

**Tonal head marking in Mande compounds:
endpoint neutralization and outliers¹**

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1. Introduction

This paper explores the phenomenon of tonal head marking (henceforth THM) in Mande endocentric compounds, focusing on those headed by nominal stems. We analyse data from 54 Mande lects based on the published literature and our own fieldwork. The Mande languages exhibit a strict SOVX word order and are largely isolating in their segmental morphology. Constructions that we follow others in analyzing as compounds are fairly widespread in these languages and minimally consist of a dependent stem (W1) that precedes a head stem (W2); a similar constituent order is found in possessive constructions. Consider two illustrations of THM in (1) from the Southern Mande language Mano [iso:mev] and in (2) from the Soso-Southwestern language Susu [iso:sus].²

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² To remain consistent, and due to differing transcription practices in consulted sources, we use the following conventions throughout this paper to indicate tone on a given tone

(1) Mano (Southern Mande; Khachaturyan (2015; 2017))

- a./sòṵ/ ‘amusement’ + /mī/ ‘person’ →[sòṵ#mì] ‘lover’
 b./mèí/ ‘Malinke’ + /mī/ ‘person’ →[mèí#mì] ‘a Malinke’
 c./kwíí/ ‘European’ + /yṵ/ ‘palm wine’ →[kwíí#yṵ] ‘beer’
 d./yṵ/ ‘palm wine’ + /yílí/ ‘tree’ →[yṵ#yìlì] ‘raffia’

(2) Susu (Soso-Jalonke; Green, Anderson & Obeng (2013))

- a./bálán/ ‘sea’ + /sèé/ ‘mouth’ →[bálán#sèé] ‘seashore’
 b./bàré/ ‘dog’ + /gíné/ ‘woman’ →[bàré#gínè] ‘dog (f.)’
 c./jáálì / ‘tape worm’ + /mìxíí/ ‘person’ →[jáálì#mìxì] ‘public nuisance’
 d./yèxéé/ ‘sheep’ + /xòrí/ ‘bone’ →[yèxéé#xòrì] ‘sheep bone’

In both (1) and (2), the lexical tonal melodies of the heads are neutralized, albeit with somewhat different outcomes. In Mano (1), the lexical tonal melody of W1 is left intact while W2 consistently surfaces with a [L] tune.³ This [L] outcome is not predictable from the phonological context, and there are other nominal constructions in Mano where there is no tonal change (Khachaturyan 2017: 80–84). To account for the surface [L] on W2 in Mano compounds, it is therefore necessary to postulate that the tonal operation is morphological. In this paper, we view such W2 tonal alternations as instances of THM involving the neutralization of the head’s lexical tone via lowering.

In Susu (2), the W2 is also morphologically lowered, but the final H tone of the W1’s melody spreads onto the first TBU of W2, as in (2a,b). In addition to the neutralization of the W2 melody, the lexical tones of W1 are also affected by rules of raising (HL#L → HH#L, 2c-d) or settling (LH#H → LL#H, 2b). Both rules are common across Mande; see Section 3 and discussion in Konoshenko (2014a). The rule of H spreading from W1 is likewise well-attested, though it is predominantly observed only in one branch of the family, as discussed below.

bearing unit (TBU): Superhigh or Top (SH) $\check{\check{v}}$, High (H) \acute{v} , Mid (M) \bar{v} , Low (L) \grave{v} , and Superlow or Extralow (SL) $\check{\check{v}}$. Any contours are shown as sequences of these diacritics. Underlying tones are shown in slash brackets //, grammatical tunes in curly brackets {}, and surface tones in square brackets [], wherever applicable. A word boundary is indicated by #. Floating tone is represented in superscript: L^H. In the glossed examples, THM is glossed by its phonological value, e.g., \L, or as \THM, if there is no consistent tone value to be posited.

³ In some cases, only the first featural foot of W2 surfaces with L tone in Mano. Khachaturyan (2015: 47) indicates that the precise conditions dictating this choice are yet to be defined. The THM process in Mano is mainly attested in compounds with autosemantic stems in W2 position, and it is not fully obligatory. Such optionality appears not to be the case in most Mande languages.

In what follows, we demonstrate that the neutralization phenomenon observed in Mano, in particular, is representative of the basic pattern of Mande THM. Other variations of THM are found, such as that seen for Susu, but they are derivatives of the basic pattern. After describing analogous outcomes across a wide variety of Mande languages, we will argue that THM in Mande is best considered a morphological process expounded by lowering the head's lexical tone melody to the lowest tone in a given language's inventory. In languages with a two-way /H, L/ or a three-way /H, M, L/ contrast, the morphologically assigned tune is Low, which we indicate by {L}. The {L} tune may be faithfully realized as phonetic [L], as in Mano in (1), or it may be further affected by surface phonological rules such as tone spreading, as in Susu in (2). Thus, the morphological tone may have more than one surface realization as a result of some phonological rule. In languages with more contrastive tone levels, exhibiting both /L/ and /SL/, the outcome of morphological lowering is {SL}; such cases are discussed in Section 4.1. There are other sub-patterns, particularly in Central Mande, but we will argue that they implicate the same general THM strategy.

Beyond the descriptive contribution that we aim to make here to the study of Mande tonal systems, our findings have implications for the typology of tonal systems. To this end, we illustrate that Mande THM can be viewed as an instance of tonal head neutralization, a phenomenon whose characteristics are discussed by Hyman (2018). Furthermore, because THM in Mande is primarily a morphologically-conditioned phenomenon, rather than a phonologically-conditioned one, it arguably falls within the domain of *grammatical tone*, GT (Hyman 2011; Palancar & Léonard 2016a; Rolle 2018; Konoshenko 2017a), though its characteristics do not necessarily precisely align with all aspects of proposed GT typologies. After presenting our data and analysis, we consider in Section 5 how the Mande outcomes we observe fit within Hyman's (2018) typology of tonal neutralization and Rolle's (2018) typology of grammatical tone.⁴

In the remainder of this paper, our focus is on illustrating various manifestations of Mande THM and thereafter on motivating microtypological divergences from the basic pattern observed in different branches of the family. We argue that different synchronic THM patterns can be pinned to changes in languages' tonal inventories (whether by innovation or loss) from the historical High vs. Low tonal distinction reconstructed for Proto Mande (Vydrin 2016a), as well as to downstream phonological rules characteristic of particular branches of the family.

⁴ Although it is not immediately relevant to our discussion of THM, we note that other grammatical tone phenomena are found widely across Mande. For an overview and representative examples, see Konoshenko (2014a; 2017a).

Our findings shed light on a proposition earlier made but not elaborated upon by Vydrin (2016a): because Mande languages exhibit a unified THM strategy, one can assert that THM is not a recent innovation but rather a likely characteristic of Proto Mande. Thus, our survey of synchronic tonal morphology sheds light on diachronic divergences in tonal behavior across different branches of the family. These findings highlight the importance of family level microtypology (Kibrik 1998; Heath 2016) within the larger endeavor of linguistic typology. Even though our study of tonal morphology is limited to a group of closely related languages, it offers insight into the evolution of their grammatical systems, as well as to intricacies and interactions that can operate at the interface between morphology and phonology.

The remainder of the paper is structured as follows. In Section 2, we provide background information on the Mande family, including its genetic classification and the notion of compounding as applied to Mande. Section 3 presents a case study of Guinean Kpelle and detailed argumentation concerning the nature of the constructions in Mande languages that are affected by THM, a matter which is crucial for the present paper. Section 4 gives an overview of THM types attested across the family, and we provide a theoretical interpretation of these phenomena in Section 5. Section 6 concludes the paper.

2. Basics of Mande and Mande tone

This study presents an extensive survey of both published and unpublished findings covering 54 Mande varieties from all proposed Mande taxa. See the Appendix for the complete data set and list of references. There are 74 Mande lects assigned ISO codes in the current Ethnologue (Eberhard, Simons & Fennig 2020); we have included ISO codes wherever possible throughout this paper.

The internal classification of Mande languages is fairly well established, though certain details differ from scholar to scholar cf. (Grégoire & de Halleux 1994; Kastenholz 1997; Vydrin 2009; 2016a). The relationship of Mande to the larger Niger-Congo family, however, is less settled. For example, Greenberg (1963) places Mande within Niger-Congo, but Dimmendaal (2011) classifies the group outside of Niger-Congo altogether. The findings in this paper do not necessarily contribute to questions of group-internal or -external classification, though they do illustrate that patterns of grammatical tone in Mande generally align themselves with group-internal taxonomic designations defined in Vydrin (2009; 2016a). For the purpose of this paper and in presenting data throughout, we refer to languages relative to Vydrin's taxa. Figure 1 is a high-level representation of the proposed relationships between Mande's major taxonomic groups.

From a THM perspective, we discuss key distinctions across six Mande taxa that show relative internal uniformity. Though the focus here will be on three taxa (Southern, Soso-Southwestern, and Central), we also discuss Soninke-Bozo and Samogho-Bobo. The latter groups exhibit THM, but their behavior is exceptional relative to that of other languages in the family. Finally, we discuss, to the extent possible, the Eastern Mande languages, which are the fewest in number and least well described of the family. Extant accounts suggest that they exhibit THM, but drawing strong generalizations about them remains a challenge.

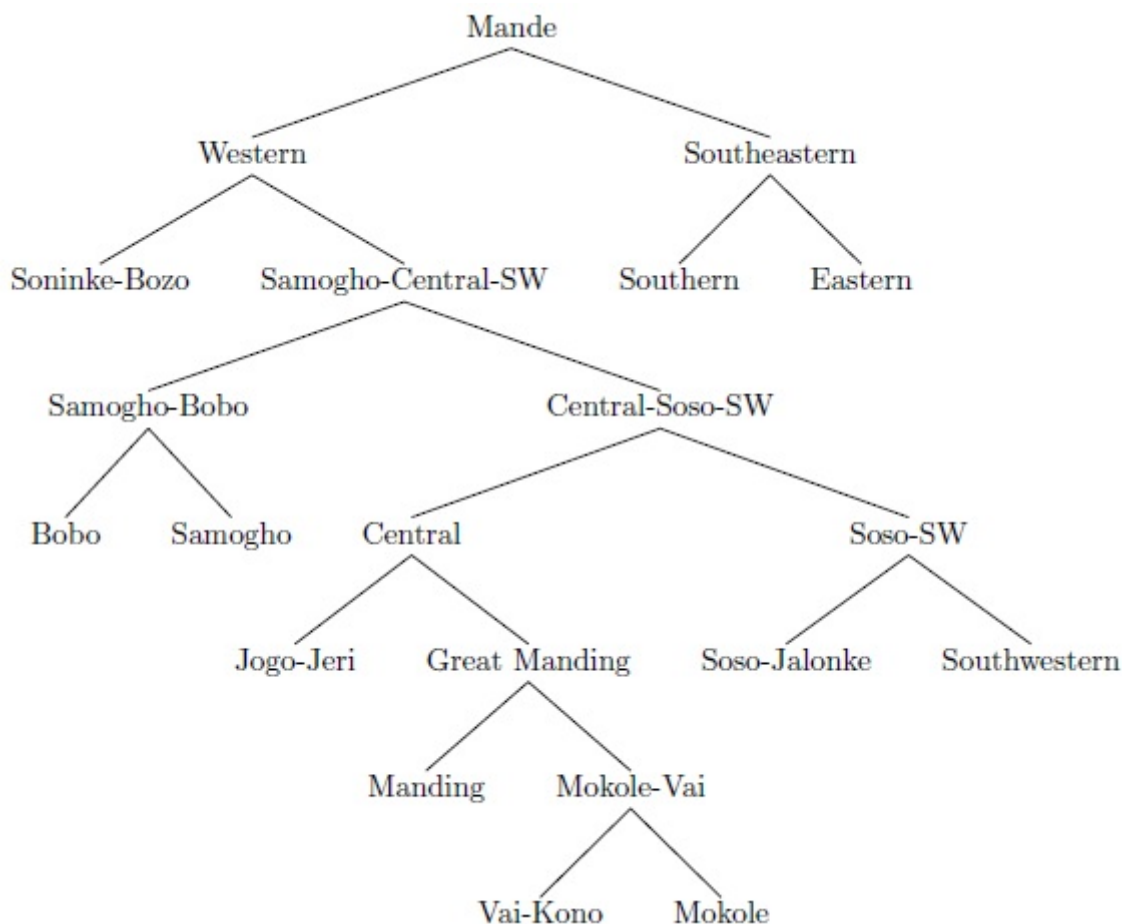


Figure 1: Mande genetic classification based on Vydrin (2009; 2016a)

Until now, the neutralizations associated with THM have been most often discussed for Central and Soso-Southwestern Mande, though they are widely called *compacité tonale* or tonal compactness, see (Creissels 1978; Dwyer 1973; deZeeuw 1979; Woo 1969), among others. Green (2018a) shows that tonal compactness is observed in each taxonomic branch of Western Mande proposed in Vydrin (2009; 2016a), with a major division in sub-types being between Central Mande and Soso-Southwestern Mande. Konoshenko (2018) points out that Green’s survey falls short of providing a clear typological picture of the phenomenon and, by extension, of THM in Mande more broadly, owing in part to the fact that it includes no coverage for Southern

and Eastern Mande languages. The current paper fills this gap in coverage, and in doing so, provides a clearer picture of THM across the entire family, both in terms of being able to better define basic patterns and in identifying and offering an explanation for other outlying outcomes.

The explanation that we offer for the development of THM patterns in Mande compounds proposes a crucial connection between THM behavior and the relative synchronic tonal complexity manifested by a given branch of the family; for a study of Mande tone systems in terms of their complexity, see Konoshenko (2014a). Vydrin (2016a: 114) proposes that Proto Mande encoded a simple opposition between two contrastive High (H) and Low (L) tone levels. Some languages maintain this contrast synchronically, while others have innovated one or more additional tone levels. Still others exhibit a more simplified system that maintains only a privative contrast between some tone (H or L) and toneless TBUs. We illustrate in Section 4.2 that these simplified systems appear in Central Mande and have a bearing on their THM behavior.

Before continuing, there are a few other important background facts to establish that will allow for better contextualization of the data and analysis presented below. For example, one characteristic that is particularly important for the current paper is that tones in languages of this group are organized into melodies. These melodies are, by and large, assigned to a given content word; see Section 3 on Guinean Kpelle. This property is famously demonstrated in Leben (1973) wherein it serves as an important argument in support of *Autosegmental Phonology*. Along similar lines, Green (2013) argues, particularly for the Central Mande language Bambara, that lexical melodies are a property of the prosodic word (PWd), a domain typically (but not universally) assumed in the prosodic hierarchy that is located between the foot and phonological phrase. In Bambara compounds, each stem functions as a minimal PWd, as evidenced by their role as a domain for certain types of tone spreading. Under such a view, THM in Bambara compounds would be said to neutralize the lexical tune of the final PWd in a compound. Such an analysis might be extensible to other languages in the family, although the notion of PWd would need to be independently justified for each language based on language-specific phonological criteria; it is beyond the scope of this paper to entertain the possibility fully.

Lastly, it is worth mentioning that although we treat complex syntactic items exhibiting THM as compounds in this study, the notion of compounding itself is not unproblematic for Mande, nor are approaches to compounding typologically unified. For example, descriptions of Mande languages tend to define compounds on morphophonological grounds by referring to W2 tonal neutralization (i.e., THM), cf. Creissels & Sambou (2013: 106) for Mandinka, and Welmers (1969: 85) for Liberian Kpelle. Other complex units formed by simple noun-noun juxtaposition that do not

involve THM are instead treated as non-compounds, i.e., they are syntactic phrases. Unfortunately, sources rarely support these interpretations with structural tests. In addition, items treated as compounds in Mande tend to be highly productive and weakly lexicalized, which is not surprising given that, typologically, the boundary between compounds and syntactic phrases is often unclear (Bauer 2009; Lieber & Štekauer 2009; Dressler 2005: 36). With these matters in mind, an approach based purely on compounding might not be synchronically adequate for some Mande languages, especially for Southern Mande, as discussed below. Languages in this branch of the family exhibit THM, but not always consistently or obligatorily. As such, the distribution between syntactic items exhibiting THM and those simply involving noun-noun juxtaposition is more complex and even probabilistic in such languages (Khachaturyan 2017; Vydrin 2017a), though this behavior can likely be viewed as exceptional relative to the rest of the family.

In order to allay some of these concerns as they relate to our analysis of Mande THM, we present a case study of Guinean Kpelle in Section 3. This case study presents crucial evidence for i) the morphological nature of THM, and ii) treating syntactic items exhibiting THM as compounds. Given the state of description of most Mande languages, it would be impossible to provide similar analyses for most other languages in our database. However, the properties of the better-described among these languages (e.g., Mende, Bambara, Maninka, and Mandinka, among others) suggest that the structural properties of constructions exhibiting THM are similar to those observed in Guinean Kpelle. Of course, future focused work on such constructions in other languages in the family will ultimately reveal the degree to which this approach is truly extensible, or if it otherwise requires revision.

3. THM in Guinean Kpelle

Guinean Kpelle [iso:gkp] (henceforth GK) is a Southwestern Mande language spoken by approximately 460,000 individuals in southeastern Guinea, according to the Ethnologue. Another 760,000 individuals speak a closely related variety in Liberia. The description below is based on Konoshenko's fieldwork in Guinea (2008-2020), as well as on several elicitation sessions via Zoom with a speaker of GK, in 2021.

GK features a binary /H/ vs. /L/ contrast. There is no evidence that either tone is unmarked since they are both morphophonologically active in the language, with H and L tone prefixes marking a particular syntactic type of 1SG and 3SG pronominals, respectively. The majority of lexemes in GK are associated with a limited number of basic tonal melodies: /H/, /L^H/, /HL/, /LHL/, /LH/, /L/. The /HL/ melody always surfaces as [H.HL] on bisyllabic structures. Verbs and inherently possessed nouns do

not have lexical /L/. Lexical tones associated with a given item are often modified by grammatical and phonological tone rules, as discussed in Section 3.1.

3.1. Tone lowering as a morphological process

The lexical melody of verbs is lowered to {L} in various TAM constructions, e.g., the Affirmative Past, Habitual, and Prohibitive, suggesting that it is a morphological process. Example (3a) shows the Perfect form of the verb *káá* ‘see’ keeping its lexical H tone, whereas the verb tone is lowered in the Affirmative Past construction (3b). This lowering is not unique to transitive constructions, as it can equally apply to intransitive ones, as shown for the verb *pá* ‘come’ in (3cd).⁵ Note that all glossed language examples presented here and below feature *surface* tones, if not specified otherwise, while the glossing reveals underlying tones including grammatical tone lowering represented as \L.

(3) Guinean Kpelle (Konoshenko’s field data)

- | | | | |
|----|----------------------|--------|-------|
| a. | ɲáá | ɲààlèè | káá |
| | 1SG.PRF | cat | see |
| | ‘I have seen a cat.’ | | |
| b. | ɲé | ɲààlèè | kàà |
| | 1SG.B | cat | see\L |
| | ‘I saw a cat.’ | | |
| c. | àà | pá | |
| | 3SG.PRF | come | |
| | ‘He has come.’ | | |
| d. | è | pà | |
| | 3SG.B | come\L | |
| | ‘He came.’ | | |

Similar to verbs in (3), the lexical tone of nominal heads is neutralized to L in GK compounds. W2 tone surfaces as [L] after a W1 with underlying /L/ (4a) or /HL/ (4b), but as [HL] after /H/ (4c) and /L^H/ (4d):

⁵ It is not uncommon for some Mande languages to have sandhi-like tonal alternations that occur in various phonological phrases, including transitive verbs with direct objects, depending on the phonological context, rather than a particular TAM construction. This occurs, for example, in Wan (Nikitina 2019). Of course, Wan also has morphologically specified tones; e.g., the Past tense is marked by Mid tone on the last syllable of the verb. Thus, sandhi alternations do not preclude morphological tone, and vice versa.

- (4) Guinean Kpelle (Southwestern Mande; (Konoshenko 2017b))
- a./kpèlèè/ ‘Kpelle’ + /wóó/ ‘speech’ → [kpèlèè#wòò] ‘Kpelle lang.’
- b./gbáli/ ‘Gbali’ + /wóó/ ‘speech’ → [gbáli#wòò] ‘Gbali lang.’
- c./kwíí/ ‘white person’ + /wóó/ ‘speech’ → [kwíí#wòò] ‘French lang.’
- d./kònò^H/ ‘Kono’ + /wóó/ ‘speech’ → [kònò#wòò] ‘Kono lang.’

To account for the surface tone variation in (4), we assume that, like what occurs in some verb forms, W2s in compounds undergo *morphological* tone lowering to {L}, which may be further affected by a surface *phonological* process of High Spread, as seen in (4c, d), that can be formalized as follows:

- (5) High Spread: H+L → H+HL

Another phonological modification is that final contours in W1s are simplified, as in (4b), by a Contour Simplification rule:

- (6) Contour Simplification (via raising): HL+L → H+L

Contour Simplification (6) potentially feeds High Spread (5), but the latter rule does not modify the output of the former. Hence, the two rules apply in a counterfeeding order. It should be clear that (6) illustrates Contour Simplification by raising, i.e., replacing HL with H. A symmetric process of LH “settling” to L is also attested in Mande; this is the notion of *affaissement* discussed in Dumestre (2003); see also Section 4.1.⁶

Crucially, the same phonological rules affect lowered verb tones. Example (7) illustrates the Affirmative Past construction featuring a lowered verb tone with High Spread after *béláá* ‘sheep’ in (7a) and Contour Simplification of *yílé* ‘dog’ in (7b). Example (7c) features High Spread from the person-auxiliary marker to the intransitive verb.

- (7) Guinean Kpelle
- | | | | |
|----|------------------|-------|-------|
| a. | ɲé | béláá | káà |
| | 1SG.B | sheep | see\L |
| | ‘I saw a sheep.’ | | |
| b. | ɲé | yílé | kàà |
| | 1SG.B | dog | see\L |
| | ‘I saw a dog.’ | | |

⁶ One could argue that Contour Simplification via tone settling also occurs in GK, as in (4d). However, this analysis is problematic since /L^H/ melodies are formally opposed to /LH/ in the language, with the former being realized as flat L in isolation, and the latter as [LH]. When appearing as W1s in compounds, /L^H/ nouns always surface [L], and /LH/ nouns are faithfully realized as [LH], hence no Contour Simplification applies in the latter case.

- c. ηέ pâ
 1SG.B come\L
 ‘I came.’

The evidence presented thus far suggests that, in GK, tone lowering is a morphological process that is attested in both the tonal morphology of verbs and nominal compounds. The tone of both nominal and verbal heads may be further affected by the phonological rules of High Spread and Contour Simplification.

3.2. Syntactic items with THM as compounds

We now turn to the semantic and structural properties of GK nominal units exhibiting W2 lowering. From the semantic point of view, these units in GK may be regular, as in (4) above, or lexicalized, as in [kwànà-yéí] ‘tie’ from *kwànà*^H ‘neck’ and *yéí*^H ‘rope.’ Structurally, both types behave as syntactically autonomous units, such that W1 cannot be inflected or morphologically modified (8b). Whenever W1s are modified, a syntactic phrase with simple N-N juxtaposition is used (8c), rather than one exhibiting THM.

(8) Guinean Kpelle

- a. /kwéí/ ‘panther’+ /kóyó/ ‘leg’ → [kwéí#kóyó] ‘panther leg(s)’
 b. *kwéí hààbá kóyô ‘legs of three panthers’
 panther three leg\L
 c. kwéí hààbá kóyó ‘legs of three panthers’
 panther three leg

Examples (9a,b) further show that W1s in constructions exhibiting THM cannot be conjoined. However, elsewhere, such conjunction is possible, such as in a possessive construction with no THM (9c).

(9) Guinean Kpelle

- a. ηǎ [kpèlèè-wòò] dà [kwíí-wóò] òò
 1SG.HAB Kpelle-speech\L 3PL.and White-speech\L speak\L
 ‘I speak Kpelle and French.’
 b. *ηǎ [kpèlèè dà kwíí]-wóò òò
 c. [Héní dà Gòbú] wóó nèé-ì
 Heni 3PL.and Gòbu voice be.nice-PRED
 ‘Heni’s and Gòbu’s voices are beautiful.’

The evidence for syntactic inseparability presented thus far in GK is in support of treating units exhibiting THM as compounds, and those failing to do so as syntactic phrases. Similar distributional behavior appears to hold for other Mande languages with which we are most familiar, such as Bambara and Susu, which we believe justifies

their unified treatment relative to THM. As stated above, whether or not this proposition is undeniably extensible more broadly in Mande must await future research. Being able to say so definitively for the more than 50 languages included in this study is well beyond the scope of the current paper, though we hope that this possibility serves as fodder for future work.

Finally, and assuming that we are correct in treating constructions with THM as compounds, we must note that these compounds are endocentric and that they typically have a binary N+N structure with a nominal head. This is the case in GK, as well as in other Mande languages. However, they may also have a nominalized verb stem in the head position (10a), and they may consist of three or more stems of various internal structure, e.g., [N+[N+N]] as in (10b), [[N+N]+N] as in (10c), or [[N+V]+N] as in (10d). In all such cases, the lexical tone of all non-initial nominal stems is grammatically lowered in GK, whereas the verb keeps its lexical tone unless it is in the final position. In the discussion below, we simply refer to the initial stem of a compound as W1, and the final stem as W2.

(10) Guinean Kpelle

- | | | |
|---|-------------------|-------------------------|
| a./mànáŋ/ ‘manioc’ + /kèlè ^H / ‘grate’ | →[mànáŋ#gélê] | ‘manioc paste’ |
| b./nìŋè ^H / ‘cow’ + /níní-yâ/ ‘breast milk’ | →[nìŋè#níní#yà] | ‘cow milk’ ⁷ |
| c./hùyò ^H -kóù/ ‘animal bone’ + /kpòlò ^H / ‘marrow’ | →[hùyò#kóú#kpòlò] | ‘animal marrow’ |
| d./lòù ^H / ‘sauce’ + /yílí/ ‘cook’ + /kwèì ^H / ‘firewood’ | →[lòù#yílí#kwèì] | ‘firewood for cooking’ |

4. Mande THM patterns

In this section, we present a typology of THM patterns in Mande. Attested THM phenomena are divided into two main types: a “Low” W2 pattern discussed in Section 4.1, and a “Default” W2 pattern illustrated in Section 4.2. We deal with cases that do not fit into these two types in Section 4.3. Our empirical findings are summarized in Section 4.4.

4.1 “Low” W2 patterns

This section begins to substantiate the proposition that W2 neutralization via tone lowering is the basic THM strategy employed to expone the head/dependent

⁷ In (10b,c), the second stem surfaces H as a result of H spread from the first stem’s floating H. Note that in both (10b,c), the final stems *yà* and *kpòlò* are realized with phonetic L. In (10d), the final stem surfaces as HL after the verb *yíli*, suggesting that no grammatical lowering occurs on the verb; it surfaces with a lexical, rather than contextual, H melody.

relationship in Mande compounds. This proposition aligns with Vydrin’s (2016a) work on Proto Mande reconstruction, namely that W2s in some Proto nominal constructions were marked by a Low tone. We illustrate that THM via lowering is manifested across distantly related genetic taxa, though its precise surface outcomes differ to some extent in particular branches of the family. The clearest instances of lowering are in Southern, as well as in Soso-Southwestern Mande, which are found on either side of the highest-level split between the Southeastern and Western branches of the family. It is also found, albeit in limited instances, within Central Mande. With this in mind, we begin by describing a series of three closely related THM sub-patterns, all of which exhibit neutralization of the W2 tone melody via lowering, either to a {L} or {SL} tune.

A first type of W2 lowering via THM is in Mano (Southern Mande), which we illustrated above in Section 1. Mano compounds have a consistent surface [L] tune on W2. Important to keep in mind is that Mano exhibits a three-way tonal contrast /H, M, L/, as compared to several other Southern Mande languages that have innovated additional tone levels.

A second W2 lowering subpattern is attested in Southern Mande languages with more complex tonal inventories, and namely those that have innovated new tone levels via tone splits. Goo, for example, has a /SH, H, L, SL/ inventory. As seen in (11), lowering of W2 results in a surface [SL], rather than the [L] seen in Mano; we interpret this as an instance of morphological {SL}. Lowering to {SL} is also seen in other languages that have innovated this level, including Eastern Dan /SH, H, M, L, SL/, and Toura [iso:neb] /SH, H, L, SL/.⁸

(11) Goo (Southern Mande; (Aplonova 2020))

a. /kwě́íkě́é/ ‘hunt’ + /bhéén/ ‘person’ → [kwě́íkě́é#bhéèn] ‘hunter’

b. /kpóǹtèè/ ‘solid ground’ + /lèè/ ‘place’ → [kpóǹtèè#lèè] ‘place with solid ground’

A third, closely related sub-type of W2 lowering is found across a major taxonomic divide, in Soso-Southwestern Mande. These languages are among the best described in the family from a tonal perspective and served as the primary basis for early efforts by Dwyer (1973) and de Zeeuw (1979) at the typologization of grammatical tone in Mande compounds. In these languages, a historical contrast between /H/ and /L/ has been maintained, and lexemes are associated with a variety of tonal melodies; see Section 3. This fact distinguishes Soso-Southwestern Mande from many (but not all)

⁸ Among Southern Mande languages, Guro [iso:goa] presents the most complex tonal behavior that we have encountered. As described in Kuznetsova & Kuznetsova (2017: 784), THM is present, but patterns differ between multiple nominal lexical tonal classes. Crucially, however, THM usually involves tone lowering on W2. For example: /zǎ/ ‘host’ + /lǐ/ ‘woman’ → [zǎ#lǐ] ‘female host.’

Central Mande languages discussed in Section 4.2, which tend to have privative tone contrasts and fewer tone melodies.

Regarding THM, Soso-Southwestern Mande languages are unified in that W2 is lowered to {L}, which faithfully surfaces [L], except when the lexical tune of W1 ends in a H tone. These basic outcomes were shown above for Susu in (2) and for Guinean Kpelle in (4). Similar but not identical THM involving W2 lowering is even found in the Vai-Kono sub-taxa of Central Mande. In Vai, W2 is also lowered to {L}, which remains [L] after another L (12a,b). However, when W1's lexical melody ends in a H, H appears on the first TBU of W2, although only after a lexically /LH/ W1 (12c,d), but not after a lexically /H/ W1 (12e,f).

(12) Vai [iso:vai] (Vai-Kono; (Welmers 1976: 57–59))

a. /bâ/ ‘mother’ + /lénj/ ‘child’	→[bâ#lèn]	‘maternal aunt’
b. /bò’ò/ ‘cultivated greens’ + /kúú/ ‘fenced enclosure’	→[bò’ò#kùù]	‘garden’
c. /jàmbá/ ‘leaf’ + /mǒ/ ‘person’	→[jàmbà#mòò]	‘herbalist’
d. /kǔŋ/ ‘head’ + /kpásá/ ‘kerchief’	→[kùŋ#kpásà]	‘head cloth’
e. /jí/ ‘water’ + /sóó/ ‘hole’	→[jí#sòò]	‘well’
f. /wúnú/ ‘mortar’ + /kǒŋ/ ‘stick’	→[wúnú#kòŋ]	‘pestle’

As discussed in Section 3, although W2 lowering can be opaque in SW Mande and in the Vai-Kono branch of Central Mande, the phenomenon can be attributed to independent and well-established rules of High Spread from W1 to W2, as in (5), and Contour Simplification by raising or settling, as in (6).

Despite these complicating alternations, the three W2 THM patterns shown above are closely related: W2's lexical melody is neutralized via lowering. The outcomes can be viewed as instantiating the replacement of W2's lexical melody with a {L} or {SL} tune, the choice of which correlates with the tonal inventory of a given language. In Southern Mande languages with a more conservative tonal inventory, like Mano, lowering is to {L}. For those languages that have innovated additional tone levels (notably, SL), like Goo, W2 lowers to {SL}.⁹

In the next section, we turn our attention to THM patterns in Central Mande languages. At first glance, these patterns appear far more diverse than what we have shown thus far. We aim to show, however, that these patterns are remarkably consistent

⁹ Though lowering of this type is reported for several Southern Mande languages, others (e.g., Mwan, Yaure, and Beng) do not exhibit THM in compounds. Given the preponderance of THM elsewhere in the family, this is likely due to a historical loss of the alternation in these particular languages. As discussed below, we find that it correlates with other morphosyntactic characteristics of these languages; see Section 4.3 and the Appendix.

group-internally and also exhibit clear parallels to what we have seen elsewhere in the family.

4.2 “Default” W2 patterns

We illustrated above that Southern Mande, Soso-Southwestern Mande, and languages of the Vai-Kono branch of Central Mande exhibit a THM pattern that involves W2 lowering. Other Central Mande languages, as described in the current section, also exhibit THM. This again involves neutralization of W2’s lexical tune, but the surface tonal patterns that revalue W2s in these languages are more diverse. Rather than a unified trend of lowering to {L} or {SL}, W2 may surface i) with H tone, ii) with L tone, or even (in one notable instance) iii) with a copy of the W1 melody in its entirety. As we did in Section 4.1, we first provide exemplars illustrating various outcomes. We then consider possible connections to those discussed in Section 4.1 before offering an explanation for the behavior of these languages that is grounded in the synchronic nature of their tonal inventories. Central Mande languages, by and large, have simpler tonal inventories than other languages in the family. Though they maintain a surface contrast between H and L tones, at least since Creissels & Grégoire (1993), scholars have increasingly questioned whether these languages maintain such a contrast underlyingly, as proposed for Proto Mande, or if the systems have simplified to a point where a given language maintains only a privative contrast between one tone (whether H or L) and underlyingly /Ø/ (i.e., toneless) TBUs. For example, Bambara [iso:bam] has a surface contrast between H and L, but L tone is limited in its distribution; underlying /L/ is found only on the first TBU of a word, except in a few notable instances. The ability of L to appear (via spreading) elsewhere within a word is predictable based on segmental and morphological factors (Leben 2002; 2003; Green 2015; Green & Boutz 2016). Based on this fact, Green (2018b) proposes that Bambara could be analyzed as encoding a /L/ vs. /Ø/ (i.e., toneless) contrast, with its surface H tones being supplied by default; for related discussion, see Vydrin (2016b). A similar perspective is invoked for Kita Malinké [iso:mwk] (Creissels 1994; 2009; Creissels & Grégoire 1993) and for Kingi Soninke [iso:snk] (Creissels 2016). An analogous analysis is also proposed for Niokolo Maninkakan [iso:mwk] (Creissels 2013), though the opposition is /H/ vs. /Ø/, owing to a historical tone reversal. We aim to show that there is a correlation between these simplified tonal inventories and the THM patterns manifested in these languages.

The outcomes of Bambara THM, as shown in (13), fall into two tonal categories, based on whether W1 has a lexical High or Low melody, i.e., whether W1’s first TBU has a High or Low tone. Examples (13a-d) show that High W1s surface entirely H (13a,b), while Low W1s surface entirely L (13c,d). The precise realization of W2 depends to some extent on tonal context; W2 typically surfaces H, though it may lower

after a L W1 when the compound is followed by another word beginning with H (or sometimes even before a pause). This variation is arguably a reflex of the “settling” effect discussed above; see Vydrin (2020) for further discussion of this variation. Example (13e) shows that the same outcome applies to compounds formed by more than two input words. With a Low W1, Low tone spans across all TBUs until the final input word, which once again surfaces High.

(13) Bambara (Manding; (Green 2013))

- | | |
|--|--------------------------------------|
| a./nónó/ ‘milk’ + /kùmún/ ‘sour’ | →[nónó#kùmún] ‘sour milk’ |
| b./bámánán/ ‘Bambara’ + /kán/ ‘language’ | →[bámánán#kán] ‘Bambara’ |
| c./nègè/ ‘iron’ + /jùrú/ ‘rope’ | →[nègè#jùrú] ‘iron thread’ |
| d./mìsírí / ‘mosque’ + /wélé/ ‘call’ | →[mìsírí#wélé] ‘call to prayer’ |
| e./fàlí / ‘donkey’ + /kòró / ‘old’ + /tígí / ‘owner’ | →[fàlí#kòrò#tígí] ‘old donkey owner’ |

Nearly identical outcomes are found in several other Manding languages like Kagoro [iso:xkg] and Koyaga [iso:kga], as well as in the Mokole branch of Central Mande, but there are other Central Mande languages for which nearly the exact opposite outcome obtains. Odienné Jula [iso:dyu], as shown in (14), and a few other languages manifest this opposing pattern. Similar to what occurred in (13), if the first TBU of W1 is High in Odienné Jula, W1 is entirely [H] in the NC. If the first TBU of W1 is Low, W1 surfaces entirely [L] in the NC. Languages like this stand out in that W2 neutralizes to L in all instances.

(14) Odienné Jula (Manding (Braconnier 1983: 46–54))

- | | |
|---|----------------------------------|
| a./wóndòlì/ ‘chimpanzee’ + /sên/ ‘foot’ | →[wóndólí#sèn] ‘chimpanzee foot’ |
| b./sámà/ ‘elephant’ + /sên/ ‘foot’ | →[sámá#sèn] ‘elephant foot’ |
| c./sísè/ ‘chicken’ + /kìrì/ ‘egg’ | →[sísé#kìrì] ‘chicken egg’ |
| d./njǎnà/ ‘cicada’ + /kísì/ ‘cry’ + /kàn/ ‘voice’ | →[njànà#kìsì#kàn] ‘cicada call’ |

One might be tempted to treat this W2 lowering as being closely aligned with that seen for Southern and Southwestern Mande, as well as for Vai, but there is evidence to reject such a hypothesis. The reason for this is that these (and some others) Mande languages have undergone a historical tone reversal (Vydrine 2002; Vydrin 2016a). Compare, for example, Bambara [sě̃n] and Odienné Jula [sên] ‘foot’ and likewise Bambara [sǒ] and Marka [só] ‘horse.’ Examples of this reversal in these languages are robust.

With evidence for a diachronic tone reversal in mind, and under the view that Low tone is “marked” in languages like Bambara (Green 2015) and Kita Malinké (Creissels & Grégoire 1993), one could argue by extension that the “marked” tone in the languages in (14) is instead High. Assuming this is correct, it has implications for how best to understand the development of THM in Central Mande. That is, for these and

most other Central Mande languages, when W2’s lexical melody is neutralized via THM, it is not necessarily revalued by the lowest tone in the language’s inventory (as in languages in Section 4.1). Rather, revaluation is by the language’s “unmarked” or “default” tone, and therefore determined phonologically. This is H tone in languages like Bambara, but L tone in languages like Odienné Jula that have undergone tone reversal.

A related strategy of “default” W2 revaluation is reported for Dantila Maniŋgaxaŋ, as shown in (15). Here, instead of simple revaluation by the language’s unmarked tone, W2 is neutralized by revaluation with a copy of the W1 melody in its entirety. This is H in (14a,b), but LH in (14c,d). Note that the final L tone and vowel length are contributed by the definite suffix in these examples.

(15) Dantila Maniŋgaxaŋ (Manding (Doucouré & Patin 2015))

- a./fúlá/ ‘Fula’ + /súnǵútú/ ‘girl’ →[fúlá#súnǵútò:] ‘the Fula girl’
 b./fúlá/ ‘Fula’ + /mùsú/ ‘woman’ →[fúlá#mùsò:] ‘the Fula woman’
 c./tìbá:bú/ ‘European’ + /súnǵútú/ ‘girl’ →[tìbá:bú#súnǵútô:] ‘the European girl’
 d./tìbá:bú/ ‘European’ + /mùsú/ ‘woman’ →[tìbá:bú#mùsô:] ‘the European woman’

While the THM strategies seen in most Central Mande languages differ in some respects from what occurs for languages discussed in Section 4.1, there are certain undeniable similarities between them. We have shown in Section 4.1 that the W2 lowering strategy is observed in languages that minimally maintain a two-way underlying contrast such that W2 is revalued with {L}. A variation on this outcome is seen in those languages that have innovated more tone levels, with the lowering outcome instead being {SL}, which is still the lowest tone in the system. Central Mande languages whose tonal systems have simplified to what some have argued is a privative distinction instead exhibit a “default” W2 revaluation strategy. One way to view this Central Mande outcome is that these languages have reanalyzed or reinterpreted historical W2 lowering as loss of the W2’s lexical tune in its entirety. The vacated TBUs then come to be revalued by a phonological rule that supplies them with either the language’s unmarked tone or a melodic copy. Another possibility might be that in a system with a reduced inventory and for which Low tone is marked and limited in its distribution, lowering W2’s melody to Low might be incompatible with word-level tonotactics. The same views would be inversely applied for those systems that have undergone tone reversal.

4.3 Other patterns

In Sections 4.1 and 4.2, we discussed two major THM strategies that account for what is known to occur in the vast majority of Mande languages. What remains to be discussed are those few languages in which the tonal phenomena in compounds do not align themselves with these major patterns. These tonal outliers belong to three more

geographically peripheral taxa, namely Samogho-Bobo, Soninke-Bozo, and Eastern Mande. According to the literature, THM occurs to some extent in each of these groups, but not always with the systematicity observed elsewhere in the family. Some languages in these groups exhibit THM, but the process is realized other than by W2 tone lowering or loss. There are also a few languages that appear not to employ THM at all, but this lack of THM is predictable to some extent based on other syntactic behavior that these languages exhibit; we discuss this further below.

Within Samogho-Bobo, Dzùùngo [iso:dnn] exhibits one of the clearest and most consistent THM patterns that does not involve W2 lowering or loss. Dzùùngo has three tone levels and a variety of contours composed of these tones. As shown in (16), W2 is neutralized in compounds to [MH], though the realization of this sequence varies according to the shape of W2 itself. H may remain floating (16a,b) or may be realized on a long vowel (16c). W1 melodies also neutralize: they surface L if W1's lexical tune begins with L (16a-c), or otherwise M, if W1's lexical tune begins with H or M.

(16) Dzùùngo (Samogho-Bobo (Solomiac 2007: 365–380))

a./dzòn/ ‘soil’ + /dzín/ ‘child’	→[dzòn#dzī́n]	‘initiant’
b./fààmá/ ‘king’ + /dzín/ ‘child’	→[fààmà#dzī́n]	‘prince’
c./fòròbā/ ‘communal’ + /nìi/ ‘cow’	→[fòròbà#nī́i]	‘communal cow’
d./nānmārā/ ‘cheating’ + /mòò/ ‘person’	→[nānmārā#móó]	‘spy’
e./dúùn/ ‘belly’ + /góó/ ‘matter’	→[dūūn#gōó]	‘thought’
f./jáá/ ‘eye’ + /súú/ ‘hair’	→[jāā#súú]	‘eyelash’

Another language of this group, Seenku [iso:sos], differs notably from Dzùùngo in having innovated a fourth SH tone level (McPherson 2020). Among these four levels /SH, H, L, SL/, however, L words are limited in their distribution and do not appear in compounds (McPherson, p.c.). The precise patterns are sprinkled with occasional irregularities or exceptions, but two main THM outcomes reveal themselves – W2 is neutralized either to SH or H-SL, with SH perhaps being the dominant outcome. The picture is less clear for Jo [iso:jow], though Carlson (1993) provides examples in which W2s with any lexical melody neutralize to SH after a lexically High W1. As such, this outcome bears some similarity to Seenku.

Within Soninke-Bozo, there are no published works that detail the tonal systems of the four Bozo languages. An unpublished grammar by Heath on Jenaama Bozo [iso:bze] (cited with permission from the author), however, shows that THM occurs in two main patterns. W2 surfaces either M or H, the choice between which appears to be predicated to some extent on the nature of the compound's head (e.g., lexical noun vs. verbal noun vs. place nominal, etc.). Blecke has also kindly provided us a summary of his fieldnotes on Tigemaxo Bozo [iso:boz] tone. Our preliminary assessment based on

these data is that the language also has THM, with the first two tones of W1's melody appearing to map across the compound as a whole.

Unlike Bozo, a great deal is known about Soninke [iso:snk] and its tonal behavior. Contrary to most other languages discussed so far, in Kingi Soninke, W2 does not neutralize in compounds, as shown in (17).¹⁰

(17) Kingi Soninke (Soninke-Bozo (Creissels 2016: 46–54))

a./kìdê/ 'baobab' + /táyàyé/ 'sauce'	→[kìdì#táyàyé]	'baobab sauce'
b./qálísí/ 'money' + /dàré/ 'leaf'	→[qálísí#dàré]	'paper money'
c./sí/ 'horse' + /hàtê/ 'skin'	→[sí#hàtê]	'horse skin'
d./sòndòmê/ 'heart' + /dòxòtóórò/ 'doctor'	→[sòndòmê#dòxòtóórò]	'cardiologist'

Lack of W2 neutralization in these instances may suggest that Soninke is an outlier with respect to THM. However, THM does occur elsewhere in Soninke, such as in canonical possessive constructions with a referential possessor (18). In possessive constructions, a monosyllabic W2's tone polarizes against W1 as shown in (18a,b), while a non-monosyllabic W2 receives replacive {LH}, cf. (18c,d). Therefore, it would appear that in Soninke, THM has developed a different function, perhaps due to syntactic restructuring of nominal constructions in general. We return to this possibility below.

(18) Kingi Soninke (Soninke-Bozo; (Creissels 2016: 68–69))

a.	Múúsá	sì-n	
	Musa	horse\THM-DEF	
		'Musa's horse'	
b.	Démbà	sí-n	
	Demba	horse\THM-DEF	
		'Demba's horse'	
c.	Múúsá	jààsí-n	
	Musa	machete\LH-DEF	
		'Musa's machete'	
d.	Démbà	jààsí-n	
	Demba	machete\LH-DEF	
		'Demba's machete'	

We are not aware of detailed discussion of THM for any Eastern Mande language, though it is mentioned in passing for San-Maka [iso:sbd] in Perekhval'skaya (2017a).

¹⁰ In Kingi Soninke compounds, W2 is sometimes neutralized under specific circumstances due to a more general rule of *pont tonal* though this is not unique to compounds (Creissels 2016: 51–52).

Perekhval'skaya has kindly shared the additional data in (19) that permits us to comment further on San-Maka's behavior. These data reveal that the language's THM alternations in compounds involve a type of scalar chain shift of W2's first TBU. Mid raises to High (19a,b), while Low raises to Mid (19c), rather than entirely to High.

- (19) San-Maka (Eastern Mande; Perekhval'skaya, p.c.)
 a./nē/ 'child' + /lɔ/ 'woman' →[nē#lɔ́] 'daughter'
 b./dī/ 'bull' + /nē/ 'child' →[dī#né] 'calf'
 c./bōŋbōŋ/ 'ant' + /gí/ 'egg' →[bōŋbōŋ#gí] 'ant egg'

Another Eastern Mande language in our database is Boko [iso:bqc]. Perekhval'skaya (2017b) notes that in Boko, similar to some nominal constructions in Kingi Soninke, it is the tone on W1, rather than on W2, that can be neutralized in compounds; cf. a possessive construction in (20a) with no tone neutralization vs. a compound in (20b) with W1's lexical /L/ tone changed to surface [SL]. Perekhval'skaya (2017b: 1084) mentions a formal restriction according to which W1 cannot bear L tone in compounds.

- (20) Boko (Eastern Mande (Perekhval'skaya 2017b: 1058–1059, 1084))
 a. zò nĕ
 slave child
 'a slave's child'
 b. zò nĕ
 slave\SL child
 'a child slave'

Lastly, there are five Southern Mande languages in our database (Gban, Beng, Mwan, Yaure, and Wan)¹¹ that do not exhibit evidence of the relevant THM alternations in compounds, e.g., in Gban [iso:ggu]: /ní/ 'child' + /lè/ 'woman' → [ní#lè]

¹¹ In Wan, productive compounds undergo tonal alternations due to several tone rules (Nikitina 2019). Still, we do not interpret them as morphological THM for the following reasons: a) the rules of tonal change are not unique to compounds; they are also attested in inalienable possessive constructions, between verbs and their direct objects, as well as in some other cases; b) the rules are stated in strictly phonological terms, hence the surface realization of compounds is phonologically predictable; c) the rules do not necessarily affect syntactic heads, but rather any element in the relevant phonological context. These properties of tone alternations in Wan compounds are in stark contrast with what we reported in Section 3 for Guinean Kpelle. Although tonal head lowering is attested both in compounds and on verbs in Guinean Kpelle, it only applies to verbs in certain TAM constructions, but when applicable, it is not limited to transitive verbs. In Guinean Kpelle, it is not fully syntactically determined, nor is it fully predictable from the phonological context.

‘girl’ (Fedotov 2017: 978).¹² The same appears to be true of the Eastern Mande language Bissa Barka [iso:bib], as reported in Hidden (1986).

We have shown that THM of some sort is attested in the Samogho-Bobo and Soninke-Bozo groups, though its tonal implementation does not match the two basic patterns observed in the rest of the family. Dzuungo has a single, fairly regular replacive W2 overlay whose precise realization depends on word shape. Seenku and Jenaama Bozo, on the other hand, exhibit variation such that the precise nature of the W2 melody that arises via THM depends either on the nature of the W1 tone or on syntactic context. For Tigemaxo Bozo, the compound’s melody appears dictated by that of W1. Kingi Soninke neutralizes W1’s tone in compounds, but it still employs THM for possessive constructions. Eastern Mande shows weaker group-internal consistency with respect to THM. San-Maka is unusual in that THM is accomplished through scalar raising. Boko neutralizes W1 L tone, making it similar to Kingi Soninke compounds. Finally, there is a subset of Southern Mande languages and at least one Eastern Mande language that do not exhibit THM-like tone alternations in compounds.

So far, no clear explanation for the divergent tonal patterns in these languages is apparent to us. Still, in the course of our study we noticed that, with the exception of the Samogho-Bobo group, those Mande languages with divergent or absent THM also lack an alienability split in possessive constructions, i.e., different segmental coding of alienable vs. inalienable possession, with lexical possessors.¹³ It is typically the case in Mande languages that a dedicated possessive marker encodes alienable possession, while inalienable possession is indicated by simple juxtaposition. This can be seen in the presence of the *ká* marker in some Bambara phrases – *Músà ká mùrú`* ‘Musa’s knife’ – and its absence in others – *Músà sě̀n`* ‘Musa’s leg.’ Crucially, some Mande languages lack this alienability contrast, including Soninke, Bozo, Beng, Bissa, and Boko¹⁴, and most of these languages also lack THM in compounds. Still, we must

¹² We also include Ngen in our database, based on what is recently reported in Korol (2021). From a standpoint of tone, Korol states that there are three contrastive tone levels, but there is no other detail about the tonal system. Korol does indicate that Ngen lacks an alienability split, a matter of importance to be discussed below.

¹³ The distinction between inalienable and alienable possession typically correlates with whether or not the possession is inherent. Generally speaking, in Mande languages, inherent or inalienable possession is associated with family members and body parts, while alienable possession is associated with other items of which one might or could conceivably become dispossessed.

¹⁴ Ngen also lacks this alienability split, but detailed information on its tonal system is not yet available that would allow us to comment on any correlation with the presence vs. absence of THM.

acknowledge that there is no perfect correlation between lack of alienability contrast and lack of THM in our data. Bozo, for example, does have THM, but not an alienability contrast in possessive constructions. In contrast, there are several languages from the Southern Mande group (Gban, Wan, Mwan, Yaure), that do have an alienability contrast, but no THM.

Since the alienability split in possessive constructions is synchronically common in Mande and might be reconstructed for Proto Mande¹⁵, lack of this syntactic distinction is arguably an innovation (Vydrin 2017b: 36). This suggests that at least some of these languages have undergone syntactic restructuring in nominal constructions, which might have resulted in the loss of THM, as in Beng, Bissa, and Boko, or in its functional reinterpretation, as in the case of Soninke. In Wan, Mwan and Yaure, THM may have been lost due to the development of multiple sandhi-like surface tone rules applying in wider syntactic contexts. The case of Gban is, thus far, less clear to us. As work continues on these languages and their closest kin, we imagine that these connections will better reveal themselves. Until such time that more data are available, this must be set aside for future research. We remain focused for now on motivating the connections between the more widely-observed “W2 lowering” and “default W2” patterns.

4.4. Summary of major THM patterns

The description of THM in Mande compounds above is the most comprehensive summary of these patterns permitted by the available published and unpublished literature. We have shown that the head/dependent relationship between stems forming these compounds is predominantly realized across the family via neutralization of the W2 melody. In presenting these patterns, we hope to have illustrated that a strong correlation exists not only between THM strategy and the genetic taxon to which a

¹⁵ An anonymous reviewer asks whether one can indeed reconstruct an alienability contrast in Proto Mande, given that in modern Mande languages, synchronic markers of alienable possession are completely different morphologically and often have transparent diachronic sources, e.g., postpositions. We believe that i) the omnipresence of such a contrast in modern languages and ii) a consistent structural parallelism in alienable vs. inalienable constructions across the family, where the former have an overt marker, and the latter involve plain juxtaposition, may suggest that a similar contrast was present in the proto language, even though the concrete markers in modern languages show no etymological inheritance. Overall, it is quite common for Mande languages to have strikingly similar syntactic constructions, e.g., with copulae, but to employ totally different morphological markers, which makes syntactic reconstruction quite challenging. While we acknowledge that reconstructing an alienability contrast remains controversial for Proto Mande, discussing this issue at length is beyond the scope of this paper.

language is proposed to belong, but also relative to the complexity of a language's tonal system. We have also considered the relationship of specific patterns to one another, as well as to the tonal properties reconstructed for Proto Mande. Important to our discussion has been that Proto Mande is reconstructed as having a two-way contrast between High and Low tones (Vydrin 2016a) and that a grammatical tone change has been proposed as a general marker indicating the head of some nominal constructions, including compounds.¹⁶ Although we have concerned ourselves only with the tonal behavior of compounds, we hope that our findings may prove to be extensible to other constructions in these languages, e.g., to verb morphology.

As suggested, our findings are generally in support of what is proposed for Proto Mande. THM of a compound's W2 by lowering is observed across the broadest taxonomic space, including in Southern Mande, Soso-Southwestern Mande, and in one sub-branch of Central Mande. In this way, it is the most generally attested pattern in the family. Furthermore, we have shown that this general pattern of W2 lowering has different realizations that depend on phonological factors. Grammatical lowering to {L} is manifested in those languages that retain either a /H, L/ or /H, M, L/ contrast. In those Southern Mande languages that have innovated more tone levels, lowering is to {SL}. In Soso-Southwestern Mande and in Vai, morphological {L} is subject to surface alternations in some instances under the influence of the W1 melody.

Most Central Mande languages depart from this generalization insofar as their neutralized W2 comes to surface with the language's "default" tone. What constitutes the default tone must be determined independently, but it has been defined in the literature for several Central Mande languages relative to the distribution and behavior

¹⁶ An anonymous reviewer suggests that it is likely that THM was employed in Proto Mande possessive, or genitive, constructions with full NPs as modifiers, while THM in synchronic compounds is instead the reflex of an ancient tonally marked construct form of nouns. As evidence, the reviewer cites three distantly related Mande languages allegedly having synchronic THM in possessive constructions: Soninke (Soninke-Bozo), Mende (Southwestern), and Mano (Southern). In this paper, we do not argue that THM was exclusively employed for Proto Mande compounds and not in possessive constructions, especially given that the boundaries between compounds and possessive constructions are cross-linguistically rather fluid. However, the synchronic evidence provided by the reviewer does not seem compelling to us for the following reasons. In Mende, THM is equally attested in possessive constructions, as well as in compounds (Innes 1971: 29–30); in Mano, constructions labeled as "genitive" by Khachaturyan (2015) can be analyzed as productive compounds, at least on semantic grounds. Crucially, the cross-linguistic abundance of THM in synchronic Mande compounds suggests to us that if THM was employed in some Proto nominal constructions, compounds might be most likely to be affected by it.

of an opposing “marked” tone (Creissels & Grégoire 1993). In languages like Bambara and Kita Malinké, it is argued that Low tone is “marked” based on its limited distribution and its participation in certain alternations. These factors have led to the proposition that the languages have developed simplified tonal systems with only a privative lexical tonal contrast. Languages like Odienné Jula, among a few others, have undergone a tone reversal. Thus, according to the same argumentation, their marked tone would be considered High. The key correlation, therefore, is between languages with reduced tone system and the adoption of “default” tone THM. Relative to what occurs elsewhere, there appears to be no lower tone available to revalue the W2, so another revaluation strategy is adopted.

Based on what we have presented, there is a clear morphological generalization that can be made concerning Mande THM phenomena: THM involves neutralization of the W2 melody which is expounded either by lowering or loss of its lexical tune. As stated, we consider these outcomes to be closely related. In Section 5, we concern ourselves with how best to account for this morphological generalization given that the lowering/loss associated with THM is not consistently expounded phonologically across the family, despite the fact that it remains predictable based on a given language’s tone inventory. Another related matter is addressing whether and where Mande THM fits within a broader category of grammatical tone phenomena. We believe that arriving at a better understanding of these matters relative to the microtypology of Mande THM can contribute to the macrotypology of grammatical tone and how to account formally for grammatically triggered tonal alternations.

5. Accounting for W2 neutralization

The morphological nature of Mande THM makes clear that the phenomenon is best considered under the heading of grammatical tone (GT). According to Rolle (2018: 2), GT is a cover term for “tonological operations that are not part of the general phonological system and are only licensed by specific grammatical conditions.” Rolle divides GT phenomena into four major types, with a high-level split in his typology based upon the appearance of morphological dominance effects, in the spirit of Inkelas (1998), versus the absence of such effects. For our purposes, and employing Rolle’s terminology, this involves the morphologically-driven removal of structure from some base (i.e., the target) in the presence of another (i.e., the trigger). Specifically pertaining to GT, Rolle proposes the following *Dominant GT Asymmetry*, which is also implicit in Hyman (2018):

(21) *Dominant GT Asymmetry*:

“within a multi-morphemic constituent, the dominant trigger is a

dependent, and the target is a lexical head or a dependent structurally closer to the lexical head.” (Rolle 2018: 5)

As we have shown, such an asymmetry clearly applies to Mande THM. In Rolle’s typology, there are two types of dominant GT: *replacive* and *subtractive*. *Replacive-dominant* GT is said to involve “automatic replacement of the underlying tone [of the target]...revalued with a grammatical tune.” Similar effects have been called suppletive GT (Palancar 2016), relative GT (Palancar & Léonard 2016b), melodic GT (Jenks & Rose 2015), or simply replacive tone (Welmers 1973). *Subtractive-dominant* GT is similar but involves no replacement or *revaluation*, to use Rolle’s term.

Some instances of Mande THM would appear to align most closely with the former *replacive* type: when the trigger (W1) joins the target (W2) to form a compound, W2’s tune is lost, and it is revalued with a different tune, while the tone of the trigger is largely maintained. Importantly, as we have seen, the revalued tune in these instances is morphological. Rolle proposes that such GT phenomena involve revaluation “via a floating tone, spreading from the sponsor, etc.” Whether and how this particular definition would apply in the case of Mande is not entirely clear. In W2 lowering languages, like those in Section 4.1, it might seem reasonable to posit revaluation due to the presence of a floating tone, either {L} or {SL}. One potential problem with such a proposition, however, is that there is no independent evidence that would point to a segmental origin for such a vestigial floating tone. Grammatical tones are thought to typically derive through loss of a historical segmental morpheme (Hyman 2011; Palancar & Léonard 2016a; Konoshenko 2017a), but there is no reason to posit such a historical head marker in any contemporary Mande language, nor has one been reconstructed for Proto Mande compounds. As an anonymous reviewer points out, however, learners could have come to posit a floating tone to explain synchronic THM patterns, regardless of the historical facts. Other instances of THM, at least descriptively, might be better seen as manifesting the *subtractive* type of GT: THM in most of Central Mande involves lexical tone loss, with the phonology, rather than the morphology, supplying the surface tone. Ideally, a coherent analysis of Mande THM would incorporate and account for both outcomes.

There are, of course, several ways that have been proposed in the literature to account for outcomes like these. One attractive possibility among them is to appeal to tonal overlays, as has been done for other West African languages, e.g., (McPherson 2014; McPherson & Heath 2016; Sande 2018). In the spirit of McPherson & Heath (2016), the tonal overlay (i.e., THM) in Mande could be seen as due to a tonal morpheme encoded with some morphological feature; for most Mande languages, this morpheme would be expounded by a single value, be it {L}, {SL}, or {Ø}. The last of these would apply to Central Mande where the surface tone would be populated by the

phonology. An approach along these lines is suggested in Green (2018c), but ultimately such approaches fail to provide clear motivation for the larger descriptive generalization seen across the family. The question that remains is “why are L, SL, and Ø specifically chosen?”

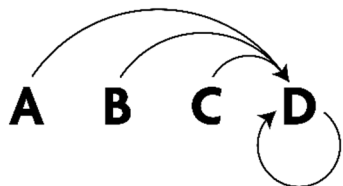
We submit that a more coherent explanation can be found in treating Mande THM as being expounded by a scalar shift in tone heights, and one that results in a single value, effectively neutralizing the W2’s lexical tune. Scalar shifts are indeed attested elsewhere in Mande, including in Gban [iso:ggu] (Zhel'tov 2005), Seenku (McPherson 2020), and San-Maka (Perekhval'skaya p.c.). They are often appealed to and provide an elegant solution in instances where a language with multiple (three or more) tone heights exhibits complex stepwise alternations. For example, the data in (22) from Seenku show scalar raising from Super Low to Low in pluralization (22a-c) and scalar lowering from Super High to High in inflecting the perfective form of verbs (22d-f).

(22) Seenku (McPherson 2020: 98–99)

a.	sò	→	sòe	‘horse(s)’
b.	nəgì	→	nəgì	‘cow(s)’
c.	bèè	→	bèè	‘pig(s)’
d.	bǎ́	→	bá	‘hit’
e.	níó	→	níó	‘ate’
f.	səbě́	→	səbé	‘wrote’

There are certainly far more elaborate scalar tone shifts than these, such as those reported for the Western Hmongic languages of southeast Asia, as analyzed by Mortensen (2004; 2006). Among the many examples discussed by Mortensen’s (2006) survey of scalar effects, Mande THM seems most akin to instances of *endpoint neutralization*, whereby all tones collapse onto a single value at the end of some scale, with any input lexically associated with the endpoint value vacuously undergoing the process. Such an outcome is schematized in (23).

(23) Scalar endpoint phonological neutralization (Mortensen 2006:56)



Compared to the sheer complexity of scalar tonal shifts reported for other languages, and indeed even those attested for other grammatical constructions in some Mande languages, the THM neutralizations observed in compounding are fairly uncomplicated. They are also reminiscent in some ways of outcomes Hyman (2018) refers to as “neutralization by postlexical reduction,” with a sub-set of languages

(namely Soso-Southwestern and Vai) witnessing a combination of morphologically-assigned lowering and further phonologically-triggered spreading from W1. Briefly, in offering a typology of such reductions, Hyman discusses that most common result of such neutralization is lowering to “all L pitch,” which is often the case in privative /H/ vs. /Ø/ systems, where L can be treated as the default or unmarked value. This type of neutralization is also attested, however, in languages like Shanghai Chinese and Northern Mao whose lexical tonal contrasts are more robust.

Though it is beyond our goal here to fully entertain the pros and cons of different formalizations to model Mande THM, both optimality theoretic and rule-based options are available and appear feasible. For example, Mortensen (2004) models endpoint neutralizations by the ranking of the markedness (structural harmony, in his terms) constraint MOST over two other constraints, STYMIE and PROD. STYMIE and PROD are akin to identity and anti-identity constraints, respectively, which, when low-ranked, permit scalar alternations. More specifically, STYMIE disallows input-output mappings that involve non-adjacent values on some scale, while PROD disallows input-output mappings of the same scalar value. MOST, on the other hand, gradiently penalizes values that are not at the endpoint of some scale. As stated, a ranking of MOST >> STYMIE, PROD would effectively ensure endpoint neutralization at the expense of identity and anti-identity. A rule-based approach, for comparison, would first involve morphological W2 reduction followed by a (morpho-)phonological rule of revaluation via the lowest tone in the inventory.

Regardless of the formalization adopted, an approach that appeals to endpoint neutralization captures the unity of the phenomena, particularly in Southern and Soso-Southwestern Mande *W2 Lowering* languages (Section 4.1), as well as in Vai. In addition, however, we believe that such a scalar neutralization could, by extension, also apply to *Default W2* languages (Section 4.2). We proposed above that one way to view the behavior of these languages is that, due to their reduced tonal inventory and privative tone contrast, the basic W2 lowering imperative is reanalyzed as tone loss. The revaluation of the W2, in the absence of a “lowest tone,” would instead be left to the phonology, where the default or unmarked tone would be inserted. This could be motivated by a requirement that all TBUs must surface with some tone. We know that these TBUs are in fact revalued, rather than being left toneless, because High tones in “marked Low” languages like Bambara, participate in other tonal processes like downstep. For these languages, one could view their scale either as having two values (T vs. Ø, where T stands for whichever tone functions contrastively) or having a single value, with Ø being selected as the outcome of neutralization under pressure of the lowering imperative of THM. For our purposes here, the two possibilities are equivalent.

To illustrate the connections between these outcomes, consider the table in (24), where the tonal systems of five different Mande languages are represented as exemplars. In this table, to facilitate comparison to the scalar neutralization scheme in (24), we treat the lowest tone (or \emptyset) as the lowest or neutralized value on the scale. For a given language, regardless of the input value of W2 on the scale, neutralization is to “D,” being the lowest level on the scale. W2s with “D” level melodies undergo neutralization by lowering vacuously to D. In privative systems, underlyingly / \emptyset / W2s likewise remain \emptyset . This illustrates tonal systems with different numbers of levels and of different complexity are unified by a single scalar neutralization.¹⁷

(24)

Language	Branch	A	B	C	D
Mano	Southern		H	M	L
Toura	Southern	SH	H	M	SL
Susu	Soso-Jalonke			H	L
Bambara	Central			L	\emptyset
Odienné Jula	Central			H	\emptyset

While it might be possible to attribute at least some of these outcomes to language-specific tonal overlays, doing so might run into problems accounting for the outcomes in *Default W2* languages without appealing somehow to abstract overlays in these languages that are morphologically “zero.” Moreover, it would offer only a partial explanation for the unity of THM outcomes observed across much of the family. An approach appealing to scalar neutralization that we have sketched here has more explanatory power.

¹⁷ One might question whether in languages like Bambara where Low cannot lower, the resulting High might be the result of what Mortensen (2006) calls a “circle chain.” In such instances, an element associated with the endpoint value of the scale circles back such that it comes to be revalued with the highest value on the scale. One reason to reject such an approach is that High has been independently argued not to function contrastively in such languages, thus it is not an expected value on the scale. In addition, languages like Dantila Maningaxaŋ (discussed in 4.2) that instead revalue W2 with a copy of the W1 lexical tune suggest that revaluation is to a true default value. In Dantila, this is an entire melody, while in Bambara it is a single tone. Of course, for languages with a privative contrast that have undergone tone reversal, an analogous argument can be made.

5. Discussion and conclusions

This paper has presented a microtypological study of tonal morphology attested in compounds in the Mande language family. Mande languages have diverse tonal systems ranging from two to five tone levels, making this family an ideal testing ground for investigating how morphological and phonological processes may interact synchronically, as well from a diachronic perspective.

Based on a sample of 54 languages, we showed that while Mande THM rules seem to vary significantly on the surface, the observed patterns suggest a unified strategy of W2 neutralization via lowering/loss across the family. We further demonstrated that synchronic THM patterns are directly affected by i) diachronic changes in languages' tonal inventories (whether by innovation or loss), and ii) surface phonological rules operating in particular branches of the family, such as H spread and contour simplification.

Our findings raise the question of where Mande THM fits in a larger typology of grammatical tone operations and how to best analyze it formally. The combination of head tone neutralization and revaluation observed in some languages is reminiscent of *replacive-dominant* GT in Rolle's (2018) typology, while other languages appear to manifest a *subtractive-dominant* outcome. The outcomes, one way or another, appear dependent on tonal inventory. To unify these outcomes, in Section 5, we suggested that THM is akin to instances of postlexical reduction discussed by Hyman (2018). We argued that it is possible to analyze Mande THM as expounded by a scalar tone neutralization, the result of which is that W2's grammatical tone emerges as the lowest value in a given language's inventory. This is typically Low or Super Low, but if the language encodes only a privative contrast, the lowest value in the inventory is interpreted as \emptyset . Resulting toneless TBUs come to be revalued with a default tone or melody.

Our study also has implications for the discussion of advances in microtypology, as opposed to macrotypology and linguistic theory, in the spirit of Heath (2016). More specifically, when analyzing individual Mande languages, one might want to attribute THM constructions for some languages to a floating L (or SL) tone, which would be clearly in line with how other replacive-dominant phenomena are treated in Rolle's (2018) model. However, the consistency of THM patterns across the family suggests, instead, that THM via lowering/loss is an old phenomenon that could be reconstructed for the proto language, with no apparent segmental or autosegmental trigger other than the construction itself. A floating tone might be unlikely to show such stability, suggesting that positing its presence would bear low explanatory value as an analytic tool at the family level. Thus, in the case of Mande THM, data from closely related languages allow an analyst to consider historically related patterns with less theoretical bias.

Lastly, Mande THM provides further evidence supporting claims of high synchronic mobility in tonal morphology (Hyman 2011; Lionnet & Hyman 2018), making tonal morphemes unique relative to their segmental counterparts in that they are highly susceptible to surface phonological modifications that often can and do obscure even their basic properties. Of course, the present study is limited by the availability of empirical data on specific languages. Our hope is that advances in language documentation will make it possible to build a more exhaustive model of THM in Mande that will incorporate all “Other” THM patterns outlined in Section 4.3 that do not fit into the two basic THM subtypes.

Abbreviations

# — morpheme boundary	PL – plural
∅ — toneless	POSS — possessive marker
B — basic predicative marker	PRED — predicative marker
DEF — definite marker	PRF — perfect marker
f — feminine	REF — referential marker
GT — grammatical tone	SG – singular
HAB — habitual marker	SH — superhigh tone
H — high tone	SL — superlow tone
L — low tone	THM — tonal head marking
M — mid tone	W — word
N — noun	

Appendix. THM in Mande

Language	Taxonomic Group	Source	W2 Tone
Mandinka	Western; Samogho-Central-Southwestern; Central-Soso-Southwestern; Central; Manding	Creissels & Sambou (2013)	Default H
Kagoro	Western >>.. Manding	Vydrine (2001)	Default H
Kita Maninkakan	Western >>.. Manding	Creissels (2009); Keita (1984)	Default H
Niakolo Maninkakan	Western >>.. Manding	Creissels (2013)	Default L, assuming tone reversal

Language	Taxonomic Group	Source	W2 Tone
Dantila Maningaxaŋ	Western >>.. Manding	Doucouré & Patin (2015)	Default L (?) with W1 melody copied in full
Burkina Jula	Western >>.. Manding	Sanogo (1995)	Default H
Odienne Jula	Western >>.. Manding	Braconnier (1983)	Default L, assuming tone reversal
Kolona Bamana	Western >>.. Manding	Dumestre & Hosaka (2000)	Default H, no W1 neutralization
Bambara	Western >>.. Manding	Creissels (1978); Dumestre (1987); Green (2013)	Default H
Beledugu Bambara	Western >>.. Manding	Konatè & Vydrine (1989)	Default H
Dafiŋ (Marka)	Western >>.. Manding	Diallo (1988), Ouonni (1995), Zié (1985), Prost (1977)	Default L in compounds, elsewhere dictated by W1 melody
Mau	Western >>.. Manding	Bamba (1984), Creissels (1982), Ebermann (1986)	Default L (?) with edge-in postsegmental tone spreading
Kankan Maninka	Western >>.. Manding	Spears (1968), Grégoire (1986)	Default H
Koro	Western >>.. Manding	Creissels (1987)	Default H
Koyaga	Western >>.. Manding	Creissels (1988)	Default H
Kakabe	Western; Samogho- Central-Southwestern; Central-Soso- Southwestern; Central; Mokole-Vai; Mokole	Vydrina (2017)	Default H
Kuranko	Western >> Mokole	Kastenholz (1987)	Default H
Vai	Western; Samogho- Central-Southwestern; Central-Soso-	Welmers (1976)	{L} with H Spread if W1 is LH

Language	Taxonomic Group	Source	W2 Tone
	Southwestern; Central; Mokole-Vai; Vai-Kono		
Kono	Western >> Vai-Kono	Manyeh (1983); Foday-Ngongou (1985)	Default HL
Jeri-Kuo	Western; Samogho- Central-Southwestern; Central-Soso- Southwestern; Central; Jogo-Jeri	Kastenholz (2001)	Pattern unclear, extracted examples have either W2 H or L
Jogo	Western >> Jogo-Jeri	Maria Sapozhnikova (p.c.)	
Jalkunan	Western >> Jogo-Jeri	Heath (2017)	Two W2 patterns based on syntax; W2 L or HM
Mende	Western; Samogho- Central-Southwestern; Central-Soso- Southwestern; Soso- Southwestern; Southwestern; Mende- Loko	Dwyer (1971; 1973; 1978); Rodewald (1989); Spears (1967); Innes (1971)	{L} with H Spread
Loko	Western >> Mende- Loko	deZeeuw (1979)	{L} with H Spread
Bandi	Western >> Mende- Loko	Dwyer (1973); Rodewald (1989); Mugele & Rodewald (1991)	{L} with H Spread
Looma (Woi- Balagha)	Western >> Southwestern; Looma- Kpelle	Mischenko (2017)	{L} with H Spread
Liberian Kpelle	Western >> Looma- Kpelle	Konoshenko (2008)	{L} with floating H Spread
Guinean Kpelle	Western >> Looma- Kpelle	Konoshenko (2008; 2014b)	{L} with H Spread

Language	Taxonomic Group	Source	W2 Tone
Kono	Western >> Looma-Kpelle	Konoshenko (2017c)	{L} with H Spread
Zialo	Western >> Looma-Kpelle	Babaev (2011)	{L} with H Spread
Susu	Western; Soso-Southwestern; Soso-Jalonke	Green, Anderson & Obeng (2013); Houis (1963)	{L} with H Spread
Yalunka	Western >> Soso-Jalonke	Keita (1989)	{L} with H Spread
Bobo	Western; Samogho-Central-Southwestern; Samogho-Bobo; Bobo	Prost (1983); le Bris & Prost (1981), Sherwood (2020)	Both W1 and W2 are neutralized, but few details
Dzùùngo	Western; Samogho-Central-Southwestern; Samogho-Bobo; Samogho	Solomiac (2007)	L(MH) + X → L#M(H); H or M + X → M#M(H)
Jɔ	Western >> Samogho	Carlson (1993)	H + X → X#SH, but variation
Seenku	Western >> Samogho	McPherson (2020)	W2 SH, or H-SL, but variation
Soninke (Kingi)	Western; Soninke-Bozo; Soninke	Creissels (2016)	W2 is not neutralized, but W1 is
Tigemaxoo Bozo	Western; Soninke-Bozo; Bozo	(Blecke n.d.)	Based on W1 melody, W2 can be H or L
Jenaama Bozo	Western; Soninke-Bozo; Bozo	Heath (2019)	W2 are either M(L) or H, depending on syntactic relationship
Mano	Eastern; Southern; Dan-Mano-Toura	Khachaturyan (2017)	{L}
Eastern Dan	Eastern >> Dan-Mano-Toura	Vydrin (Vydrin 2017a; Vydrin 2021)	{SL}
Kla-Dan	Eastern >> Dan-Mano-Toura	Makeeva (2017)	{SL}

Language	Taxonomic Group	Source	W2 Tone
Goo	Eastern >> Dan-Mano-Toura	Vydrin & Aplonova (2017)	{L} or no W2 neutralization; these seem to be {SL} according to Aplonova's dictionary
Toura	Eastern >> Dan-Mano-Toura	Bearth (1971), Idiatov & Aplonova (2017)	{SL}
Guro	Eastern; Southern	Kuznetsova (2007); Kuznetsova & Kuznetsova (2017)	Tonal classes
Mwan	Eastern; Southern	Perekhval'skaya (2017c)	No W2 neutralization
Yaure	Eastern; Southern	Kushnir (2017)	No W2 neutralization
Wan	Eastern; Southern	Nikitina (2017)	No W2 neutralization
Gban	Eastern; Southern	Fedotov (2017)	No W2 neutralization
Beng	Eastern; Southern	Paperno (2014)	No W2 neutralization
Ngen	Eastern; Southern	Korol (2021)	Three levels, but no alienability split. W2/THM facts inconclusive
San-Maka	Eastern; Eastern	Perekhval'skaya (2021)	Scalar raising, L to M, M to H
Boko	Eastern; Eastern	Perekhval'skaya (2017b)	No W2 neutralization, but W1 sometimes neutralized since W1 cannot bear L
Bissa	Eastern; Eastern	Hidden (1986)	No W2 neutralization, but downstep between adjacent H words

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Christopher R. Green & Maria Konoshenko

Tonal head marking in Mande compounds: endpoint neutralization and outliers

This paper explores the nature and realization of tonal head marking (THM) in endocentric compounds headed by nominal stems in Mande. In Mande, a compound's head is most often revalued by a tune or melody that exposes the head/dependent relationship between the compound's elements. We explore how this process interacts with the phonologies of individual languages by establishing the microtypology of Mande THM based on a sample of 54 closely related Mande lects. We argue that, with few exceptions, THM can be traced to a single pattern involving either lowering or loss of the head's lexical melody. We further show that the head's tonal revaluation is largely predictable relative to a given language's tonal inventory and innovative phonological rules. We propose an account of Mande THM via scalar *endpoint neutralization* and consider the ways in which the phenomenon aligns with other grammatical tone operations proposed in recent typologies. We also consider outliers within the family that fail to exhibit such type of neutralization and offer possibilities to explain their exceptional behavior relative to other languages in the family.

Keywords: grammatical tone; microtypology; neutralization; head marking; Mande

Christopher R. Green & Maria Konoshenko

Marquage tonal de la tête dans les composés mandés : neutralisation du point final et valeurs aberrantes

Cet article explore la nature et la réalisation du marquage tonal de la tête (noté THM pour *Tonal Head Marking*) dans les composés endocentriques ayant pour tête des bases nominales en Mande. En mandé, la tête d'un composé est le plus souvent réévaluée par un air ou une mélodie qui expose la relation tête/dépendant entre les éléments du composé. Nous explorons comment ce processus interagit avec les phonologies des langues individuelles en établissant la microtypologie du THM mandé basée sur un échantillon de 54 lectes mandés étroitement liés. Nous soutenons que, à quelques exceptions près, le THM peut être attribué à un seul schéma impliquant soit

l'abaissement, soit la perte de la mélodie lexicale de la tête. Nous montrons en outre que la réévaluation tonale de la tête est largement prévisible à partir de l'inventaire tonal d'une langue donnée et de règles phonologiques innovantes. Nous proposons un compte rendu du THM mandé via la neutralisation scalaire des points finaux (*scalar endpoint neutralization*) et examinons les façons dont ce phénomène s'aligne avec d'autres opérations de tonalité grammaticale proposées dans les typologies récentes. Nous considérons également les valeurs aberrantes au sein de la famille qui ne présentent pas ce type de neutralisation et offrent des possibilités pour expliquer leur comportement exceptionnel par rapport aux autres langues de la famille.

Mots-clés : ton grammatical ; microtypologie; neutralisation; marquage de la tête ; mandé

Кристофер Р. Грин & Мария Борисовна Коношенко

**Вершинное тональное маркирование в композитах языков манде:
конечная нейтрализация и другие явления**

Статья посвящена вершинному тональному маркированию в эндоцентрических композитах с именной вершиной в языках манде. Именные вершины в большинстве языков манде получают специфическую тональную реализацию, которая маркирует наличие зависимых элементов в составе композита. В статье на материале 54 близкородственных языков обсуждается, каким образом вершинная тональная нейтрализация реализуется в языках с различными тональными системами. За некоторыми исключениями, вершинное тональное маркирование можно свести к единому процессу, который предполагает либо понижение, либо утрату вершинного тона. В статье показано, что реализация вершинного тона в значительной степени зависит от тонального инвентаря конкретного языка и существующих в нем поверхностных правил. Мы предлагаем описывать вершинное тональное маркирование в манде как конечную нейтрализацию и показываем, как это явление соотносится с существующей типологией грамматических тональных операций. Наконец, мы рассматриваем языки, в которых вершинное тональное маркирование не укладывается в базовую модель, и предлагаем возможные объяснения для отклоняющихся случаев.

Ключевые слова: грамматический тон, микротипология, нейтрализация, вершинное маркирование, манде