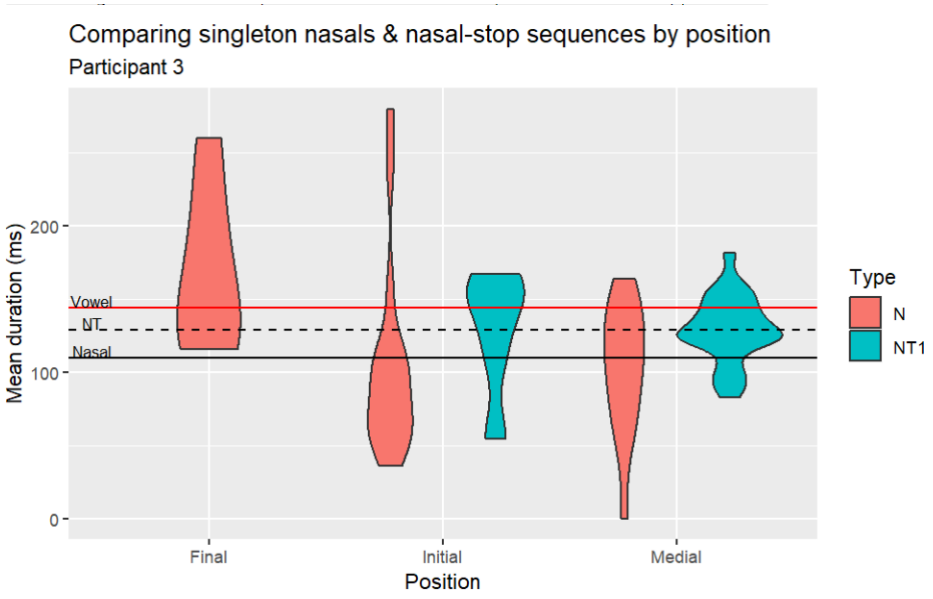

Figure 11 Durations of nasal segments for Participant 3

The duration of word medial NT1s produced by Participant 3 do not vary between the tasks. However, in the translation task she did not produce any nasal-stop sequences word initially, placing an indefinite *një* /ɲə/ in front of nouns and *të* /tə/ in front of verbs. In the presence of these forms preceding the nasal stop sequence such as in *të mbaj*, the sequence seemingly resyllabified so that that the nasal became a coda, and the stop the onset of the next syllable [təm.baj]. Only in the production task, when a bare word initial nasal-stop sequence was provided did Participant 3 produce them word initially. Their duration was comparable to those of medial nasal segments in both tasks, but with more occurring in excess of the duration of an average vowel. The distribution of these durations word initially was also much wider than those of the nasal stops. So while syllabification is the most common strategy employed by Participant 3 word initially, they can also be shortened far below the duration of an average nasal, suggesting that both single-segments and multiple segments are viable and even interchangeable productions for Participant 3.

Another interesting find is that, when examined by place of articulation (Figure 13), Participant 3 only produces bilabials in the word initial position, while the rest are rendered as singleton stops. In word final position, nasal-stop sequences are simplified into nasals. For this participant in particular, this is a potential case for an ongoing transition of the word initial partially-nasal consonants where the nasal segment is disappearing.

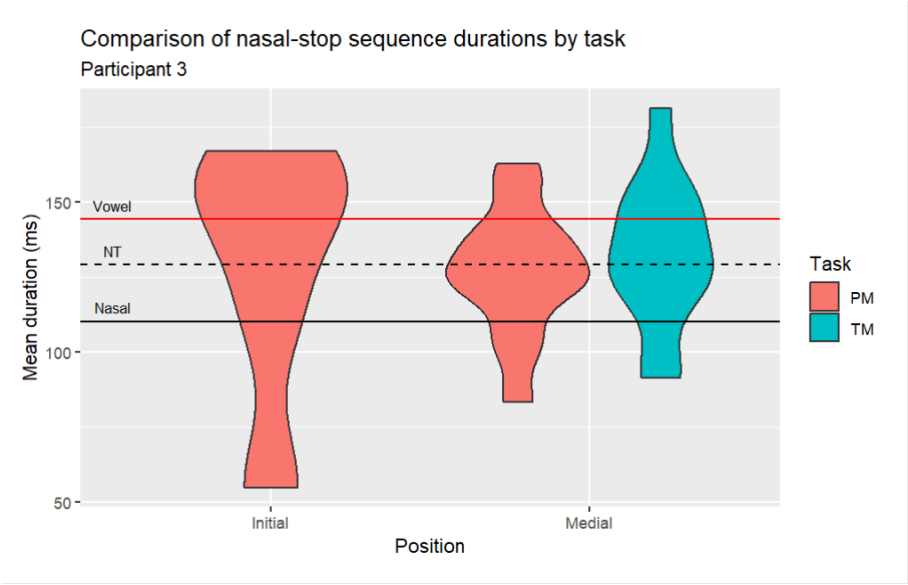

Figure 12 Duration of nasal-stop sequences by task for Participant 3

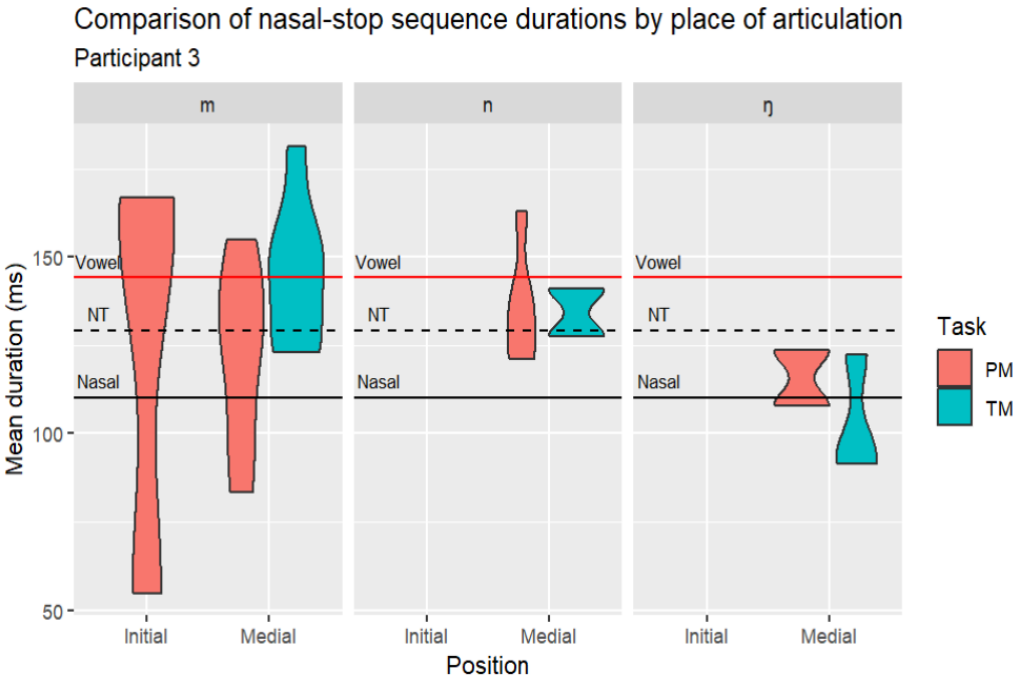

Figure 13 Duration of nasal-stop sequences by task compared by place of articulation for Participant 3

Aside from the lack of word initial nasal-stop sequences in the translation task, there appears to be no appreciable variation between the two tasks, indicating that Participant 3 believes she speaks Standard Albanian. Whether or not the lack of word

initial nasal-stop sequences in her home dialect stems from a dispreference for them or solely as an effect of task design cannot be determined from these data.

4.2.4 Participant 4

Participant 4 is a woman born to Albanian parents in 2003 and grew up in Tirana. At the time of data collection, her home was near Cleveland in northern Ohio, but she currently resides in Columbus Ohio. She maintains that she sounds like other speakers of Albanian from Tirana. She identified herself as a Tosk speaker.

The comparison of the duration of singleton nasals with those of nasal-stop sequences in Participant 4 can be found in Figure 14. The black solid line represents the participant's mean duration for singleton nasals (N). The black dashed line represents their mean duration for nasals in nasal-stop sequences (NT1). The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status.

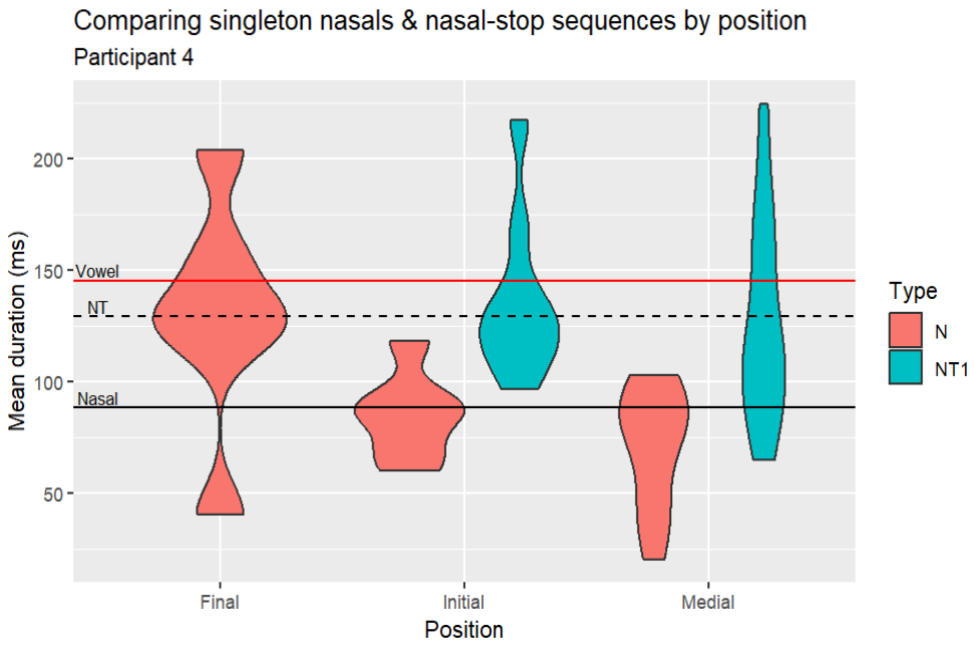

Figure 14 Durations of nasal segments for Participant 4

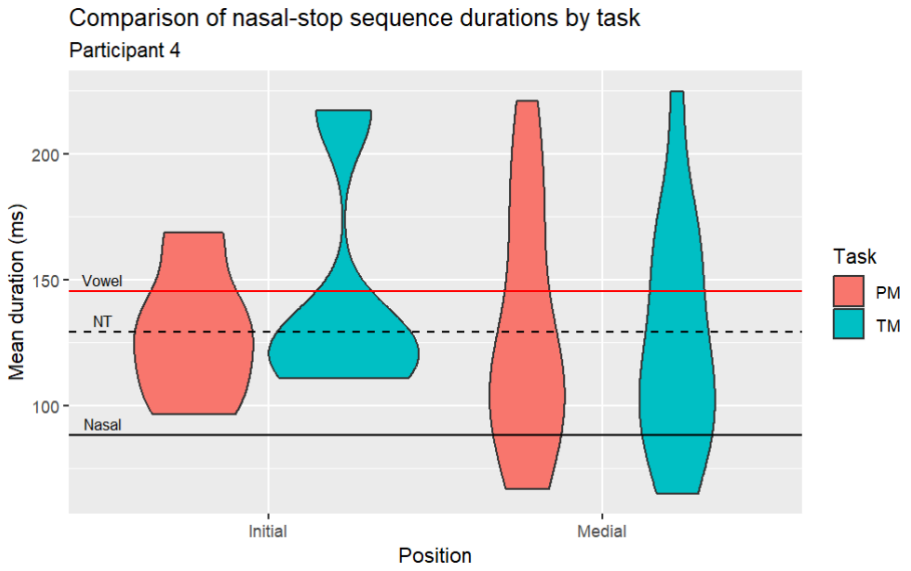

Figure 15 Comparison of nasal-stop sequence durations by task for Participant 4

Like Participants 2 and 3, Participant 4's word final nasal-stop sequences are all rendered as singleton nasals. In both word initial and medial positions, the NT1s are longer than the singleton nasals. NT1 durations word initially and medially, however, are comparable. When examined by task, word initial NT1s are more likely to be closer to vowel-like durations than those found medially, but both positions are widely distributed. In her home dialect as elicited by the translation task however, the longer, more syllabic durations appear more common and therefore more licensed for #NT1 than in Standard Albanian, potentially indicating some knowledge that Standard Albanian has shorter forms. Word medial NT1s are unaffected by task.

4.2.5 Participant 5

Participant 5 is a woman born to Albanian parents in 2003 and grew up in Cleveland Ohio. At the time of data collection, she resides in Columbus Ohio. She maintains that she sounds like the Albanian speaking community in Cleveland. She identified herself as a speaker of southern Albanian.

The comparison of the duration of singleton nasals with those of nasal-stop sequences in Participant 5 can be found in Figure 16. The black solid line represents the participant's mean duration for singleton nasals (N). The black dashed line represents their mean duration for nasals in nasal-stop sequences (NT1). The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status.

Like Participants 2, 3 and 4, Participant 5 realizes all word final nasal-stop sequences as nasals, and also simplifies some medial sequences into singleton nasals (NTN). The nasal segments in the nasal-stop sequences that are produced are longer than the average nasal word initially, but do not exceed the ranges possible for other word initial nasals, with singleton nasals having a much wider distribution of available durations. The majority of these NT1s however, are closer to the length of an average singleton nasal rather than her average vowel. Again, it appears that NT1s are licensed to be longer than nasals, and can syllabify, but tend to be more singleton like.

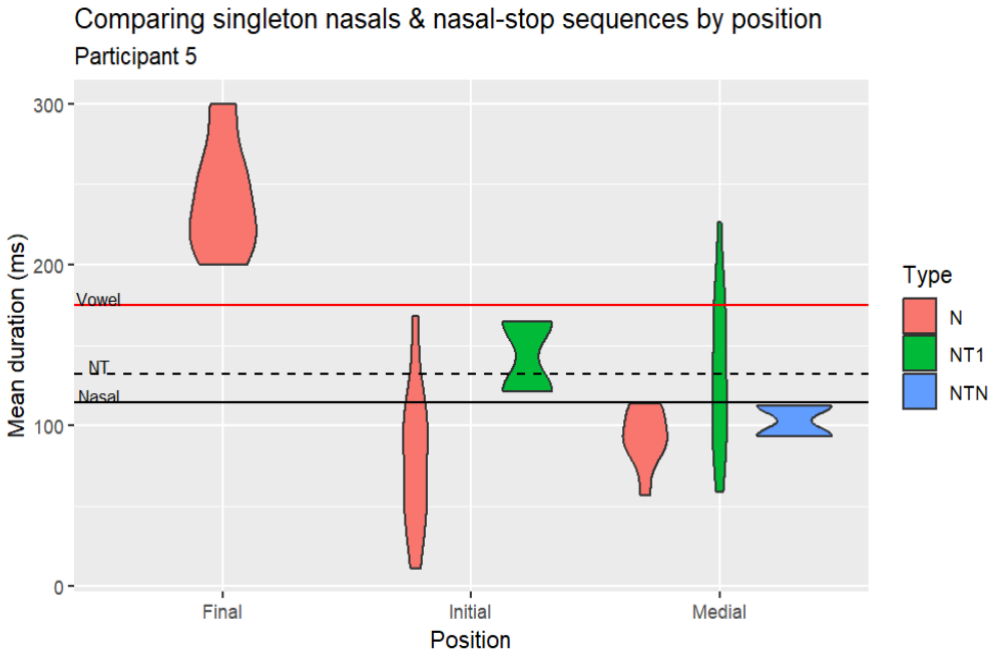

Figure 16 Durations of nasal segments for Participant 5

Also, like Participant 3, Participant 5 preluded nouns and verbs in the translation task with *një* and *të*, rendering it impossible to extract word initial NT1 data for her home dialect. For medials however, the duration of NT1s increased in the production task. This could either mean that Participant 5 believes that Standard Albanian NT1s are longer than her own dialect, or that she believes her own dialect is Standard Albanian, and the lengthening is due to careful speech effects produced by the task. In either scenario, there is little durational difference between the two task types. Word initial NT1s therefore average closer to nasal duration, meaning that a partially-nasal single-segment is more likely than a syllabified cluster, even if both types are possible.

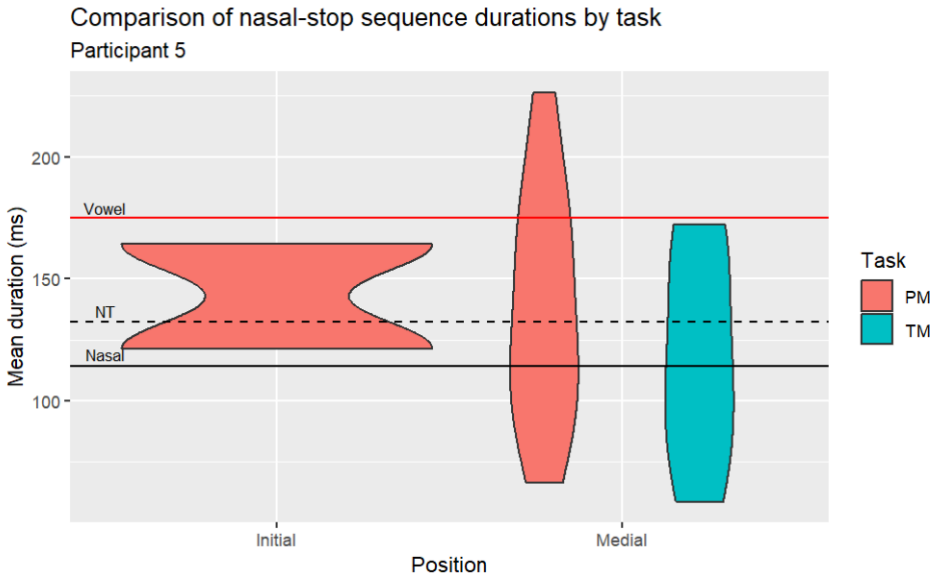

Figure 17 Comparison of nasal-stop sequence durations by task for Participant 5

4.2.6 Participant 6

Participant 6 is a woman born to Albanians from the southwest of Albania and grew up in Cleveland Ohio and is currently residing in Columbus Ohio. She maintains that she sounds like the Albanian speaking community in Cleveland. She identified herself as a speaker of southern Albanian.

The comparison of the duration of singleton nasals with those of nasal-stop sequences in Participant 6 can be found in Figure 18. The black solid line represents the participant's mean duration for singleton nasals (N). The black dashed line represents their mean duration for nasals in nasal-stop sequences (NT1). The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status.

Like participants 2, 3, 4 and 5, Participant 6 simplifies word final nasal-stop sequences into nasals. Unlike any of the other participants, she does not have any instances of word initial nasal-stop sequences in either of the tasks, opting instead to render them all as singleton voiced stops. The nasal-stop sequences, which are only produced word medially, have a nasal portion (NT1) comparable in duration to medial singleton nasals, implying that they are clusters composed of discrete nasal and oral segments. Word final nasals typically have the longest durations, but both initial and medial nasals have wide distributions with members who are longer than their word final counterparts. The average durations for her vowels are relatively short compared to the other participants and is much more comparable to the nasals segments. The production

task eliciting Standard Albanian does seem to have some lengthening effect on the word medial NT1s, but only in outlying cases. It is again, difficult to determine if this is due to some perception that the nasals in Standard Albanian are longer, or if this is just a careful speech effect due to the list reading nature of the task.

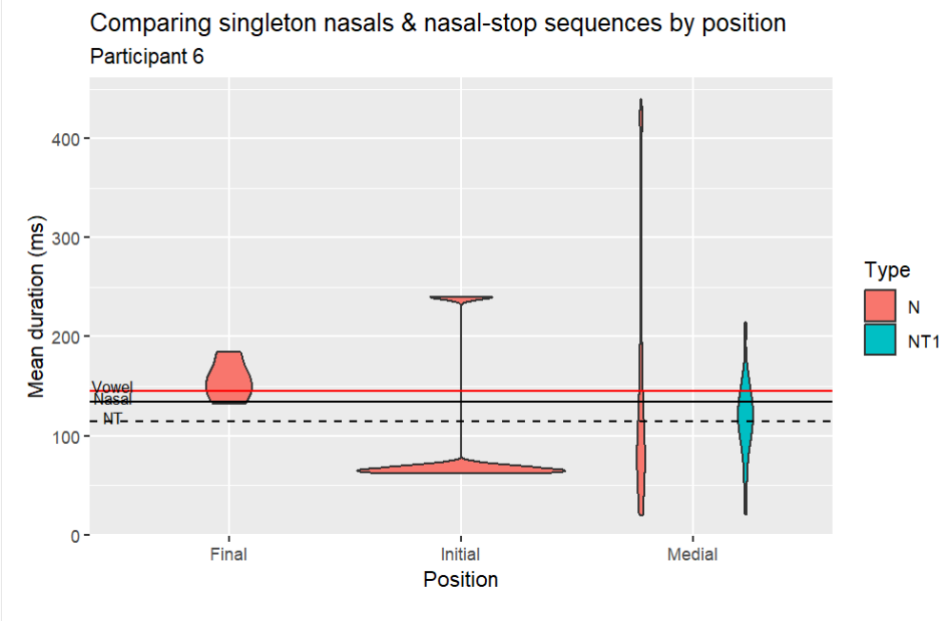

Figure 18 Durations of nasal segments for Participant 6

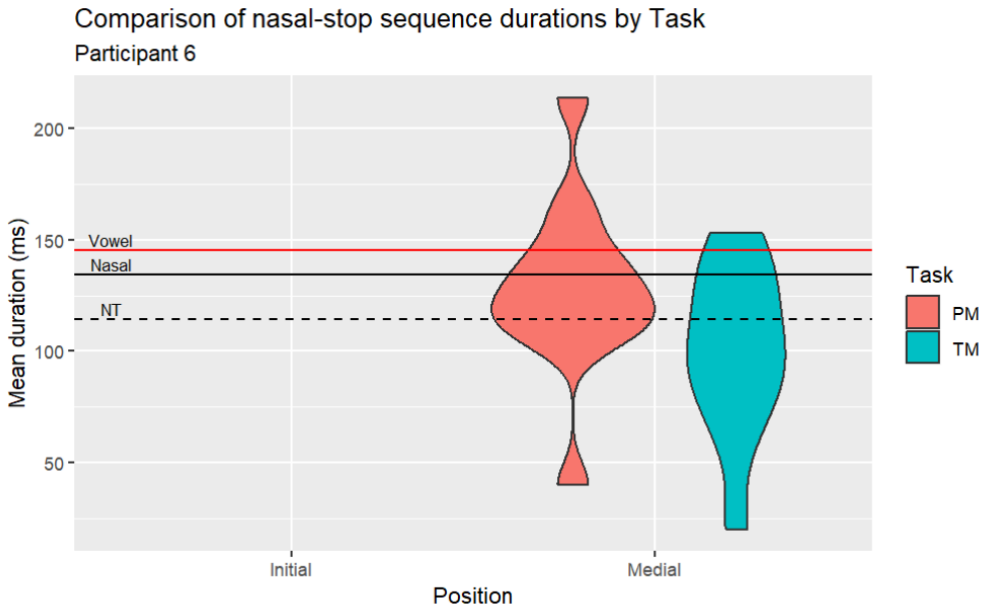

Figure 19 Comparison of nasal-stop sequence durations by task for Participant 6

4.2.7 Participant 7

Participant 7 is a woman born to Kosovar parents in 1987 and grew up in Gjakova Kosovo near the Albanian/Kosovo border. She maintains that she sounds like the other Albanian speakers in Gjakova. She identified herself as a Gheg speaker.

The comparison of the duration of singleton nasals with those of nasal-stop sequences in Participant 7 can be found in Figure 20. The black solid line represents the participant's mean duration for singleton nasals (N). The black dashed line represents their mean duration for nasals in nasal-stop sequences (NT1). The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status.

Like participants 2, 3, 4, 5 and 6, Participant 7 simplifies word final nasal-stop sequences into nasals. Also like the other Gheg speaker, Participant 2, some of the word initial and word medial nasal-stop sequences were realized as singleton nasals (NTN) that were comparable to duration and distribution of the singleton nasals (N). Where there are nasal-stop sequences, they are somewhat longer in duration than the singletons, but there is a lot of overlap between the two categories. Consistent with a lot of the other participants, it appears that it is possible but not obligatory to syllabify the nasal-stop sequences. There appears to be little or no effect from the tasks. Having lived outside of Albania where Standard Albanian is used as the official language, it is not unsurprising that Participant 7 does not alter her speech in the manner observed with the other participants.

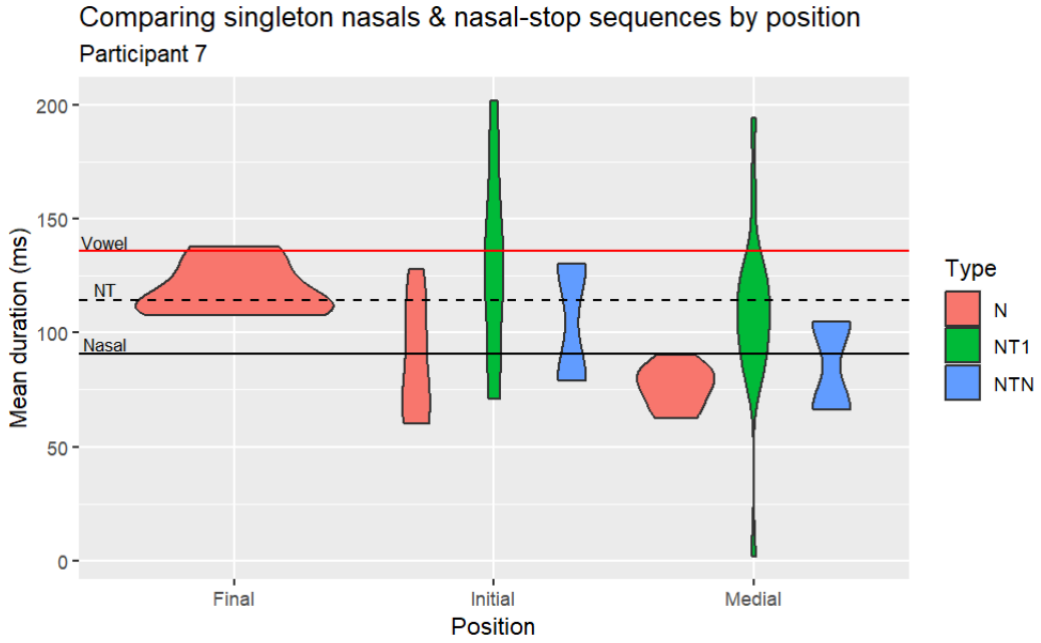

Figure 20 Durations of nasal segments for Participant 7

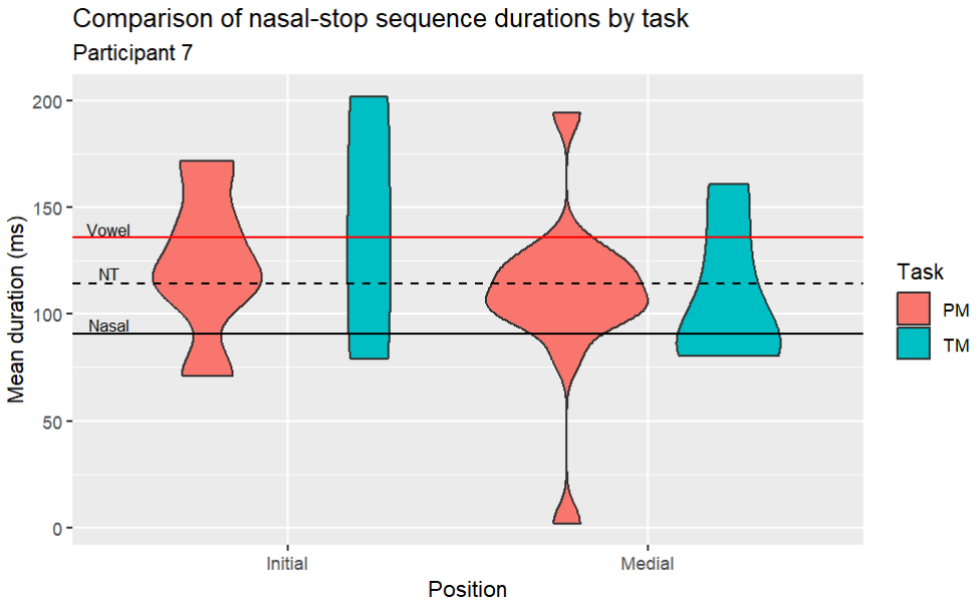

Figure 21 Comparison of nasal-stop sequence durations by task for Participant 7

4.2.8 Participant 8

Participant 8 is a man born to Albanian parents in 1991 and grew up in Elbasan Albania. At the time of data collection, he resided in Columbus Ohio. He maintains that he speaks like his parents, who are from Gramsh Albania. He identified himself as a Tosk speaker.

The comparison of the duration of singleton nasals with those of nasal-stop sequences in Participant 8 can be found in Figure 22. The black solid line represents the participant's mean duration for singleton nasals (N). The black dashed line represents their mean duration for nasals in nasal-stop sequences (NT1). The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status.

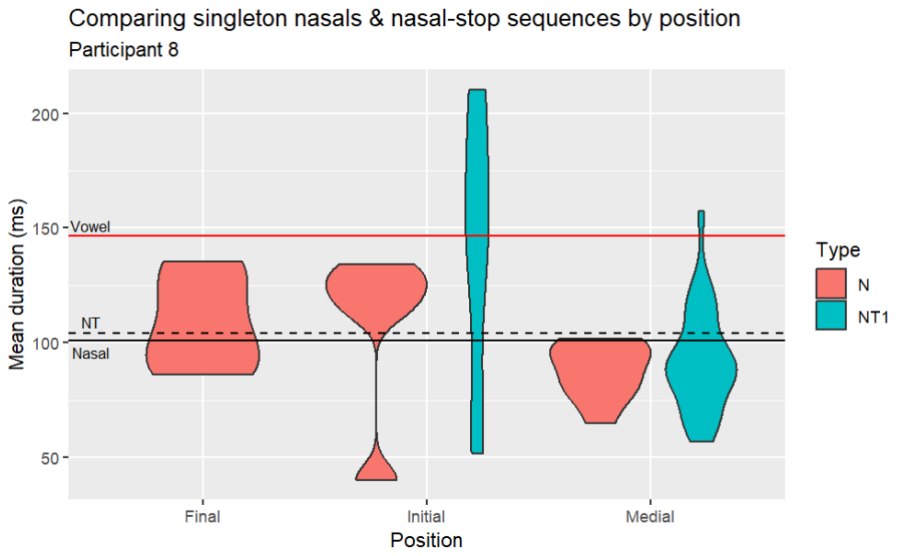

Figure 22 Durations of nasal segments for Participant 8

Like all the previous participants, Participant 8 simplifies word final nasal-stop sequences into nasals. The only instance of <nd> in the production task was realized as a singleton stop /d/. Word initially, his NT1s trend longer in duration than singleton nasals in excess of his average vowel duration, but both have wide distributions. The same is true word medially but to a lesser extent, and usually not in excess of the average vowel duration. Word medial nasal-stop sequences are therefore most likely clusters, while word initially nasal-stop sequences can be either partially-nasal single-segments or syllabified.

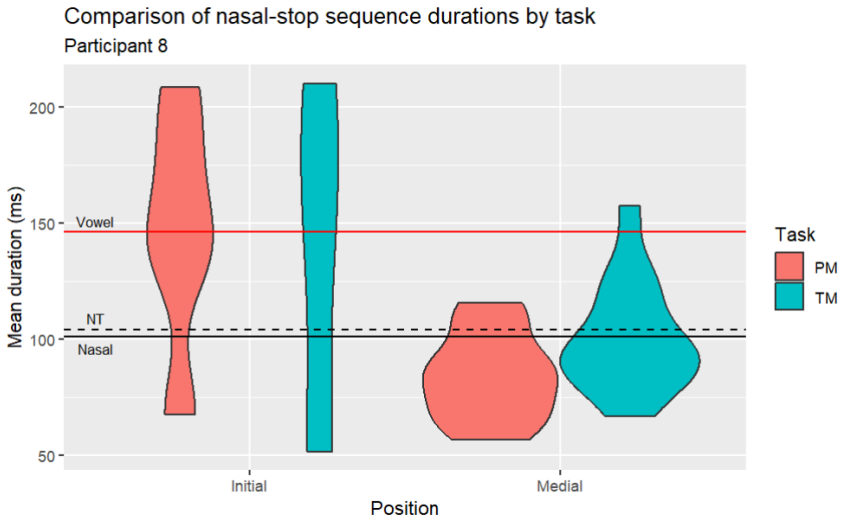

Figure 23 Comparison of nasal-stop sequence durations by task for Participant 8

While the translation task does seem to lengthen some medial nasal-stop sequences, it has little effect on the duration of word initial NT1s. Because there is little change in duration between the tasks, at least in this regard Participant 8 likely believes he speaks Standard Albanian.

4.2.9 Dialect Analysis

The following data compares the results for Gheg (n = 2) and Tosk (n = 6) speakers. Because there are only two Gheg speaking participants and three times as many Tosk speakers, the results should be more reliable for Tosk. The comparison of the duration of singleton nasals with those of nasal-stop sequences between the dialects can be found in Figure 24. The solid red line represents their mean duration for vowels. The vowel duration represents the syllabic threshold, i.e. the closer a nasal segment is to the mean vowel duration, the more likely it is that that segment has syllabic status.

When using Standard Albanian, represented by the production task (PM), Gheg and Tosk are generally comparable. Tosk does, however, trend longer on average than Gheg. The opposite is true for either dialect as elicited in the translation task (TM). All the forms in the translation task except for the nasal portions of nasal-stop sequences are shorter in the translation task than in the production task. Overall, this indicates either that there exists production knowledge that Standard Albanian is longer or more enunciated, or that this lengthening is due to the careful speech evoked by the list reading in the production task. I suspect that it is both, and that either explanation is both equally likely and informative. While a complete discussion of social perceptions of Standard Albanian can be found in sections 5.2 and 5.3, Standard Albanian is considered the standard language because it is the official language of both education and governance. Part of why the translation task was necessary is that when many Albanian speakers encounter written Albanian, by their education they are trained to read it aloud in Standard. While there may be some careful speech due to the list reading in the production task, this aligns with the careful speech likely associated with Standard Albanian. These longer durations in the production task therefore are to be expected, because that data set represents the Albanian understanding of a standard language found in social structures like education. The similarity in the Gheg and Tosk durations in the production task are likewise to be expected, because for the most part, they are emulating the same spoken “idealized” form as a product of their education. This is less likely for the participants who did not grow up in Albania, but as noted in their individual results, they tend to either render their segments long or short universally, regardless of the task, which is also as expected from those who acquired their language outside of the education system that shaped the other participants.

In the translation task, however, Gheg is more likely to have longer forms than Tosk, particularly in word initial nasal-stop sequences. Notably, these word initial sequences are associated most strongly and proposed to have originated in Tosk. As seen in the individual results, in many participants these sequences have freedom to either exist as a shorter or longer segment, likely corresponding to a single partially-nasal

segment and/or two segments where the nasal portion has syllabified. The syllabification strategy is available but often not preferred in some participants, such as Participant 8, who is notably older than the other Tosk speakers. Gheg does not have this optionality, and likely did not originally have these sequences, opting instead to render them as singleton nasals somewhere in the history of Gheg. These are seen in Figure 24 as NTN. Those that have not syllabified then need to still fit within Gheg phonotactics, which does not allow for partially-nasal segments. Therefore, the syllabification strategy is much more attractive when word initial nasal-stop sequences need be produced at all, making them trend longer than in Tosk where the single-segment strategy is viable and maybe even preferred.

Figure 24 Comparison of Gheg & Tosk nasal segments by type and task

Note though, that in both dialects and in both tasks, the NT1s are longer than the singleton nasals, even if they are generally comparable in duration. Focusing in on the nasal-stop sequences, in Figure 25, the same pattern can be seen. When speaking Standard Albanian in the production task, Gheg speakers have comparable but somewhat shorter durations to Tosk speakers, with the effect more pronounced in the medial position. In the translation task, Gheg word initial NT1s are again longer than Tosk, emphasizing that Gheg speakers likely must syllabify as two segments while the Tosk speakers trend closer to single-segmental duration.

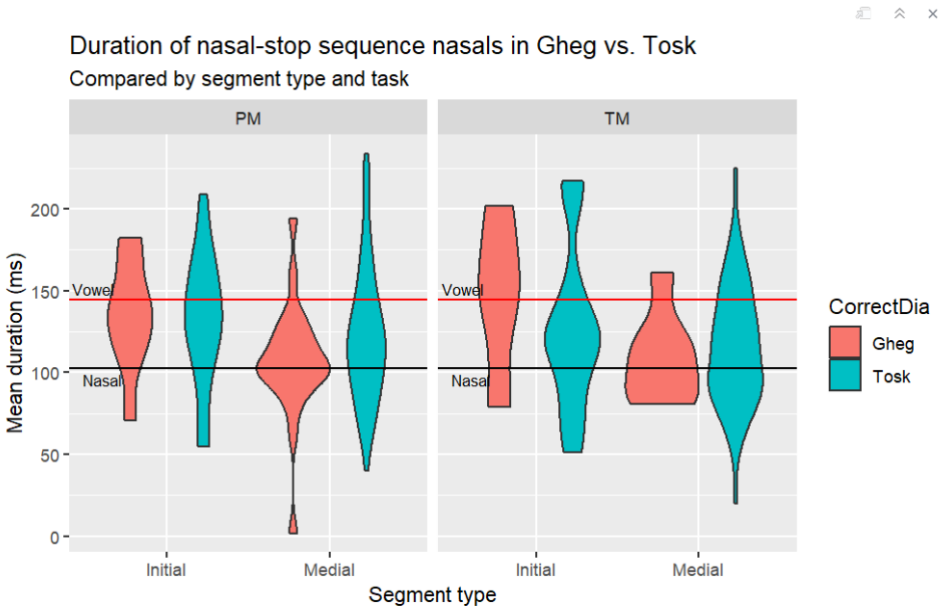

Figure 25 Comparison of Gheg & Tosk nasal-stop sequences

4.2.10 Aerodynamic Results in three case studies

The durational data reviewed in 4.2.1-4.2.9 can inform analysis on only two aspects of nasal-stop sequences: the duration of the segments and the duration of these segments relative to the duration of other segments. A lot can be inferred from this data. We can draw general categories: segment durations in excess of the average vowel are more likely to be syllabified; segments shorter than the average vowel, particularly those that are also shorter in duration of the average nasal are more likely to be single-segments and therefore some type of partially-nasal segment. Importantly however, this analysis alone cannot in any way definitively diagnose the segmental status of the target, and we should reasonably doubt that any such surefire diagnosis exists. Duration can only begin to sort data into apparent categories for further investigation, hence why I have consistently referred to the segmental statuses obtained by my results as trending one way or another in terms of likelihoods. A nasal segment longer than an average vowel segment is not some inviolate index of syllable-hood. Any more definitive description must be supplemented with other types of analysis and an understanding of speaker variability.

In this section, I will provide one additional layer of analysis with descriptions of my aerodynamic data. These descriptions will be qualitative, with the groundwork for more quantitative approaches already laid for future work with these data. The descriptions will include potential acoustic correlates such as the intensity of airflow, the timing and intensity of the nasal formant/murmur, and the timing and intensity of voicing to infer the relative timing of the nasal/velar gesture compared to the oral gesture. While the oral gesture in ND sequences can be identified at the location of the release burst of the stop, the aforementioned acoustic cues in conjunction are necessary for identifying

the nasal/velar gesture since I am unable to observe the velopharyngeal aperture directly. For future research, direct observation is recommended in addition to these other acoustic cues using velotrace or the device described in McGowan et al. 2019 (Horiguchi & Bell-Berti, 1987; McGowan et al., 2019). Together, these cues combined with the durational data will increase my proposed likelihood that a segment is composed of one or two segments. These data will additionally select from the list of partially-nasal segments described by previous research, with the caveat that segmental status is still only within the realm of educated conjecture without the accompaniment of perceptual data.

To concisely illustrate the variability of Albanian nasal-stop sequences and how they relate to the theoretical framework outlined in Section 2, I will present two examples from Participant 8, and an additional example from Participant 3 as representations of two types of Tosk Albanian speakers. I will then demonstrate how these findings fail to fit neatly into the framework of previous research.

As mentioned in 4.2.8, Participant 8 was born in 1991, making him the oldest Tosk speaking participant and the only participant who identified himself as male. He is from Elbasan, which has had significant influence on the development of Standard Albanian, having historically been considered a confluence point of the Gheg and Tosk dialects (Kryeziu, 2018). This association with both Tosk and Standard Albanian makes him an interesting candidate, being hypothetically representative of an idealized Standard Albanian speaker. While the examples are from the Production Task, his data had very little effect from the tasks, as he likely believes that he speaks Standard Albanian and therefore made little to no accommodation for it during the Production Task. In Figure (26), we see the front half of the aerodynamic and spectrographic data for *mbështjell* 'surround, envelop, wrap, coil.' A description of segmental durations and distribution of nasal-stop sequence features described in Section 2 can be found in Table 3.

Table 3 Acoustic data and features of Participant 8's Production Task *mbështjell*

Segment Dur. (ms)	Word Dur. (ms)	% Word Dur.	Mean Vowel Dur. (ms)	Mean Nasal Dur. (ms)	Attenuated Nasal	Gestural Alignment	Short-ened Nasal	Length-ened Oral	Oral Burst
58	668	8.7	151	96	+	-	+	?	+

Note that it is difficult at this level of analysis to determine if the oral portion has lengthened. If only measuring at the burst, then the length is comparable to that of a singleton stop and therefore not lengthened. If we count any section of the nasal that is without the nasal murmur, then in all of these instances the oral portion is lengthened.

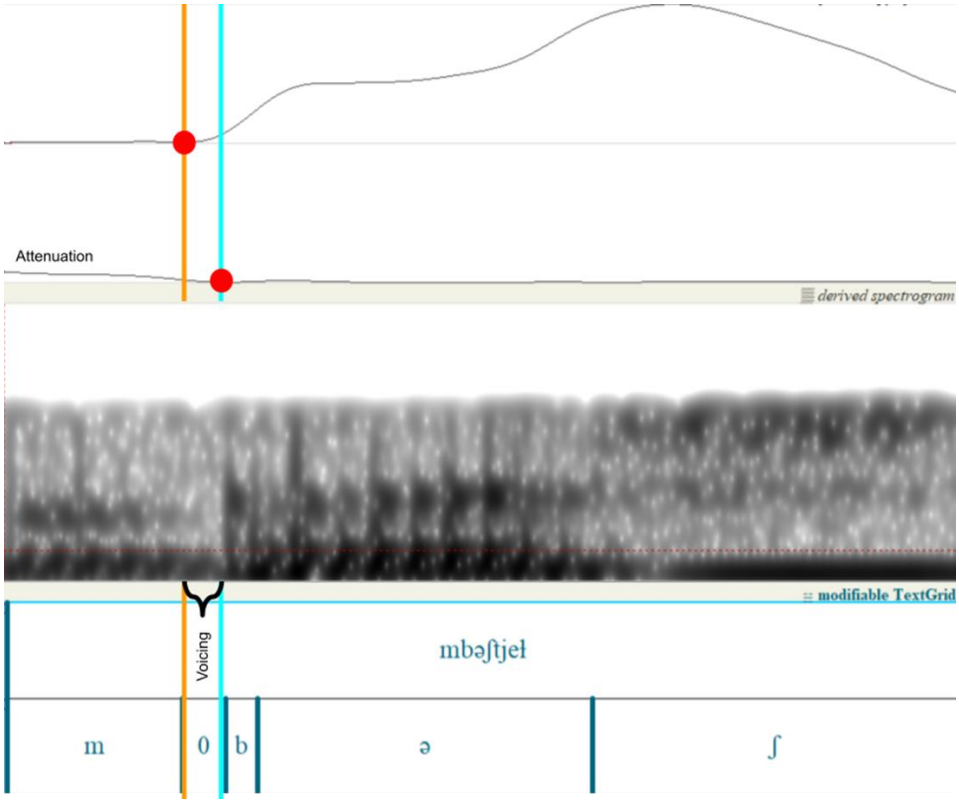

Figure 26 Spectrographic & Aerodynamic data for Participant 8's Production Task *mbështjell*

In Figure 26, nasal airflow is attenuated, and the nasal murmur stops well before the oral release burst, generating a sizable gap between the two gestures filled only with voicing, suggesting misalignment. When combined with the nasal segment being shorter than both Participant 8's average vowel and nasal duration, this misalignment strongly suggests a partially-nasal single-segment, and with the combination of features described above, it is one of the types of prenasalized consonants, the exact variety depending on whether or not the oral portion is lengthened. There is some room for analysis that the gestures are simultaneous, given that oral airflow exceeds zero near the inferred nasal/velar gesture and nasal airflow does not cease until it is near the oral release burst. Under such an analysis, this segment would instead be a poststopped nasal, but I do not believe these gestures are aligned because the oral airflow is likely a product of oral lengthening (i.e. it is intruding on the nasal portion, not aligning with it) and the already weak nasal airflow after the cessation of the nasal murmur can be remaining pressure after velum closure. This nasal-stop sequence as produced by Participant 8 is therefore most likely a Type 2 Prenasalized Stop (Maddieson & Ladefoged, 1993).

However, in the same participant and in the same task, we find a very different realization of a nasal-stop sequence. As seen in Figure 27, while Participant 8's *mbaj* 'hold, carry' has the same bilabial sequence as *mbështjell*, it has drastically different features (Table 4). Nasal airflow is robust, with little to no attenuation. While the nasal

murmur becomes fainter closer to the oral gesture, it does appear to persist up to the release burst of the stop accompanied by voicing. The nasal/velar and oral gestures are much closer together, with increase of oral airflow nearly simultaneously coupled with decrease in nasal airflow up to the release burst, suggesting that these gestures are aligned. There is little to no evidence for a lengthened oral portion, whereas the nasal portion is nearly double the length of Participant 8's average nasal and vowel durations. This lengthened nasal, combined with the gestural alignment very strongly suggests a syllabified nasal-stop cluster, with the nasal serving as the nucleus/coda of the first syllable, and the stop serving as the onset of the next syllable.

Table 4 Acoustic data and features of Participant 8's Production Task *mbaj*

Segment Dur. (ms)	Word Dur. (ms)	% Word Dur.	Mean Vowel Dur. (ms)	Mean Nasal Dur. (ms)	Attenuated Nasal	Gestural Alignment	Short-ened Nasal	Length-ened Oral	Oral Burst
209	537	38.9	151	96	-	+	-	-	+

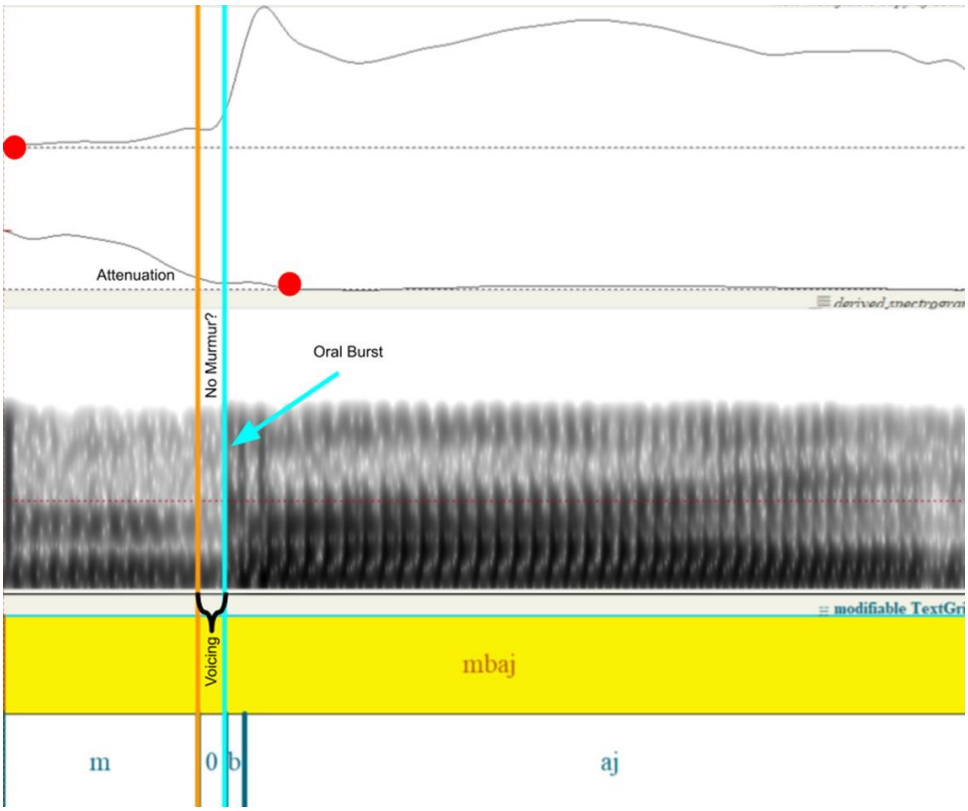

Figure 27 Spectrographic & Aerodynamic data for Participant 8's Production Task *mbaj*

This presents a single speaker with two separate realizations of nasal-stop sequences within just one variety of his speech. While it is possible that there is the potential for some phonological patterning where the three-segment[4] /mbaj/ lengthens towards average word duration whereas eight-segment /mbəʃtjeɬ/ shortens towards the same target, this still presents a scenario where there are two variants available to a speaker that are not phonologically contrastive. This already presents a challenge to any notion that these partially-nasal categories must be independent from another, or that a speaker must employ only one.

The nasal-stop sequence taxonomy presented in Section 2 only breaks down further upon inspection of *mbaj* as produced by Participant 3. As stated in Section 4.2.3, Participant 3 is a woman who was born in 2004 in Durrës, Albania. Her <mb> in *mbaj* is realized very differently from that of Participant 8. With the understanding that Participant 3 has a different age, gender, and local dialect (for example, her nasal and vowel durations are much more comparable to each other than those of Participant 8), her rendition of Standard Albanian does not use the same type of nasal-stop sequence.

Table 5 Acoustic data and features of Participant 3's Production Task mbaj

Segment Dur. (ms)	Word Dur. (ms)	% Word Dur.	Mean Vowel Dur. (ms)	Mean Nasal Dur. (ms)	Attenuated Nasal	Gestural Alignment	Short-ened Nasal	Length-ened Oral	Oral Burst
167	574	29.1	149	115	+	-	-	-	+

[4] If we count the diphthong /aj/ as one segment

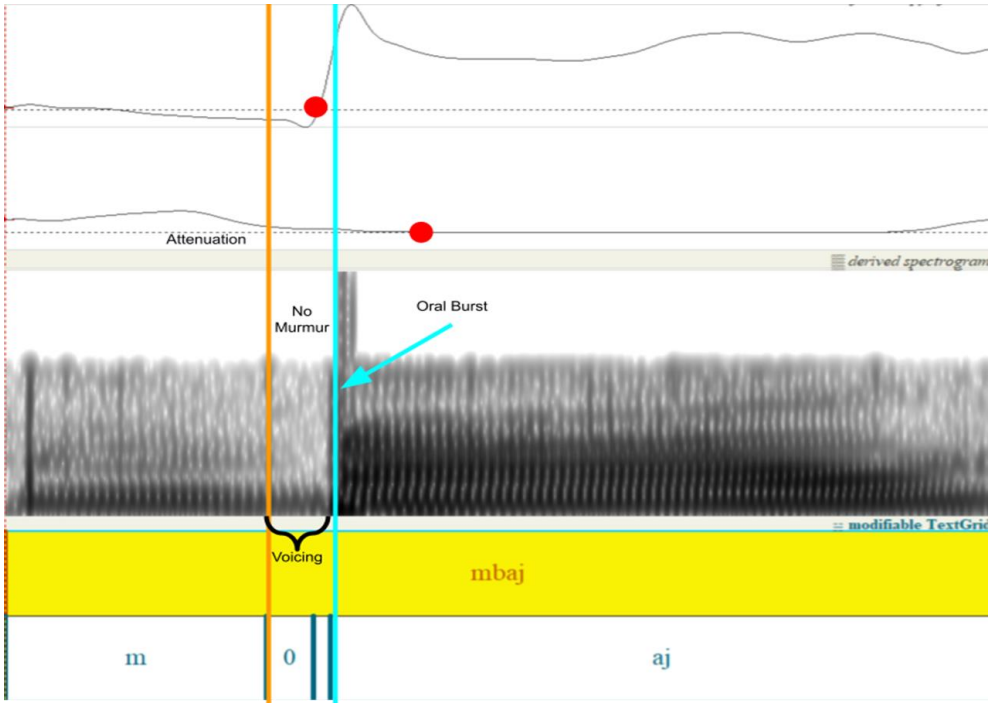

Figure 28 Spectrographic & Aerodynamic data for Participant 8's Production Task mbaj

The gap between the inferred velar/nasal and oral gestures is much wider than Participant 8's, and only contains voicing without the nasal murmur following lower nasal airflow. This suggests that the gestures are rather misaligned and would suggest that we are dealing with some type of partially-nasal single-segment; however, when we go to identify which segment, our taxa begin to break down. Initially, given the nasal lengthening present, this looks like a classic nasal-stop cluster, but the nasal is attenuated, and the gestures are misaligned. The same lack of gestural alignment likewise prevents this realization from being a model poststopped nasal. The nasal attenuation and gestural misalignment could signify an orally-released nasal, but this category is disqualified by the presence of an obvious release burst of the oral stop. This could be a prenasal, but there is no shortening of the nasal segment, and oral lengthening is debatable. At best, this is therefore a Type 2 Prenasalized Stop as described by Maddieson & Ladefoged 1993, which notably is not how Participant 8 realized *mbaj*, but more accurately resembles none of our pre-established categories of nasal-stop sequences perfectly.

This combination of not matching the realizations of other speakers of Tosk Albanian and the difficulty in placing this form among our partially-nasal taxa demonstrates a weakness within our taxonomy where it is unable to accommodate for variation both within speakers and across speakers. We are thus confronted with two choices: ignore phonetic variation at our peril or reevaluate what categories we have identified and how they are used in the world's languages. The second option is more scientifically responsible, especially considering that aside from Beddor & Onsuwan (2003), there is not any perceptual research available to test the viability of these categories among speakers throughout the world's languages.

4.2.11 Phonetic Discussion & Conclusions

The nasal-stop sequences in Albanian as observed here do not fit neatly into any existing description of these types of sounds. While it is possible that the observations made here were affected by the English-speaking context they were made in, this should only affect the data's potential capacity to represent the sound systems in the Albanian language. It should not inhibit the ability of extant theory to explain the observed phenomena if that theory is comprehensive. I have already problematized certain aspects of the field's phonetic and phonological treatments of nasal-stop sequences, and these findings in Albanian further highlight the gaps in our current understanding. In Albanian, we find that while the Gheg and Tosk dialects have some patterning to the length of nasals in these sequences, they are neither consistent within nor across the surveyed speakers, alternating between longer, more two-segmental syllabic forms and shorter, single-segmental partially-nasal forms. Overall, word-initial NT1s have greater license to lengthen than their medial counterparts, especially in Gheg, but have a wider distribution of acceptable forms in Tosk and a preference for more shortened, partially-nasal forms.

We run into problems when trying to analyze many of the longer sequences that had longer durations, especially those in the word initial position. Based on the taxa derived from previous literature, we expect to see that singleton nasals, stops, and clusters formed from those singletons should have synchronized or nearly synchronized velar and oral gestures. Outside of any additional phonological pressures, we would also expect that the duration of these cluster components would be comparable to solitary singletons and split across syllable boundaries (Figure 29a). Likewise, a partially-nasal sequence should have misaligned velar and oral gestures, have a shorter nasal portion duration, and remain intact across syllable boundaries (Figure 29b). Instead, in several of the participants we find a lengthened nasal portion that meets the threshold for syllabification in exceeding average vowel length (Figure 29c). There are gaps between the drop in nasal airflow and the oral release. Coupled with the continuation of voicing through the segment and no other indication that the pulmonic pressure is decaying, this strongly implies (albeit without direct observation) the completion of the velar gesture prior to oral release.

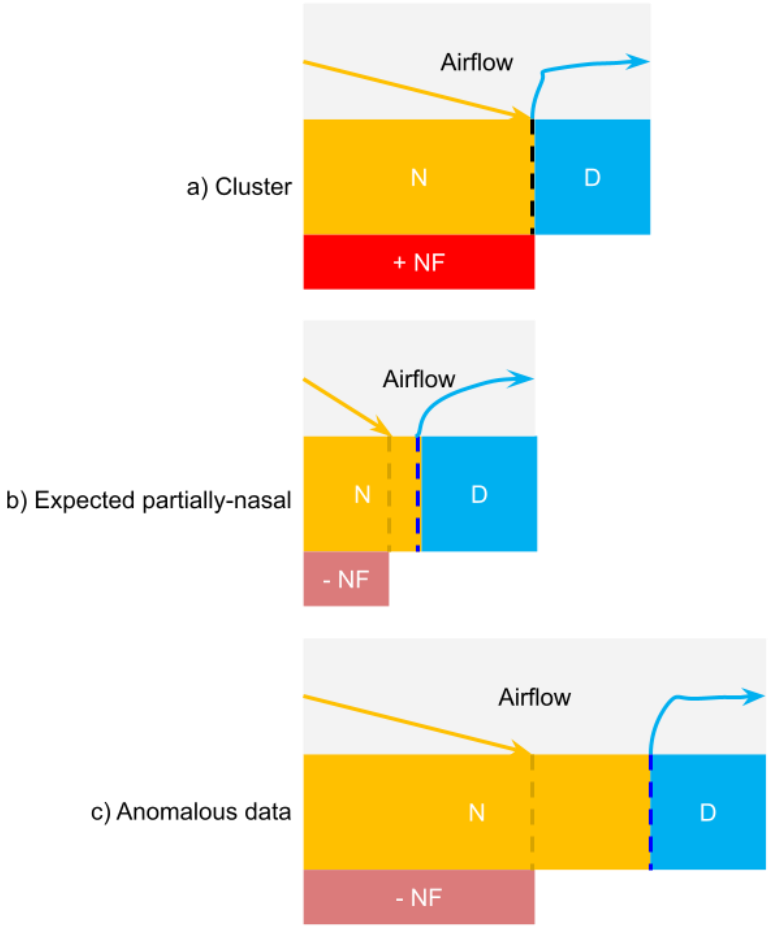

Figure 29 Expected realizations from the theoretical framework (a-b) vs. attested realizations (c)

This phenomenon is difficult to classify. Nasal attenuation is very clear with the closure of the velum. Along with the gestural mismatch, this fits the description of a partially-nasal segment. However, the maintenance of the oral burst means it cannot be an orally-released nasal, but the gestural mismatch also disqualifies it from being a classic poststopped nasal. This sequence moreover lengthens, rather than shortens the nasal gesture as would be expected for one type of prenasal. The other prenasal type, where the oral gesture is lengthened fits the best, but here we meet our final taxonomic problem: the nasals preceding this oral gap are still longer than an average nasal and show many indications of being syllabic. This is, of course, impossible to definitely determine without syllabification tests with Albanian speakers, but we nonetheless would observe a mismatch between the behavior of these sequences with the classifications provided by previous research. In this instance, what is likely a phonemic nasal-stop cluster is rendered into a prenasal-like construction, maintaining prenasal gestural timing and aerodynamics, but durationally behaving like a cluster. Two phonemic segments with single-segment gestural timing but two-segment duration and potentially two-segment syllabification. We cannot cleanly place this sequence into one category or the other.

Perhaps this demonstrates not only a weakness in our classifications, but also the line of questioning. When partially-nasal segments do not appear to be phonemic in a language like Albanian, perhaps it should not be surprising that there is a mixture of traits from partially-nasal sequences and clusters. The literature concerning partially-nasal segments is sorely lacking in perceptual work. As will be indicated in section 5, at large these variants do not appear to be phonologically contrastive in Albanian, but nonetheless can carry with them social meaning.

When examining the results across participants and dialects, the distribution of these variants suggests a sound system in transition. Depending on the dialect, the variation at play both reflects how these sounds have been used historically, and how they might be used moving forward. For example, Gheg has words corresponding to word initial nasal-stop sequence words in Tosk. Some of these words emerge as syllable-like clusters, others as singleton nasals, and yet others that are produced as singleton voiced stops. These stop variants are not uncommon in alveolar sequences in Participants 2, 5, and 8 (e.g. /ndaj/ → [daj]). Notably, these are three of the four oldest participants with perhaps some of the strongest ties to Albania. In the remaining speakers, word initial sequences more commonly appear as syllable-like clusters or singleton nasals, potentially indicating that emphasis is turning towards the nasal, especially in Standard Albanian.

Some previous researchers have speculated about the chronology of phonological changes that led to the current distribution of forms. Beddor & Onsuwan (2003) posited that prenasals could change into orally released nasals (5) based on Maddieson & Ladefoged (1993)'s statement that Acehnese dialects show a "close relationship between prenasalized stops and orally released nasals, and these types of sounds shade into each other" (Maddieson & Ladefoged, 1993:283). The same 1993 paper however also maintains that "[l]anguages such as Acehnese seem to indicate that precise control of phonologically nonsignificant aspects of articulatory timing can be required" (Ibid. 296-297), which seems to de-emphasizes the fluidity of these stages. Hu 2007 also proposes a chronology leading from Middle Chinese nasals to realizations as nasals, poststopped nasals, and prenasals in its daughter varieties, which I have adapted in (6). Note that (6) represents all the outcomes and may not be wholly linear where each step is obligatory as portrayed.

5) $^{N}D > N^{D}$

6) $N > N^{D[-burst]} > N^{D[+burst]} > {}^{N}D > *D$

While Beddor & Onsuwan (2003) and Hu (2007) potentially propose reversed chronologies transitioning between prenasalized consonants and post-oralized nasals, the directionality in either interpretation does not need to be contradictory to the other. As implied in Maddieson & Ladefoged (1993), there is likely a continuum between these

different gestural states. The degrees of freedom available within this continuum is unfortunately dependent on performing more perceptual research on a language-by-language basis, but future researchers should not be surprised if the distinction between many of these categories are phonologically or socially unimportant to the perceiver, and that the thresholds for importance will vary by language variety. In the meantime, we can imagine such a continuum, representing the perceptual gradients available for variation, social meaning, and change through phonologization. On one end of the continuum are the single-segment nasal and oral stops, and on the other, nasal-oral stop clusters. On either end, the constituents are discrete segments. It is between these states where we find our partially-nasal segments. I cannot attest their exact ordering on the continuum, if any such ordering exists, nor do I attest that categories are available to speakers or that they are the only categories available. The difficulty of classifying Albanian sequences alone should caution against such claims. However, in an idealized world that almost certainly does not exist (at least not with any broad consistency we can apply to other languages), we get the continuum found in Figure 30.[5]

Coming from the right, the classic poststopped nasal is closest to the two-segment cluster, sharing its synchronized velar and oral gestures with nasal and oral durations being mostly comparable to each other, even if some nasal attenuation is observed. The continuum then offers a choice on which of these portions to emphasize and which to sacrifice in order to obtain single-segment-like duration. This linguistic choice then presumably culminates into a complete reduction down to either a singleton nasal or a singleton oral stop. Likewise, the process can proceed with the opposite directionality, where a nasal can undergo oralization or a stop nasalization, presumably culminating in a cluster composed of two discrete nasal and oral segments arranged in a nasal-stop cluster.

Of course, no linguistic change is ever so clean. There is no guarantee that any given linguistic variety would use these categories, and the pressures driving a single-segment into two segments or two segments into single-segments may change intensity, shift groups, come under the purview of other phonological changes, and potentially dissipate entirely while only partway through the process. In many scenarios, linguistic change is strongly influenced by the perceiver (Beddor, 2009; Ohala et al., 1981).[6] There is no pervading force of directionality dictating that a variety must continue to move its forms along the provided continuum or enforce that what is perceived as one category or as ambiguous by one group will not be interpreted differently by another (Beddor, 2009). While the exact progression up and down these stages of the continuum (or any and all the stages in between) depends on the phonotactics and sociolinguistic movements of any given linguistic variety. Accepting this nuance, Figures 31 and 32 explore the available changes to a variety when reducing or expanding nasal segments.

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[5] Same as Figure 4

[6] These papers notably refer to different types of relationships between the sounds generated by the producer(s) and encoded by the perceiver(s), but both rely on the perceptions of language users, and both likely have their place in engendering sound change.

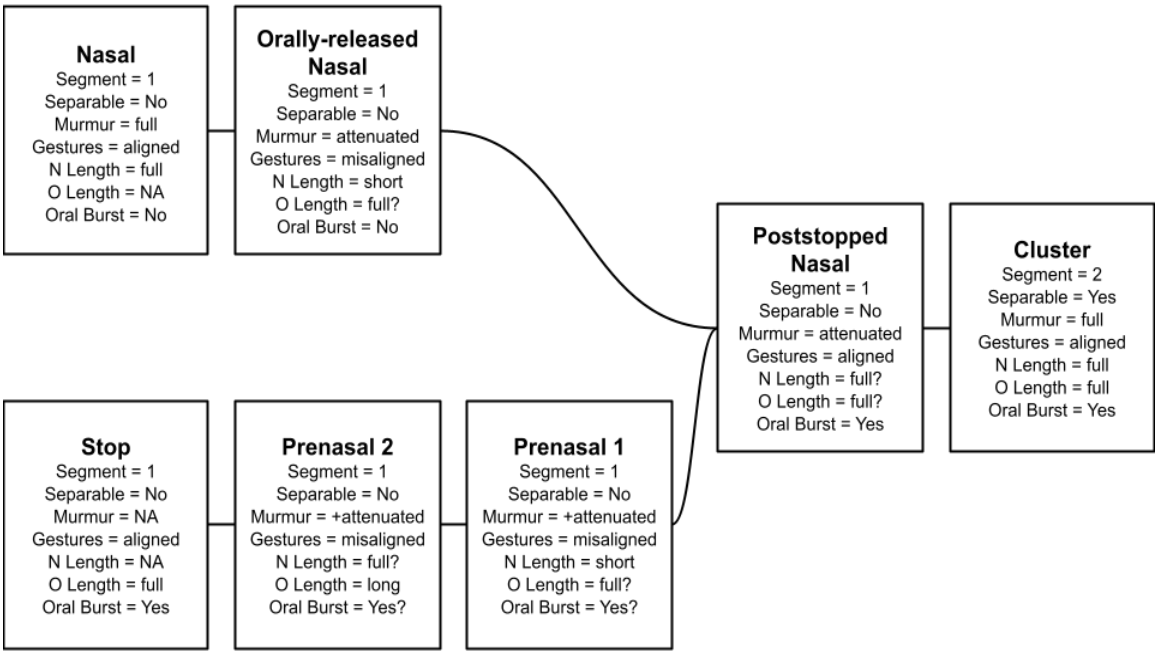

Figure 30 Simplified continuum of segment transitions between nasal/stop sequences

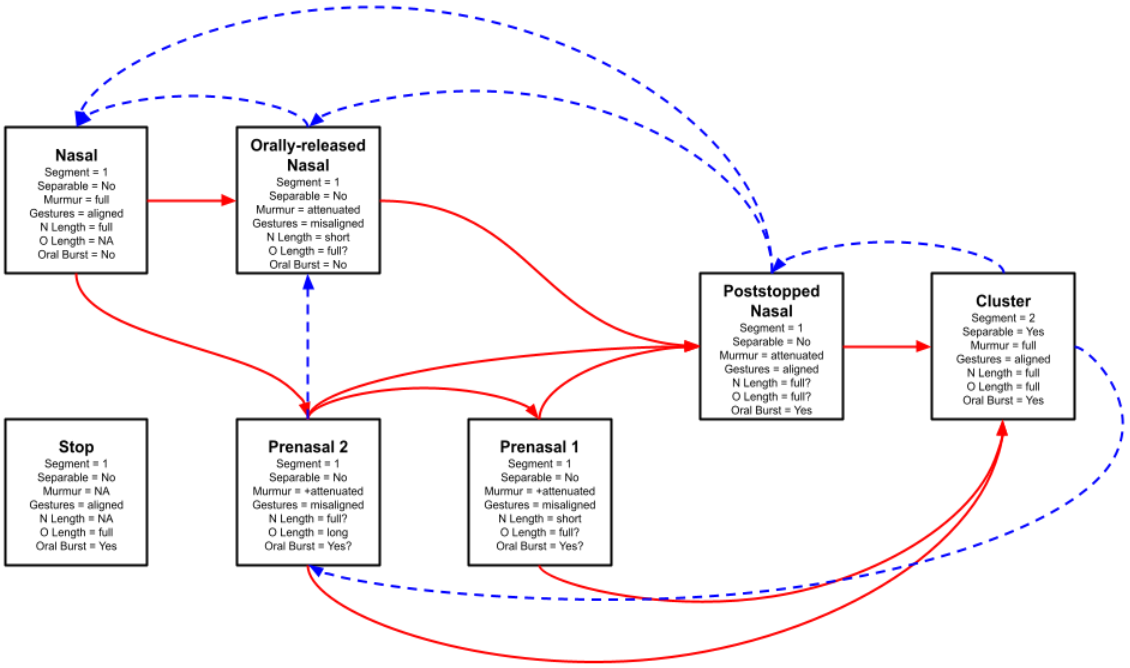

Figure 31 Continuum with available changes pertaining to nasal segments

The variation in the perceptual categories potentially available to languages is represented by the different number of intermediate steps on the continuum taken by a given path. Productive and perceptual changes in direction or destination change tracks,

as it were, at the stations of attested categories. Such categories and their relationships with another, however, as stated can be variable.

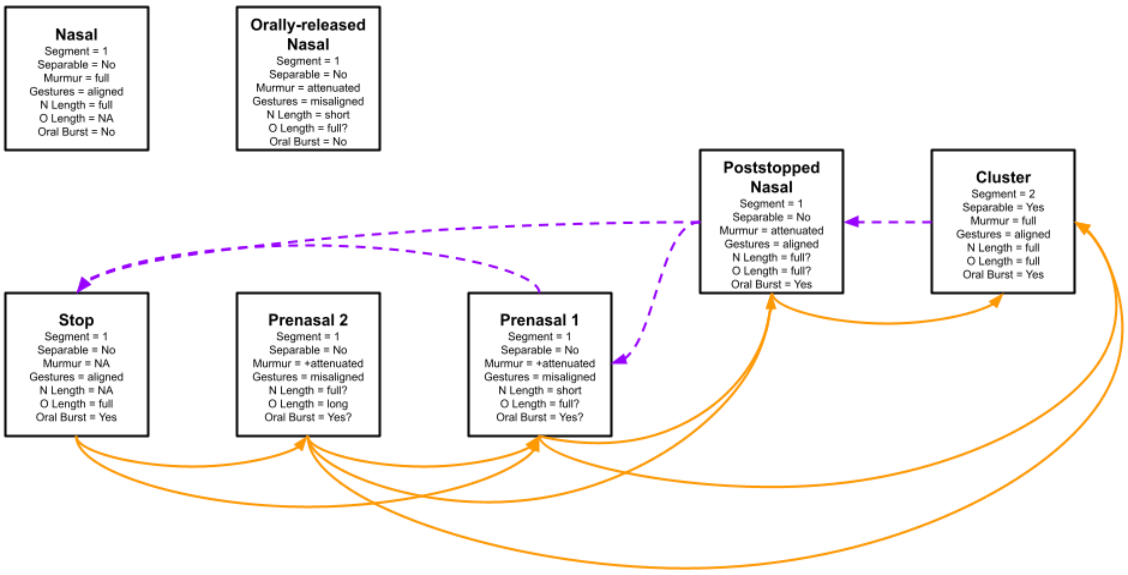

Figure 32 Continuum with available changes pertaining to oral stop segments

Interestingly, there is a notable difference in the available routes a nasal can take when compared to those an oral stop can take, indicating that our current framework allows for more flexibility in the transition of nasal segments than oral ones, at least with the extant categories provided. This may be because of the research bias found in the categories, since most of the studies investigating them are principally interested in the nasal components; however, there may be some properties of nasals that license this flexibility, namely its status as a sonorant. As a sonorant, nasals are licensed in many languages to be syllabified, allowing them to fill not only consonantal positions within a language, but also those of some vowels and typologically are more readily permitted in coda position than other consonants (Krakow, 1999). Nasals also frequently project nasal features on their surrounding segments such as nasalized vowels. This syllabic flexibility might therefore grant nasals more optionality in the productive repertoire of a speaker, and thus allow for more gradient perceptions that are readily viable for phonological and historical change. This lowers any directionality pressure (if any such pressure exists), allowing for changes in nasalization to reverse or even perceptually change into the realm of oral stops.

Stops, in comparison, are far less flexible. They struggle to obtain syllabic status. When compared to the nasality that is essentially unique to nasals (and the sounds they have synchronically or diachronically affected), the orality of stops is not exclusive. While transitional categories containing stops may perceptually exist for some languages, we might therefore expect partially-oral segments to be more rare than the partially-nasal

segments we have attested. The reality is that the field must conduct more perceptual and diachronic research to refine these representations in our theory.

So where does Albanian fit in all of this? Thankfully, we have enough historical evidence to begin our work (a very rare occasion in Albanology). Because the word medial sequences reliably appear as clusters, I will focus on the anomalous word initial sequences. The older hypotheses found in etymological dictionaries of Albanian focus on word initial unstressed vowel aphaeresis in loan words, such as the progression found in (7) (Demiraj 1997; Orel 1998).

7) Latin *imperator* > Albanian **əmbret* > *mbret*

A similar process can be found with non-loan words with en- prefixation, where the preposition en 'in' was reanalyzed into a clitic/prefix before becoming fossilized within certain verbs. Wherever there was a following stop, a nasal-stop cluster arose following the same aphaeresis rule mentioned before (Dedvukaj, 2022; Dedvukaj & Gehringer, 2023). Note that neither of these etymological approaches make any commentary on the current clusters. The transition from a VNT type construction suggests that all of these word initial clusters started as a disyllabic cluster composed of discrete nasal and stop components (8a). However, once the word initial vowel is removed, it is difficult to determine if this phonetic structure is maintained in modern Tosk. It is possible that the unstressed vowel has never been fully erased and lingers as a schwa (8b) or incorporated into a syllabified nasal (8c) in order to maintain the disyllabic structure. Alternatively, the disyllable could be sacrificed to completely eliminate the unstressed vowel per the proposed etymologies, and the clusters are realized as prenasalized stops or some other partially-nasal segment (8d).

8) Proto-Albanian *en+pa- > *əm.ba- 'hold'
a) *əm.ba- > mba- b) *əm.ba- > əm.ba- c) *əm.ba- > m̩.ba- d) *əm.ba- > ^{m}ba-

Because we find both syllable-like and single-segment-like forms across speakers in Tosk Albanian, the variety most characterized by these sequences, it is strongly likely that the historical nasal-stop cluster is still phonemically preserved as such in this dialect. This helps explain why many of the syllable-like forms in the data were difficult to classify, being the products of a two-segment cluster being phonologically pressured into a partially-nasal form, regardless if the surface form is one or two segments itself. This hypothesis is supported by the behavior of these forms when preceded by *të* and *një*. When a participant deployed these words before the word initial sequence, even if that participant had a tendency to employ the shorter more partially-nasal forms like Participant 8, the nasal-stop sequence seemingly always resyllabifies so that the nasal forms the coda of the preceding syllable, and the stop the onset of the next (9).

Alternatively, a speaker might incorporate the unstressed vowel of the particle into the nasal, syllabifying it (10).

9) të mbeshtjell /#tə#mbeʃ.tjeɫ/ → [#təm.beʃ.tjeɫ#]

10) të mbeshtjell /#tə#mbeʃ.tjeɫ/ → [#tm̩.beʃ.tjeɫ#]

Likewise, in words with more complex syllable structures containing multiple sequential consonants, nasals were more likely to lengthen and appear syllable-like. This process is echoed in words like *çndryshk*. While allegedly one syllable (11a), every participant lengthened the duration of the nasal, implying that it might have been syllabified to alleviate the consonant sequence, although the precise syllabification would require reference to speaker perceptions (11b). In Albanian though, it is highly likely that these partially-nasal forms bounded within syllables only appear under phonological duress and will take any opportunity to resyllabify back into their phonemic bisegmental forms.

11) a. /tsndɾyʃk/ b. [tsn̩.dɾyʃk]

This general instability of the prenasal coincides with the more widespread Albanian treatments of nasals and nasal-stop sequences. Dedvukaj & Gehringer (2023) proposed Rosenthall's Law,[7] which constrains against more than two nasal clusters or nasal vowels (in Gheg) occurring within the domain of the morpheme. Only clusters and nasal vowels across the morpheme boundaries are licensed. A polymorphemic word like *këmbëcingthi*, for example are allowed the two clusters <mb> and <ng> (12). This law can be seen at work in historically polymorphemic words that have become morphologically opaque. While *mbrenda* 'within' used to be polymorphemic, via aphaeresis its component parts became opaque and analyzed into one morpheme. Upon the loss of the morpheme boundaries the incidence of <mb> and <nd> within the domain of the same morpheme causes the word initial <mb> to sacrifice its nasal to Rosenthall's Law. An outline of the etymology and re-analytic process of *mbrenda* is reiterated from Dedvukaj & Gehringer (2023) in (13).

12) /#kəmbə+t͡siŋgθ+i#/

leg/peg+belt

'hopping on one foot'

13) /#*en + *per + *en + ta#/ > /*#Øm+bØr+en+da#/ > /#mbrenda#/ > /#brenda#/

[7] Based on the comments and observations made by Samuel Rosenthall, who helped advise our project.

/‘in’+ ‘for’ + ‘in’ + DEM./ > within

One of the problems with Rosenthall’s Law hitherto was governing which nasal was deleted and what was motivating the law. The previous explanation invoked the Obligatory Contour Principle (OCP)(McCarthy, 1986), but without any satisfactory explanation why nasals were marked or why that markedness was sensitive to morpheme boundaries.

This cursory study into the phonetic production of these clusters begins to answer these questions. The nasals and nasal clusters are phonologically unstable due to their flexibility. When possible, the clusters prefer to be realized in their historical form as a nasal-stop cluster composed of discrete units, and by extension prefer to be realized over the syllable boundary. When this is not possible, such as in the case of bare word initial clusters, the nasal gets bundled into the obstruent as a prenasal or other partially-nasal segment, but under the duress of additional syllabic complexity or a nearby particle to lean on, these prenasals will revert back to their phonemic form of discrete clusters. In the instance of *mbrenda*, the initial <mb> is simplified because of the instability of the prenasal in Albanian. With no helpful particle to lean on, the already weak nasal is lost to the interlexical void.

It is difficult to say why Rosenthall’s Law applies. There may still be some extent of OCP involved. Two instances of a nasal vowel are still blocked with the morpheme in Gheg, and *mbrenda* was still perfectly licensed so long as it was perceived as polymorphemic.

Another interesting avenue of inquiry is how this pertains to the evolution of the Gheg variants of these clusters, which word initially and finally are realized as pure nasals. One would presume that if I am correct in identifying the word initial clusters as prenasals, then the simplified form found in Gheg would not be pure nasals, but rather the voiced stop, similar to the process of *mbrenda* becoming *brenda*, if, as I have postulated, the prenasal is inherently perceptually weak and phonologically unstable. This is in fact exactly what we see in the production task data, where participants imitate Standard Albanian. This supports the hypothesis of weak and unstable partially-nasal segments but obfuscates how Gheg speakers widely adopted pure nasals as their simplified variants of Tosk words.

For this, I point to the proposed interstitial syllabification stage of the prenasal development, where the nasal was the syllable nucleus and therefore likely the dominant sound in the syllable. It is highly conceivable that this is the form adapted by Gheg speakers into pure nasals. Eventually, the stop would be unreleased, and then omitted from the word entirely, producing the modern forms. Then, when approximating Standard Albanian, their perception of the partially-nasal segments produces the voiced obstruent form observed.

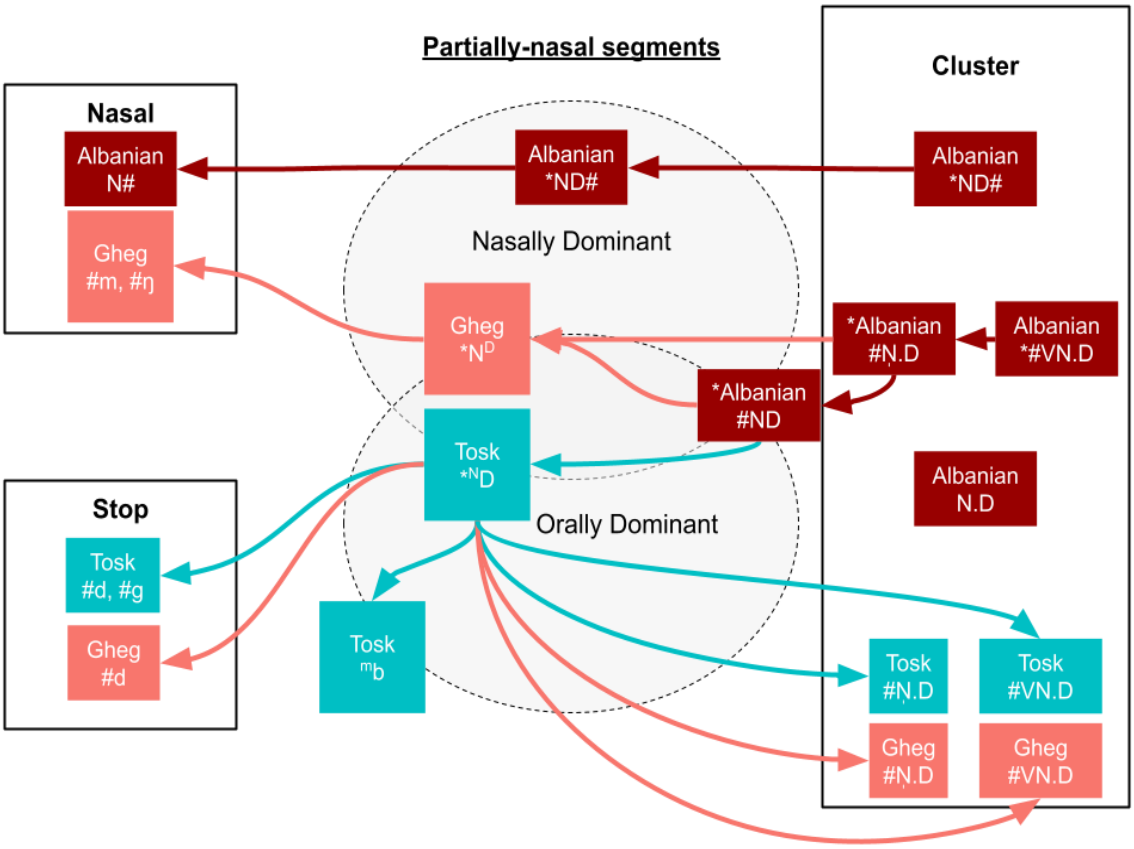

Figure 33 Nasal/stop sequence continuum for Albanian and its dialects

In Figure 33, each stage in the diachronic/synchronic shifts in Albanian are represented by an arrow. These arrows do not represent together any assertion about when these changes occurred relative to another (e.g. just because two paths have two arrows does not mean that the first changes in those paths happened at the same time, or the second). The arrows only display the directionality of the change, the output form, and the form from which that output was derived. Of particular interest is the development and divergence of the word initial nasal-stop sequences, starting as word medial clusters, and through aphaeresis syllabifying before entering a partially-nasal stage. Gheg derives its nasal forms from the time/variety where the nasal was syllabified or more prominent in production and perception, whereas Tosk derives its partially-nasal forms from a time/variety when the oral portion was more prominent in production and perception. This variant also gave rise to the Gheg stopped variant of the alveolar nasal-stop sequence after it was incorporated from the more contemporary variety of Tosk, which is more orally dominant. When placed under phonological duress or reinterpreted by perceptual and social pressures, Tosk (and Gheg via Standard Albanian/Tosk) resyllabifies the nasal either by making the nasal itself syllabic or by redistributing the phonemic cluster over a syllable boundary using a preceding vowel. On the other hand, word medial sequences appear unchanged, and many word final sequences simplify to a singleton nasal, they themselves presumably either being orally-released nasals or having

at one point underwent the transition through the realm of partially-nasal segments to arrive at its present, singleton form.

This method of modeling the transitions from one end of this continuum to the other demonstrates the utility of treating the partially-nasal segment stage more nebulously, as well as the utility of allowing for bidirectionality, where entire reversals of direction can occur due to perceptual, social, and phonological pressures. With these considerations, we can examine the development of nasal-stop sequences in Albanian and make sense of the numerous variants and outcomes available in its dialects. Such a system should be adaptable to other languages, and more or less definite intermediate stages within the partially-nasal stage can be made where there is evidence for them. It is not inconceivable that with further research documenting the geographic and temporal distribution of these variants, more phonological and diachronic patterns could emerge to better outline the internal development within the partially-nasal stage, especially when coupled with perceptual data. Perceptual data might also indicate potential directions of future developments within this system for Albanian. At the moment, Albanian appears to have multiple phonologically non-contrastive forms that vary in accordance with phonological pressures and social meaning. Provided some disruption in this current system, Albanian could in the future see phonologization of some of these outputs, producing the new contrastivity and phonological organization we call sound change. Such a disruption could constitute either as a misinterpretation between the sign and signifier (Ohala et al., 1981) or sociophonetic information ossifying in divergent groups previously in covert variation (Beddor, 2009).

CHAPTER 5. SOCIOLINGUISTIC SURVEY

The purpose of this sociolinguistic survey is to analyze Albanian speakers' phonetic and attitudinal perceptions of nasal-stop clusters using the variants identified in the previous phonetic survey. The results will examine participant responses in order to identify if there are any salient geographic regions, demographics, or other speaker traits attributed to the phonetic variations employed. It will likewise examine participant responses in order to identify if there is any patterning among speaker demographics that correlates to the attitudes entailed within the data. This will begin to inform us where and how Albanian speakers perceive these sounds being used and the social information that they carry.

5.1 Sociolinguistic Survey Methods

The sociolinguistic survey was conducted by providing participants recordings of sentences that contain word initial nasal-stop sequences. All the words in these sentences had been manipulated so that the target clusters reflected the phonological variants identified in the phonetic survey. Participants then answered perceptual-dialectology questions about what the speakers entailed in the phonological variants. Participants were

additionally asked to answer a survey concerning the demographics reported in 5.1.1 and elsewhere in the results, which is identical to the survey employed in the phonetic survey.

5.1.1 Sociolinguistic Survey Population

The sociolinguistic survey is populated with an opportunity sample snowballed from the participants of the phonetic survey or contacted online. Because the researcher was not required to proctor the survey, this portion of the study could be conducted remotely, and therefore reached a much more widespread audience than the phonetic component. Potentially due to the lack of direct proctoring by the researcher, only 22 out of the 41 total responses had usable data, and of those only 15 fully completed the survey. Like the phonetic data, the Gheg dialect is underrepresented with only two Gheg speaking respondents, neither of whom completed the survey. The analyzable sample is therefore composed of 16 Tosk speakers, 12 of whom grew up in Pogradec, Albania and three who had parents who were from Pogradec. A geographic representation can be found in Figure 34.

The genders represented in the study population are more balanced than in the phonetic survey. 12 of the participants identified as female, and 10 as male. None of the participants made any further comment on their gender. 9 participants stated that their highest level of education was a bachelor's degree, 8 stated that their highest level of education was a master's degree, 3 participants stated that their highest level of education was a high school degree or equivalent. 2 participants stated that they were certified in some skilled trade. Given that 77% of participants have pursued some form of higher education and the diversity of experience concatenated into the 33% who have not, it is unlikely that level of education will have a discernible effect on the results with the current data.

Among all respondents with usable data, there are 4 participants born in the 1950s, 4 born in the 1960s, 7 born in the 1970s, 3 born in the 1980s, 1 born in the 1990s and 3 born in the early 2000s. By decade, both the median and modal decade of birth was in the 1970s, with the average birth year being 1974. When excluding those who did not complete the survey, representation remains in the early 1970s and late 1960s. So while there is a fairly diverse representation in the data, the results will most closely reflect the attitudes of those born in Pogradec, Albania in the 1970s who later in life moved to Ohio. A summary of the study population can be seen below in Table 6. Note that an * indicates partial completion of the survey in Table 6.

Table 6 Simplified demographic summary of sociolinguistic survey participants

Participant	Gender	Year of Birth	Country	Region	City	Dialect
1	Female	2006	USA	Ohio	Cleveland	Tosk
2	Female	1976	Albania	Southeast	Pogradec	Tosk
3	Female	1966	Albania	Albania	NA	Tosk
4	Male	1962	Albania	Korçë	Pogradec	Tosk
5	Male	1973	Albania	Korçë	Pogradec	Tosk
6	Male	1983	Albania	Albania	Pogradec	Tosk
7*	Male	1980	Albania	Shkoder	Shkoder	Gheg
8	Male	1992	Albania	Pogradec	Pogradec	Tosk
9	Male	1957	Albania	Pogradec	Pogradec	Tosk
10	Female	1960	Albania	South	Pogradec	Tosk
11	Female	1957	Albania	Pogradec	Pogradec	Tosk
12	Female	1974	Albania	Southeast	Pogradec	Tosk
13	Female	1962	Albania	Korçë	Pogradec	Tosk
14	Male	1955	Albania	Pogradec	Pogradec	Tosk
15*	Female	1975	Albania	North	NA	Gheg
16	Male	1974	Albania	Fier	Fier	Tosk
17*	Female	2004	Albania	South	Durrës	Tosk
18*	Female	2002	USA	Ohio	Cleveland	Tosk
19*	Male	1984	Albania	Middle	NA	Tosk
20*	Male	1973	Albania	Southeast	Pogradec	Tosk
21*	Female	1975	Albania	Pogradec	Pogradec	Tosk
22	Female	1952	Albania	Pogradec	Pogradec	Tosk

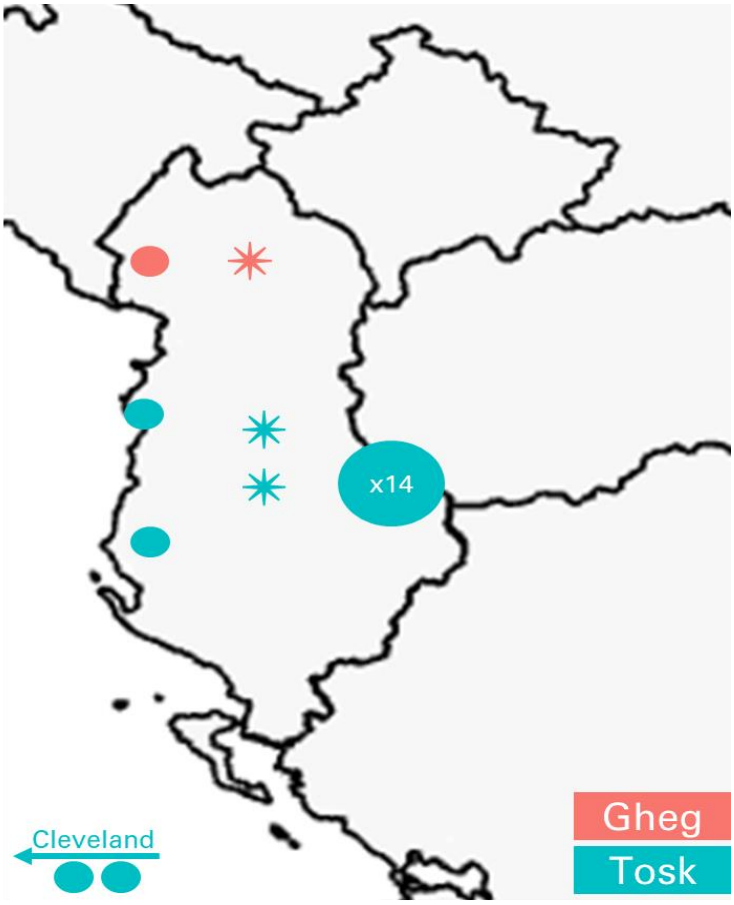

Figure 34 Map with the distribution of phonetic survey participants by origin[8]

5.1.2 Sociolinguistic Survey Materials

This second survey was conducted digitally via Qualtrics without the direct supervision or proctoring of the researcher. While it starts with the same demographic questions employed by the phonetic survey, the later portions probe the social attitudes towards the phonetic variations I had observed. The demographic data was collected in order to record social categories that might socially correspond to linguistic attitudes expressed within the data. This information will then inform our understanding of Albanian nasal-stop cluster usage. The stimuli questions for these data were presented and responded to digitally in the survey.

Participants were asked for their year of birth, gender (open response), highest level of education (Primary School, High School degree or equivalent, Certification in a Trade, Bachelor's Degree, Master's Degree, Doctoral Degree), followed by questions about their linguistic communities. Participants were asked for the countries,

[8] Note that the stars on the map represent participants who specified their general region and dialect, but not any specific city. Their position on the map therefore is more arbitrary.

regions/areas, cities/towns where they grew up, where their parents and grandparents grew up, where they live now, and whether they thought that they talked more like their parents, grandparents, or like most Albanian speakers from the cities/towns they grew up in. Likewise, participants were asked what dialect, area, or culture in the Albanian speaking world they associate their own speech with. These questions ascertained and tracked participants' geographic origins, as well as their linguistic attitudes/perceptions of how their language fits into their community. Participants typed their responses and were asked to mark on a map where they grew and shade what places spoke like they did. Unlike the phonetic survey however, only two participants completed the map task. It is unclear if this is due to technological difficulties, lack of researcher guidance, or an unwillingness to complete the activity.

In addition to the written demographic prompts and map tasks, participants were also provided with auditory stimuli. These stimuli were four iterations of the same sentence in Albanian (14-19). But wherever there was a target cluster within an iteration, for that iteration one of the variants identified in the phonetic component was used. The realization of the target clusters was the only variation across the four auditory stimuli.

14) Orthographic	Ndaj, mbreti i ndyrë e mban shpatën e ndryshkur nga beteja
15) Gloss	So, the despicable[9] king carries the rusty sword from the battle
16) Prenasal	/ⁿdaj, ᵐbɾeti i ⁿdyɾ e ᵐban ʃpatən e ⁿdryʃkuɾ ᵑga beteja/
17) Nasals	/naj, mɾet i nyɾ e man ʃpatən e nɾyʃkur ŋa beteja/
18) Stops	/daj, bɾet i dyɾ e ban ʃpatən e dɾyʃkuɾ ga beteja/
19) Syllabified	/n̩daj, m̩bɾeti indyɾ emban ʃpatən endɾyʃkuɾ ŋ̩ga beteja/

While the major varieties of Albanian do notably vary in terms of how they realize the target clusters, this is not the only phonetic variation found between varieties. Moreover, the way that variants were used in the stimuli does not reflect the distribution of these variants in any variety of Albanian; however, to limit the variables across the stimuli, the same phonetic realization of the target clusters was applied across the whole sentence in order to accomplish a uniform presentation of the target features for participants to recognize (or not) during the experimental survey.

On account of this, the talker for these stimuli would need to not only be able to produce all four realizations of the target sounds but also be able to produce Standard Albanian elsewhere and avoid all the phonetic features of the varieties associated with the four variant realizations. If a native speaker was to give these stimuli, they would then need a degree of phonetic awareness and articulatory control equivalent to many

[9] Ndyre /ndyr/ means 'dirty, filthy,' but can be used figuratively to mean 'vile, despicable; sordid; disgraceful,' (Newmark, 1999), which is the meaning employed here.

phoneticians, in addition to being able to inhibit their own socio-phonotactic knowledge about their language and its dialects. While such a person may exist, it was prohibitive to locate, contact, and hire such a person for the purpose of this study, and the stimuli were thus produced by the researcher in order to ensure the desired phonetic structure in the stimuli. Because the author does not speak Albanian as his first language, this limits the authenticity – or at least whatever authenticity might have been recognized within such closely controlled stimuli – of the language being used, and therefore had to be taken into account when designing the attitude perception tasks in this survey.

In order to acknowledge that the talker in the stimuli was not a first language speaker of Albanian, the talker in each variant was presented as an American born volunteer in the Peace Corps, which has had at times activity within Albanian speaking countries.[10] The task asks participants to identify where the talker's Albanian teacher was from based on the features found in the talker's voice. This is intended to take the focus away from the talker's non-nativeness and place a participant's attention onto the language sounds being used in a way that is indicative of the Albanian speaking world.

5.1.3 Sociolinguistic Survey Procedure

The survey was conducted remotely on a laptop or mobile device via Qualtrics at the participants own time and location, without researcher interference. Upon beginning the survey, participants were provided a study cover letter explaining the study in either English, Albanian, or both languages. All written instructions afterwards were provided in both languages. Participants then filled out the demographic questions outlined above.

Participants were then instructed to listen to the same sentence being spoken by four twin brothers and answer some questions about the language being used. For each variant of the stimuli, participants were asked to identify what people who sounded like that were like, where in the Albanian speaking world do people sound like the stimuli, how those people talk (with an option to record an imitation taken by none of the participants), and why people from there sound that way. Participants were then provided a map task indicating where people sounded like the stimuli and were asked to rate on a scale from 0-100 how similar the stimuli Albanian was to their own speech. The map task in this section suffered from the same completion deficit as the one in the demographic section, and the scale task did not successfully display for participants. These tasks were repeated for all four variants. For a complete outline of the flow of tasks, see Figure 35.

[10] https://www.peacecorps.gov/albania/

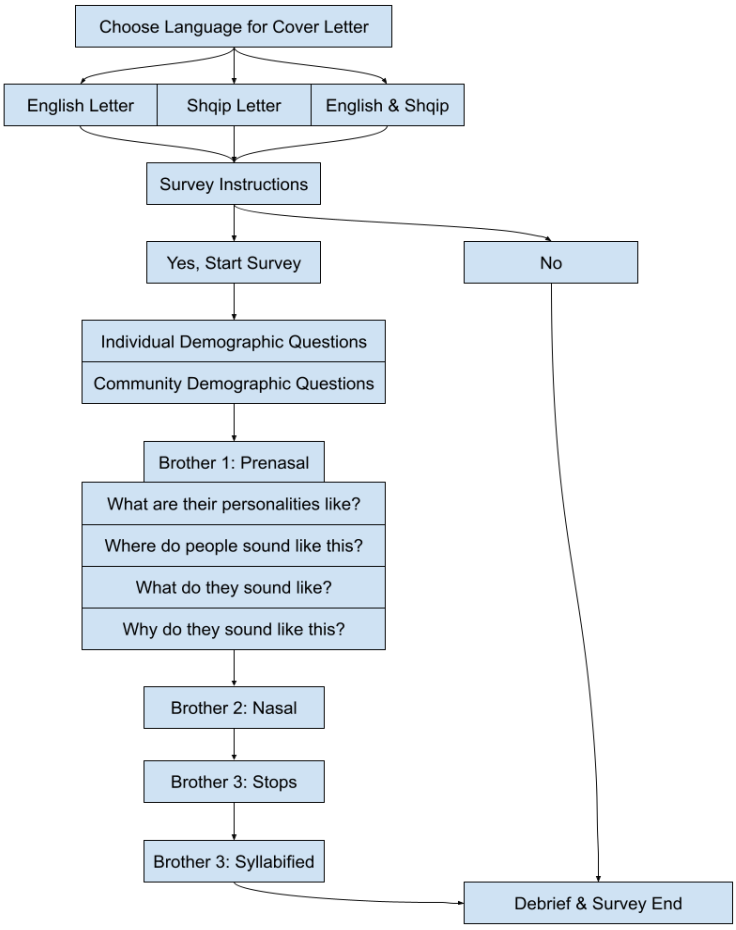

Figure 35 Flow of participant tasks during the Phonetic Survey

5.2 Sociolinguistic Survey Results

For this section, the results are analyzed by the type of sentence provided to the participants (prenasal, nasal, stop, syllabified). The responses to these stimulus types are then examined by each question asked in the survey. This section only explores the responses to the stimuli. See section 5.3 for an analysis of participant responses by the regions that they identified.

The data was compiled, and if necessary, translated from Albanian into English. For Albanian words that have several possible interpretations in the English translation, I have attached footnotes expounding on these. For each response to a question, I assembled them into categories and subcategories that were consistent across the responses and tallied the number of responses to that category. These tallies were then compared against the total number of respondents. Notably, this number changes with each survey question because it pertains to the different types of information the participants provided, meaning a single participant can have more than one response type

depending on how they responded. In these tallies, words that were roughly synonymous were counted as their own subcategories, but also as constituents to a larger, shared category. Minor morphological variations on words were not counted separately (e.g. 'north' and 'northern' are considered the same type of response). In order to preserve the number of participants by which the categorical tallies were being divided by to obtain a percentage, when a participant provided multiple responses to a question, the numerical tally of the response was divided by the number of their responses. If a participant had two types of responses to a question, then they would both contribute 0.5 to the tally of those categories. If there were three responses, they would contribute 0.33 to the tally of those categories et cetera.

The tables in this section are designed so that the broadest categories describing the data are found towards the top, divided then by the subcategories below them. Some of these categories, like many social features, overlap. Any cell below a broader category's cell is therefore one of the responses entailed within that broader category. The categories are accompanied by the percentage of that category's occurrence among the respondents. Ergo, the percentages provided in the subcategories are not out of the population of their superior category but are out of the entire population of the respondents represented in the table. The percentages of subcategories should therefore add up to the percentage found in their superior category (with some minor fluctuations due to rounding to the nearest whole number). The broadest categories therefore add up to 100% of the respondents in the table's population.

Each section is likewise accompanied by a map of where each variant was most strongly attributed. Because most of the participants did not complete the map tasks included in the survey, these are based on the location agreement data found in the tables described above (i.e. the second table presented in each section). To simulate counting the number of instances an area is drawn by a participant, the percentage of each subregion is added to the percentage of the overarching region, and then divided by the sum for the region with the greatest agreement, which is treated as 100%. This means that even if a specific city is only mentioned by a single participant, if it is in a region already mentioned by other participants it will appear more prominent than that region due to it being a constituent of that larger region, meaning all the other participants who cited the larger region containing that city have also cited that city indirectly. All the values calculated in this manner are, as stated, available in the second table of each section where the location of the variant is discussed, allowing alternative visualization strategies available to any readers who wish to further examine these data. Note that holistic subcategories such as "(all) the South" or "(all) the North" are excluded from the calculations, since they are already represented in the regional total. Because very few map tasks were actually collected, the regions represented on the maps are derived from the dialect regions in Figure 1 (Canaj, 2020), so the exact perceived boundaries of these variants may vary from my representations, but until actual perceptual dialectology map tasks are obtained it is impossible to ascertain to what extent or how.

5.2.1 Prenasal

The first stimulus was the sentence where every nasal-stop construction was rendered as a prenasalized stop.

20) Prenasal /ⁿdaj, ᵐbɾeti i ⁿdyɾ e ᵐban ʃpatən e ⁿdryʃkuɾ ᵑga beteja/

Because of the findings of the phonetic survey, we should expect listeners to think that it most closely resembles Standard Albanian, and by extension, the Southern Tosk dialect. Because the majority of the participants in this survey are from the southern Tosk-speaking region of Pogradec, we should expect the most positive reaction to be to this stimulus. When asked about the personalities of those who spoke this dialect, 53% of responses described positive traits compared to only 9% negative responses. People speaking this variety of Albanian were described as *very friendly, community based, good people, calm,* and *mild mannered.* Additionally, 22% of responses identified their personalities as southern or Tosk. Notably though, some participants did identify the speech with a northern personality, and 1 individual had no clear perception on personality. The 'foreign' perceptions are best discussed with the next question.

Table 7 Response types to "what are Albanian speakers in this part of the world like? What are their personalities?" for prenasalized stimuli (n = 16)

Positive (53%)				Neutral (38%)			Negative (9%)
Nice (38%)		Regional (41%)			Foreign (22%)		
					Italian (13%)		
Friendly (13%)	Quiet (25%)	South (22%)	North (19%)	Unclear (6%)	Arbëresh (9%)	Old Fashioned (3%)	Not Albanian (9%)

The predictions of positive, southern or Tosk identification is confirmed by the second question inquiring where people spoke Albanian with prenasalized stops like these. Only 19% of responses identified it to be external to Albania. Two participants (5, 16) identified specifically with Italy and the Arbëresh dialect of Albanian because they "don't sound like Gheg or Tosk,"[11] while the third simply identified it as "outside of

[11] Sepse ata nuk tingellojne as si Gege dhe as si Toske.

Albania."[12] However, the majority of the participants identified the speech coming from Albania, and 56% agreed that it was from Central or Southern Albania, although the specific cities in question varied. Two landed on the Pogradec area, others Vlorë, Fier, Berat or Përmet, where there are "gentle, peace-loving people."[13] Again, three participants (3, 4, 5) identified it as northern speech.

Table 8 Response types to "where in Albania or surrounding countries or in the world did this person learn to speak Albanian?" for prenasalized stimuli (n = 16)

Abroad (19%)		In Albania (81%)								
Out-side Albania (6%)	Italy (13%)	Albania (6%)	North (6%)	South/Central Albania (56%)						
				Central & Southern (6%)	Southern (50%)					
					The South (13%)	Pog-radec (13%)	Përmet (9%)	Fier (6%)	Vlorë (6%)	Berat (3%)

When asked how people in those places talked, there were multiple citations of the language being gentler, stating that it was "not as 'harsh' as other areas, more subtle," possessing *softer tone,* and was spoken more *quietly* and *politely.* There were also descriptions that it was either the Standard, Official, or literary language. This classification jumps from 12% to 28% of responses if describing the variety as "Tosk" and "southern" counts as also calling it the Standard, given that the two varieties are usually conflated. The variety spoken was further described as sounding "like brave captains :),"[14] and while Participant 11 stated that people from Southern Albania spoke faster, they are contradicted by Participant 10 who states they speak slowly. The same three participants described it as sounding foreign, but Participants 5 and 16 both described Italian Arbëresh as old fashioned. I have compiled the mostly positive responses under *Brave/Pleasant,* garnering 28% agreement. There remain the same to instances of describing it as northern speech by Participants 3 and 4, and on descript by Participant 13 as "they have heavy language,"[15] which might be related to the description of slower by Participant 10.

[12] Jashte shqiperise

[13] njerez te bute, paqedashes

[14] Si trima kapedane :) (Participant 6 describing Vlorë)

[15] Kane gjuhe te rende

Table 9 Response types to “How do people in this place / these places talk?” for prenasalized stimuli (n = 16)

Not Local (31%)				Pleasant Southern Standard (69%)				
Foreign (19%)			Northern (13%)	Pleasant (28%)	Southern Standard (28%)		Speed (13%)	
Not Albanian (6%)	Italian Arbëresh (13%)				Southern (16%)	Standard (12%)	Slow (9%)	Fast (3%)
	Old Fashioned (9%)	Italian Accent (3%)						

When asked why they thought people from those regions spoke that way, 13 of the 16 participants (81%) cited some form of factors from the geography or cultural tradition, with 5 (31%) citing some type of interaction between the land, the culture, and their language, and 6 (38%) referring to either physical isolation, temporal isolation, or both. Both participants who identified the stimuli as being Italian Arbëresh explain that it sounded old fashioned because it was centuries ago when these people were separated from Albania by the Adriatic, preserving an older form of the language among themselves. The two participants who identified the stimuli as being a northern dialect (presumably Gheg) cited the mountains as an isolating factor for the language, while another participant remarked on Albania’s physical separation from other countries, making it sound different, with the south/central dialects sounding the way they did because of more or less foreign influence. As will be presented with the subsequent stimuli results, this sense of continued, independent cultural tradition is deeply important to Albanians, and factors into how they perceive and navigate their own language.

To summarize the results for the prenasal stimuli, these participants from southern Albania responded overwhelmingly (53%) positively to these stimuli. As will be seen with the other stimuli, it may become difficult to extrapolate the personalities of the hypothetical groups being represented by the stimuli from participant perceptions, as some of these might be statements about the character of the stimuli talker specifically, and not regional characteristics due to their only being one non-native talker providing said stimuli. This may be especially true for descriptions along the lines of *quiet*, although there is additional commentary from participants that might indicate that some of these descriptions do apply to the broader hypothetical regions, especially when there is not a throughline in these descriptions across all stimuli, despite being produced by the same talker in roughly the same manner. Descriptions such as *soft* and *quiet* moreover do have associations with “thick/thin” symbolism documented in Albanian folk linguistics, where northern voices with lower f0 pitches are considered masculine, “thick” or “heavy,” while southern voices are generally characterized as being “thin,” “quiet,” or

"soft" (Morgan, 2019). These types are found frequently in the survey results, including those that may be talker specific, but because they get paired with other linguistic features and regions consistent with those identified in Morgan (2019), these may still be commentary on the target variety, not the talker.

81% of participants identified the prenasal stimuli as being in Albania, with two interestingly attributing it to Italian Arbëresh, citing an archaic tone and features not matching either Gheg or Tosk as evidence to their claims. This again might bear some interference from the stimuli talker and the artificial constructions being produced. Moreover, the stimuli sentence is about a king and a sword, which may automatically produce an 'old fashioned' air. Nonetheless, the identification of 'old fashioned' and a status of being neither Gheg nor Tosk with the Arbëresh dialect is informative of potential attitudes towards Arbëresh. The northern association is interesting and somewhat unexpected, and will require comparison with the other stimuli results, but the majority of participants identified these prenasal forms as coming from south and or central Albania where Tosk is spoken and identified it as a standard or literary dialect with pleasant speaker qualities.

Altogether, this meets the hypothesis that a) word initial prenasalized stops are perceptually linked with the Tosk dialects, and b) participants from a Southern Albanian heritage would identify positively with the form attributed to their home region.

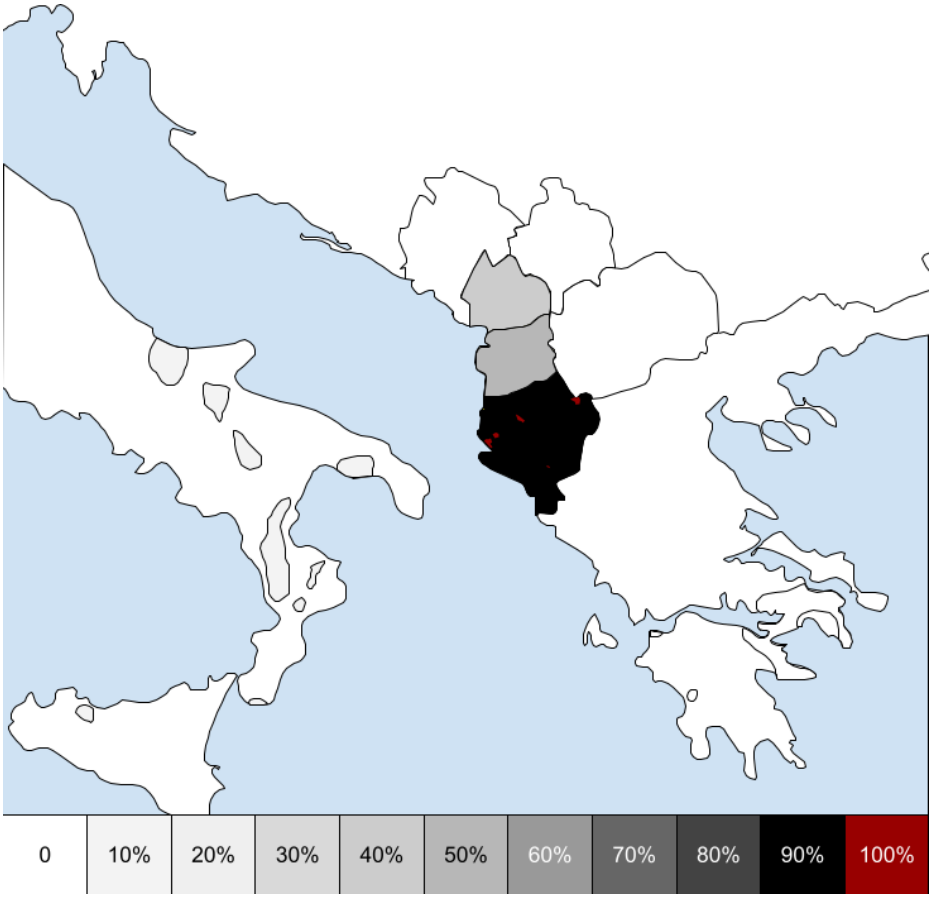

Figure 36 Agreement map for regions perceived using the prenasal variant

5.2.2 Nasal

The second stimuli provided were the sentence where every nasal-stop construction was rendered as singleton nasals.

21) Nasals /naj, mɾet i nyɾ e man ʃpatən e nɾyʃkur ŋa beteja/

Because of the findings of the phonetic survey, the stimuli of this sentence should most resemble the Gheg dialects of Albanian. Because the majority of the participants in this survey are from the southern Tosk-speaking region of Pogradec, we should expect a response that matches their attitudes towards northern speakers. Due to belonging to a different cultural subgroup in Albania, we might expect those attitudes to be more neutral, or even negative to reflect the potential otherness of the hypothetical speakers entailed in the stimuli.

When asked about the personalities of those who spoke this dialect, participant responses were far more variable. Only 33% of participants had a positive attitude

towards the stimuli, while 47% had negative responses, with the largest point of commentary (40%) being various opinions about the entailed personalities of the stimuli. There were four instances where participants were not sure about the stimuli, either not recognizing it (13%) or were unable to distinguish how it was different from the first set of prenasal stimuli (13%).

Table 10 Response types to "what are Albanian speakers in this part of the world like? What are their personalities?" for nasal stimuli (n = 15)

<table>
<tr><td colspan="4">Personality (40%)</td><td colspan="5">Regional (33%)</td><td colspan="2">Unclear (27%)</td></tr>
<tr><td colspan="2">Agreeable (23%)</td><td colspan="2">Disagreeable (17%)</td><td colspan="3">Outside Albania (20%)</td><td colspan="2">Albania (13%)</td><td rowspan="2">Same as Pre-nasal (13%)</td><td rowspan="2">Indeter-minable (13%)</td></tr>
<tr><td>Trust-worthy (7%)</td><td>Re-lax-ed (17 %)</td><td>Stron g (3%)</td><td>Deceit-ful (13%)</td><td rowspan="2">Italy (3%)</td><td rowspan="2">Greece (3%)</td><td colspan="2">North/Central (17%)</td><td rowspan="2">South (7%)</td></tr>
<tr><td colspan="4"></td><td colspan="2"></td><td>Kos-ovo (13%)</td><td>North & Central (7%)</td><td colspan="2"></td></tr>
</table>

The entailed speakers of the variety represented in the nasal stimuli were described as "friendlier, welcoming, more relaxed," with a "gentle personality, trustworthy"[16] when described positively, which is corroborated by a description of northerners as "faithful people."[17] The more negative descriptions however characterized the entailed speakers as "false, laid out, a little treacherous,"[18] and as "shady and deceitful."[19] Even more neutral descriptions make note of their personalities being "stronger and more dynamic."

When asked where people spoke like this, 80% responded with somewhere congruous with North/Central regions of Albania, Kosovo, and potentially Northern Macedonia. As predicted, all of these regions are affiliated with the Gheg dialects.

[16] "Personalitet i bute, i besueshem," where *besueshem* might mean *trustworth/reliable/credible*

[17] "Njerez te beses"

[18] "Gegnisht, te shtruar , pak hileqar"

[19] "Pak si te kamufluar, si me te "hudhme,"" literally *a bit camouflage, more "garlic."*

Table 11 Response types to "where in Albania or surrounding countries or in the world did this person learn to speak Albanian?" for nasal stimuli (n = 15)

<table>
<tr><td colspan="3">Abroad (33%)</td><td colspan="5">Albania (67%)</td></tr>
<tr><td rowspan="3">Italy (3%)</td><td rowspan="3">Greece (3%)</td><td rowspan="3">Tele-vision (7%)</td><td colspan="4">North/Central (80%)</td><td rowspan="3">South (13%)</td><td rowspan="3">All Albania (7%)</td></tr>
<tr><td rowspan="2">N. Macedonia (7%)</td><td rowspan="2">Kosovo (13%)</td><td colspan="2">North (17%)</td><td rowspan="2">Central (17%)</td></tr>
<tr><td>All North (7%)</td><td>Malesia e Madhe (7%)</td></tr>
</table>

Speech was described primarily by its entailed demeanor or consonants. "Not as harsh again but shortening words, with word: ndaj, like there's no D," or "the language is a little rough. With strong dialect."[20] Combining some of the descriptions, this variety – which we can likely attribute to the northern Gheg dialects – is a bit of a rough and tumble language spoken by independent people, characterized by some change in consonants (in this case nasals) that sounds very distinct from Pogradec Tosk to some participants, but not to others.

[20] "Gjuha eshte pak e vrazhde. Me dialekt te forte"

Table 12 Response types to “How do people in this place / these places talk?” for nasal stimuli (n = 15)

Unclear Foreign (27%)	Funny Cons-onants (17%)	Kosovar Accent (13%)	Demeanor (43%)					
			Standard Literary Language (13%)	Independent (7%)	Rough Strong dialect (7%)	Shady (1)	Don’t speak Albanian well (7%)	Not as harsh (3%)

Participant justifications for why speakers from this region produce these features, in addition to the same equated relationship between the land, people, culture and language, participants frequently identified this variety as the product of some type of mixing. Those who thought it sounded northern cited interactions with other countries near Albania’s north. Those who thought it sounded central cited the mixing of Gheg and Tosk, and those who thought it sounded southern or Greek cited the proximity of Greece. Finally, those who thought it sounded un-Albanian stated that it was due to influence of other languages making the Albanian pronunciation difficult (presumably the English that is the first language of the talker in the stimuli). This once again emphasizes the perceived importance of the relationship between Albanian cultures, their lands, and the language that they use, as well as identifying these nasals as the product as some type of variety mixing. This potentially resonates with the generally accepted theory that the singleton nasals characteristic of Gheg (at least in alternation with Tosk nasal-stop sequences) are likely borrowed from Tosk as part of phonological contact (Orel, 1998).

In summary, the stimuli that were rendered fully as nasals were generally identified as a distinct variety from the prenasals in the first stimuli, with very mixed attitudes towards those speakers. Participants identified these forms as coming from the northern and central regions of Albania and its neighbors. While it was never once called Gheg, these regions correspond to those where dialects of Gheg Albanian are traditionally spoken. Their speech has a mixed bag of characterizations and is considered by these participants to have consonants distinct from their own, likely due to the prevalence of singleton nasals in the stimuli. The agreement map for the stimuli confirms the northerly usage of this variant, particularly on the northern international fringes.

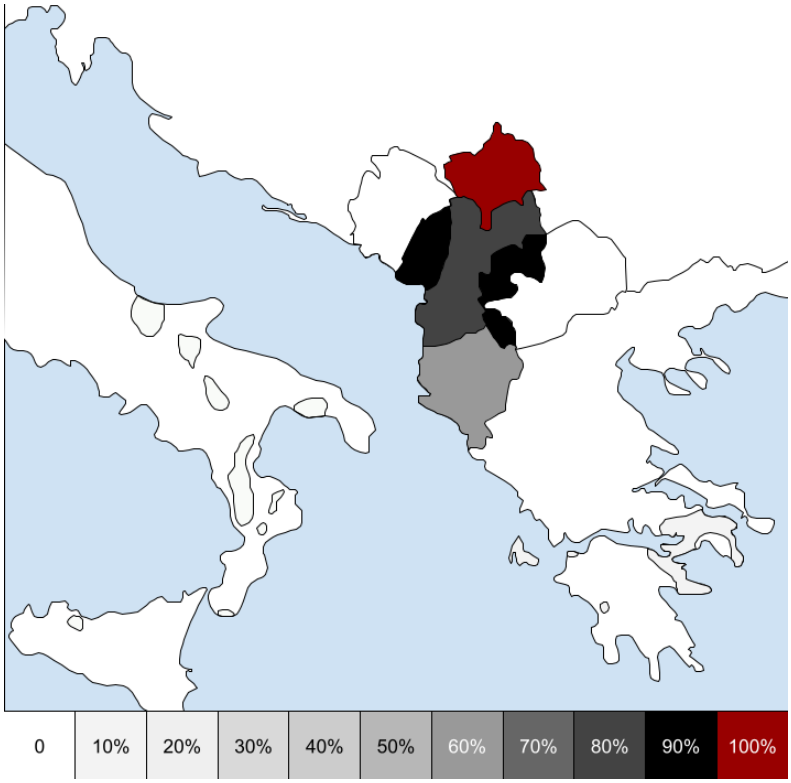

Figure 37 Agreement map for regions perceived using the nasal variant

5.2.3 Stop

The third sentential stimulus provided was the sentence where every nasal-stop construction was rendered as singleton oral stops.

22) Stops /daj, bɾet i dyɾ e ban ʃpatən e dɾyʃkuɾ ga beteja/

Because of the findings of the phonetic survey, the stimuli of this sentence should most resemble certain Northwestern Gheg dialects of Albanian. Because the majority of the participants in this survey are from the southern Tosk-speaking region of Pogradec, we should expect a response that matches their attitudes towards northern speakers. The response should therefore be similar to that of the singleton nasal stimuli, but because these forms resemble a region further from Pogradec, we might expect to see strengthening of any effects dependent on the otherness quality of the variety.

The participants' reaction to this stimulus was indeed the least positive of any of the stimuli, with only 20% positive, 53% neutral, and 27% negative. When asked to provide the personalities for the entailed speakers, participants were split evenly between the demeanor of the entailed speakers, attributed it to regional personalities, or were unable to determine a distinct personality. As predicted, there is a more general trend

towards a more strongly realized northern caricature, such as being from the "area of north-eastern Albania. They are proud and a little harsh people,"[21] where "they have a strong character."[22] This finding however is nowhere near universal, with a third of participants being unable to state a distinct personality. Interestingly, this sentential stimulus elicited several responses that it was the same as a previous stimulus (27%), with 10% of participants stating that it was indistinguishable from the first, prenasalized sentence equated with southern Tosk, and (17%) stating that it was indistinguishable from the second nasal sentence equated with northern Gheg. This demonstrates an interesting split among participants that deserves later analysis.

Table 13 Response types to "what are Albanian speakers in this part of the world like? What are their personalities?" for stop stimuli (n = 15)

Demeanor (33%)		Region (33%)		Unclear (33%)		
Quiet (13%)	Proud/harsh/strong (20%)	North (20%)	South (13%)	Indeterminable (6%)	Same as other stimuli (27%)	
					Same as 1 (10%)	Same as 2 (17%)

When asked where the entailed variety could be found however, this north leaning changed to being much more southern, but nonetheless strongly affiliated with Albania and less affiliated with other countries. There is the difficulty of what region the area of Rrotulla counts towards. It is north of Tirana, which sits near or above the traditional Tosk/Gheg boundary, but is paired with Elbasan, which sits solidly on the Gheg/Tosk boundary of the Shkumbin River. Without further explanation from the participant, I am classifying it as being Central, but even if this were switched to being northern, the modified percentage of Central/South attributions (49%) would still be greater than North attributions (27%).

[21] "Zona e Shqiperise veri- lindore . Jane njerez krenare dhe pak te ashpe."

[22] "Jane me karakter te forte"

Table 14 Response types to “where in Albania or surrounding countries or in the world did this person learn to speak Albanian?” for stop stimuli (n = 15)

Unclear (7%)	Abroad (13%)		Albania (80%)				
	Heritage (7%)	Italy & Greece (7%)	All Albania (7%)	Central/South (49-53%)			North (20-27%)
				All South (13%)	Tirana (7%)	Elbasan Rrotulla (7%)	All North (13%)	Tropoje (7%)

When asked to identify how people from that region spoke, the responses were extremely variable, and it was difficult to find overlap between responses. Descriptions of *clear/slow* and *strong* being subsets of southern and northern categories were only made when the participants making those descriptions clearly indicated in the previous question where they thought this language was from. The overall prevalence of some southern characteristic is maintained, as is its status as official language with the additional detail that southern Albanians “speak slowly, the words are clear and understandable.”[23] Those who identified a northern characteristic reiterated the idea that northern Albanians have strong personalities, that their language has a “masculine/manly sound, clipped,”[24] where the *clipping* likely refers to the lack of a nasal portion where the participants would expect it. Many participants however, continued to emphasize that this form is either indistinguishable from previous examples, or is not Albanian, with one saying that “they speak with incomplete/imperfect forms.”[25] While not reflected in the table, it is very likely that *Quiet/Sweet* is a description of Central/Southern Tosk language in juxtaposition to the Northern description of *Strong/Masculine,* since all the respondents in that category refer to areas or cities in the Central/Southern region.

Table 15 Response types to “How do people in this place / these places talk?” for stop stimuli (n = 15)

Regional (57%)			Quiet/Sweet (13%)	Indeterminable (30%)
Southern (37%)		Northern / Strong / Masculine (20%)		
Clear/Slow (7%)	Southern (30%)			

[23] “Flasin ngadale,fjalet jane re qarta dhe te putueshme.”

[24] “Tingellim burreror , i prere.”

[25] “Flasin me forms te paplota”

When speculating why speakers from these entailed regions sound the way that they do, we come across the typical relationship between land, people, culture and language, but there are also some very specific ideas on display in this section. Participant 9, who identified the stop stimulus coming from the Tropojë area, where they have masculine, clipped language, attributed these traits to "harsh nature, living conditions, inherited tradition."[26] Compare this to Participant 10, who identified the stop stimulus coming from the Elbasan/Rrotulla area where "they sound sweet, quiet." These traits are, according to her are born "from the tradition of talking in closed, intimate/private environments."[27] Meanwhile, Participant 13 attributed the stop stimuli to heritage speakers who learned Albanian speaking at home with their parents and grandparents, and therefore produce incomplete forms due to their vocabulary and language skills decreasing. Altogether, the map of this variant reflects the unclear location, with high agreement in Albania, but without any major gradient between the north and south. Notably, the highest level of agreement in both regions is in cities near the central transition area between the dialects.

Altogether, at every layer of analysis, it appears that these participants from Pogradec recognize that something is happening differently in this sentence stimulus but are unable to satisfyingly identify and agree on what that is. This can be seen in not only the variety of responses, but in the increase of responses that find attributes of the stimulus uncertain or unclear. It is possible to attribute these responses to a few causes. The variety that has stop forms like the stimulus occurs only in a very constrained area in the Malësi e Madhe mountains, a dialect that is historically isolated and distant from many of the participant's Pogradec origins (Dedvukaj 2022). This variety, moreover, only has these stops in a few places, and in other words deploys the nasals of Gheg or the nasal-stops of Tosk, meaning the likelihood of a speaker of the Malsia Madhe dialect producing a stopped variant in a string of speech is reduced, and does not follow the distribution found in the stimulus where every single instance of a stop/nasal/nasal-stop alternation is rendered as a stop, making this stimulus sentence one of the more artificial ones used in the study. In light of these factors, the variation and uncertainty found in response to this stimulus sentence in particular makes sense. These stops are likely one of the less iconic variants and therefore less available for enregisterment.

[26] "Natyra e ashper, kushtet e jeteses, tradita e trasheguar."

[27] "Nga tradita per te folur ne ambiente te mbyllura , intime."

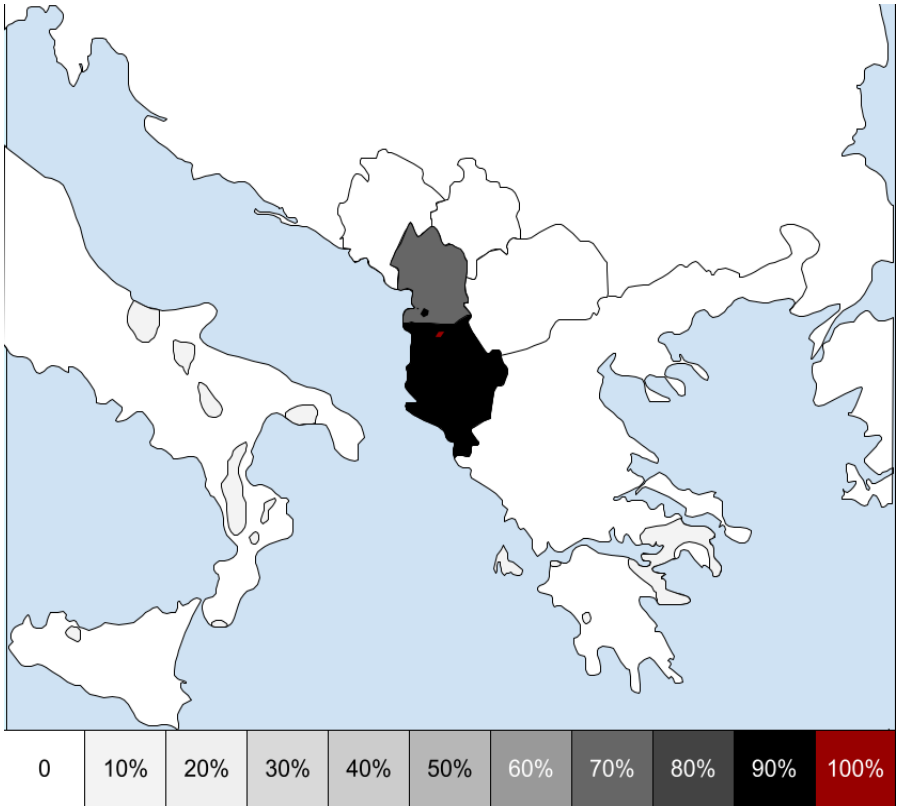

Figure 38 Agreement map for regions perceived using the stop variant

5.2.4 Syllabified

The fourth sentential stimulus provided was the sentence where every nasal-stop construction was rendered where the nasal segment preceding the oral segment received a mora, syllabifying the nasal segment and increasing its duration. Alternatively, nasals in post-vocalic positions were allowed to re-syllabify, forming the coda of a preceding syllable.

23) Syllabified /ṇdaj, ṃbɾeti indyɾ emban ʃpatən endɾyʃkuɾ ŋga beteja/

Because of the findings of the phonetic survey, the stimuli of this sentence should most closely resemble the language used by Tosk speakers. We can therefore expect that it will be more agreeable and accessible to the Pogradec participants, though it will be interesting to observe how these perceptions differ – if in any way – from those of the prenasalized stimuli. As expected, the participants had a much more positive response to this variety (60%), with only 20% responding neutrally and 20% responding negatively. Negative responses were generally consistent with responses in previous sections stating

that it did not sound Albanian. The most notable personality attributed to the entailed speakers of this stimuli was that of competence/assertiveness. They are "more aggressive, not in a bad way, more forward," and "it seems a more cultivated speech."[28]

Table 16 Response types to "what are Albanian speakers in this part of the world like? What are their personalities?" for syllabified stimuli (n = 15)

Competent (40%)		Regional (27%)			Heavy Dialect (7%)	Unclear (27%)		
Forward Strong (20%)	Intelligent (20%)	Iconic (7%)	Central/South (20%)			Indeterminable (13%)	Foreign (7%)	Same as 1 (7%)
			Korçë Pogradec Mallakastra (7%)	Central South (13%)				

Although the more positive evaluations of personalities aligns with the hypothesis that this variety would be identified with southern Tosk, participants were still somewhat split on whether or not this variety belonged to the north or the south. While only one participant proposed that it was a transitional form, the roughly equally distributed north/south responses and the instances of neighboring Montenegro and Kosovo corroborate this notion of mixed culture rendering the syllabified variants as a transitional form. This is explored closer with the next question. The agreement map for this variant further corroborates that the syllabified is believed to show up most frequently where borders, cultures, and dialects meet.

Table 17 Response types to "where in Albania or surrounding countries or in the world did this person learn to speak Albanian?" for syllabified stimuli (n = 15)

Undeterminable (13%)	Foreign (7%)	Albania & Neighbors (80%)				
		Mixed Language & Culture (7%)	North (33%)			Central South (40%)
			Northwest (13%)		Northeast (20%)	
			Montenegro (7%)	Northwest Albania (7%)	Kosovo (7%)	Northeast Albania (13%)

[28] "por duket nje e folur me e kultivuar."

Descriptions of how people in these regions heavily emphasized that it was clear, and far less emphasis on region or dialect. Three participants identified it as literary or academic language, meaning the forms are deliberately enunciated to be understood, and likely align very closely with the idea of Standard Albanian. Responses in the prosody (or prosody adjacent) category describe the syllabified variant as "more over pronunciation, still northern." It is "confident and determined." In Shkodra and Lezha,[29] Participant 22 notes that "the language it's more musical!" These types of descriptions align with those who decided this variant was northern. Participant 10 noted that "the north-east of Shiperisa is mainly a mountainous area, isolated houses. A long time ago, people spoke to others from long distances. They barked loudly."[30] Those who said it was southern were more likely to identify it as academic or literary language, and Participant 9, who identified the syllabified variants as being a product of mixed languages and cultures said that this variety was that of "educated people."[31] Regardless of where participants attribute the language to, they agree that this variety is characterized by increased annunciation, even if they cannot agree on the cause for that enunciation, which is further expounded upon in the next question.

In addition to the consistent relationship between the land, people, culture and language, participants also attribute the syllabified variant to influences from other cultures, either where the Gheg or Tosk varieties meet, or neighboring countries such as "more influence from Italian and Slavic in the north and east," or it comes from educational contexts. The connection between education and the syllabified, enunciated variety very easily correlates with the phonetic survey's findings about Standard Albanian and makes sense as the source of speakers speaking Standard Albanian. The cultural mixing however, at first does not appear to factor into Standard Albanian, and in many cases this is true. But several of Albania's large cities, such as the city of Tirana lie inside the region where the Gheg and Tosk dialects overlap and are home to universities, which are often more regionally and internationally diverse in their populations, linking the education aspect with the cultural and linguistic mixing.

Table 18 Response types to "How do people in this place / these places talk?" for syllabified stimuli (n = 13)

Unclear (15%)	Clarity (69%)		Dialect (16%)	
	Prosody (38%)	Academic/Literary (31%)	Gheg (8%)	Tosk (8%)

[29] Shkodër and Lezhë

[30] "Veri lindja e Shiperise kryesisht zone malore , banesa te vecuara. Njerzit para shume kohesh i flisnin te tjereve nga distsnca te largeta. Bertisnin fort."

[31] "Njerez te shkolluar"

This nexus of education and cultural overlap likely interacts with more local language attitudes. For example, Participant 11, who could not discern any social identity from the stimuli said it was “because they do not know the official dialect of the language well.” Born in 1957, she is one of the older participants in the survey and has consistently aligned her Pogradec Tosk dialect with the Standard (particularly in the first prenasalized sentential stimulus) and has expressed a lower opinion of other varieties. The inability to produce prenasals is therefore a failure to produce her Standard Albanian. The combination of having disparate linguistic backgrounds not producing prenasals and enunciating however, has likely contributed to these syllabified variants being conflated with Standard Albanian in other participants.

Note that there were fewer responses tallied for the third prompt for this stimulus. This was either because participants did not respond, or their response was untranslatable, and so was not included.

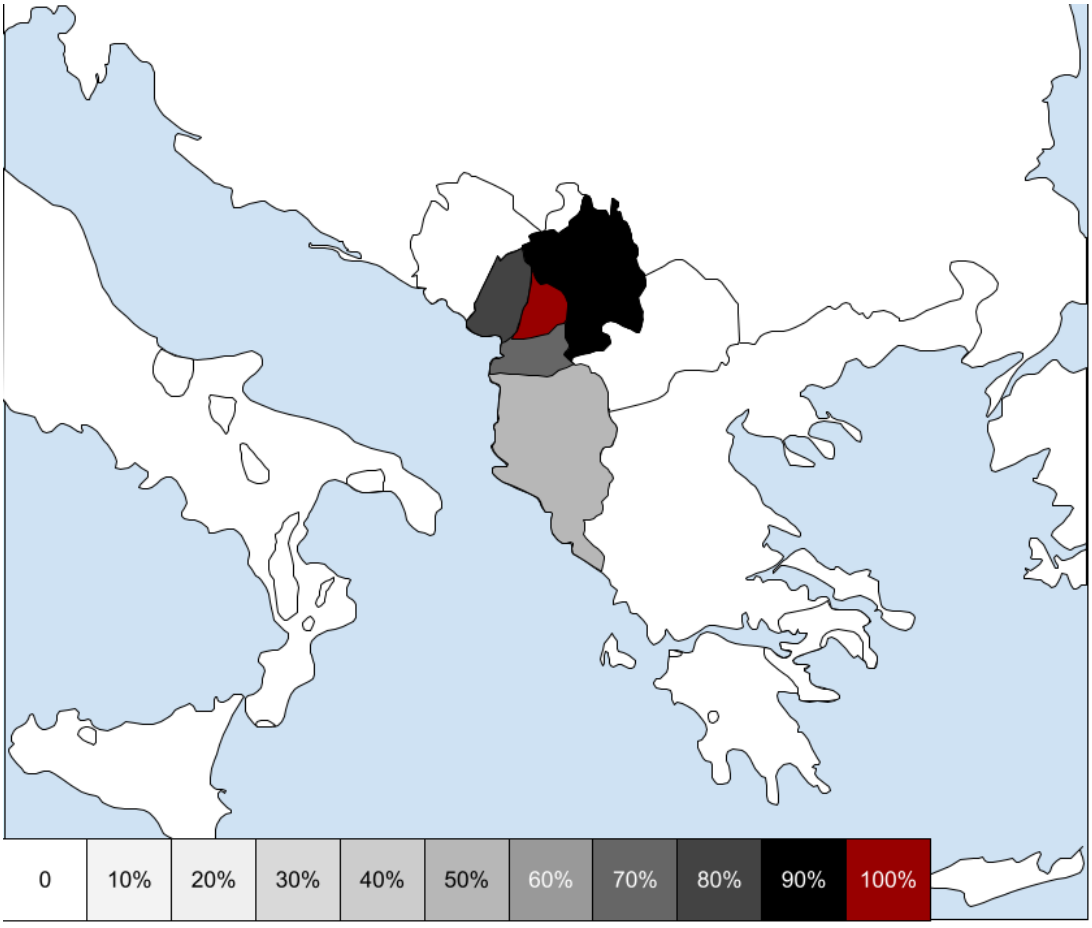

Figure 39 Agreement map for regions perceived using the syllabified variant

5.2.5 Summary of Sociolinguistic Results

The compiled results for the sociolinguistic survey were as follows: Participants responded positively to the prenasalized stimulus, which they thought was from southern Albania where people spoke more pleasantly than elsewhere. Given that almost all the participants have ties to Pogradec, this seems to be the variant they identify most strongly with, and generally admit a strong sense of linguistic solidarity with the rest of southern Albania.

Participants responded the most negatively to the nasal stimulus, which they thought was from northern Albania, an area of "others" who are shady and deceitful. The participants expressed both a weak sense of linguistic solidarity and a low evaluation of its correctness. This is not unexpected given that the north is known as a different Albanian dialect and subculture and is found relatively close to Pogradec. The variety is therefore distinct enough to be otherized, but familiar enough to evoke language attitudes.

Participants responded the most variably to the stop stimulus, with the most neutral characterizations. This variant was considered the most ambiguous or most difficult to place. While participants generally thought it was from somewhere in Albania, they were split on whether it belonged to the north or the south, and many could not distinguish it from one of the previous stimuli. I tentatively found that speakers of the variant utilize "clipped" consonants and are generally associated with strong or masculine traits. Because of this variability, it is difficult to get a clear picture of how participants' evaluation compares with the other stimuli and their entailed varieties, but this by itself is informative: it corresponds with the dialect this stimulus is based on being relatively distant from Pogradec, with the target stops only occurring in very particular words and contexts, increasing the distinctive, but unplaceable quality of the entailed variety on top of being unfamiliar to the participants, if noticeable at all.

Participants expressed with equivalent or more pronounced positivity to the syllabified stimulus as they had with the prenasal sentence. While there was variation on where the entailed variety was found, it had a consistent context of enunciation in contexts where linguistic cultures met. For many participants, this corresponded either to border regions or to educated individuals. This interacts with personal language attitudes, leading participants to either believe it to be poorly spoken Albanian, or Standard Albanian. This reinforces the findings of the phonetic survey: speakers who think they speak Standard Albanian do not change their nasal-stop sequence realizations when in a Standard Albanian register such as reading aloud, but those who did not think they spoke Standard Albanian did change these realizations. If those speakers had a separate form, then this form would become a syllabified nasal-stop cluster in a Standard Albanian context, which is consistent with both the attributions of this variety to education, and "poorly spoken" Albanian.

Broadly speaking then, according to these participants, prenasalized stops and syllabified nasal-stop clusters are indicative of Tosk, with the syllabified variants more closely related to Standard Albanian. The nasals on the other hand are indicative of Gheg and the

stop variants unplaceable. These findings are overall congruent with the hypotheses generated by the findings of the phonetic survey. Varieties similar to those used by the Pogradec-based speakers would elicit more positive attitudes and most accurately identified, and different varieties adjacent to Pogradec Tosk would be more broadly identified with potentially more negative attitudes. Those that are both distinct and unfamiliar are more of a mixed bag and are more dependent on the individual attitudes and experiences of the participant.

5.3 Analysis of Regional Results

The previous section explores the responses in respect to the type of sentential stimulus provided. Such an analysis allows for the exploration of how the target sounds are perceived, but mixes language attitudes and folk linguistic knowledge of different regions, depending on where a given participant determines the entailed varieties of the stimuli are from. This section, therefore, compiles the data into the regions provided by the participants and makes analyses on the folk linguistic knowledge about these regions, rather than responses only to the stimuli.

It needs to be emphasized that the regions discussed in this section are not dialect regions in the sense that they are areas of bundled linguistic features as documented in the field by linguists. The regions discussed are those that were produced by the participants of this study when asked to identify where an auditory stimulus is associated with. These regions therefore reflect participant perceptions of where people speak with different variants of nasal-stop sequences without any additional social input from the stimuli. Being participant generated, however, the subsequent descriptions of these regions are very informative to the perceptions of those participants for those regions, separate or at least not wholly dependent on just the features provided in the stimuli. A map of the general perceptual regions being discussed is provided in Figure 40, with the caveat that these are general areas described by participants, rather than having any strong basis in documentary linguistics.

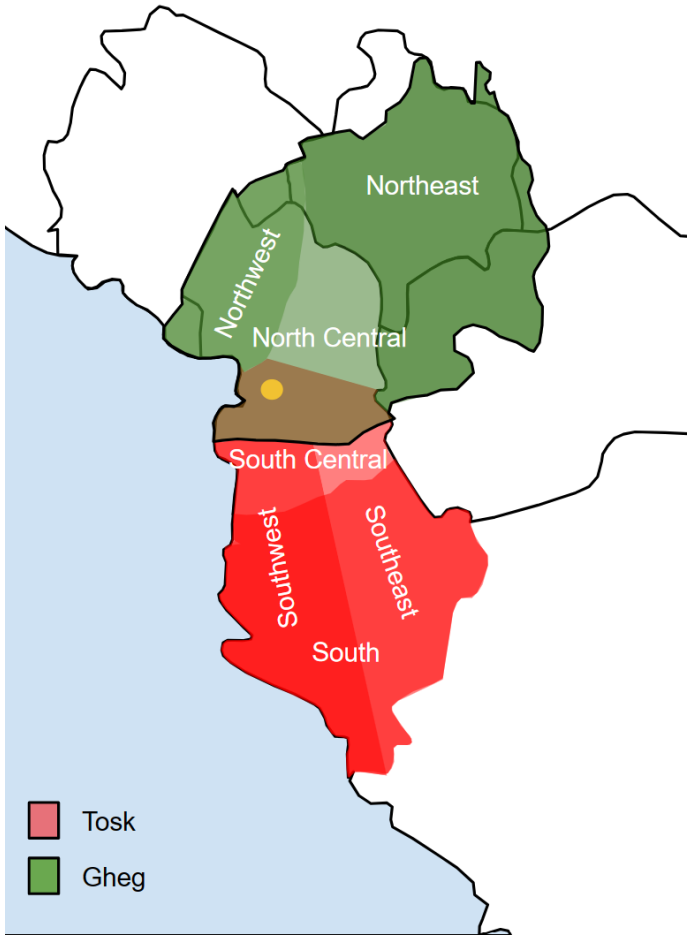

Figure 40 Map of inferred perceptual linguistic regions for Albanian

5.3.1 North

The North, as described here, potentially encompasses all of the regions of Albania north of the Shkumbin River and neighboring countries north or east of this region, namely Montenegro, Kosovo, and possibly Northern Macedonia. However, a case can be made that several of the areas north of the Shkumbin River might actually have a more southern Tosk or blended culture. These are therefore also treated separately in their own section (5.3.3), and I will present two analyses for the North: one that includes these more central regions, and one that excludes them.

Traditionally, this northern region has been considered to be culturally and linguistically Gheg Albanian. In the scope of this study, this means we would expect to find that they would render nasal-stop sequences as singleton nasals. In Table (19), we can see the number of times a participant associated a type of sentential stimulus with a given region, which are listed in order of their prevalence in the data.

Table 19 Stimuli associated with the North and its subregions (excluding transitionals)

	North	Northeast	All the North	Northwest	Malesia	Kosovo	Montenegro	N. Macedonia
Prenasal	3	0	2	1	1	0	0	0
Nasal	**5**	**3**	1	1	1	**2**	0	**1**
Stop	4	1	**3**	0	0	0	0	0
Syllabified	**5**	2	0	**2**	1	1	**1**	0
Total	17	6	6	4	3	3	1	1
Standard Deviation	0.96	1.29	1.29	0.82	0.50	0.95	0.50	0.50

Table 20 Stimuli associated with the North and its subregions (including transitionals)

	North	Northeast	All the North	Northwest	Malesia	Kosovo	Montenegro	N. Macedonia
Prenasal	3	0	2	1	1	0	0	0
Nasal	**8**	**3**	1	**4**	1	**2**	0	**1**
Stop	5	1	**3**	1	0	0	0	0
Syllabified	5	2	0	2	1	1	**1**	0
Total	21	6	6	8	3	3	1	1
Standard Deviation	1.79	1.29	1.29	1.22	0.50	0.95	0.50	0.50

This is corroborated by both the data that excludes and includes the transitional regions (Table 20). The entirety of the North is equally associated with the nasal and syllabified variants, but when the transitional data is included, the expected nasal form is the most prevalent. The nasal variant is also the most prevalent form in Kosovo and Northern Macedonia.

Like the North as a whole, the Northwest of Albania without the transitional data is most often affiliated with the syllabified variant but is affiliated with the nasal when including the transitional data. This addition or omission of the transitional data in the Northwest essentially amounts to including or excluding Tirana and neighboring cities. It is somewhat puzzling then to observe that adding Tirana, the capital of Albania an area that in the previous analysis linked with Standard Albanian, changes the affiliation from the syllabified variant we would expect in Tirana to the more broadly northern nasal. It is

difficult to determine why this analysis disagrees with the previous analysis in 5.2, or even if it does disagree or not. This perspective may be a product of equating nasal and syllabified variants together as "bad Albanian" from the perspective of some participants, but the veracity of that claim is likely undeterminable in this study. What can be stated is that when the broadest possible scope is used to view the Albanian speaking North, the nasal variant is the most prevalent.

Examining the Northwest even more closely, the Malësi e Madhe region in the mountains between Albania and Montenegro are not clearly identified with any one stimulus or set of stimuli. This likely corresponds to the findings in 5.2.3, where this is a less familiar region for the many Pogradec-based participants, and therefore not enregistered. Finally, for the participants who lumped the North into just one category, the stop variant is the most prevalent, although it is unclear why.

The perception of Northerners as the whole region is not bad, but it is certainly marked. They are described as "faithful people… the language is a little rough with strong dialect," with an emphasis of strong character and heavy language. As participant 22 put it, "I can say that in [the] North of Albania they are more stubborn and strong and their language [has] a different dialect!" This sense of individual character pervades the subregions.

The Northeast likely has the most negative evaluation. The people there are proud and masculine, but are isolated, harsh, and loud, and speak with heavy dialect. As Participant 13 put it, in Kosovo "their language sounds strong, and their personality is strong." The Northwest on the other hand seems to have inherited the more positive aspects of these traits. They are "aggressive, but not in a bad way, more forward." In the mountains, the language is softer, although the consonants are different and northwesterners are, according to Participant 1, apt to overpronunciation, and according to Participant 22, who seems to have a positive disposition towards all of Albania, "in [the northern] cities the language [is] more musical!" This distinction between the Northeast and Northwest may be due to the proximity/integration of the Northwest with the coastal cities like the capital of Tirana, which may be perceived by the southerners to have something of a "civilizing" effect on the otherwise rough northerners, although no such clarification is mentioned.

5.3.2 Central/South

The Central/South region, as described here has a very broad territory, positioned unsurprisingly, south of the North. It likely extends north of the Shkumbin River, despite that being the general Gheg/Tosk boundary due to the influence of southern Tosk and Standard Albanian. This is divided into a Central region, a Southern region, as well as the Southeast and Southwest, which may encompass both these regions along the eastern and western borders of Albania. Traditionally, these regions are affiliated with the Tosk

dialect. We therefore expect to find an association of these regions with the Tosk prenasal and syllabified variants as well as associations with Standard Albanian.

Table 21 Stimuli associated with the Central/South and its subregions

	Central / South	South	Central	Southeast	Southwest
Prenasal	**9**	**4**	2	**2**	**1**
Nasal	4	2	2	0	0
Stop	6	**4**	2	0	0
Syllabified	6	3	1	1	**1**
Total	25	13	7	3	2
Standard Deviation	2.06	0.95	0.50	0.96	0.58

Combining both the Central and Southern regions, the prenasal variant is confirmed as the most prevalent among participant perceptions of the area. As seen in previous analysis (5.2.4), this is followed closely by the syllabified variant, which is affiliated with Standard Albanian and education, and by the stop variant, which is difficult for participants to place. Among the participants identifying just the South, the prenasal and stop variants were equally prevalent. According to those who identified just Central Albania, the variety is much more ambiguous, reinforcing the idea that the area between the northern and southern extremes of the country are either perceived as transition areas or are areas whose language variety Albanian speakers cannot agree upon. In either case, the Central region's status is far more nebulous. Both the Southeast and Southwest are only described as having prenasal and syllabified variants; however, the Southeast is more strongly affiliated with prenasals whereas the Southwest is evenly split between the two variants. This may be because the Southwest is potentially more linked with the coastal cities or more distant from any land borders, but in both regions the data set is very small, so any further conclusion is tenuous at best.

Not unexpectedly, the participants described their homeland of Pogradec and its neighbors most favorably, stating that the area is "very friendly and community based" where there are "right, calm… gentle peace-loving people" who "speak politely, almost like literary language," and are generally quiet. They sound soft and are surrounded by beautiful nature. People from the south are quiet, and depending on who you ask either speak faster, or more often slower, "their words are clear and understandable" in a way they feel directly related to their cultural temperament being "friendlier, welcoming, more relaxed" and "less harsh than other regions." The Central region is affiliated with official or literary language, where people are "confident and determined" with "strong personalities. They usually like to see themselves as leaders." The inhabitants of the

Adriatic adjacent Southwest are perhaps a bit more boisterous, considered "talkative… their words come full and clear," so that they sound "like the brave captains."

5.3.3 Transitional/Central Regions

This section is mainly to address the findings explored in both the discussion of the North and South of Albania. As discussed in 5.3.1, the transitional area of the North is characterized primarily by the nasal variant, whereas the transitional area of the South (5.3.2) is much more ambiguous to participants. This of course depends on where we decide to define this transitional or "Central" region. However, because the majority of participants declined to engage in the survey's map task, and do not see it fit to define their geographic terminology for us, there must be a fair amount of conjecture. While this is true of the other regions, the nature of this area as a contact zone between the varieties complicates matters more than when we speculate about where these areas point away from the heart of Albania, and because of their significant overlap, any definition has a likely potential to be contentious. So allow me to build a case for setting some loose bounds on this region and describe how they interact with the linguistic and perceptual geography of Albanian.

First, it is more likely that this region of transition will reach further north than it will south. The prevalence of many Tosk traits in these more northerly milieux likely stems from Tosk's prevalence in Standard Albanian, the language of education and governance, producing social pressure and mobility for its linguistic features throughout Albania. Conversely, the Central regions will overlap further south, aligning perhaps more closely with other Tosk speakers than the Gheg dialects and cultures to the north. How distinct or non-distinct Central and Southern Tosk are from each other and how they are perceived is the topic of research beyond the scope of this thesis, but the nature of the transitional area, which I have as of yet not seen fit to capitalize, is of immense importance. We can see in 5.3.2 that the Central region appears to be ambiguous, whereas the inclusion of transitional northern data in 5.3.1 increased the affiliation with the nasal variant. There is a non-negligible chance that this is due to the messiness inherent to geographic regions provided by participants without an accompanying map to demonstrate where those regions are, but one way this can be analyzed is to recognize that – at least among these participants – the perception is that northern features are more prevalent in its local transitional region, either because they use them more frequently or because they are more marked and therefore noticeable to the Pogradec-based participants. The language of the north can therefore be viewed as more insular, kept closer to the chest and likely more limited in geographic scope, whereas the southern transitional region is characterized by a much more homogenous collection of regional features.

This analysis makes sense for a linguistic landscape undergoing the sociolinguistic processes likely occurring in Albania. The variety less associated with the Standard is confined to a narrower geographic scope but much more prevalent within those bounds on the edge of the Albanian linguistic community. Meanwhile, the variety

equated with the Standard is geographically and contextually much more widespread, but within those bounds far less universal, existing in the transition areas as a language of education, governance, and positions of prestige linked to those ideas, but not in other contexts, where more local and diverse forms can still emerge. Where this transitional region is then strongly depends on who you are asking, interacting with the respondents perceptions of their own speech variety, its position in the contexts around them, and their perception of other varieties around them.

Just as the geographic boundaries and linguistic features of this transitional area is hard to pin down, so are the personalities of its inhabitants. People from Elbasan, for example, are considered "quiet, hard to understand." While that participant (10) presented this charitably as charming characteristic of a culture used to speaking in "closed, intimate environments," others such as Participant 9 interpret these aspects differently, characterizing them as "false, laid out," and "a little treacherous," casting their different speech instead as obfuscated Albanian. Others take a more neutral stance. According to Participant 2, in "central Albania they sound like a mix of Gheg and Tosk, like a melting pot of the two stronger Northern and Southern dialects.' Further north, she finds their personalities "stronger and more dynamic," which coincides with other Northern perceptions. The "dynamic" part may be a reference to the duplicity mentioned elsewhere, although this is speculation. Altogether, it makes sense for there to be varying perceptions of a transition region, nor is it surprising that some might find their lack of belonging to a particular region as suspicious. For some, mixed language might index mixed allegiances or duplicity, whereas to others it seems to simply be a local variety.

5.3.4 Abroad

The category of abroad, or "foreign," as it has been termed by many of the participants, is characterized by existing outside of the borders of Albania. This region does not refer directly to the other regions outlined in my analysis and may include data from some of those other regions if that data references a variety outside of Albania.

Table 22 Number of stimuli associated with varieties outside of Albania

	Foreign	Italy/Greece	Foreigners	Kosovo	Montenegro	Macedonia	Heritage
Prenasal	3	**2**	1	0	0	0	0
Nasal	**5**	1	1	**2**	0	**1**	0
Stop	2	1	1	0	0	0	**1**
Syllabified	4	1	1	1	**1**	0	0
Total	14	5	4	3	1	1	1
Standard Deviation	1.29	0.50	0	0.96	0.50	0.50	0.50

For all the types of stimuli that were considered "foreign," the nasal variant is the most prevalent, reinforcing its status as the "other" to the Pogradec-based participants. The variants spoken in Italy and Greece – presumably the Arbëresh and Arvanitika dialects – are characterized most strongly by the prenasal variant, although this prevalence is fairly weak as all the other variants are also mentioned. This makes sense considering that both of these dialects are related to Albanian Tosk and would therefore be expected to be perceived similarly, while also being somewhat different and ambiguous seeing that they are in other countries. Kosovo and Northern Macedonia are the most associated with the nasal variant in alignment with the rest of the North, while Montenegro is by one participant associated with the syllabified variant with the insinuation that they cannot speak the southern variety, and therefore would produce these rather than prenasals. One participant speculated that heritage speakers of Albanian would be the ones to use the stop variant, because their language had been reduced and their vocabulary diminished. Finally, when we look at the category that makes no distinction between types of foreigners, the variety used is ambiguous, which is what we would expect in a category so broad as to represent how any given non-Albanian with any linguistic background would pronounce Albanian words.

As mentioned before, Kosovo and the rest of the Northeast have a reputation of strong personalities and harshness among the participants. Italy and its Arbëresh dialect on the other hand, seems to be consistently characterized as old fashioned. This correlates with a common observation that dialects further and isolated from their ancestral homeland often feature more archaic features that represent the language at the time when they branched from the broader language and carry a certain nostalgia about their mother tongue that often inhibits some types of innovation. Other varieties not spoken in Albania otherwise seem to be characterized as simply being foreign, or bad at speaking Albanian, often because they do not speak the Standard Dialect. Those who place emphasis on the Standard Dialect also generally seem to think that their variety is the

Standard and have more negative evaluations of even the other domestic varieties of Albanian.

5.3.5 Summary of Regional Results

By analyzing the types of responses by the region cited in the response rather than by the type of stimulus, the following patterns emerged: The North, encompassing Northern Albania, Montenegro, Kosovo, and Montenegro was most frequently identified with the nasal variant, consistent with many of the Gheg Albanian dialects spoken in these regions. This nasal variant is also prevalent in the transitional area of the North where it draws near to southern Tosk. Northerners are characterized by strong personalities, which can be more aggressive in the Northeast and more positively viewed in the Northwest. The South/Central region, encompassing everything south of the North was most frequently identified with the prenasal variant, consistent with the findings for several Tosk Albanian speakers. The southern transitional area, however, featured more variants of ambiguous prevalence, indicating that while broader in geographic scope, the southern Tosk forms were less universal in that transitional area. Southern speakers were generally viewed in a more positive light, but this likely (at least in part) stems from almost all the participants of this sociolinguistic study originating from the south of Albania themselves. When examining Albanian found outside of Albania's borders, the neighboring varieties were most consistent with the Albanian dialects they were most closely related to. Those in the north were predominantly nasal like Gheg, and those related to Tosk were predominantly prenasal. Generic foreigners had no predominant variant associated with them.

We see these results borne out in Figure 41, which maps the regions associated with each variant of nasal-stop sequence wherever there was over 90% agreement. In it we find a nasal dominated north overlapping with syllabified forms, particularly outside of Albania, and a south that is host to prenasal and stop variants, with the more regionally nebulous stops being attributed to the southern Central region and central cities like Tirana. The more northerly Central regions are blank, demonstrating that 90% agreement was unobtainable, reflecting its transitional and potentially untrustworthy status in the minds of Albanian speakers.

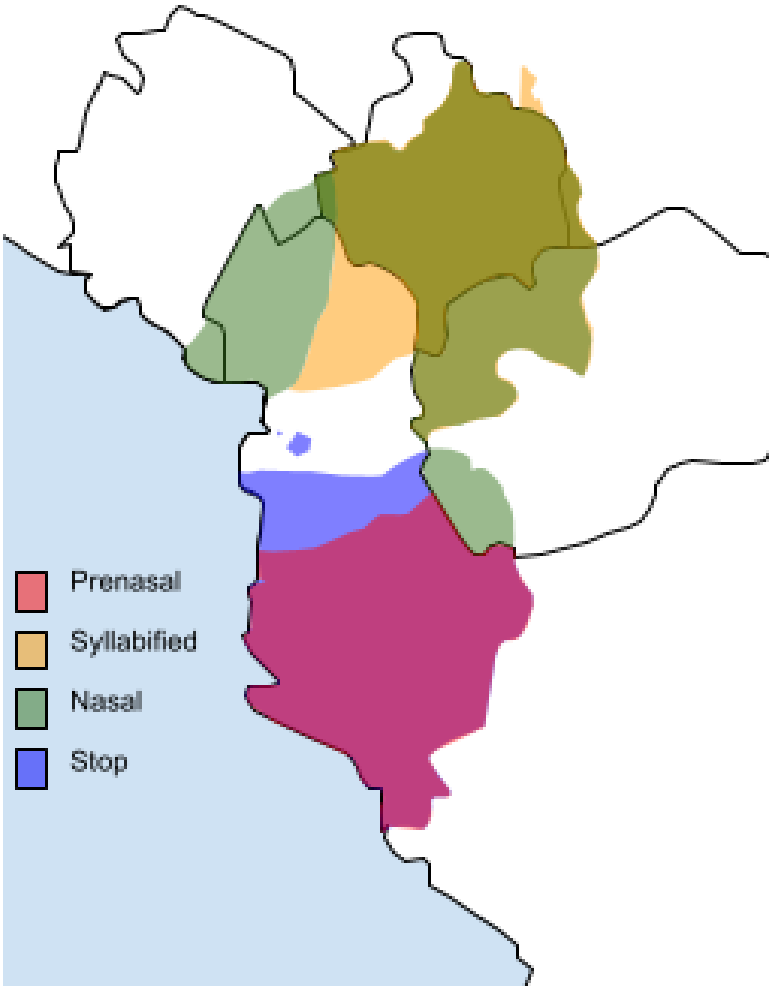

Figure 41 Map of perceived territories of for nasal-stop variants with over 90% agreement

CHAPTER 6. CONCLUSIONS

6.1 Survey Summaries

In the course of this thesis, I have conducted both a phonetic survey collecting acoustic and aerodynamic data about Albanian nasal-stop sequences and a perceptual dialectology survey examining how Albanian speakers use the phonetic variants of these sequences to construct regional social identities and caricatures.

The phonetic survey found that the nasal portions of Albanian word-initial nasal-stop sequences tended to be longer than singleton nasals. When speaking their home dialects, Gheg speakers produced many of these words with the singleton nasal variant characteristic of their dialect, but when they did produce both portions of nasal-stop

sequences they tended to be longer than those of Tosk speakers. These Gheg nasal-stop sequences also tended to be longer than the average Gheg vowel, suggesting that they may be syllabified, splitting the nasal and stop portions across a syllable boundary. Tosk speakers did not use the word-initial singleton nasal variant nearly as much as Gheg speakers, and in their home dialects they tended to have shorter nasal portions of the sequences compared to Gheg speakers. These also tended to be shorter than the average Tosk vowel, suggesting that they are more likely to be categorized as single partially-nasal segments for speakers. When speaking their approximations of "Standard Albanian," both dialects had more comparable nasal durations, which tended to be longer than in their home dialects. This effect was more prominent in Tosk speakers and may reflect a stance separating their own dialects from the Standard shared with other regions or the variety's role in administration and the classroom.

However, in both dialects, there was a wide range of variation, particularly with segmental length of the nasal and the degree of alignment or misalignment of the velo-nasal and oral gestures. This varied widely both across participants and within participants, with individuals producing some nasal-stop sequences with long nasal durations resembling a syllabified cluster, shortened durations and nasal attenuation resembling a prenasalized consonant or a poststopped nasal, and variants that did not fit well into any previously established taxon of partially-nasal segments. Combining this variation with historical analyses tracing most of these word initial sequences to *VN.D constructions, these variants do not appear to be phonologically contrastive and still likely correspond to a phonemic cluster of a nasal and a stop, even if their actual phonetic realization is highly variable.

Despite the lack of evidence for phonological contrastiveness, the sociolinguistic survey demonstrated that these variants are nonetheless socially contrastive. When sentences were manipulated only on the phonetic realization of the nasal-stop sequences, these manipulations yielded drastically different regional identifications and caricatures, particularly with the nasal and partially-nasal variants. The nasal variants were more negatively regarded by a predominantly southern Tosk population sample, being associated with northern Albanians (Gheg speakers) with heavy accents and strong personalities. The partially-nasal variants however were very positively regarded, being associated with southern Albanians (Tosk speakers) with softer accents and friendlier personalities. The syllabified variant stood somewhere between these two and is likely associated with Standard Albanian and its position in administration and education.

Putting these two surveys together, we find northern Gheg speakers producing and being associated with singleton nasal and more syllabified variants of nasal-stop sequences, which somewhat estranges them from their more southerly neighbors. In comparison, Tosk speakers more frequently produce and get associated with shorter, partially-nasal single-segments, which they associate with friendliness and national pride.

6.2 Considerations for the Theoretical Framework

This thesis demonstrates that for Albanian, the taxonomic categories established by previous research do not map directly or consistently to the phonetic realizations of nasal-stop sequences that I have documented. Speakers of both the same and different varieties of Albanian can have different realizations and can even vary from word to word and utterance to utterance. Additionally, there are several realizations that do not correspond perfectly with any category of nasal-stop sequence. The Albanian language therefore either represents that at worst these categories do not survive contact with actual phonetic variation within speakers, or at best a language in transition between categories in a way that has not yet been documented. Most languages containing similar sequences after all have had some level of phonemic contrast between singleton nasals and/or singleton stops against nasal-stop sequences, something that does not appear to be the case in Albanian. In either case, our current taxonomy is not able to accommodate these real variants permitted within a language and presents our field with a gap in our framework. While I have demonstrated that these sequences are socially contrastive even when they are not phonemically contrastive, I have yet to conduct any more in-depth perceptual experimentation to determine where social meanings transition or where the perceptual transition lies between the singleton and the proposed partially-nasal forms.

It is likely that the field will benefit from adopting the more continuum-like approach I have used here, where on one end one finds singleton nasals and stops and on the other side a nasal-stop cluster with all manner of partially-nasal segments intervening between them. Depending on the perceptual categories used by language varieties, these intervening sections may operate as one interstitial category, or could provide several categories available for phonological and social contrast, with variability available synchronically and diachronically as forms transition towards one end of the continuum or the other as the language variety develops and evolves. This model allows not only for the more variable scenarios, like the one I have documented in Albanian, but also for more categorical examples as documented in the research of other languages if we can prove perceptually that those categories exist. The model moreover allows for the bidirectional evolution of singletons into complex clusters and complex clusters into simple singletons and the points where production and perception can conspire to change the direction of change entirely.

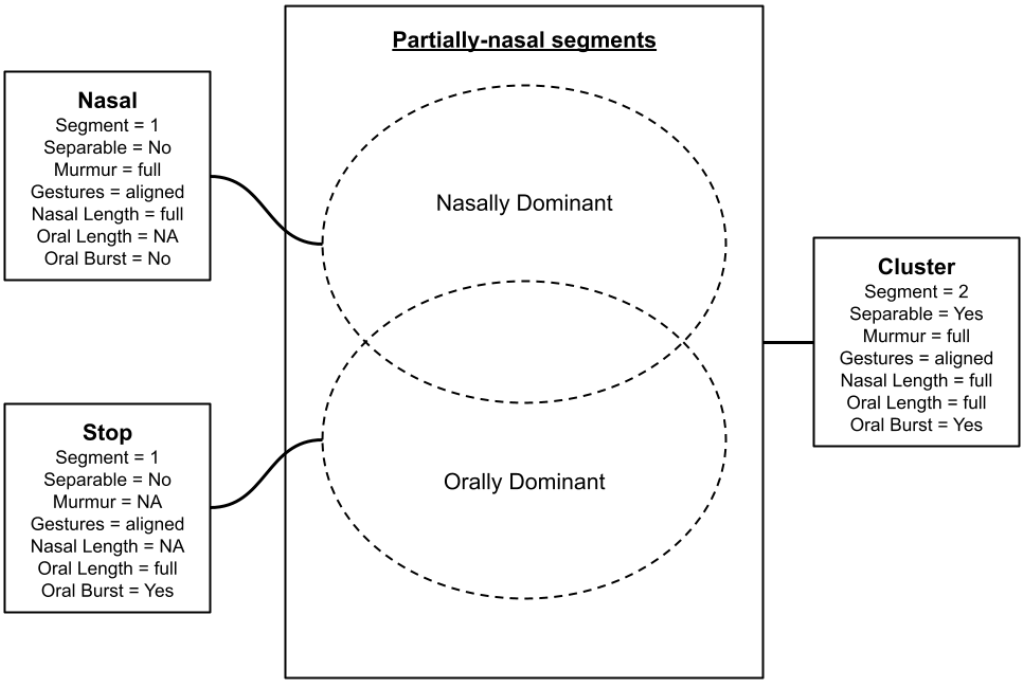

Figure 42 Proposed cross-linguistic continuum for the variability and evolution of nasal/stop constructions

6.3 Reflections

Perceptual research as a whole is severely lacking in the field's treatment of partially-nasal segments and their relationship with clusters, singleton nasals, and singleton stops. Beddor & Onsuwan (2003) has started these important steps, but until similar perceptual research has been conducted cross-linguistically accompanied by sociolinguistic research comparable to that conducted in this thesis, we cannot confidently or responsibly claim that any of the categories outlined in our research have any linguistic reality for speakers of the languages we study. Perceptual research is paramount to understanding which phonetic and social correlates matter to speakers, which of those correlates shape their phonotactics, which of those correlates shape their sociolinguistic landscapes, as well as where and how those fields of linguistic knowledge interact. Moreover, we will then find which correlates do not matter to speakers, whatever our instruments tell us. This research must be robust, expecting different results from each language variety it examines unless proven otherwise.

In this thesis, I demonstrate how neither phonetic, sociolinguistic, nor historical analyses are sufficient by themselves. None of these aspects in language exist in isolation from the other: the only way to understand the synchronic patterns we freeze in time for

our linguistic microscopes is to look at how they are distributed today and how they were distributed in the past. Likewise, to understand the history of a language one must also look at how it works now in both the grammatical and social shapes it takes in the present. Without knowing the points of social contrast elicited by perceptual dialectology, the variation observed in my phonetic survey frustratingly has no reason to exist other than to defy the phonetician and phonologist in their attempt to find nice, neat categories that simply do not exist. Without knowing how speakers produced their nasal-stop sequences, the perceptual dialectology has no stimuli to uncover the rich third order stereotypes indexed by the phonetic variants.

The synchronic phonemic identity of these sequences as a cluster is derived from Albanian historical *VN.D sequences. But the documentation of how different phonetic realizations can produce different emphasized sounds in the nasal-stop sequences in the synchronic phonetic survey points to a historical analysis where subsequent waves of perceiver analysis of these nasal-stop sequences. Such a historical analysis finds speakers producing words perceived as singleton nasals, other as singleton stops, and yet others that maintain both their nasal and their oral portions, depending on where in the partially-nasal continuum production was made in Albanian's history. These hypotheses and conclusions are simply not available when looking through one theoretical approach alone.

While I have made a thorough initial foray into this topic in Albanian, there are still many avenues of analysis that still require further research and development. I am limited by my position within the United States as a speaker of American English. All of my participants for both surveys were surveyed in a bilingual context with American Englishes. I cannot know what effect or how salient an effect this has had on my results. I have successfully observed some context of Albanian, and the challenges this presents our theoretical framework stand, but until comparable research is conducted with other Albanian speakers in other contexts, the generalizability of my results to the rest of the Albanian speaking world is theoretical. I hope to conduct supplemental research in Albania to either corroborate my findings here, or to better demonstrate the plurality produced by the Albanian diaspora.

Additionally, the stimuli I have created for the sociolinguistic survey are not produced by a first language Albanian speaker, nor do they represent fully or accurately the varieties spoken by Albanian groups. While this was intentional in order to make the only variable element in the stimuli the nasal-stop variety used, this did result in loss of control over the naturalness and authenticity of the language used. It will likewise be unclear what effect this had on the perceptual results until subsequent research is conducted. Such research would ideally replicate these stimuli with an Albanian speaker adept at code switching between varieties, and individual Albanian speakers from different varieties. These stimuli will therefore exchange control of the varieties and speakers used for increased authenticity. When used with the findings reported here, these should provide a more thorough and reliable analysis of how nasal-stop sequences are socially used by Albanian speakers. Moreover, nasal-stop sequences and their

variants are not the only indexical features used by Albanian speakers, leaving open an entire field of ongoing and future research.

I am most concerned about obtaining information about Albanian syllabification and phonetic perception of these nasal-stop sequences. Without these next steps, it will be impossible to determine the segmental status and behavior of nasal-stop sequences. Replicating Beddor & Onsuwan (2003) with Albanian is a probable next step, as would be conducting syllabification production and perception tasks with Albanian speakers. Tasks might include syllable counting, production of poetry with certain words, the perception of poetry, or other such tasks that probe syllabification. A corpus survey of abbreviations and acronyms found in Albanian texts, administration, signs, and names might also provide insight into the phonemic and syllabic make-up of these sequences.[32]

Finally, the cartographic representations of the different nasal-stop variants as presented in the sociolinguistic results are based on dialect maps documented in other research, despite being perceptual data. These representations may not accurately represent the regions imagined by participants, nor do these features necessarily translate into the features documented by these dialectical studies. In order to more accurately ascertain where these features are believed to be found, a perceptual dialectology map task needs to be successfully implemented. Such a task was part of this study's design but was largely ignored by participants due to complications of the digital format. It may therefore be necessary to administer the task in person in the field in order to more reliably obtain this type of data and would ideally be coupled with a phonetic survey to juxtapose the dialectical distribution with folk linguistic perceptions and the relationships they have with participants.

Altogether, this thesis makes a substantial step into understanding the phonetic and phonological behavior of Albanian nasal-stop sequences, their social usages, and their historical origins, presenting new relationships within our understanding of how nasal-stop sequences and partially-nasal segments interact in both synchronic and diachronic linguistics. Although the framework we use to examine these sounds struggles to account for the variability found in Albanian, with some amendments and more extensive research into the perception of these sounds, it has the ability to account for both the synchronic behavior and the historical development of nasal-stop sequences.

[32] Thanks to Dr. Carly Dickerson for this suggestion.

APPENDIX 1. LEXICAL STIMULI & THEIR PHONOLOGICAL DISTRIBUTIONS

Stimuli for both the translation and production task are provided in the randomized order that they appeared to participants. For the translation task, the stimulus is the English word provided, and the target word the Albanian word it hoped to elicit. Participants, however, did not always produce the intended form. The same is therefore true for the target sounds listed by their position in the word. Word medial target sounds marked with * are those that were likely to actually be produced word finally because the word final unstressed < ë > vowel is usually not pronounced in most multi-syllable words.

Translation Task

Stimulus	Target Word	Initial	Medial	Final
to freeze	ngrij	#ŋg		
to hold	mbaj	#mb		
copper	bakër	#b		
but	por	#p		
to carry	mbaj	#mb		
I am from…	jam nga	#ŋg		
a place	vend			nd#
a bride	nuse	#n		
a name	emër		m	
a sole (of a shoe)	taban	#t	b	n#
a father	baba	#b	b	
within / inside	(m)brenda	#mb	nd	
to satiate	ngij	#ŋg		
a dog	qen			n#
a finger	gisht	#g		
a pear	dardhë	#d		
to convince	bind	#b		nd#
a fence	gardh	#g		
a sister	motër	#m	t	
a night	natë	#n	t*	t#
to influence	ndikoj	#nd	k	
a worm	krimb	#k		mb#
a day	ditë	#d	t*	t#
a mouth	gojë	#g		
a spider	merimangë	#m	m, ŋg*	ŋg#
a king	mbret	#mb		t#
a feather	pendë	#p	nd*	nd#
a foot / leg	këmbë	#k	mb*	mb#
a winter	dimër	#d	m	
a cork	tapë	#t	p*	p#
to frighten / scare	tremb	#t		mb#

wages / pay	pagë	#p	g*	g#
a pumpkin	kungull	#k	ŋg	
last night	mbrëmë	#mb	m*	m#

Production Task

Stimulus	Initial	Medial	Final
emër		m	
gëzim	#g		m#
shkrumb		k	mb#
gogol	#g	g	
çndryshk		nd	k#
kuvendi	#k	nd	
nge	#ŋg		
mbaj	#mb		
mal	#m		
katundi	#k	t, nd	
ëmbël		mb	
lëng			ŋg#
kombi	#k	mb	
katund	#k	t	nd#
festim		t	m#
këmbëcingthi	#k	mb, ŋg	
mbështjell	#mb	t	
komb	#k		mb#
lëngu		ŋg	
ndikoj	#nd	k	
anën		n	
kuvend	#k		nd#
mbush	#mb		
kishë	#k		
shkrumbi		k, mb	

APPENDIX 2. PHONETIC SURVEY MATERIALS

Individual Demographic Questions

1. What year were you born? / Në çfarë viti keni lindur?
2. What is your gender? / Cila është gjinia juaj?
3. What is your highest level of education? / Cili është niveli juaj më i lartë i arsimimit?

Primary School / Shkolla Fillore
High School Degree or equivalent / Diplomë e Shkollës së Mesme apo ekuivalente
Certification in a Trade / Certifikim në shkollë teknike/profesionale
Bachelor's Degree / Diplomë Bachelor
Master's Degree / Diplomë Master
Doctoral Degree / Diplomë Doktorature?

Community Demographic Questions

1. In what country / countries did you grow up in? Do not provide any actual addresses to preserve your confidentiality. Në cilin shtet / shtetet jeni rritur? Mos jepni asnjë adresë vërtetë për të ruajtur konfidencialitetin tuaj.
2. In what City/Town did you grow up in? Do not provide any actual addresses to preserve your confidentiality. Në cilin qytet jeni rritur? Mos jepni asnjë adresë vërtetë për të ruajtur konfidencialitetin tuaj.
3. Where did your parents and grandparents grow up? Ku janë rritur prindërit dhe gjyshërit tuaj?
4. Do you think that you sound and talk more like your parents, grandparents, or like most Albanian speakers from the city/town you grew up in? Mendon se tingëllon dhe flet më shumë si prindërit, gjyshërit, apo si shumica e shqipfolësve të qytetit ku je rritur?
5. Indicate where you grew up on the map / Tregoni se ku jeni rritur në hartë.
6. Where do you live now? Do not provide any actual addresses to preserve your confidentiality. Ku jetoni tani? Mos jepni asnjë adresë vërtetë për të ruajtur konfidencialitetin tuaj.
7. What dialect of Albanian do you speak, or, what area / culture in Albania or in the surrounding countries do you associate your speech with? Çfarë dialekti të shqipes flisni, apo, me cilën zonë/kulturë në Shqipëri apo në vendet përreth e lidhni të folurin tuaj?
8. Please shade any regions that speak the same as you do on the provided map.Ju lutemi, hijeni çdo rajon që flet njësoj si ju në hartën e dhënë.

Translation Task

When you click to the next page, an English word will appear on the screen. Please say out loud the Albanian word (or words) that mean the same as that English word.

This is NOT a test about your skills as a speaker of Albanian or English. Some of these words are less commonly used, and it is okay if you do not know what the word is in both

languages. If you do not know the word, say "I don't know," and then start with the next word.

Please wait for the researcher to start the recording before starting!

Kur klikoni në faqen tjetër, një fjalë në anglisht do të shfaqet në ekran. Ju lutemi thoni me zë të lartë fjalën (ose fjalët) shqipe që kanë një kuptim të njëjtë me atë fjalë anglisht.

Ky NUK është një test për aftësitë tuaja si folës i gjuhës shqipe apo angleze. Disa nga këto fjalë përdoren më rrallë dhe është në rregull nëse nuk e dini se çfarë është fjala në të dyja gjuhët. Nëse nuk e dini fjalën, thoni "I don't know" dhe më pas filloni me fjalën tjetër.

Ju lutemi prisni që studiuesi të fillojë regjistrimin përpara se të filloni!

<u>Production Task</u>
When you click to the next page, an Albanian word will appear on the screen. Please say that word out loud (in Albanian) as if speaking with a close friend or family member.

Please wait for the researcher to start the recording before you start!

Kur klikoni në faqen tjetër, në ekran do të shfaqet një fjalë shqipe. Ju lutemi thoni atë fjalë me zë të lartë sikur të flisni me një mik të ngushtë ose një anëtar të familjes.

Ju lutemi prisni që studiuesi të fillojë regjistrimin përpara se të filloni!

APPENDIX 3. SOCIOLINGUISTIC SURVEY MATERIALS

Individual Demographic Questions

1. What year were you born? / Në çfarë viti keni lindur?
2. What is your gender? / Cila është gjinia juaj?
3. What is your highest level of education? / Cili është niveli juaj më i lartë i arsimimit?
   Primary School / Shkolla Fillore
   High School Degree or equivalent / Diplomë e Shkollës së Mesme apo ekuivalente
   Certification in a Trade / Certifikim në shkollë teknike/profesionale
   Bachelor's Degree / Diplomë Bachelor
   Master's Degree / Diplomë Master
   Doctoral Degree / Diplomë Doktorature?

Community Demographic Questions

1. In what country / countries did you grow up in? Do not provide any actual addresses to preserve your confidentiality. Në cilin shtet / shtetet jeni rritur? Mos jepni asnjë adresë vërtetë për të ruajtur konfidencialitetin tuaj.
2. In what City/Town did you grow up in? Do not provide any actual addresses to preserve your confidentiality. Në cilin qytet jeni rritur? Mos jepni asnjë adresë vërtetë për të ruajtur konfidencialitetin tuaj.
3. Where did your parents and grandparents grow up? Ku janë rritur prindërit dhe gjyshërit tuaj?
4. Do you think that you sound and talk more like your parents, grandparents, or like most Albanian speakers from the city/town you grew up in? Mendon se tingëllon dhe flet më shumë si prindërit, gjyshërit, apo si shumica e shqipfolësve të qytetit ku je rritur?
5. Indicate where you grew up on the map / Tregoni se ku jeni rritur në hartë.
6. Where do you live now? Do not provide any actual addresses to preserve your confidentiality. Ku jetoni tani? Mos jepni asnjë adresë vërtetë për të ruajtur konfidencialitetin tuaj.
7. What dialect of Albanian do you speak, or, what area / culture in Albania or in the surrounding countries do you associate your speech with? Çfarë dialekti të shqipes flisni, apo, me cilën zonë/kulturë në Shqipëri apo në vendet përreth e lidhni të folurin tuaj?
8. Please shade any regions that speak the same as you do on the provided map.Ju lutemi, hijeni çdo rajon që flet njësoj si ju në hartën e dhënë.

Guise Task

For this task, you will be given an audio recording of an Albanian speaker. Listen to the audio, and then answer the questions provided about the Albanian speaker that you heard. Some of your answers will be written, others will be drawing on maps, and other will be you responding to the question out loud.

Për këtë detyrë, do t'ju jepet një regjistrim audio i një shqipfolësi. Dëgjoni audion dhe më pas përgjigjuni pyetjeve të dhëna për shqipfolësin që e keni dëgjuar. Disa nga përgjigjet

tuaja do të shkruhen, të tjerat do të vizatohen në harta dhe të tjerat do t'i përgjigjeni pyetjes me zë të lartë.

Instructions: Suppose there are four, identical quadruplet American brothers. Each of these brothers joined the Peace Corps and went to volunteer in an Albanian-speaking part of the world. However, each brother was placed in a different region, where they learned the local way of speaking. Based on how you hear each brother talk, try to guess where in Albania (or neighboring countries) they lived. You will be asked the same set of questions about each of the four brothers.

All four brothers will say the same sentence: "Ndaj, mbreti i ndyrë e mban shpatën e ndryshkur nga beteja"

Udhëzimet: Supozoni se ka katër vëllezër katërnjakë identikë amerikanë. Secili nga këta vëllezër u bashkua me Korpusin e Paqes dhe shkoi vullnetar në një pjesë shqipfolëse të botës. Megjithatë, çdo vëlla u vendos në një rajon të ndryshëm, ku mësoi mënyrën e të folurit vendas. Në bazë të mënyrës se si flet secili vëlla, përpiquni të merrni me mend se ku jetonte në botën shqipfolëse. Do t'ju bëhet i njëjti grup pyetjesh për secilin nga katër vëllezër.

Të katër vëllezërit do të thonë të njëjtën fjali: "Ndaj, mbreti i ndyrë e mban shpatën e ndryshkur nga beteja"

1. Based on the way this person talks, what are the Albanian speakers in this part of the world like? What are their personalities? Në bazë të mënyrës se si flet ky person, si janë shqipfolësit në këtë pjesë të botës? Si janë personalitetet e tyre?
2. Where in Albania or surrounding countries or in the world did this person learn to speak Albanian? Why do you think that? Ku në Shqipëri apo në vendet përreth apo në botë ka mësuar ky person të flasë shqip? Pse mendoni kështu?
3. How do people in this place / these places talk? What do they sound like? Si flasin njerëzit në këtë vend/këto vende? Si tingëllojnë ato?
4. Why do you think that they sound this way? Pse mendoni që ata shqiptojnë fjalët ne këtë mënyrë?

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