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The Maay Maay Nominal System and Its Tonology

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Abstract:

The aim of this thesis is to explore the tonology of the nominal system in Kenyan Maay Maay (KMM). In particular, this thesis describes the structure of nouns and noun phrases and outlines an analysis of tonal alternations based on a combination of word shape and grammatical gender that have not previously been discussed. The goal is to understand the nature of the language's prosodic system and how it may have developed. This thesis complements research on other Maay dialects that report rather different prosodic properties, ranging from not having a tonal system (Comfort & Paster 2009; Paster 2006; Paster & Ranero 2015) to not exhibiting the type or number of alternations reported here (Saaed 1982, Biber 1982). In doing so, this thesis intends to situate KMM alongside the synchronic and diachronic prosodic behavior of other Maay varieties, as well as other Cushitic languages.

Keywords: Maay Maay, Cushitic, tonology, prosody

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Table of Contents

Abbreviations

1 – 1st person

2 – 2nd person

3 – 3rd person

C – consonant

D – Domain

DEF – Basic definite

Dem – Demonstrative

Det – determiner

Dis Dem – Distal Demonstrative

DIST - distributive

DP – Determiner Phrase

F – feminine

H – High tone

Interr – Interrogative Determiner

L– Low Tone

LOC – locative

K – k-series

KMM – Kenyan Maay Maay

M – masculine

NEG – Negation

NP – Noun Phrase

PL – plural

Poss – Possessive

Prox Dem – Proximal Demonstrative

PWd – Prosodic Word

RDEF – Remote Definite

SG – singular

T – t-series

V – vowel

Chapter 1: Introduction and Literature Review

This thesis intends to do three things. The first is to describe the nominal system of Kenyan Maay Maay, a dialect of Maay Maay that has yet to be explored in the literature. Next, I describe the tonology of the nominal system and outline an analysis for it. As will be shown later, KMM shows tonal alternations that have not been attested in other descriptions of the language. Finally, I will situate Kenyan Maay Maay's prosodic behavior and characteristics alongside the synchronic and diachronic behavior of other Maay dialects and other Cushitic languages.

In this chapter, in particular, I aim to do two things. First, I discuss findings presented in the existing literature on various dialects of Maay Maay, also called Maay [iso:ymm], in relation to data collected on Kenyan Maay Maay in 2021-2022 at Syracuse University. Compared to other Cushitic languages, and Lowland East Cushitic languages in particular, there is little published literature on the language. Much more attention has been paid to other languages, and notably, to Somali, Oromo, and Afar, which may stem from their greater speaker population, and therefore their overall geopolitical importance. Second, I describe what is known about phonological prominence in other select Cushitic languages for which sufficient detail is reported about this topic. This is necessary in order to better situate Maay's prosodic system both synchronically and diachronically. One challenge in describing these languages is that they are variously described either as "tonal" or "accentual." This stems from the fact that their prosodic systems tend to be highly reduced, in ways similar to those that Hyman (1981, 2019a, 2019b) suggests for Somali; relative pitch carries a low functional load, at least lexically. Pitch prominence also tends to be culminative (i.e., there is at most one prominence per word) and demarcative of edges, both of which are hallmark characteristics of so-called "accentual" (i.e., stress accent) languages (Mous

2021). However, prominence is seemingly not obligatory, at least in limited instances, a property which is decidedly unlike “accentual” languages.

In this chapter, and elsewhere in this thesis, I employ the standard convention in the Cushitic literature of indicating High tone with an acute diacritic over a given tone bearing unit. Those tone bearing units that are not so marked are considered phonologically toneless, though they are produced phonetically with a relatively lower pitch. Any data drawn from the published literature are reproduced using the transcription conventions in the cited source. Data that I have collected on Kenyan Maay Maay are transcribed in the International Phonetic Alphabet.

1.1 Maay

Aspects of three dialects of Maay have been discussed in the published literature. While it is clear from existing descriptions that these dialects share many similarities, their prosodic characteristics, in particular, differ from one another in sometimes striking ways. Among the best known, and arguably most comprehensive description of Maay, is Saaed’s (1982) “sketch” of the language, though he calls it “Central Somali.” This reflects a point in time where Cushiticists overwhelmingly considered Maay to be a dialect of Somali; it is now well-accepted that while Somali and Maay share a number of properties, they are best considered separate languages. This is reflected in their assignment of unique codes by the International Organization for Standardization (ISO) – iso:ymm and iso:som, respectively. Paster (2006), Comfort & Paster (2009), and Paster & Ranero (2015) describe aspects of a Maay dialect from Southern Somalia which they call Lower Jubba Maay. Finally, Biber (1982) describes a Maay dialect from Mandera, Kenya, which, as will be shown later, most closely resembles the dialect of Maay described in this thesis.

The data in this thesis reflect approximately 50 hours of data collection with a native speaker of yet another variety of Maay. Our speaker was raised through age 15 in Dadaab, Kenya, though her parents are from Bu'aale, Somalia, having resettled in Kenya as political refugees. She and her family emigrated from East Africa to the US in 2013, and while first living in the Midwest, they ultimately settled in Syracuse, NY. In Syracuse, there is a robust community of Maay speakers, and Maay remains the primary language of the household for our speaker. Given her background and formative years in Dadaab, I will refer to the variety of Maay represented in this thesis as Kenyan Maay Maay (KMM). This variety shares similarities with those discussed in the literature, but it does not align entirely with any of them. The map shown in Figure 1 shows generally where each of these dialects are spoken and their relative distance from one another.

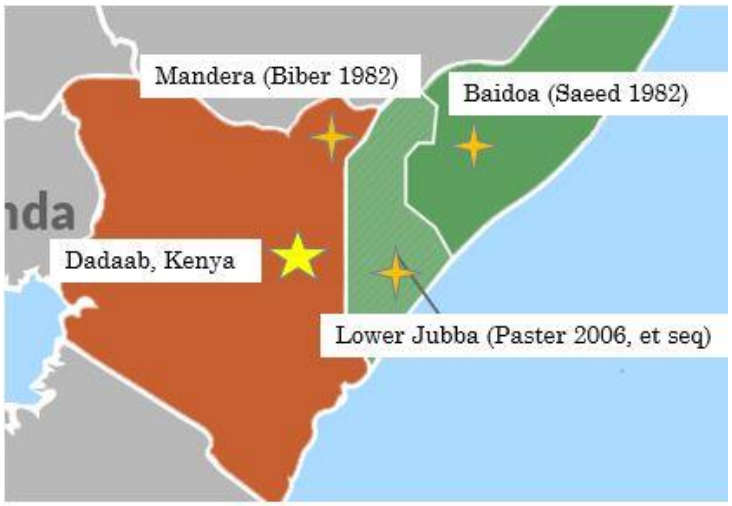

Figure 1. Location of Maay dialects

Saeed (1982), despite being the most comprehensive overview of Maay grammar available, provides only a high-level overview of the language's phonology and the morphology of its nominal and verbal systems. Saeed considers Maay to be a tone language, though he also notes that this system could be described as either accent or stress. He outlines its tonal system relative

to basic nouns, describing a contrast between three tones: a single High tone, a single Low tone, and a High to Low falling tone. While not referring to it as such, Saaed describes a culminative effect whereby only one syllable per word has High tone.

Of particular interest to this thesis is that Saaed's account describes a strong tendency for multisyllabic nouns to exhibit High tone on their final syllable, regardless of their pattern of grammatical gender, vowel length, and morphological environment, i.e., whether they are modified or not, such as by a determiner. There are a few instances of exceptional disyllabic nouns which instead exhibit tone on their penultimate syllable, but overall, in the variety he describes, polysyllabic words cannot be distinguished from one another by tone. Grammatical gender is recoverable only through patterns of agreement on modifiers and on verbs, where relevant. The behavior of these nouns is in direct contrast to the behavior of monosyllabic nouns, which do differentiate gender through tone; masculine nouns have a High tone on their vowel, whereas feminine nouns have a Low tone. This leads to a contrast in tone marking for monosyllabic nouns, including when they are modified by a definite determiner, as seen in (1).

(1) Tone on nouns in Central Somali (adapted from Saeed 1982)

Stem	**Stem + Det**	**Gloss**
éey	éeykə	'dog' (masc.)
eey	eeytə́	'dog' (fem)

Apart from this small sample, Saeed provides no other discussion of nominal tone patterns, such as any alternations that occur in the presence of determiners. Saeed refers to the syllable as the tone bearing unit, rather than the mora. Saeed's description of tone does not refer to any differences related to the shape of the nouns which, as will be discussed later, has an impact on

tone location in KMM. Saeed's data, specifically for feminine nouns, covers only a few different word shapes and leaves one curious, upon comparison to other work on the language, as to whether it is representative of all possible word shapes in the language. While much of the data in Saeed (1982) aligns with that collected for this thesis, what is presented below differs substantially in terms of word shape, and accordingly, the number of potential tone bearing units present in a given noun.

Another description of Maay is Biber (1982), which also calls the language Central Somali. Biber gives an account of how "accent" functions in the nominal system and does so in comparison to Northern Somali (i.e., Somali proper, iso:som). Citing Hyman (1981), Biber argues that Central Somali nouns are not underlyingly accented, but rather that they surface with an obligatorily accent assigned based on a combination of factors, including stem shape, grammatical gender, and singular vs. plural number. It is ultimately this accent that comes to be associated with High tone. All vowel-final roots,[1] regardless of the properties just stated, and consonant-final masculine roots have accent on their penultimate mora. Consonant-final feminine roots instead have an accent on their final mora. Again, these accents ultimately come to be associated with High tone.

Biber's approach is clear in its assumption that Somali is the structural and prosodic baseline from which Maay has diverged. That is, the Maay prosodic system is described relative to Somali's, with the former said to exhibit a "simple diachronic shift of the accent to the right in Central Somali," resulting in accent on the ultimate mora of all vowel-final stems and consonant-

[1] Biber notes that certain grammatical factors, such as case, also affect tone placement. This is, of course, under the assumption that languages like Somali and Maay are syntactic case marking languages, a matter that has been the subject of longstanding debate; for a recent overview, see Nilsson (2017, 2019).

final masculine stems. Consonant-final feminine stems are said to undergo an analogous shift, but because this shift in accent is from the final mora, the accent "falls off" and reappears on the first mora of the word. It is worth noting that this analysis does not account for vowel-final nouns being seemingly immune to this shift.

In contrast to Saeed's tonal approach to the Maay prosodic system, Biber (1982: 4) describes an accentual system predicated on obligatoriness of prominence whereby "rules prevent the possibility of a non-accented nominal form on the surface." This is an important point, as a system exhibiting both culminativity and obligatoriness of prosodic prominence is in line with what is expected of an accentual system, as opposed to a tonal system, where one, the other, or both properties may not necessarily hold.

Because Biber (1982) specifically aims to analyze the language's prosodic system, it contains far more phonological and morphophonological detail than does Saeed's sketch. For example, Biber describes the distribution of accent on determiners and also aims to motivate the origins of the system via the diachronic shift just mentioned. Biber shows that masculine words of all shapes (whether vowel-final or consonant-final but with the exception of CVC stems) maintain their accent on the final mora of the stem. In this way, the addition of a modifier has no effect on stem tone, with accent appearing in the same position regardless of the presence of determiners. Feminine nouns and CVC masculine nouns are markedly different in that accent appears on the basic definite, proximal demonstrative, and possessive determiners in these instances, rather than on the first vowel of the stem, as it did for an unmodified noun. With some determiners (namely, remote definite and distal demonstrative), accent surfaces on the first mora of the stem. Biber's stance is that there is an underlying accent associated with some determiners that causes the alternations in High tone. There is taken to be no accent, however, on those determiners that fail

to exhibit a shift. Biber also describes masculine nouns in combination with two determiners, namely the possessive determiner, paired with other determiner types. According to his analysis, there are minimally two or three accents associated with these words (two, when the noun and possessive are paired with the distal demonstrative or remote definite, and three when paired with the proximal demonstrative or basic definite). In all cases, two High tones surface: one on the final mora of the stem and one on the possessive determiner. Thus, whether or not prominence is culminative, or if so, the domain of culminativity, is not clear in Biber's account of Central Somali nouns, in contrast to Saaed's. Overall, and as described below, Biber's account of accent in Central Somali is generally more in line with what has been observed in data collected for this thesis, but still differs in terms of culminativity. As discussed further below, Biber's proposal for the origin of the prosodic system as a diachronic shift from Somali cannot account for the tonal alternations observed in the data collected for this thesis, nor does it satisfactorily capture the relative mobility of tone in feminine nouns, nor the relative immobility of tone in masculine ones.

Paster (2006), Paster & Ranero (2015), and Comfort & Paster (2009) describe the phonology and morphology of Lower Jubba Maay. This dialect of Maay is said to have no "effects of tone or accent" distinguishing lexical items or any grammatical function. There is, however, root-final stress that is "not prominent," and the "pitch profile of words" (which is not meant to imply the presence of tone) is predictable by the shape and number of syllables in the word. Paster (2006) describes the position of root-final stress in Lower Jubba Maay in comparison to that of tone in Saeed (1982). Root-final stress is ubiquitous in Lower Jubba Maay, and it corresponds to tone in final positions in Saeed's Central Somali, but where Central Somali has initial syllable tone, Lower Jubba Maay still has stress in final position. Comfort & Paster (2009) and Paster & Ranero (2015) reach the same conclusion. Given its absence of pitch correlates altogether, this

dialect is markedly different from the varieties of Maay described by Saeed and Biber. What all varieties have in common, however, is that patterns of prominence tend to favor the right edge of the word.

Abokor & Morrison's (2016) comparative sketch of Maay summarizes previous work. This includes Central Somali (Saeed 1982 and Biber 1982), Lower Jubba Maay (Paster & Ranero 2015), and what is simply called Maay (Mukhtar & Ahmed's English-Maay dictionary 2007). These are compared to other languages in Somalia, namely Tunni and Somali. They add to what is known about Maay overall, claiming that the language is tonal such that tone is used contrastively, though for grammatical purposes only, and not for lexical distinctions. They note that tone is culminative as well.

1.2 Typological surveys of prominence

There are several seminal papers that approach prominence from a typological perspective, with a goal of better accounting for commonalities and patterns cross-linguistically. These papers together provide a baseline for understanding prominence that is highly useful for analyzing individual languages. Given the extensive literature on the topic, just a few particularly influential works are summarized here.

Hyman (2006) discusses prominence on a large scale, aiming to define the appropriate criteria for a typological categorization of languages based on how prominence surfaces. His criteria for tonal and stress-accent languages are particularly relevant to the analysis of prominence in Maay and other Cushitic languages as well. Hyman (2006: 229) describes a tonal language as one where "an indication of pitch enters into the lexical realization of at least some morphemes." He also proposes two criteria for stress-accent languages: obligatoriness, the idea of a required

highest prominence in every word, and culminativity, the limitation of allowing only one instance of highest prominence per word.

Gordon (2014) discusses the intricacies of stress and pitch accent languages, with the latter term not necessarily aligning with the type of system argued against in Hyman (2006). Rather, the distinction here more closely aligns with stress vs. non-stress accent systems described in Beckman (1986). Gordon discusses the differences between pitch and stress at the word and phrase levels. The characteristics of pitch-accent are typically identified by acoustic factors, whereas stress can be differentiated by F0 (as in pitch), duration, intensity, and/or segmental processes as well. Gordon also describes the tendency for languages to exhibit default penultimate prominence, a fact that can lead to ambiguities in the differentiation between pitch and stress accent. He also notes that a potential distinguishing factor between pitch and stress accent is that languages exhibiting the former encode lexicalized exceptions to default stress prominence.

Mous (2021) also looks at the typology of tone and stress accent, but specifically for Cushitic languages. He does so from the perspective of the differentiation of tone's function in a language, namely whether it serves a grammatical purpose or a lexical one. He argues for an understanding of tone in Cushitic languages as serving a primarily, if not entirely, grammatical function. He describes patterns in these languages such as the "tendency toward but lack of culminativity" and its demarcative function. He claims that since tone is grammatical in nature, tonal patterns are morphological. He describes "emerging lexical distinctions" where tonal distinctions have developed out of regular tonal stress placement and subsequent syllable reduction, but he does not recognize this as a productive process. Mous argues for a sub-differentiation in the definition of tonal languages based on whether tone functions (primarily) grammatically or lexically.

1.3 Prominence in Cushitic languages

This section provides a summary of how prominence surfaces in several well-described Cushitic languages. While none of these languages necessarily exhibits the same properties as Maay, each one shares at least some characteristics which may serve to reinforce the preliminary analysis presented below.

To begin, Appleyard (1991) describes how tone surfaces in several Cushitic languages, including dialects of Somali (including Central Somali [Maay] based on Saeed's 1982 sketch), Afar [iso:aar], and Oromo [iso:orm]. He characterizes tone in these languages as so similar to stress that "it might not at first seem apparent that one is dealing with a tonal system at all, but rather with a stress-based accentual system" where "stress is also associated with High tone" (6). Appleyard focuses on the role of tone in distinguishing morphemes, case, and gender. The accent in Afar on vowel-final feminine stems is "reminiscent of Lamberti's reconstructions for Proto-Somali" (22) which entails a High tone on a final vowel that was ultimately lost in feminine stems. For masculine stems, H tone was on the penultimate vowel, though this ultimately surfaces on the final vowel after the original final vowel was lost. (Lamberti 1986). As discussed further in Chapter 4, similar patterns arise in KMM as well. Appleyard's Cushitic survey is particularly relevant to this thesis as it explores an important relationship between tone and gender while also proposing connections between several languages' synchronic phonology to that of a shared proto precursor.

Prominence in Somali has been widely discussed in the literature. Hyman (1981) introduced that the tone bearing unit in Somali is the mora and that the reduced nature of the tonal system makes it appear similar to what have been described elsewhere as accentual systems, a perspective later echoed in Banti (1988). Hyman notes that culminativity within the word in Somali is comparable

to that of non-tonal accentual languages as well, leading him to describe it as a tonal accent language. Reference works like Saeed (1999) and Green (2021) describe tone as being lexically contrastive: in most stems, H tone is assigned to the penultimate mora for masculine (k-series) nouns and the final mora for feminine (t-series) nouns. Monosyllabic nouns surface with H tone on the only mora for both grammatical genders. Some scholars (e.g., Le Gac, 1997; Godon, 1998; Lampitelli 2011; Green & Lampitelli to appear) have argued based on several unique outcomes observed in feminine nouns that there is a catalectic skeletal slot at the right edge of feminine stems. In doing so, the presence of this slot is said to unify H tone assignment, at least phonologically, such that H is assigned to the penultimate mora in both stem types. Green & Morrison (2016, 2018) describe the behavior of tone in morphologically complex words, noting that derivational suffixes in the nominal system attract tone, which is also seen in compounds. Furthermore, they and Downing & Nilsson (2019) illustrate that determiners of different types affect noun tone in several ways. Subject marking is discussed in detail by Green & Lampitelli (to appear); this morphological operation yields loss of H tone in some nouns, leading to just one of two instances where Somali does not demonstrate obligatoriness of tone.

In Savà's (2005) grammar of Ts'ammako [iso:tsb], the language's tonal system is described as exhibiting a contrast between high and low tone where long vowels show a flat high or low tone. This is said to demonstrate that the tone bearing unit is most likely the syllable rather than the mora. Tone is said to be lexically determined in nouns and verbs as tonal melodies, surfacing as a string of two or more tones across a word, though tone does not create minimal pairs in nouns. Savà describes the most common tonal patterns as HL or HHL. Ts'ammako has a "tendency to create one prominence in the attribution of one high pitch to the word" as in the HL pattern but not in all instances as in the HHL tonal pattern.

Savà & Tosco's (2000) sketch of Ongota [iso:bxe] describes how accent, realized as tone, surfaces in the language. There are a few aspects that are similar to KMM's tonal system. These authors describe accent as either lexically or morphologically defined or assigned by default to the penultimate syllable. They also define a rule assigning accent to the penultimate position in polymorphemic words "resulting from the affixation or cliticization of accentless morphemes" (72). The lexically assigned accent falls on either the antepenultimate or the last mora as well. The distinction between lexical and rule-based accent assignment and the distribution of accent in multimorphemic words directly parallels that of KMM's tonal alternations.

Tosco's (1997) sketch of Af Tunni [iso:tqq] describes the tonal system of the language. Tosco describes various factors that condition High tone placement. The first is a spreading rule across long vowels resulting in a flat high tone. He also describes a default penultimate position for tone that can be affected by lexical ultimate tone. This lexical tone can either surface in final positions or shift back to penultimate position. A similar spreading rule applies in KMM as a strategy to avoid a rising tone. There is one element of tone alternations in Af Tunni that is seemingly reversed in KMM. Tosco describes a prepausal tone shift where tone on nouns in utterance final positions shift back before the pause which does not happen when the noun is paired with a determiner. He describes this process as lexical since it has exceptions. Interestingly, in vowel-final feminine nouns in KMM, tone surfaces in final position when it is on its own but shifts back to penultimate position when modified by some determiners. Similar outcomes are also observed in Somali.

1.4 Underspecification

As discussed further below, one important element of the analysis of KMM's tonal system presented in this thesis is based in underspecification theory (e.g., Archangeli 1988; Steriade

1995; Mohanan 1991). The basis of this theory is that certain features of a phoneme or a lexeme can have a null feature specification, i.e., a lack of specification rather than a +/- feature value, at least underlyingly. In standard conceptions of the theory, a feature or feature value is filled in by some later phonological mechanism. This underspecified element can be segmental or autosegmental in nature.

Underspecification analyses have been proposed for other Cushitic languages on several occasions to analyze their prosodic systems, which are most often predicated on simple contrastive oppositions, as mentioned above and summarized in Mous (2021). Hayward's work on Qafar (also called Afar) proposes underspecification in two different aspects of the language. The first is outlined in Hayward (1992), which applies an underspecification approach to analyzing feminine genitive forms of Qafar nouns. Hayward (1991) is more relevant to this thesis in that it focuses on "accent" in the Qafar nominal system. He treats Qafar as having a prosodic system whose basis is privative accentual contrast (i.e., accent is either present or absent underlyingly) that correlates with tone assignment in nouns. In Qafar, within a phrase, only one syllable can be associated with High tone, illustrating that the language demonstrates cumulativity within this domain. Furthermore, tone can only appear on one of the last three syllables. The contrast in H tone location has to do with whether or not there is a lexical specification of accent, which refers to a landing site for prominence. Hayward's analysis of the tonal system is that "if the first word contains an accented syllable, H will associate with that syllable. Otherwise, H will associate with the final syllable of that word" (120). This accent in the first word can be on any of the final three syllables, whereas for nouns that are not associated with lexical accent, accent is assigned to their final syllable by rule so that tone can be associated with that accented syllable.

Another important aspect of Hayward's analysis, which correlates with what I will propose below for KMM, is that it is masculine nouns that are associated with an underlying accent, while feminine nouns are instead underspecified for accent. This analysis also accounts for the variation with determiners as the cumulativity effect limits the prominence to one element in the phrase - in Qafar the leftmost (underlyingly) accented syllable with accent-less phrases receiving High tone in the same position - the final syllable of the first word. This underspecification analysis results in fewer exceptions to tone assignment rules and regularizes the process for tone assignment as well. Hayward's underspecification analysis of accent in Qafar closely parallels the independently formulated analysis of KMM presented below. Underspecification is a property of feminine nouns, whereas lexical tone is underlyingly associated in masculine nouns.

Owens (1985) provides an account of the prosodic system in Harar Oromo that is similarly grounded in an underspecification treatment of tone in nouns. Owens describes tonal patterns in nouns as depending on their shape (i.e., number of syllables) and their lexical specification for accent on the penultimate syllable. Disyllabic words have two possible tonal patterns: LH and HH. If accent is lexically assigned to the penultimate syllable, the surface pattern is HH, as H tone is assigned to the syllable with lexical accent and subsequently spreads to the final syllable. If accent is underspecified on the penultimate syllable, H tone is associated to the final syllable due to obligatoriness of prominence, and the resulting pattern is LH. Similar patterns apply for trisyllabic nouns except the possible tonal patterns are LLH and LHH where low tone is associated with the first syllable regardless.

Banti (1988) compares the tonal systems of Somali and Oromo, with particular attention to how nouns behave when inflected for different syntactic cases. He describes the tonal patterns of the two languages, positing accent association and deletion rules that work similarly in both

languages but that are realized differently due to the lexical classification of nouns. In addition to discussing tonal patterns in more detail than Owens (1985), Banti describes certain noun declension classes as either having or being underspecified for lexical accent.

Chapter 2: The Maay Maay Nominal System

In this chapter, I present an overview of the KMM nominal system including how nominal morphology, including suffixes and determiners, interact with stems. I discuss how some segmental phonological processes affect these forms, as well as the general structure of the noun phrase. This chapter, though primarily descriptive, serves as necessary background to understanding KMM's overall prosodic behavior, as many of these morphemes affect the tonology of the language. The tonology of the noun phrase will be discussed in more detail and analyzed in Chapter 3.

2.1 Basic properties of nouns

Noun stems in KMM tend to be three syllables or fewer, with the majority being monosyllabic or disyllabic. The smallest word shapes include VC and CVC. Possible syllable shapes overall are CV, VC, CVC, CVV, and CVVC. There are some instances in which a syllable coda may contain geminate voiced stop or sonorant which is syllabified across the coda and adjacent onset.

(1) Syllable shapes in nouns

CV	a. haar.tí	'husband'	c. too.ɾə́	'knife'
	b. ma.ɣa.lə́	'city'	d. qa.láŋ	'pen'
VC	e. ís.læŋ	'wife'	g. al.wáh	'wood'
	f. ap.tí	'maternal uncle'	h. íl	'eye'
CVC	i. fík.rət	'idea'	k. mə́s	'snake'
	j. bí.laŋ	'woman'	l. qah.wə́	'coffee'
CVV	m. doo.ɾə́	'chicken'	o. bɛɛ.sɨ́	'money'
	n. ɲaa.ɲə́	'tomato'	p. ma.roo.ðə́	'elephant'
CVVC	q. da.róor	'cloud'	s. boon.dɨ́	'bridge'
	r. rʰóóp	'rain'	t. túúk	'thief'

Vowels in KMM can be either short or long, as seen in (2), and vowel length is contrastive in many Cushitic languages. Despite the lack of precise minimal pairs in available data, I assume that vowel length is also contrastive in KMM. High tone surfaces on either the first or second half (i.e., the first or second mora) of a long vowel, which suggests that the mora is the tone bearing unit in KMM. This aligns with Biber (1982)'s description of Maay. H tone can also surface on both moras of a long vowel with a flat high tone as in (2h), but, as discussed further in Chapter 3, there is variation in this regard which is due to a general dispreference in KMM for tonal contours. Similar variation via tonal "decontouring" is also reported for Somali (Banti 1988).

(2) Vowel length

a. alwáh	'wood'	f. məqaár	'skin'
b. ʕólæt	'children'	g. ɪsbóor	'week'
c. tuqæǽŋ	'store'	h. búúr	'heel'
d. géβeɾ	'girl'	i. fargeetə́	'fork'
e. qoriŋjé	'firewood'	j. ɟiilɛ́l	'winter'

2.2 Grammatical gender

All noun stems in Maay Maay have an inherent grammatical gender, which is made apparent, at least in part, via their tonal behavior, but more clearly through patterns of agreement required on modifiers and in verbal inflectional agreement, as a verb must agree with a subject noun in grammatical gender. Suffixation, however, such as by one of the language's plural suffixes or other derivational suffixes, may override and accordingly neutralize the grammatical gender of the stem in favor of some other value. Grammatical gender can be seen most easily in the surface forms of determiners. Determiners agree in grammatical gender with the noun that they modify:

cf. the initial consonant of the determiner in *fərə́s kii* 'the horse' and *ʃímbır tii* 'the bird.' This behavior indicates that, unlike suffixes, determiners do not have an inherent specification for gender. When these same nouns are pluralized by *-jaal*, as in *fərəsjaál kii* 'the horses' and *ʃımbırjaál kii* 'the birds,' both appear with the determiner *kii*. As discussed in Sections 2.4 and 2.5, the behavior of compounds and associative constructions regarding grammatical gender is more complex.

In this thesis, I follow Green (2021) in referring to KMM's two grammatical gender series as "k-series" and "t-series." The former is elsewhere referred to, such as in Saeed (1999), as "masculine" gender and the latter as "feminine" gender, respectively. While the forms of a determiner beginning with *k-* and *t-* represent the basic realizations of grammatical gender agreement series, these can surface as otherwise due to predictable segmental processes discussed below. As such, and to avoid any descriptive confusion, using k-series and t-series is arguably a better choice.

In KMM, we have found very few instances where one can point to a correlation between biological gender and the grammatical gender series of a given noun, although such correlations are reported in other Maay varieties (Paster 2006; Saeed 1982) particularly for male vs. female animals. These forms were not a specific target of elicitation, which explains their limited presence in our database. One instance in KMM in which biological gender and grammatical gender align is when specifically referring to humans. The "masculine" form for 'the student,' *ardéj kii*, was used as the default by our speaker until referring specifically to a female student, which is instead *árdej tii*. In this case, the tone patterns change to reflect the difference in grammatical gender as well.

Although grammatical gender is inherent for a given noun stem, all plural nouns require k-series "masculine" agreement. As such, a noun like *gébro ɣii* 'the girls' would have to be described as grammatically "masculine." Derivational suffixes within the noun system also have inherent gender.

2.2.1 Phonological alternations in gender markers

Six months of data collection have revealed that the determiners listed below are found in KMM. There are two definite determiners whose use depends on a combination of factors but generally depends on whether or not the referent is known, i.e., whether they are active in the discourse or not. The determiner that is appropriate only to modify known referents will be called the "remote" definite determiner (Green 2021), though a similar morpheme in Somali has sometimes instead been called a "tensed definite article" (Lecarme 1996, 2008) or an "anaphoric determiner" (Tosco 1994). The other definite determiner, referred to here as the basic definite, refers to objects that are new to the discourse. In addition, there are two demonstrative determiners, one proximal and one distal, and an interrogative determiner. Lastly, there are possessive determiners that inflect for person, number, and grammatical gender of the possessum.

Based on a corpus of approximately 150 nouns elicited in both singular and plural contexts, as well as in combination with most determiners, it has been determined that the underlying forms of the determiners are those beginning with an initial voiceless stop /kʰ/ or /tʰ/; this is in line with what is established in Somali (Green 2021:66; Saeed 1999:9). These surface in the most varied environments, including when preceded by a stem final sonorant (with few exceptions) and by all obstruents, except homorganic stops. As discussed below, when preceded by a homorganic stop, a vowel, the glottal fricative [h], or in some cases [l], there

are alternations that occur. Representative examples illustrating the basic form of agreement prefixes on determiners and also the grammatical gender of k-series nouns are in (3) and for t-series nouns in (4). For expository purposes, nouns are shown modified by a remote definite determiner, which is either *kii* or *tii*[2] in its basic form.

(3) Nouns taking k-series gender agreement

Stem	Gloss	Stem + Remote Definite	Gloss
məɣíl	'men'	məɣíl kʰii	'the men'
sáŋ	'nose'	sáŋ kʰii	'the nose'
maqáár	'skin'	maqaár kʰii	'the skin'
dʒɪlíp	'knee'	dʒɪlíp kʰii	'the knee'
dət	'people'	dət kʰii	'the people'

(4) Nouns taking t-series gender agreement

Stem	Gloss	Stem + Remote Definite	Gloss
bílaaŋ	'woman'	bílaan tʰii	'the woman'
ɲáɲur	'cat'	ɲáɲur tʰii	'the cat'
dɛ̆k	'ear'	dɛ̆k tʰii	'the ear'
ləf	'bone'	ləf tʰii	'the bone'

There are several alternations that affect gender agreement prefixes, and these can be easily captured by phonological rules, some of which interact, and the result of which is the surface form of the determiners. In intervocalic environments, processes falling under the heading of

[2] Later in this thesis, unless referring specifically to the underlying form, the forms of the gender agreement prefix are represented as *k* and *t* for ease of transcription.

lenition are widespread. This includes deaspiration, voicing, and spirantization of the gender agreement prefixes.

Consider, for example, intervocalic spirantization, which is observable in stems that end in a vowel. From a featural perspective, one could say that this environment causes the initial consonant of the determiner to gain a [+voice] and [+continuant] feature, presumably via assimilation from the surrounding vocalic environment, resulting in surface forms of [ɣ] and [ð] for k-series and t-series agreement, respectively; aspiration is also lost. Such an alternation is far from unusual, as voicing and spirantization are both well-known outcomes of lenition that occur in intervocalic environments. Examples of nouns with vowel-final stems where a combination of voicing and spirantization occur intervocalically and affect gender agreement prefixes are shown in (5).

(5) Intervocalic voicing and spirantization

	Stem	Gloss	Stem + Remote Definite	Gloss
a.	gʊɾó	‘house’	gʊɾó ɣii	‘the house’
b.	dʊβó	‘bull’	dʊβó ɣii	‘the bull’
c.	məðə́	‘head’	məðə́ ɣii	‘the head’
d.	dɔɔɾə́	‘chicken’	dɔɔɾé ðii	‘the chicken’
e.	ʕaanə́	‘milk’	ʕaanə́ ðii	‘the milk’

Another rule involving gender agreement prefixes involves degemination. This process is specific to environments where a consonant-final stem ends in a stop that matches the place of articulation of the initial consonant of the gender prefix; a similar process is found in Somali. When the determiner and stem final stop are homorganic, the surface form is a single voiced stop. Whether the deleted consonant is the stem-final or the determiner-initial one is not

necessarily clear, though there are two other simplification processes that suggest the resulting consonant belongs to the stem. Consonant sequences that are simplified by degemination do not undergo the intervocalic spirantization process – e.g., *ılıg-kʰii > ılıg-gii > ılıg-ii*, **ılıɣ-ii*.

(6) Degemination in k-series nouns with determiners

Stem	Gloss	Stem + Remote Definite	Gloss
ılíg	‘tooth’	ılíg-ii	‘the tooth’
ʕonók	‘child’	ʕonóg-ii	‘the child’
waɾeék	‘circle’	waɾeég-ii	‘the circle’

(7) Degemination with t-series nouns with determiners

Stem	Gloss	Stem + Remote Definite	Gloss
fíkret	‘idea’	fíkrəd-ii	‘the idea’
ʕólæt	‘children’	ʕólæd-ii	‘the children’
bə́d	‘sea’	bə́d-ii	‘the sea’

Two additional alternations affect specific gender agreement prefixes. The first of these pertains to t-series nouns that end in the liquid [l]. When [l] immediately precedes the alveolar stop, the result is a geminate (long) [lː]. The determiner’s prefix assimilates in manner to that of the stem-final consonant. Examples of such outcomes are shown in (8).

(8) l + tʰ [lː]

Stem	Underlying Representation	Surface Form	Gloss
íl	/il-tʰii/	[íl lii]	‘the eye’
wéel	/weel-tʰii/	[wéel lii]	‘the calf’
səgáal	/səgaal-tʰan/	[səgaallán]	‘ninety’

This process does not occur in k-series nouns. For example, the k-series determiner modifying the noun ‘men’ *məɣíl* surfaces without alternation as *məɣíl kʰii* ‘the men.’ It is also interesting to note that this dispreference for surface [l+t] sequences is not unique to Maay Maay. In closely related Somali, such sequences are also avoided, albeit via a different and more complex alternation, namely via assibilation to [ʃ] (Green 2021:76; Saeed 1999:29).

Another process specifically pertains to k-series nouns and their modifying determiners, and particularly to stem-final [h] and a determiner’s initial stop. Our corpus includes only two instances of this combination, and our native speaker consultant used two different strategies to resolve this. The first involved the epenthesis of a vowel between the two consonants, in turn creating an intervocalic environment leading to spirantization, resulting in [ɣ]. It seems that epenthesis does trigger spirantization despite degemination not doing so. The other resulted in a deletion of the [kʰ] entirely. These data can be seen below in (9a) and (9b), respectively.

(9) h + k

	Stem	Gloss	Stem + Remote Definite	Gloss
a.	ʃə́h	‘tea’	ʃáha-ɣii	‘the tea’
b.	alwáh	‘wood’	alwáh-ii	‘the wood’

Based on what has been presented thus far, one can see that there is a necessary rule ordering for intervocalic spirantization and degemination. More specifically, spirantization is in a counterfeeding relationship with the degemination. If the order of the two rules were reversed, we would expect the surface form of the determiner to be a voiced fricative as the degemination rule would create the necessary environment for the spirantization rule to apply. Sample derivations involving these rules can be seen below in (10).

(10) Sample Derivations

	‘the circle’	‘the head’	‘the eye’	‘the men’
Underlying Form	/wəɾék kʰii/	/məðə́ kʰii/	/ɪl tʰii/	/məɣíl kʰii/
Assibilation	----------	----------	ɪl lii	----------
Spirantization	----------	məðə́ ɣii	----------	----------
Degemination	wəɾég ii	----------	ɪl ii	----------
Surface Form	[wəɾég ii]	[məðə́ ɣii]	[íl ii]	[məɣíl kʰii]

2.3 Nominal Morphology

Compared to the amount of attention linguists have paid to Somali and other Cushitic languages, and the detail known about their nominal systems, relatively little is known about Maay. Depending on the variety of Maay being described, there are various suffixes encoding plural number that attach to nouns. Unlike the case of Lower Jubba Maay where pluralization is able to occur via various strategies without causing a semantic shift (Paster 2006), for our speaker of KMM, there is generally only a single strategy for pluralization for each noun. The only exceptions to this encountered thus far pertain to a small class of nouns that form their plural by partial reduplication of the stem; somewhat surprisingly, these have a second, “double” plural wherein the expected partially reduplicated plural is suffixed by another of the language’s plural suffixes, *-jaál*. This strategy appears similar to the “double” plural marking used to refer to collective nouns in certain varieties of Somali (Green 2021), though for our speaker, the case is one of variation, as the collective sense is not acceptable. Pluralization is discussed more in the next section.

2.3.1 Pluralization

KMM has three pluralization strategies. Two of these involve suffixation, either by *-jaál* or *-ə*. The third strategy involves partial reduplication of the final VC of the noun stem. The first two of these strategies are seemingly inherent to a given noun, with their distribution being only partially predictable. Vowel-final stems do not take the *-ə* suffix, as KMM avoids vowels in hiatus. Both consonant-final and vowel-final stems, however, can appear with *-jaal*.

In Northern Somali, *-o* pluralization, arguably cognate to Maay Maay *-ə* pluralization, is the default plural. Interestingly, in Djibouti Somali, however, *-jaál* (*-yaal*) pluralization is instead the default. Pluralization by *-yaal* also occurs in Northern Somali, but only for nouns containing some suffixes. Both strategies are available in KMM, but they appear to be lexically determined, at least to some extent. Examples of *-jaal* pluralization are in (11) and *-ə* pluralization is in (12).

(11) *-jaal* plurals

gəláŋ	‘arm’	gəlaŋ-jaál	‘arms’
kursɨ́	‘chair’	kursi-jaál	‘chairs’
ɲáɲur	‘cat’	ɲaɲur-jaál	‘cats’

(12) *-ə* plurals

ləf	‘bone’	ləf-ə́	‘bones’
ɗəβə́ŋ	‘cheek’	ɗəβenn-ə́[3]	‘cheeks’
sahə́ŋ	‘plate’	saham-ə́	‘plates’

[3] KMM has word-final velarization of nasal consonants which results in the underlying form of stem-final nasals appearing with the *-ə* plurals. A similar neutralization occurs word-finally in Somali, though the result is [n].

The third set of reduplication plurals in KMM is limited to monosyllabic k-series nouns ending in a consonant. The distribution is similar in Somali, with a few exceptions (Green 2021: 124). Note that High tone is located on the suffixal reduplicant, rather than on the stem in these plurals.

(13) Reduplication Plurals

buúk	'book'	buuɣúk	'books'
lók	'leg'	lʊɣ-ók	'legs'
mís	'table'	mis-ís	'tables'

There were a few instances where reduplication plurals optionally appeared with the *-jaál* suffix as well. There did not seem to be any difference semantically between the two versions. High tone also surfaced on the *-jaál* suffix in all instances as in (14).

(14) Double Marked Plurals

más	'snake'	məs-ás	məs-əs-jaál	'snakes'
áf	'mouth'	af-áf	af-af-jaál	'mouths'
ós	'family'		os-os-jaál	'families'

The grammatical gender of most plural nouns neutralizes onto k-series gender, regardless of the grammatical gender of the noun in the singular, as seen in (15). This process occurs with all pluralization strategies.

(15) Gender neutralization in plurals

məlaí kii	the fish’	məlai-jaál	‘fishes’	məlai-jaál kii	‘the fishes’
fərə́s kii	‘the horse’	fərəs-jaál	‘horses’	fərəs-jaál kii	‘the horses’
ɲáɲur tii	‘the cat’	ɲaɲur-jaál	‘cats’	ɲaɲur-jaál kii	‘the cats’
ʕaloolə́ ðii	‘the belly’	ʕalooli-jaál	‘bellies’	ʕalooli-jaál kii	‘the bellies’
dʒɪlíp kii	‘the knee’	dʒɪlb-ə́	‘knees’	dʒílb-o ɣii	‘the knees’
ɗəβə́ŋ kii	‘the cheek’	ɗəβənn-ə́	‘cheeks’	ɗəβənn-o ɣii	‘the cheeks’
bíʃɪn tii	‘the lip’	bɪʃɪmm-ə́	‘lips’	bíʃɪmm-o ɣii	‘the lips’
ləf tii	‘the bone’	ləf-ə́	‘bones’	ləf-o ɣii	‘the bones’
məs kii	‘the snake’	məs-ə́s	‘snakes’	məs-ə́s kii	‘the snakes

There is one exception to these strategies of number inflection via suffixation. For one noun that we have encountered, in (16), plural number is indicated only by agreement on modifiers. High tone stays on the final vowel of the stem in both the singular and plural. Similar, but not identical, outcomes are found in a small subset of nouns in Somali, but they involve an alternation in tone location as well. It is possible that other examples of this strategy might emerge from a broader lexical survey of KMM. One possibility, in looking just at this exception, is that perhaps no tonal alternation is apparent because such distinctions are otherwise neutralized in vowel-final noun stems in the language.

(16)

kurí kii	‘the boy’	kurí tii	‘the boys’

2.3.2 Agentives

Another nominal suffix encountered is an agentive suffix. This suffix surfaced as *-ɛ* or *-ɨ* in the majority of cases. The variation may be motivated by vowel harmony, though harmonic alternations and their correlates have not yet been explored in detail for the language.[4] Nouns with the agentive suffix surface with H tone on the final vowel, which is the suffix regardless of the shape or grammatical gender of the root. Examples are found in (17).

(17) Agentives

Root	Gloss	Agentive	Gloss
dɪl	'kill'	dɪl-ɛ́	'killer'
hoɣaaŋ	'lead'	hoɣaam-ij[5]-ɛ́	'leader'
sijasə́	'politics'	sijæs-ɨ́	'politician'
		hanoonij-ɨ́	'guide'

Two additional examples take a different suffix: *bɛɛralə́* 'farmer,' derived from *bɛ́ɛ́r* 'farm,' and singer, *hɛsalɛ́*, derived from *hɛ́s,* 'sing!/song.' This *-al* suffix appears cognate to and may be functioning similar to the deverbal *-aal* suffix in Somali (Green 2021:135).

2.3.3 Gerunds

The gerundive suffix surfaces as *-o* in most instances, but as *-iŋ* in cases like *hogaamíŋ* 'leading,' which once again likely relates to the presence of an additional causative affix, as discussed just above. Similar to the agentive suffix, the H tone was attracted to the final vowel of the suffix

[4] Preliminary data collected during a field methods course, as reflected in the transcriptions here, strongly suggest two series of vowels that differ along the dimension of ATR.

[5] This agentive noun has a causative suffix as well, which is perhaps not unexpected of deverbal nouns such as these.

regardless of the shape or underlying grammatical gender of the root, and, in the case of the gerunds, the shape of the suffix itself. Examples are in (18).

(18) Gerunds

Root	Gloss	Gerund	Gloss
hέs	'sing'	hɛsó (ɣii)	'singing'
degaál	'fight'	degaaləmó (ɣii)	'fighting'
díl	'kill'	dılló (ɣii)	'killing'
bέέr	'farm'	bɛɛró (ɣii)	'farming'
hoɣaaŋ	'lead'	hoɣaamíŋ (tii)	'leading'

Two other derivational suffixes are present in our database, though they are represented only by a single example: an antonym suffix *-dərə* in *ʕalaf-dərə́* 'bad luck' from *ʕaláf* 'luck' and an abstract suffix *-ıtaŋ* in *aamın-ıtáŋ* 'believing' from *aamíŋ* 'believe.' Further data collection that targets these suffixes is needed to better understand their behavior, and to determine whether they are truly part of the Maay lexicon or instead borrowed from Somali, where they are well attested (see, for example, Green 2021:133-134).

2.4 Determiner Phrases

One important question to consider more broadly about Maay is whether a noun phrase attaches as a complement to a determiner phrase or whether a determiner attaches to a head noun. It would appear that other types of phrases in Maay are head final, including the language's *verb complex*. Its basic word order in pragmatically neutral contexts is also Subject-Object-Verb.

Since determiners follow the noun that they modify, the determiner phrase analysis might be preferable, as the head of the phrase would be the rightmost element of the two. In favor of such an approach, it is worthwhile to note that a DP treatment is the standard in work on Somali, as in

Frascarelli & Puglielli (2009) and Lecarme (1996, 2002), among others. In any case, when nouns are modified by determiners, they clearly form a syntactic constituent. Nouns have inherent grammatical gender, and the determiner agrees with the grammatical gender of the noun: k-series determiners appear with grammatically masculine nouns, and t-series determiners appear with feminine ones. When a determiner modifies a noun, the two must be moved as a unit. Examples of determiners and nouns are below in (19), and each determiner type is briefly discussed below. The behavior of tone with each determiner is discussed briefly here but in greater detail in Chapter 3.

(19) Sample sentences with determiner phrases

a. gʊrʊ́-ɣii mə məðow.
   house-RDEF.K NEG is.black
   'The house is not black.'
b. ɲáɲur-tə məðow-tə.
   cat-DEF.T is.black-3SGF
   'The cat is black'
c. gʊró wal-bo waðə-ðəŋ ki jaal-ə
   house all-DIST. street-this.T LOC be-3SGM
   'every house on this street'
d. kár-kas anə lɛ́
   dress-that.K me have.1SGM
   'that dress of mine' (lit. that dress which I have)
e. olɛ-dej rootɨ́ faða-jaaŋ
   children-which.T bread want-3PL
   'Which children want bread?'

2.4.1 Definite Determiners

Maay Maay has two definite determiners which are referred to in this thesis as the basic definite determiner (DEF) and remote definite determiner (RDEF). The latter is used when

referring to something that had previously been brought up in the conversation. The basic definite, however, is only appropriate when introducing a noun for the first time. The remote definite determiner also shows alternations in tone location. The High tone on the final vowel of a vowel-final t-series stem shifts left to the penultimate vowel when in combination with the remote definite determiner as in (20a) and (20d). High tone consistently stays on the final vowel of k-series nouns as in (20e) - (20h).

(20) Noun + Remote Definite

	Stem	**Gloss**	**Stem + Remote Definite**	**Gloss**
a.	ləf	'bone'	ləf tii	'the bone'
b.	bíʃɪŋ	'lip'	bíʃɪŋ tii	'the lip'
c.	bodə́	'thigh'	bódə ðii	'the thigh'
d.	qahwə́	'coffee'	qáhwə ðii	'the coffee'
e.	hılíp	'meat'	hılíp kii	'the meat'
f.	éj	'dog'	éj kii	'the dog'
g.	wəβə́	'river'	wəβə́ ɣii	'the river'
h.	waxtə́	'time'	waxtə́ ɣii	'the time'

The basic definite determiners are used to refer to a noun that has not previously been referenced in the discourse. As with other determiners, H tone remains on the noun stem with k-series nouns. There are, however, tonal alternations with t-series nouns. The H tone surfaces on the final vowel of the stem with vowel-final stems as in (21e), unless this would create a tonal contour cross a long vowel as in (21f), and on the determiner in consonant-final stems (21d).

(21) Noun + Basic Definite

	Stem	**Gloss**	**Stem + Basic Definite**	**Gloss**
a.	láŋ	‘man’	láŋ kə	‘the man’
b.	buúk	‘book’	buúg gə	‘the book’
c.	eɾéŋ	‘goat’	eɾéŋ kə	‘the goat’
d.	ʃĭmbır	‘bird’	ʃımbır tə́	‘the bird’
e.	qahwə́	‘coffee’	qahwə́ ðə	‘the coffee’
f.	lóʔ	‘cow’	lóó ðə	‘the cow’

2.4.2 Demonstratives

There are two demonstratives in Maay Maay: a proximal demonstrative and a distal demonstrative. The proximal demonstrative is *keŋ* and *təŋ*, for k-series and t-series, respectively. As in other instances, High tone does not alternate in its presence for k-series nouns. High tone instead appears on the determiner for all t-series nouns, regardless of the shape of the stem noun. Examples of the proximal demonstrative can be seen in (22).

(22) Noun + Proximal Demonstrative

Stem	Gloss	Stem + Prox Dem	Gloss
gaál	‘camel’	gaál kəŋ	‘this camel’
éj	‘dog’	éj kəŋ	‘this dog’
məláj	‘fish’	məlaí kəŋ	‘this fish’
ɲáɲur	‘cat’	ɲaɲur tə́ŋ	‘this cat’
qahwə́	‘coffee’	qahwə ðə́ŋ	‘this coffee’
lóʔ	‘cow’	loo ðə́ŋ	‘this cow’

The distal demonstrative, *kaas* and *taas*, affects tone distribution in the same manner as the remote definite determiner, with tone appearing from the final vowel of vowel-final t-series nouns to the penultimate vowel. No shift is seen in consonant-final t-series and k-series nouns.

(23) Noun + Distal Demonstrative

Stem	Gloss	Stem + Distal Dem	Gloss
gaál	‘camel’	gaál kaas	‘that camel’
fərə́s	‘horse	fərə́s kaas	‘that horse
məláj	‘fish’	məlaí kaas	‘that fish’
ɲáɲur	‘cat’	ɲáɲur taas	‘that cat’
qahwə́	‘coffee’	qáhwə ðaas	‘that coffee’
lóʔ	‘cow’	lóo ðaas	‘that cow’

2.4.3 Interrogative Determiners

The interrogative determiner is used to ask which of a certain type of object is being referred to. This determiner surfaces as *kɛ́w/tɛ́w* in utterance final environments and as *kɛ́j/tɛ́j* elsewhere. The interrogative determiner surfaces with High tone on its vowel for both k-series and t-series nouns of any shape. Examples can be seen below in (24).

(24) Noun + Interrogative

Stem	Gloss	Stem + Interr	Gloss
gaál	‘camel’	gaal kɛ́w	‘which camel’
fərə́s	‘horse’	fərəs kɛ́w	‘which horse’
məláj	‘fish’	məlaj kɛ́w	‘which fish’
ɲáɲur	‘cat’	ɲaɲur tɛ́w	‘which cat’
ʃímbır	‘bird’	ʃımbır tɛ́w	‘which bird’
lóʔ	‘cow’	loo ðɛ́w	‘which cow’

2.4.4 Possessive Determiners

Possessive determiners form two related, but non-identical paradigms. Determiners inflect for each person, and for grammatical gender in third person singular, based on the possessor. In each paradigm, there is inflection also for grammatical gender of the possessum in either the k-series or t-series. Third person forms in the singular and plural differ across the k-series and t-series paradigms. The possessive determiners undergo the same alternations as other determiners. With k-series nouns, the H tone surfaces consistently on the final vowel of the stem as in (25).

(25) k-series possessive determiners

		C-final	**Gloss**	**V-final**	**Gloss**
1sg	kej	fəɾə́s kej	'my horse'	gurú ɣej	'my house'
2sg	kaa	fəɾə́s kaa	'your horse'	gurú ɣaa	'your house'
3sgm	ɟej	fəɾə́s ɟej	'his horse'	gurú ɟej	'his house'
3sgf	ʃeʔ	fəɾə́s ʃeʔ	'her horse'	gurú ʃɛʔ	'her house'
1pl	kaanə	fəɾə́s kaanə	'our horse'	gurú ɣaanə	'our house'
2pl	kɪŋ	fəɾə́s kɪŋ	'your pl. horse'	gurú ɣɪŋ	'your pl. house'
3pl	dʒo	fəɾə́s dʒo	'their horse'	gurú dʒo	'their house'

With t-series nouns, there is variation in the location of H tone that is dependent on the shape of the stem. With consonant-final stems, H tone surfaces on the penultimate vowel of the determiner except where this would create a rising tone across a long vowel as in the form of the 1PL *taaná* in which case H surfaces on the final vowel of the determiner. With vowel-final stems, the H tone surfaces on the penultimate vowel of the stem for all possessors.

(26) t-series possessive determiners

		C-final	**Gloss**	**V-final**	**Gloss**
1sg	tej	ʃımbır téj	‘my bird’	qáhwə ðej	‘my coffee’
2sg	taa	ʃımbır táa	‘your bird’	qáhwə ðaa	‘your coffee’
3sgm	tis	ʃımbır tís	‘his bird’	qáhwə ðis	‘his coffee’
3sgf	tijɛ	ʃımbır tíje	‘her bird’	qáhwə ðije	‘her coffee’
1pl	taanə	ʃımbır taanə́	‘our bird’	qáhwə ðaanə	‘our coffee’
2pl	tıŋ	ʃımbır tíŋ	‘your pl. bird’	qáhwə ðıŋ	‘your pl. coffee’
3pl	tıjo	ʃımbır tíjo	‘their bird’	qáhwə ðijo	‘their coffee’

Possession in KMM can also be encoded by two nouns (or DPs) in an associative (or genitive) construction, e.g., *hılíp doorə́* ‘meat (of) chicken.’ That these are not compounds is clear from the fact that both elements in the sequence and be defined: e.g., *hılípkə doorə́ðə* ‘the meat of the chicken.’ H tone is retained on both elements of an associative construction, whereas there is only a single H tone, on the rightmost element, of a compound; see Section 2.5.

2.5 Compounds

Maay Maay appears to have a few lexical compounds, examples of which can be seen in (27), however compounding does not seem to be productive. Considerable time has been devoted to eliciting compounds, but they have most often been rejected by our speaker. Unlike the associative constructions just mentioned, there is a single H tone on a compound on the rightmost vowel, and determiners can be found only on the rightmost element of the construct.

(27) Lexical compounds

Compound	Gloss	Compound + Det	Gloss
mɛɣæælə məðə́h	‘capital city’	mɛɣæælə məðə́h tii	‘the capital city’
dooɾə mwaatə́	‘duck’	dooɾə mwaatə́ ðii	‘the duck’
ɪlmə aptə́	‘maternal cousin’	ɪlmə aptə́ ɣii	‘the maternal cousin’
ɪlmə aðéɾ	‘paternal cousin’	ɪlmə aðéɾ ɣii	‘the paternal cousin’

The strategy for gender assignment in compounds is not entirely clear. In most instances, it would appear to be determined syntactically where the grammatical gender of the compound agrees with that of the compound’s head. However, there are exceptions, like for ‘capital city’ where the compound takes t-series agreement despite both components of the compound taking k-series agreement on their own: cf. *mɛgæél kii* ‘the city’ and *məðə́ ɣii* ‘the head.’ This may suggest that at least this compound has been relexicalized, or that it has been borrowed directly from Somali. As discussed in work by Kaldhol (2019), there is variation in Somali in whether gender in compounds is dictated by syntactic headedness or linear adjacency; at least for some Somali speakers, ‘capital city’ is “feminine,” as the noun *magaaló* ‘city’ in the language is “feminine.”

Chapter 3: Tonology of the Maay Maay nominal system

It will be argued in this chapter that the tonal behavior of Maay Maay nouns and other elements of the nominal system, such as determiners, is best described via a privative H/∅ contrast, where a given word is either lexically associated with a High tone or is instead lexically toneless. Underlyingly toneless nouns receive a High tone by rule as determined by several competing preferences related to word shape and tonotactics. Those elements that are lexically associated with High tone realize this tone on their final tone bearing unit, i.e., on their final vocalic mora. Those words that are underlyingly toneless still realize a High tone phonetically, but the location of this H tone varies according to context. More specifically, the location of H tone association depends on word shape (the size of a stem and whether a stem is vowel- or consonant-final).

In support of this analysis, it will be shown that this lexical tonal distinction correlates with a noun's grammatical gender and its susceptibility to tonal alternations. It will be argued that k-series "masculine" nouns are toned and are accordingly immune to tonal alternations. T-series "feminine" nouns, however, are susceptible to a range of tonal alternations, and also variation, in notable contexts, suggesting that they are instead underlyingly toneless. It will also be shown that tonal behavior differs based on the elements forming a given construction. Overall, evidence will be presented for at least four different tonal domains in the Maay nominal system: i) stem, ii) stem + definite/remote definite/demonstrative determiner, iii) stem + possessive determiner, and iv) stem + interrogative determiner.

Though several descriptions of the Maay Maay prosodic system have been offered (Saeed 1982, Biber 1982, Paster 2006), they focus on prosodic properties of varieties spoken in rather different geographic locations. Among them, they differ markedly from one another in their scope of coverage, in the patterns reported, and how the observed patterns are analyzed. It will be shown

that our speaker's KMM prosodic system appears to most closely align with that reported by Biber (1982) for Maay spoken in Mandera, Kenya. This is perhaps not surprising given that our speaker also grew up in eastern Kenya. However, the data represented in this thesis far surpass the scope and depth of what is included in Biber's work, and the patterns observed, in turn, call for a somewhat different interpretation of the system. The outcomes of this thesis are compared not only to Biber's "accentual" analysis of Mandera Maay, but also to Saeed's "tonal" analysis of Baidoa Maay, and to Lower Jubba Maay, which Paster and her colleagues determine is a stress accent system wherein pitch is not one of the phonetic correlates of the stressed syllable. These findings, and this comparison, are important for efforts towards establishing a microtypology of East Cushitic tone, as the prosodic systems of these languages are well known to stand at the cusp of tone vs. stress systems (Mous 2021). The current chapter focuses on describing and analyzing the patterns observed for our speaker of KMM, with comparisons and contrasts drawn to other varieties where relevant. Chapter 4 later considers how and why the observed variation between varieties may have come to pass and how one might situate Maay's prosodic system typologically, relative to other better-described Cushitic languages.

In an often-cited definition, Hyman (2006), citing Welmers (1959, 1973) states that "a language with tone is one in which an indication of pitch enters into the lexical realisation (sic) of at least some morphemes." As introduced in Chapter 2 and explored further below, this is certainly the case in KMM. It has been shown that two classes of KMM nouns generally differ in their grammatical gender patterns according to the location of pitch prominence on their stem, though there are some notable instances of neutralization, such as those observed for vowel-final stems. This is one key reason to consider KMM to be a tone language, however, languages like KMM are arguably less tonal than many other languages. Indeed, despite this correlation and contrast

between tone and grammatical gender, KMM and other languages that it is most closely related to, like Somali, encode few lexical contrasts in content words like nouns and verbs based on tone alone. This differs from many other languages of Africa and elsewhere which encode lexical or grammatical contrasts at several tone levels (or contours) and locations. KMM, and other languages most closely related to it, exhibit well-known prosodic properties of Cushitic languages, as recently summarized by Mous (2021), whereby tone exhibits more of a grammatical than lexical function, is limited in its distribution, and is largely demarcative. It is for these reasons that scholars have often struggled with whether or not to classify the languages as tonal at all, or rather as "tonal accent" languages. The reduced tonal properties of languages like Somali in particular have long been held as examples of just how atypically tonal a tonal language can be (Hyman 2019a, 2019b; Klingenheben 1949). Maay Maay, depending on the dialect, seems to be even a step further away from tonal prototypicality than Somali, with some varieties having entirely become a stress accent system.

Hyman (2006) states that obligatory prominence is one of two key diagnostics distinguishing stress accent systems vs. tonal systems. Obligatory prominence is a characteristic of stress accent systems, while such obligatoriness is not necessarily required in, though it may still be true of, tonal systems. The obligatoriness parameter is one important factor causing scholars to continue to analyze Somali as tonal; while H tone is obligatory in most instances, it is not so in two limited contexts (i.e., in instances of subject marking, and in some present and past tense verbs). Saeed (1982) has used the same criteria in describing Baidoa Maay as tonal, despite widespread neutralization in the variety's tone patterns. Based on data collected for this thesis, there appears to be only one pragmatically marked context in which tone is not obligatory in KMM. As such, based on the obligatoriness parameter, KMM would still be considered tonal, but just barely so.

Another factor to consider is culminativity. A single primary prominence within a word is a characteristic of stress systems, while more than one prominence may occur within tonal systems. In KMM, nouns in isolation exhibit a H tone. There is also H tone, but only one of them, within a given determiner phrase, even though both a noun and a given determiner may independently exhibit a H tone on their own.[6] This illustrates that, at least within certain constituents and corresponding domains, H tone is culminative. H tone is both obligatory and culminative within the KMM nominal system, except in one instance; the role played by tone in the verbal system has not yet been systematically explored, though preliminary data suggests that H tone is present in those few cognate verb contexts where it has been reported to be absent in Somali.

Another characteristic of stress accent systems is "syllable-dependency," or the fact that the location of prominence is defined relative to the syllable, as opposed to the mora. While the location of High tone in KMM still appears to be based on counting vocalic moras, it will be shown that there is variation in where and how H tone is realized on long vowels. In general, the language avoids creating tonal contours, but there is more to the story. More specifically, creation of a rising tone is avoided in all instances, however falling tones can be created, but only in instances where a fall is admitted to avoid a rise. In other instances, contours are avoided altogether by a decontouring rule which creates a flat pitch across an entire long vowel syllable. Whether or not this is indicative of a shift from counting moras to syllables, or simply a strategy to avoid rising tones is unclear. Based on the fact that tone appears obligatory in all but one

[6] Any vowel lengthening or increased intensity accompanying this raised pitch has not yet been systematically explored. Should they be present, this would illustrate more stress-like behavior overall. Neither has there been a systematic exploration into metrification in Maay, another factor that would be revelatory in the matter of determining whether the language is best described as having a tone vs. non-stress accent prosodic system.

instance, is culminative within a given domain, encodes at least some degree of contrast, and also appears to reference the mora, and despite its low functional load, I assume the language is best analyzed as tonal, at least marginally so.

As introduced above, there are other properties of KMM that suggest that its tonal system has very stress-like properties. As pointed out by Mous (2021), Cushitic tonal systems tend to be demarcative of domain edges. This is certainly the case of most H tones in KMM, which align to the right edge of a word, or on the rightmost of two words in a phrase. What is curious and interesting about KMM, however, is the mobility of H tone, and particularly its ability to alternate in some instances. This will be discussed in detail below.

In the remainder of this chapter, I start by describing the basic tonal properties of KMM nouns and other elements of the nominal system. The focus will first be on the tonal characteristics of nouns in isolation and then when modified by other modifiers, including plural suffixes and determiners of different types.

3.1 Basic noun tone patterns

As introduced above, a single H tone is present on all noun stems in KMM in isolation. The location of this tone is influenced both by a noun's grammatical gender, i.e., whether it requires k-series or t-series agreement, but also by word shape. Recall from above that k-series equates with masculine grammatical gender, and t-series equates with feminine grammatical gender.

Beginning with consonant-final stems, the examples in (28) are k-series nouns, all of which have a H tone on their final vocalic mora. Because these are disyllabic nouns, this is also on the final syllable, but (28c) and (28d) in particular show that the mora indeed plays a key role in tone distribution as there is a rising tone across a long vowel, rather than a flat H tone across the whole syllable nucleus.

(28) Tone on consonant-final k-series noun stems

a.	sahán̨	‘plate’	d.	tuqæǽn̨	‘store’
b.	məɣíl	‘men’	e.	ʕonók	‘child’
c.	wəreék	‘circle’	f.	fərə́s	‘horse’

In direct comparison, the nouns in (29) are t-series nouns. Their H tone is consistently located on the penultimate vocalic mora, which in many cases is also on the penultimate syllable, but (29e) and (29f) show that the High tone on the penultimate mora can be in the final syllable, with the result being a falling High-Low contour over a long vowel.

(29) Tone on consonant-final t-series noun stems

a.	ɲáɲur	‘cat’	d.	bíʃɪn̨	‘lip’
b.	íslæn̨	‘wife’	e.	daróor	‘cloud’
c.	bílan̨	‘woman’	f.	wéel	‘calf’

K-series nouns with vowel-final stems have High tone on the final mora just like their consonant-final counterparts. As High tone is on the final vowel, the tone falls on the final syllable as well.

(30) Tone on vowel-final k-series noun stems

a.	məðə́	‘head’	d.	hoŋgʊɾɨ́	‘meal’
b.	dʊβó	‘bull’	e.	tɨherá	‘worm’
c.	waxtə́	‘time’	f.	wəβɛ́	‘river’

T-series nouns with vowel-final stems, like those in (31), also show H tone on their final vowel. Thus, in vowel-final stems, the tonal contrast between k-series and t-series nouns is neutralized.

As seen below, this environment presents just one of several instances in which tone location on t-series nouns is affected by the shape of the stem.

(31) Tone on vowel-final t-series noun stems

a.	bɛɛsɨ́	‘money’	d.	ɲaaɲə́	‘tomato’
b.	ʃaqə́	‘work’	e.	aajó	‘mother’
c.	boðə́	‘thigh’	f.	toorə́	‘knife’

When noun stems select the *-ə* suffix for pluralization, we also see tonal alternations on both k-series and t-series nouns. The High tone shifts to the right edge of the word, appearing on the suffix, as seen in (32). This pattern is consistent with other nouns ending in vowels, in both instances, High tone on the final vowel.

(32) Tone with *-ə* suffix (gender series indicated in parentheses)

a.	saháŋ (k)	‘plate’	saham-ə́	‘plates’
b.	dʒɪlíp (k)	‘knee’	dʒɪlb-ə́	‘knees’
c.	bíʃɪŋ (t)	‘lip’	bɪʃɪmm-ə́	‘lips’
d.	tɨ́ŋ (t)	‘hair’	tɪm-ə́	‘hairs’
e.	ləf (t)	‘bone’	ləf-ə́	‘bones’

Another pluralization strategy, employing the *-jaal* suffix, also causes High tone to surface on the final vowel of the suffix rather than on the stem. High tone always surfaces on the final vocalic mora in the final syllable.

(33) Tone with *-jaál* suffix

a.	fərə́s	'horse'	fərəs-jaál	'horses'
b.	məðə́	'head'	məðə-jaál	'heads'
c.	tɛɛsɨ́	'fly'	tɛɛsɨ-jaál	'flies'
d.	gə́laŋ	'arm'	gəlaŋ-jaál	'arms'
e.	ɲáɲur	'cat'	ɲaɲur-jaál	'cats'

The remote definite determiners, *kii* and *tii*, affect tone placement on t-series stems but not on k-series ones. Both consonant-final and vowel-final nouns of the k-series surface with tone on the final vowel of the stem when combined with the remote definite determiner. Examples of this pattern where the remote definite determiners are shown with consonant-final and vowel-final k-series nouns in (34) and (35) respectively.

(34) Tone patterns on consonant-final k-series nouns with remote definite determiners

C-final	dəβə́ŋ	dəβə́ŋ kii	'cheek'
	ləməðıɣáŋ	ləməðıɣáŋ kii	'desert'
	dʒılíp	dʒılíp kii	'knee'

(35) Tone patterns on vowel-final k-series nouns with remote definite determiners

V-final	marooðə́	marooðé ɣii	'elephant'
	wəβɛ́	wəβɛ́ ɣii	'river'
	waxtə́	waxtə́ ɣii	'time'

Consonant-final t-series stems do not undergo any alternation when modified by a remote definite determiner. H tone remains on the penultimate vocalic mora of the stem. Vowel-final t-

series stems, however, witness High tone surfacing one mora to the left when modified by these determiners. This can be seen in (36) and (37) below.

(36) Tone patterns on consonant-final t-series nouns with remote definite determiners

C-final	ɲáɲur	ɲáɲur tii	‘cat’
	ʃímbır	ʃímbır tii	‘bird’
	daróor	daróor tii	‘cloud’

(37) Tone patterns on vowel-final t-series nouns with remote definite determiners

V-final	boðə́	bóðə ðii	‘thigh’
	qahwə́	qáhwe ðii	‘coffee’
	ʕʊsbə́	ʕósbə ðii	‘meal’

The preference for penultimate tone in t-series nouns with the remote definite also shows another pattern: avoidance of rising tone. KMM would appear to be a mora counting language (i.e., the mora is the language’s tone bearing unit), meaning that long vowels are counted as two potential association sites for tone, as we see H tone appearing on either mora of a long vowel. There is a tendency to avoid having rising tone within a syllable in t-series nouns; if tone assignment to the penultimate mora might lead to a rising tone, one of three repair strategies is used. The first involves a flattened high tone span across both vowels of the syllable. The second is that tone fails to alternate, i.e., the tone stays on the final vowel. The third is placing tone on the antepenultimate mora, where the tone appears two mora leftward of where one might otherwise expect it, rather than just one. Examples of these three repair strategies can be found in (38).

(38) Rising tone avoidance in t-series nouns

Flattened H	lóʔ	lóó ðii	‘cow’
	búúr	búúr tii	‘heel’
	tɛɛsɨ́	tɛ́ɛ́sɨ ðii	‘fly’
H stays final	bɛɛsɨ́	bɛɛsɨ́ ðii	‘money’
	ɲaaɲə́	ɲaaɲə́ ðii	‘tomato’
	aajó	aajó tii	‘mother’
H shifts 2	toorə́	tóorə ðii	‘knife’
	haafə́	háafə ðii	‘village’
	boondɨ́	bóondɨ ðii	‘bridge’

It is also worth noting that k-series nouns are unaffected by this general preference to avoid a rising tone pattern. The H tone appears on the final vocalic mora of k-series nouns even if a rising tone is present.

(39) Maintenance of rising tones in k-series nouns

gaál	‘camel’
wəɾeék	‘circle’

When pluralized nouns are modified by a remote definite determiner, two different patterns emerge, in a way that is similar to how the remote definite determiners affect bare nouns. Nouns with the *-jaal* suffix consistently maintain their tone on the final vowel of the *-jaal* suffix when the remote definite determiner is added. This pattern is similar in that tone location in uninflected k-series nouns, which are not affected by the addition of the same determiner.

(40) *-jaal* plurals with remote definites

fərəs-jaál	fərəs-jaál kii	‘horse’
ɲaɲur-jaál	ɲaɲur-jaál kii	‘cat’
məðə-jaál	məðə-jaál kii	‘head’
tɛɛsɨ-jaál	tɛɛsɨ-jaál kii	‘fly’
gəlaɲ-jaál	gəlaɲ-jaál kii	‘arm’

Nouns taking the *-ə* plural suffix with the remote definite determiner undergo similar tonal shifts to vowel-final t-series nouns in that the tone on the final vowel surfaces on its original position on the stem. The High tone that appeared on the final *-ə* (which surfaces as [o] in nonfinal positions) now appears on the stem. More specifically, High tone appears on the penultimate vowel of the stem for both k-series and t-series nouns; however, most of the data involve monosyllabic stems or stems that undergo vowel reduction resulting in a stem with a single vowel, so in these instances, the H tone surfaces on the only vocalic mora within the stem. Examples of these outcomes are in (41) below.

(41) *-ə* plurals with remote definites

Plural	Gloss	Plural + Rem Def	Gloss
saham-ə́	‘plates’	sáham-o ɣii	‘the plates’
bɪʃɪmm-ə́	‘lips’	bíʃɪmm-o ɣii	‘the lips’
dʒɪlb-ə́	‘knees’	dʒílb-o ɣii	‘the knees’
ləf-ə́	‘bones’	lə́f-o ɣii	‘the bones’
dɛ̃ɣ-ə́	‘ears’	dɛ̃́ɣ-o ɣii	‘the ears’
ɪlk-ə́	‘teeth’	ílk-o ɣii	‘the teeth’

Nouns with the distal demonstratives show similar tonal patterns to the remote definite determiners in that H tone appears on the final vocalic mora of all k-series nouns, as in (42), and on the penultimate vocalic mora of all t-series nouns, as in (43).

(42) k-series nouns with distal demonstrative

Stem	Gloss	Stem + Distal Dem	Gloss
gaál	‘camel’	gaál kaas	‘that camel’
fəɾə́s	‘horse	fəɾə́s kaas	‘that horse
məláj	‘fish’	məlaj́ kaas	‘that fish’

(43) t-series nouns with distal demonstratives

Stem	Gloss	Stem + Distal Dem	Gloss
ɲáɲur	‘cat’	ɲáɲur taas	‘that cat’
qahwə́	‘coffee’	qáhwə ðaas	‘that coffee’
lóʔ	‘cow’	lóo ðaas	‘that cow’

K-series nouns with the basic definite determiners do not demonstrate any tonal alternations, similar to their behavior with other determiners. H tone surfaces on the final vocalic mora.

(44) k-series nouns with basic definite determiners

a.	láŋ	‘man’	láŋ kə	‘the man’
b.	buúk	‘book’	buúg gə	‘the book’
c.	eɾéŋ	‘goat’	eɾéŋ kə	‘the goat’
d.	məðə́	‘head’	məðə́ ɣə	‘the head’
e.	guɾú	‘house’	guɾú ɣə	‘the house’
f.	rootí	‘bread’	rootɨ́ ɣə	‘the bread’

T-series nouns demonstrate different behaviors based on their shape. Consonant-final stems have H tone surface on the vowel in the determiner with basic definites, whereas vowel-final stems show no tonal alternation with H tone surfacing on the final vowel of the stem as seen in (45).

(45) t-series nouns with basic definite determiners

a.	ʃĩmbır	'bird'	ʃımbır tə́	'the bird'
b.	bíʃıŋ	'lip'	bıʃıŋ tə́	'the lip'
c.	gə́laŋ	'arm'	gəlaŋ tə́	'the arm'
d.	qahwə́	'coffee'	qahwə́ ðə	'the coffee'
e.	bɛɛsɨ́	'money'	bɛɛsɨ́ ðə	'the money'
f.	ʔusbə́	'salt'	ʔusbə́ ðə	'the salt'

Examples in (46) and (47) show k-series and t-series nouns with their respective proximal demonstratives -*kəŋ/təŋ*. The proximal demonstratives affect k-series and t-series stems differently. With k-series nouns, the proximal demonstrative causes no tonal alternations, and tone consistently surfaces on the final vowel of the stem, as seen in (46).

(46) Tone with k-series nouns and proximal demonstratives

mə́s	mə́s kəŋ	'snake'
gaál	gaál kəŋ	'camel'
məðə́	məðə́ ɣəŋ	'head'
fərə́s	fərə́s kəŋ	'horse'

When the proximal demonstrative modifies a t-series noun, as in (47), High tone surfaces on the vowel in the determiner rather than on the stem. This pattern occurs regardless of the shape of the noun.

(47) Tone with t-series nouns and proximal demonstratives

ɲáɲur	‘cat’	ɲaɲur tə́ŋ	‘this cat’
ʃímbır	‘bird’	ʃımbır tə́ŋ	‘this bird’
lóʔ	‘cow’	loo ðə́ŋ	‘this cow’
qahwə́	‘coffee’	qahwə ðə́ŋ	‘this coffee’

When possessive determiners modify k-series nouns, no tonal alternations occur; H tone remains on the noun stem, as seen in (48).

(48) Tone on k-series nouns with possessive determiners

		C-final	Gloss	V-final	Gloss
1sg	kej	fərə́s kej	‘my horse’	gurú ɣej	‘my house’
2sg	kaa	fərə́s kaa	‘your horse’	gurú ɣaa	‘your house’
3sgm	ɟej	fərə́s ɟej	‘his horse’	gurú ɟej	‘his house’
3sgf	ʃeʔ	fərə́s ʃeʔ	‘her horse’	gurú ʃɛʔ	‘her house’
1pl	kaanə	fərə́s kaanə	‘our horse’	gurú ɣaanə	‘our house’
2pl	kıŋ	fərə́s kıŋ	‘your pl. horse’	gurú ɣıŋ	‘your pl. house’
3pl	dʒo	fərə́s dʒo	‘their horse’	gurú dʒo	‘their house’

With t-series nouns, however, possessive determiners illustrate how word shape affects H tone location. The examples in (49) show H tone surfacing on the penultimate vocalic mora of the stem with vowel-final stems, but on the penultimate mora of the determiner with consonant-final stems. This occurs unless this would create a rising H tone across a long vowel, in which case H surfaces on the final vowel as in *ʃımbır taaná* ‘our bird.’

(49) Tone on t-series nouns with possessive determiners

		C-final	Gloss	V-final	Gloss
1sg	tej	ʃımbır téj	‘my bird’	qáhwə ðej	‘my coffee’
2sg	taa	ʃımbır táa	‘your bird’	qáhwə ðaa	‘your coffee’
3sgm	tis	ʃımbır tís	‘his bird’	qáhwə ðis	‘his coffee’
3sgf	tijɛ	ʃımbır tíje	‘her bird’	qáhwə ðije	‘her coffee’
1pl	taanə	ʃımbır taaná	‘our bird’	qáhwə ðaanə	‘our coffee’
2pl	tıŋ	ʃımbır tíŋ	‘your pl. bird’	qáhwə ðıŋ	‘your pl. coffee’
3pl	tıjo	ʃımbır tíjo	‘their bird’	qáhwə ðijo	‘their coffee’

When nouns of both k-series and t-series are modified by the interrogative determiner, High tone appears on the vowel in the determiner for both series. This is the only determiner in our data that shows a neutralization of H tone location for both grammatical genders and all word shapes.

(50) Tone with interrogative determiners

éj	‘dog’	ej kɛ́w	‘which dog’
fəɾə́s	‘horse’	fəɾəs kɛ́w	‘which horse’
mə́s	‘snake’	məs kɛ́w	‘which snake’
ɲánur	‘cat’	ɲaɲur tɛ́w	‘which cat’
ʃímbır	‘bird’	ʃımbır tɛ́w	‘which bird’
tɛɛsɨ́	‘fly’	tɛɛsɨ ɣɛ́w	‘which fly’

Compounds and nouns with derivational morphemes show similar patterns. H tone consistently surfaces on the final vocalic mora of the compound or the noun with the derivational suffix, and they show no tonal alternations in the presence of determiners regardless of the grammatical

gender of the stem noun(s). Examples are shown in (51) and (52), for compounds and derivational suffixes, respectively.

(51) Tone on compounds

mɛɣæælə məðəh	‘capital city’	mɛɣæælə məðəh tii	‘the capital city’
dooɾə mwaatə́	‘duck’	dooɾə mwaatə́ ðii	‘the duck’
ılmə aptə́	‘maternal cousin’	ılmə aptə́ ɣii	‘the maternal cousin’
ılmə aðéɾ	‘paternal cousin’	ılmə aðéɾ ɣii	‘the paternal cousin’

(52) Tone with derivational morphemes

Stem		Agentive		Gerund	
hés (tii)	‘song’	hɛsalə́ (ɣii)	‘singer’	hɛsó (ɣii)	‘singing’
degaál (kii)	‘fight’	degaalə́ (kii)	‘fighter’	degaaləmó (ɣii)	‘fighting’
		dılɨ́ (ɣii)	‘killer’	dılló (ɣii)	‘killing’
béér (tii)	‘farm’	bɛɛralə́ (ɣii)	‘farmer’	bɛɛró (ɣii)	‘farming’
		hoɣaamijɨ́ (ɣii)	‘leader’	hoɣaamíŋ (tii)	‘leading’

3.2 Toward an analysis of the tonal system

As should be clear from the data in Section 3.1, k-series and t-series nouns exhibit H tone in different locations, the distribution of which is also dependent on stem size and shape. There is a stark difference in the mobility of H tone in t-series stems, in almost all contexts, and the immobility of H tone in k-series nouns in comparable contexts. Based on these outcomes, and especially the vastly different behavior of k-series vs. t-series nouns in equivalent contexts, I propose that a privative H/Ø lexical contrast in tone offers a simple and transparent account of the tonal alternations in KMM.

If nouns in both series emerged from morphology underlyingly toneless, one would first need to assign tone only to k-series nouns by some rule, always and only to a particular location. This tone would somehow be immune to alternation. The remaining t-series nouns would not receive this tone by this rule, but rather would instead be assigned one later, and would be susceptible to further tonal alternation. In the privative analysis that I propose, the morphological distinction between two classes of nouns must be stipulated, but it would involve two tone assignment processes, one morphological (for k-series) and the other phonological (for t-series). If, as an alternative, tone was underlyingly specified to nouns in both series, one would be at a loss for why k-series tone is so immobile, while t-series tone is not. One would be hard pressed to explain by tone in k-series nouns is subject to different rules and preferences than that of t-series nouns. For t-series nouns, tone appears in different locations preceding different determiners, including on the determiners themselves in some instances. Given that the location of tone falls into predictable patterns discussed thus far, such an approach is unintuitive.

An analysis based on a privative tonal contrast offers a simple and more transparent solution. Since k-series nouns are seemingly immune to most tonal alternations, I posit that a lexical High tone is associated with the final vocalic mora of a k-series stem. This is in line with the general demarcative nature of tone in Cushitic languages (Mous 2021). T-series nouns, conversely, are subject to many tonal alternations. I propose that these nouns have no lexical High tone but rather are unspecified for tone underlyingly and are assigned a surface High tone by the phonology due to a requirement that all stems exhibit such a tone. Since this H tone is supplied by the phonology, its location is left to be determined via competing phonotactic and tonotactic constraints. As shown below, under some conditions, H tone is preferred at the right edge, while in others, this is not so. Alongside these competing preferences, the language must avoid H tone

on coda consonants, and it also generally disprefers tonal contours, though the type and degree of dispreference for these sequences, again, depends on the particular context.

While any analysis must be independently justified and motivated, it is notable that the proposal for tonal privativity offered here to explain the tonal behavior of KMM is not unique in the literature on Cushitic languages. To my knowledge, similar proposals of privativity have been offered to capture the tonal behavior of at least two other Cushitic languages – Qafar (Hayward 1992) and Oromo (Owens 1985; Banti 1988). In particular, scholars have described these languages as having lexical H/Ø contrasts for "tonal accent" on nouns. Some nouns have an underlying accent to which H tone is later associated. Hayward 1992's analysis of Qafar refers to a H/Ø contrast where group 1 nouns (corresponding to k-series nouns here) have a lexically specified accent in the penultimate position causing H tone to be associated with that syllable. Group 2 (here, t-series) nouns have no lexical accent which causes accent to be assigned by rule to the final syllable, which is where H tone ultimately surfaces as well. In Oromo, Owens (1985) describes a privative H/Ø contrast for tone on the penultimate syllable influences whether nouns surface with a final LH or HH pattern. In this case as well, the underspecified tone also corresponds with the grammatically "feminine," here t-series, nouns.

Arguably in support of the proposal of privativity in KMM stems offered here is that it is extensible to other items in the lexicon. Two of KMM's plural suffixes, *-jaál* and *-ə*, exhibit behavior that closely correlates with the privative H/Ø tone patterns of k-series and t-series nouns. Nouns that take the *-jaál* suffix consistently exhibit H tone on the final vowel of the suffix, even when modified by the remote definite determiner; this illustrates that they are immune to otherwise expected tonal alternations seen on stem. If this analysis is correct, the *-jaál*

suffix could be seen as having an underlying tone on its final vocalic mora, similar to k-series nouns.

On the other hand, *-ə* plurals pattern similarly to t-series stems in that they are susceptible to tonal alternations, regardless of the gender series of the stem to which they attach. When the *-ə* suffix is attached to a noun stem, it creates a word-final vowel that attracts tone to the final vowel. When the remote definite determiner is added, it similarly witnesses a retraction of the H tone to the stem. This could indicate that the *-ə* suffix has no underlying tone.

High tone still surfaces on underlyingly underspecified nouns and suffixes; they receive their tone by rule, but its location as dictated by a series of preferences or "constraints" that depend on stem shape and construction. The requirement for H tone to appear even when one is not specified underlyingly is arguably due to an overarching prosodic constraint, common in the world's languages, whereby a single, highest unit of prominence (in this case, H tone) must appear at least once on every word (Hyman 2006, among many others). As explored in detail below, H tone placement is affected by competing preferences in KMM. Interestingly, however, when left to the phonology, H tone often appears on the penultimate vocalic mora, a position that is a "typologically common placement for prominence" (Gordon 2014), and also correlates with the position for default tone assignment in other Cushitic languages (e.g., Ongota: Savà and Tosco, 2000; Af Tunni: Tosco 1997). This also would arguably follow from the generalization that tone is demarcative in many Cushitic languages (Mous 2021).

Based on the data collected and the patterns described below, aspects of KMM's tonal behavior would appear to lend themselves well to an optimality theoretic analysis whereby a ranked set of constraints ultimately dictates where High tone surfaces, all the while taking into consideration adherence (i.e., faithfulness) to lexical tone location, and preferences (vs. dispreferences) in

phonotactics (i.e., markedness). As will become clear below, there are some complicating factors, perhaps best pinned to cumulativity effects, whose outcomes might be better captured within a framework employing weighted, rather than ranked constraints, such as Harmonic Grammar (Smolensky and Legendre 2006, Legendre et al 1990). In order not to step too far afield, and not to overstep the goal of this thesis to establish and motivate generalizations about KMM's tonology, such a constraint-based analysis will be left for future work. However, in anticipation of such an analysis, for now, I employ the term constraint descriptively below in the interest of describing competing preferences in KMM's phonology and tonology.

In KMM, the surface location of H tone is fully predictable provided one takes into consideration the shape of the noun, the grammatical gender of the noun, and the context in which it appears, i.e., the type of determiner that modifies it, if any. With these characteristics accounted for, four distinct patterns of H tone assignment can be identified in KMM. These patterns are exhibited by successively larger units which correspond to a i) stems and their affixes, including compounds, ii) stems with most determiners, iii) stems with possessives, and, lastly, iv) stems with interrogative determiners. In exploring the mechanism and conditions of H tone assignment in KMM, I make the standard assumption, following the Indirect Reference Hypothesis (Inkelas & Zec 1990), that morphosyntactic domains are not directly accessible to phonology but are instead parsed into prosodic domains upon which phonology can act. Motivating precisely which domains these are is not an uncomplicated task as it touches upon several outstanding questions in contemporary prosodic phonology.

While there is certainly a core set of hierarchically arranged domains often referenced in scholarship motivating Prosodic Hierarchy Theory (Nespor & Vogel 1986; Selkirk 2011), there is far from a consensus on precisely which domains can or should be considered universal vs.

emergent, or perhaps even parametric. The studies touching upon this at various levels of the hierarchy are too numerous to mention here, and so I briefly mention here only a few of those that discuss the prosodic word (PWd) and related word-size domains. As summarized in Hildebrandt (2015), some scholars have argued that there are some languages that present no clear evidence for the PWd domain, while other languages appear to have more than one unit that could be defined as such. It has also been argued for some languages, contra the Strict Layer Hypothesis (Selkirk 1981, among others), that PWds (assuming they are motivated for a given language) can be recursive (Bennett 2018), while others like Miller & Sande (2021) have called into question analyses positing recursion, arguing that outcomes in many instances could be explained without admitting recursive structures to the prosodic hierarchy. This issue has come to the forefront in the literature on Cushitic languages, and notably in analyses of Somali such as Green & Morrison (2016, 2018), Downing & Nilsson (2019), and LeGac (2018), where, variously, recursion and the addition of new levels or domains of the hierarchy (e.g., the Complex Word Group, in Downing & Nilsson 2019) have been employed to analyze the language's complex tonology.

It may be possible to extend these analyses of Somali, and their reference to particular prosodic domains, to KMM, but doing so is problematic in some ways. That is, corroborating evidence for the presence of these structures in Somali is pinned to both tonal and segmental phonology, as well as to morphology and sometimes even poetic metrics. At present, there is insufficient corroborating evidence from other processes within KMM to take a strong stance on this, largely given the underdescribed nature of language. With these concerns in mind, and although it would appear undeniable that prosodic structure(s) have a role to play in KMM tone, I have made the agnostic choice of describing and analyzing the language's tonal phonology with reference to

Domain (henceforth D) 1 through 4. Implicit in this choice is that the smallest domain, D1, would be no smaller than a PWd, though how to define D2, D3, and D4, is more difficult to establish at the present time.

Within a given D, there is a definable set of preferences, or constraints, that interact to determine surface location of H tone. In this way, one could argue that each D has its own cophonology (Orgun 1996; Inkelas et al. 1997; Anttila 2002, 2009; Inkelas and Zoll 2005, 2007; Sande et al 2020). On this thinking, the location of tone in each D can be determined by the same set of preferences or constraints, but there are slight rerankings of these constraints within a given D. One matter that appears particularly important in KMM is a conflict in preferences for how far H tone can be from the right edge of a given D. In the following subsections, I discuss each D in detail.

3.2.1 *Domain 1*

The smallest domain to be discussed corresponds to stems and their affixes, including compounds, where relevant. A few different surface High tone locations are observed within the data. First, High tone on k-series stems does not alternate based on the shape of the stem; it consistently surfaces on the final vocalic mora of the stems: see (53) below. This differs from t-series stems, as in (54), where High tone appears in different positions based on stem shape. Here and elsewhere, for k-series nouns, this suggests that KMM generally prefers not to manipulate an underlying tone.

(53) Tone on k-series stems

C-final	sahán̪	‘plate’	V-final	məðə́	‘head’
	məɣíl	‘men’		dʊβʊ́	‘bull’
	wəreék	‘circle’		waxtə́	‘time’

(54) Tone on t-series stems

C-final	n̪án̪ur	‘cat’	V-final	n̪aan̪ə́	‘tomato’
	íslæn̪	‘wife’		aajó	‘mother’
	bílan̪	‘woman’		toorə́	‘knife’

As mentioned above, H tone is obligatory on nouns in nearly every instance. Thus, when there is no High tone in the input, one must be provided by the phonology, and this tone must be associated to some mora.

Within D1, there is a preference for right edge High tone. In both vowel-final stems and stems with underlyingly toneless vocalic suffixes (such as the *-ə* plural), H surfaces on the rightmost mora. However, H tone does not surface on the final vocalic mora of consonant-final t-series nouns, so some other factor must be involved to explain this outcome: to be clear, H appears neither at the absolute right edge of the stem, nor on the final vocalic mora.

The presence of a coda consonant seems to have a role in the calculation of tone assignment. In this way, coda consonants could be seen as filling an additional timing slot or as being moraic (Hyman 1985). If coda consonants are moraic, as they have been argued to be in Somali (see discussion in Green (to appear), and Orwin 1996), they could be viewed as counting as potential tone bearing units. Of course, additional evidence such as word size requirements, or other

processes that count moras, such as metrically-conditioned alternations or reduplication patterns should be sought to substantiate this assumption. For the purposes of this thesis, I follow Hyman (1985) in assuming that coda consonants are moraic, though codas in some languages may lose their mora by rule. Under a view where coda consonants are moraic, one possibility to explain the avoidance of a right edge H tone in t-series nouns could be seen as a dispreference for creating a final rising contour across two moras in final positions. As discussed earlier, KMM actively avoids creating certain tonal contours word internally, as seen in (38), when t-series nouns are modified by a remote definite determiner. It stands to reason that this preference may also play a role in tone assignment in other positions of the word. Another, perhaps more likely, way to view this would be that KMM simply does not allow consonants to bear a tone, rather than attributing the tone's absence to contour avoidance.

With the final consonant being unavailable for High tone association, the next best option might seem to be for High tone to surface on the final vocalic mora, just as it does in k-series nouns. However, this also does not occur, and the failure to do so could again be seen as avoidance of creating a contour, in this case, a falling tone across the final two moras. The only reasonable outcome remaining, therefore, is for High tone to associate with the penultimate vocalic mora, which is the rightmost element that is able to bear tone without creating a contour in final positions.[7] It may be that contour avoidance is limited to final positions, as H tone is allowed within word-internal syllables that have coda consonants as in *ʃímbır* 'bird' (assuming that codas are potential tone bearing units word internally as well). We can also see in words like *daróor*

[7] The result – H tone appearing on the penultimate vocalic mora in t-series nouns – yields a surface tonal contrast relative to k-series nouns. In other dialects of Maay Maay, there are tonal minimal pairs, words of the same shape that differ only in tone due to the grammatical gender of the noun (Biber 1982). No such minimal pairs have been found in our data, but the distinction in the location of H tone association does predict that this might be possible.

'cloud' that a falling contour is tolerated when the stem's final syllable is CVVC; here, it may be that having H tone surface four tone bearing units away from the right edge is simply too far to be accommodated. To avoid this, the contour is permitted in words of this shape. Recall that, in general, k-series nouns violate this dispreference for final contours, a fact that follows the statement above about faithfulness to underlying tone association. In this way, there is a dispreference against *creating* contours, though they are not disallowed in the language overall.

The *-jaal* suffix appears with High tone on the final vocalic mora of the suffix, regardless of the stem noun's grammatical gender. This is one of the few instances in which underlying High tone (in k-series nouns) is subject to alternation, but this is arguably due to culminativity, similar to what is seen, for example, in compounds. When the *-jaal* suffix modifies a k-series noun, the noun stem loses its High tone, as in *məðə-jaál* 'heads' and *fəɾəs-jaál* 'horses.' The inability of H tone on *-jaal* to alternate, as mentioned above, suggests that this suffix has an underlying High tone. Under this view, we might otherwise expect to see two surface H tones with k-series nouns modified by *-jaal*, one from the stem and one from the suffix, particularly given the high favor that KMM gives to preserving underlying tones. However, as seen above, the surface forms only show one H tone, with that tone being on the suffix. Such an outcome suggests that High tone is culminative and that this requirement is prioritized over faithfulness to underlying tone. The tone on the rightmost morpheme is the one that is maintained, which is further support of the assumption that High tone is preferred toward the right edge in this domain.

Compounds and nouns formed by derivational suffixes also follow the pattern for a preference for H tone on the right edge. Compounds show H tone on the rightmost vocalic mora regardless of the grammatical gender of its components or the grammatical gender of the compound itself. Derivational suffixes behave similarly to nouns with the *-jaál* suffix as H tone surfaces on the

rightmost vocalic mora despite any underlying tone specification on the stems. This generalization aligns with descriptions of other Cushitic languages as pluralization has been argued to be derivational rather than inflectional (Lecarme 2002; Mous 2012). Whether these suffixes are underlyingly associated with tone is unclear at present, as they have not yet been elicited in all relevant contexts to make such a determination.

Overall, within D1, the following generalizations can be made about tone assignment:

- There is a preference for H tone at the right edge of a word, though this is violated in favor of avoiding other dispreferred outcomes
- Coda consonants cannot bear tone
- Creating tonal contours is generally avoided, despite underlying contours being permitted
- Faithfulness to underlying H tone is prioritized, except in instances where there are two input H tones. H tone culminativity, alongside a preference for right edge H tone, yields loss of stem H

3.2.2 *Domain 2*

When nouns are modified by certain determiners (i.e., both the basic and remote definite determiners, and the proximal and distal demonstrative determiners), the patterns of High tone placement differ, but again in a way that can be captured with principled generalizations. The difference in tonal behavior suggests that nouns and determiners are parsed in a somewhat larger domain (here, D2) that has different preferences for High tone placement compared to D1. Many D1 preferences remain in place, but others emerge in this domain.

One preference that remains in D2 is the stability of underlying tone. The consistent appearance of High tone on the final vocalic mora of the stem in k-series nouns with these determiners again shows that faithfulness to the underlying tone location is important, as seen in (55).

(55) k-series nouns with definite and demonstrative determiners

	C-final		V-final	
Remote Def.	dəβə́ŋ kii	'cheek'	wəβɛ́ ɣii	'river'
Basic Def.	eréŋ kə	'the goat'	məðə́ ɣə	'the head'
Proximal Dem.	fəɾə́s kəŋ	'this horse'	məðə́ ɣəŋ	'this head'
Distal Dem.	gaál kaas	'that camel'	guɾú ɣaas	'that house'

Compounds and nouns with derivational suffixes with a remote definite determiner behave like k-series nouns since H tone location is not affected as shown in (56). Whether this behavior can be attributed to an underlying tone on the suffix (or on a relexicalized compound) or whether it is due to a separate cophonology for derivational processes could only be determined by further data collection with elicitation of compounds and nouns with derivational suffixes with the full set of determiners.

(56)

Agentive	hɛsalə́ ɣii	'the singer'
	dılɨ́ ɣii	'the killer'
Gerund	degaaləmó ɣii	'the fighting'
	hoɣaamín tii	'the leading'
Compound	mɛɣæælə məðə́h tii	'the capital city'
	ılmə aptə́ ɣii	'the maternal cousin'

Perhaps the most crucial difference between D1 and D2 is a preference for H tone to surface on a non-final position, rather than at the right edge. We can still see that there is a preference for H tone to appear near to, though not at, the right edge, however, as H tone is associated with the penultimate mora, the rightmost yet still non-final mora. The ideal position for H tone in D2 seems to be the penultimate mora of the determiner. When the proximal demonstratives modify t-series nouns as in (57) below, High tone surfaces on the vowel in the determiner, regardless of the shape of the noun. Since the proximal demonstrative consists of a CVC, whose coda consonant is arguably moraic, there is a viable penultimate location for the H tone: the vowel of the determiner. Note that this creates a V́C contour across the final two moras of D2, which appears unproblematic, though it was dispreferred in D1.

(57) t-series nouns with the proximal demonstrative

ɲaɲur tə́ŋ	'this cat'
ʃımbır tə́ŋ	'this bird'
loo ðə́ŋ	'this cow'
qahwə ðə́ŋ	'this coffee'

Vowel-final t-series stems with the basic definite determiner also show the preference for penultimate H tone as in *qahwə́ ðə* 'the coffee' and *bɛɛsɨ́ ðə* 'the money.' Since the determiner only consists of a single mora, there is no penultimate mora of the determiner for H tone to associate with. Instead, the moras of the stem seem to be included in this calculation as H tone surfaces on the penultimate mora from the edge of D2 with these vowel-final stems.

When consonant-final t-series stems are modified by the basic definite determiner, as in *ʃɪmbɪr tə́* ‘the bird’ and *bɪʃɪn tə́* ‘the lip,’ we see that while non-finality is the preference in D2, another outcome may occur under some conditions. Here, the penultimate mora of D2 when consonant-final stems are involved would be the final consonant of the stem. Since tone cannot be on a consonant, the vocalic moras of the stem might appear to be the next best options, but instead H tone surfaces on the vocalic mora of the determiner. This would violate the preference for non-finality in D2 but would appear to be the best option available perhaps because being three moras (or more) from the right edge simply cannot be accommodated under these conditions. If the language cannot achieve H on the penultimate mora, being final is a superior outcome compared to being too far from the right edge.

As seen in (58) below, H tone surfaces on the penultimate vocalic mora of the stem when modified by the remote definite and distal demonstrative determiners. Due to the CVV shape of the determiner, the preference for penultimate H tone would associate H tone with the first mora of the long vowel of the determiner, which would create a tonal contour across the long vowel in a final position. The next most preferred option, the rightmost mora of D2 would also create a tonal contour across a long vowel. Since H tone does not surface on the determiner, it appears that the preference to avoid final contours across a long vowel still stands. The CVVC shape of the distal demonstrative determiner similarly affects the location of the H tone as penultimate H tone would associate H tone to the second mora of the long vowel, creating a disallowed rising tonal contour. Aligning tone to the right edge would associate it with the final consonant, another disallowed result. It is also possible that the final *s* of the distal demonstrative determiner is extrametrical, in which case the determiner would be treated as if it were CVV making the shape

between the remote definite and the distal demonstrative determiners essentially identical and all tone patterns motivated by the same preferences.

(58) t-series nouns with distal demonstratives and remote definites

	C-final		V-final	
Remote Def.	ɲáɲur tii	'the cat'	qáhwe ðii	'the coffee'
	ʃímbır tii	'the bird'	ʕúsbə ðii	'the meal'
Distal Dem.	ɲáɲur taas	'that cat'	qáhwə ðaas	'that coffee'
	ʃímbır taas	'that bird'		

If H tone cannot appear on the determiner due to VV contour avoidance, the language chooses instead for H tone association to the penultimate vocalic mora of the stem regardless of the shape of the stem. This is a viable option, being penultimate in the stem, rather than perhaps being final on the stem; although closer to the right edge overall, this would violate the preference in this domain for non-finality. Being on the penultimate mora of a consonant-final stem would violate the dispreference for contours on the stem, which is more stringent, as seen in Section 3.2.1.

The exceptions to penultimate stem H tone are found in t-series stems with stem-internal long vowels. As described in (38), association with the penultimate mora of these stems would create a disallowed tonal contour as rising tones are avoided not just in final positions but word-internally as well in such stems. To avoid contour formation, H tone is associated with either the final or antepenultimate vocalic mora of the stem, or H tone is flattened across the two moras of the long vowel.

These four determiners exemplify the reranking of tone assignment preferences in D2. Overall, the following generalizations can be made for D2:

- The preference for faithfulness to underlying High tone and the avoidance of High tone being associated with consonants remain highly prioritized
- Restrictions on creating final contours are somewhat weakened as contours across a VC rhyme are permitted. Vocalic contours creating a falling tone are still disallowed in final positions within D2 and creating a rising tone is disallowed in all contexts, though underlying contours are still permitted.
- There is a preference for H tone on the penultimate position of a determiner; if this cannot be achieved, due to contour avoidance or determiner shape, other outcomes result.

3.2.3 *Domain 3*

Domain 3 contains a stem and any possessive determiners. There remains a high preference for faithfulness to underlying tone association, as tone placement on k-series nouns is not affected by possessive determiners as seen in (59). However, for t-series nouns, we still see a preference for penultimate H tone, but in a way that is different from other determiners. We can still see an overall preference for penultimate H tone: consonant-final stems show penultimate H tone on the determiner, and vowel-final stems show penultimate H tone within the stem.

The ideal position for H tone in this domain seems to be the penultimate vocalic mora of the stem. For vowel-final stems, this is the penultimate mora of the stem. For consonant-final stems, if H tone were to associate with the penultimate vocalic mora of the stem (which was the last resort option in D2), it would be too far from the right edge of the domain, seemingly solely due to the presence of the extra consonant. H tone instead associates with the penultimate mora of the

determiner unless a disallowed tonal contour is created. In this case, as in the consonant-final nouns modified by the 1PL possessive determiner, H tone is associated with the final mora of the determiner on the right edge of the domain. A few examples are shown in (60).

(59) k-series nouns with possessive determiners

		C-final		V-final	
1pl	kaanə	fəɾə́s kaanə	‘our horse’	gurú ɣaanə	‘our house’
2pl	kɪŋ	fəɾə́s kɪŋ	‘your pl. horse’	gurú ɣɪŋ	‘your pl. house’
3pl	dʒo	fəɾə́s dʒo	‘their horse’	gurú dʒo	‘their house’

(60) t-series nouns with possessive determiners

		C-final		V-final	
1pl	taanə	ʃɪmbɪr taaná	‘our bird’	qáhwə ðaanə	‘our coffee’
2pl	tɪŋ	ʃɪmbɪr tíŋ	‘your pl. bird’	qáhwə ðɪŋ	‘your pl. coffee’
3pl	tɪjo	ʃɪmbɪr tíjo	‘their bird’	qáhwə ðijo	‘their coffee’

If possessives were subject to the same preferences for H tone association as the other determiners in D2, we would expect the same preference for non-finality. More specifically, we would expect the preferred position for H tone to be penultimate on the determiner, just as it was in D2. Vowel-final t-series stems modified by possessive determiners show H tone associated with the penultimate mora of the stem rather than the determiner, despite there being viable penultimate association sites within the determiner. If t-series nouns with possessive determiners had the same phonology as the other determiners, there would be no principled way to account for the prioritization of penultimate H tone on the stem over associating with a mora in the

determiner in just this one instance. But if the possessives are parsed within a somewhat larger domain, D3, then the shift in preferences may be due to their different cophonology.

Overall, the generalizations below capture the preference for H tone location in D3:

- Faithfulness to underlying tone location and the avoidance of tone on moraic consonants are unaffected: they remain highly prioritized in this domain
- The same preference for avoiding the creation of rising tone remains, though underlying contours are allowed.
- Penultimate position on the stem is preferred to penultimate position on the determiner in D3. However, if this position is too from the right edge, H tone will associate with the determiner.

3.2.4 *Domain 4*

The behavior of nouns of both grammatical genders and shapes with interrogative determiners show unique preferences whereby faithfulness to underlying tones is seemingly no longer as highly prioritized as it was in other instances. When nouns of both k-series and t-series are modified by the interrogative determiner, High tone associates to the vocalic mora in the determiner regardless of the shape of the stem, showing that faithfulness to underlying tone is overridden.

(61) Interrogative determiners

fərəs kɛ́w	‘which horse’
ej kɛ́w	‘which dog’
tɛɛsɨ ɣɛ́w	‘which fly’
ɲaɲur tɛ́w	‘which cat’
loo ðɛ́w	‘which cow’

These patterns can be explained by a preference for H tone on the right edge of a higher domain, D4, that is preferred over faithfulness to underlying tone and non-finality. H tone still cannot be associated with a consonantal mora, but this creates the predicted H tone on all three of these constructions as H tone surfaces on the rightmost vocalic mora, i.e., on the rightmost mora that is allowed to bear tone. In all instances, vocalic tonal contours are not created, but final VC contours are, showing that the preference for avoiding this type of contour is not prioritized in D4. There are also culminativity effects within this domain as only one H tone may surface despite multiple underlying tones, such as in k-series nouns with the *-jaal* suffix and the interrogative determiner, as in *fərəs-jaal kɛ́w* ‘which horses’ and *məlai-jaal kɛ́w* ‘which fishes,’ which are composed of at least two elements with underlying tone. These generalizations are summarized below:

- Consonantal moras cannot bear H tone which is the most highly prioritized constraint
- The preference for tone placement in this domain is on the rightmost vocalic mora of D4, regardless of any underlying tone. Alignment to the right edge, is preferred to tonal faithfulness

- Culminativity can also override faithfulness as only one H tone can surface despite multiple underlying H tones
- Rightward alignment is also preferred over non-finality in D4.
- Final VC contours are permitted in this domain

In general, it would appear that the ways in which competing preferences for non-finality and H tone on the right edge interact within KMM's tonal system might lend themselves best to a harmonic grammar analysis (Smolensky and Legendre 2006, Legendre et al 1990) with weighted constraints rather than a strict constraint ranking. In the domains in which non-finality is preferred (D2, D3), the ideal position is on the penultimate mora where a H tone is non-final while also only violating rightward alignment by one mora. Though non-finality could be realized in various ways, the preference for penultimate H tone shows that rightward alignment still influences H tone location. In relevant Ds, H tone is preferably not at the right edge, though it cannot be too far from it.

These effects are played out differently in different domains, depending on the shape of elements involved, namely whether elements are C-final or V-final. In D2, with remote definites and distal demonstratives, if H cannot be penultimate on the determiner for some reason (such as due to contour avoidance), it will appear penultimate on the stem, despite being at a distance from the right edge of D2 overall. In D3, however, despite the preference for penultimate H tone on the stem, being too far away from the domain's edge, as would be the case for c-final t-series stems, ultimately renders this position non-optimal, resulting in H tone instead appearing on the determiner. These interactions would be difficult to capture in a framework employing strict

domination. Such an approach cannot capture the subtlety of the conditions yielding different tonal alternations in KMM.

Overall, the variation in H tone location on k-series and t-series stems in the majority of contexts strongly suggests that they are differently specified underlyingly for tone. A privative H/∅ contrast reflects this varying behavior neatly. The alternations of High tone on the underlyingly ∅ stems and determiners could easily be captured by a series of closely related yet slightly differing cophonologies that operate within four different domains. The generalization that H tone aligned to the right edge is preferred within stems could be seen as correlating with NP level, with inflectional affixes being underneath the scope of the NP as well. In higher levels, the language reverts to a preference for penultimate H tone within a DP, though whether this is preferred on the stem or on a determiner differs to some extent depending on the shape of the determiner involved. The final domain contains interrogatives which surface higher in the syntactic structure than other determiner types. Further discussion and the implications that the behavior of H tone within Kenyan Maay Maay is in the following chapter.

Chapter 4: Discussion and Implications

4.1 Discussion

This thesis has described the nominal system of Kenyan Maay Maay and the conditions governing how phonological prominence surfaces within it. Maay, in general, is a largely underdescribed language, and this particular dialect has not yet been discussed in published literature. A privative analysis of KMM's prosodic system has been presented that argues for underlying H tone associated with the final vocalic mora of k-series nouns, while tone is underspecified underlyingly in t-series nouns. One important factor driving this analysis is the near static behavior of tone in k-series nouns in different environments, alongside the extensive, variable, but predictable differences in tone location for t-series nouns in the same environments. While similar to other dialects, KMM is unique in its treatment of prominence when compared to others, a fact that has interesting typological and microtypological implications.

Cushitic languages are well known as straddling the boundary between tone and stress-accent languages. Hyman (2006) provides perhaps the standard contemporary definitions of tonal and stress-accent languages, but as Mous (2021) notes, Cushitic languages are notoriously difficult to fit within this framework. Hyman (2006: 229) classifies a language as tonal if "pitch enters into the lexical realisation of at least some morphemes." In KMM, pitch, or H tone, does have some lexical function though no tonal minimal pairs have yet been found in our data. Overall, the system is highly reduced.

Interestingly, KMM also very nearly fits Hyman's criteria for stress-accent languages, which some might consider oppositional to tonal languages. On a phonetic level, there can be overlap between tone and stress, as pitch can factor into the phonetic realization of both (Gordon 2014), though stress is usually marked by some other characteristic as well (Hyslop 2021). Stress accent

languages are defined with reference to two requirements: obligatoriness and culminativity of primary prominence. Obligatoriness refers to the necessity of at least one syllable "marked for the highest degree of metrical prominence" (Hyman 2006: 231) in every lexical word. Culminativity refers to every lexical word having at most one syllable marked with prominence. There are languages that are said to have both tone and stress, for example Kurtöp (Hyslop 2021), but tone and stress are marked by different phonetic realizations of prominence, e.g., pitch for tone and duration with a slight change in pitch for stress. The fact that tone and stress can occur in different positions, though, suggests that it may not meet the requirements of culminativity as two types of prominence surface within a single word. A complete overlap of stress and tone in which H tone is the only way in which stress is realized is typologically rare.

As shown in Chapter 3, Kenyan Maay Maay does largely exhibit culminativity and obligatoriness within the nominal system. There is only one instance in our data where obligatoriness is not present: in post-verbal topical objects which are marked by a loss of H tone. Typologically speaking, KMM presents an interesting case of just how non-tonal a tonal language might be, yet still technically classify as a tonal language, as well as just how close a tonal language can be to a stress-accent one.

On a smaller scale, related Cushitic languages also sit on this border between tone and stress-accent languages. If we compare obligatoriness and culminativity within the most closely related languages, namely other dialects of Maay and also Somali, we can see how KMM seems to push the bounds between these two classifications even more than others. The only dialect of Maay Maay described to have obligatoriness in all instances is Lower Jubba Maay, which is categorized by Paster (2006), and in later works, as a stress system rather than a tonal one. The dialect described by Saeed (1982) shows that obligatoriness is not met since H tone is not present

on monosyllabic t-series nouns. Somali also has just two instances where obligatoriness is not satisfied (Green 2021; Hyman 1981). KMM fails to meet obligatoriness in post-verbal topical objects, a highly specific environment which may suggest it is even closer to being stress-accent than the others. Based on just these comparisons, despite its highly reduced nature, Somali seems the most tonal of these languages, followed by Saeed's Baidoa Maay, Biber's Mandera Maay, then KMM, and lastly, crossing the transom to stress, is Lower Jubba Maay.

Culminativity, on the other hand, is shown in Somali and in all but one dialect of Maay Maay, though an important question to consider is the domain of culminativity and/or what counts as a word in a given language. The dialect described by Biber (1982) shows multiple H tones on nouns modified by two determiners. These constructions were not elicited in great number in KMM, but there does seem to be culminativity of prominence within the data collected. Overall, it is worth noting that most of these closely related languages share the characteristic of culminativity.

Finally, as Mous (2021) notes, prominence tends to be demarcative in Cushitic languages, that is tone will surface near the edge of a domain to mark the boundary. In Somali (Green 2021), Lower Jubba Maay (Paster 2007), and Baidoa Maay (Saeed 1982), prominence is demarcative of the right edge. In KMM, H tone is partially demarcative in that the preferred positions for prominence tend to be the final or the penultimate mora in most domains. However, it is not demarcative in all constructions, and it is certainly not as strongly demarcative as the others.

4.2 Implications

One potential question on which the data and analysis presented here have a bearing is an understanding of the origin of Maay Maay's prosodic system. The only account proposed in the literature is in Biber (1982) in which it is assumed that Maay's prosodic system is derived Somali, and specifically, via a historic rightward tone shift from Somali whereby the H tone that surfaces on the penultimate mora of k-series nouns in Somali comes to appear on the final mora in Maay Maay. In t-series nouns, the H tone on the final mora in Somali is posited to "fall off" by this mechanism and resurface on the initial syllable. As shown by the data in this thesis, t-series nouns do not see H tone surface on their initial syllable but rather their penultimate mora, although these two positions may overlap in certain instances.

Looking back to reconstructions of Proto-Lower East Cushitic, it is proposed that there was a contrast between penultimate H tone on k-series nouns and final H tone on feminine nouns (Appleyard 1991; Lamberti 1986); for example, a masculine noun like **gaála* 'camel' and a feminine one like **kimbiró* 'bird' show this distinction between final and penultimate tone. Modern Cushitic languages like Jiddu (iso:jii) align most closely with the proto-language tonally, as H tone is on the final mora of the feminine noun *ʃibberə́* 'bird' and on the final mora of masculine nouns after having undergone a final vowel loss as in *gaál* 'camel.' Lamberti (1986) describes this loss of vowels in final positions as a regular process which can be seen synchronically in several Cushitic languages. Somali, on the other hand, can be seen as having undergone a leftward shift, before the final vowel loss, resulting in H tone surfacing on the penultimate mora in k-series nouns and on the final mora of t-series nouns, as in *géel* 'camel' and *ʃimbír* 'bird.' The language thus maintains the penultimate vs. final distinction from the proto language, but only as the result of this shift.

Kenyan Maay Maay, however, seems to resemble the proto language more closely than it does Somali, at least in some ways. We can see H tone on the final mora of the k-series noun, *gaál* ‘camel’ as in the proto language, but on the penultimate vocalic mora of the t-series noun *fímbır* ‘bird.’ One way to view this is that final vowel loss from the proto language has caused the originally penultimate H tone of k-series nouns to surface on the final mora of k-series nouns in Maay Maay. In t-series nouns, under a similar point of view, one could argue that the H tone associated with the final vowel in the proto language disappeared along with the vowel itself, resulting in lexically toneless t-series nouns. However, due to obligatoriness of prominence, the phonology has come to supply and dictate the location for association of a H tone to t-series nouns. The original tone position from the proto language is maintained in KMM, but only in k-series nouns. In this way, KMM’s tonal system is arguably closer to the proto language than to Somali. Thus, the argument of a historical shift of tone from Somali does not seem to accurately capture the prosodic system of at least this dialect of Maay Maay.

4.3 Directions for future research

As with all underdescribed languages, the details of the analysis and interpretations could be greatly aided by more research into the language and more data collection. The data from this thesis came from one speaker and through a relatively small lexicon of about 150 nouns, though in a wide variety of contexts. A more thorough and extensive lexicon would strengthen the claims made here and could give further insights into the language that have not been seen with the data we have collected. Further data collection that focuses on how nouns, affixes, and determiners are prosodified with special attention to word shape and the number of moras within each elicited stem would be incredibly valuable to the continuation of this project. Any overlap between H tone association in the domains outlined in this thesis and other phonological processes is also

necessary. The interaction between prominence on nouns within different sentence types, rather than elicitation in isolation, would be valuable, as closely related Cushitic languages exhibit different tonal behavior within different types of syntactic constructions, particularly in relation to the obligatoriness of tone. Finally, a systematic exploration of the tonal system of verbs is also a necessary future research topic as little has been described in the previous literature as well.

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