Mandenkan, No. 59, 2018, pp. 67-108

A survey of word-level replacive tonal patterns in Western Mande*

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1. Introduction

Word-level replacive tonal patterns are characteristic of the morphophonology of most Western Mande languages (one of the two major branches of the Mande family tree), though they are not always called so by name. Rather, replacive tonal patterns in these languages are most often referred to as COMPACITÉ TONALE (CT) or its English equivalent TONAL COMPACTNESS, but they have also variously been called the noun-compounding rule, compound tone, or melody replacement, by some scholars.[1] For the purpose of this paper, I adopt the term replacive tone (RT) in an attempt to bring the following discussion in line with other recent work that describes analogous replacive tonal patterns that arise at either the word- or phrase-level in certain African languages (e.g., Harry & Hyman, 2014; McPherson, 2014; McPherson & Heath, 2016, among others).

My goals in this paper are two-fold. First, I present data gathered from a survey of Western Mande that aim to provide a more comprehensive picture of the RT patterns found in these languages. Previous surveys, namely Dwyer (1973) and deZeeuw (1979), have addressed RT in only a small subset of Western Mande languages; advances in the description of these languages over the past two decades, and

* I am very grateful to Maria Konoshenko, Valentin Vydrin, and an additional (still) anonymous reviewer for their comments on ways to improve this manuscript. I am also indebted to Larry Hyman and Will Leben for their many suggestions concerning a larger project on replacive tone in Mande, of which this paper is one component. Thanks also to Elizabeth Elton and David Forteguerre for their assistance in editing and proofing. Of course, any shortcomings in the current paper are solely my responsibility.

[1] The precise origin of the term COMPACITÉ TONALE is unclear to me, but according to my searches and personal inquiries to experts on this matter, it appears that its earliest published appearance is in Creissels (1978). A recent survey by Hyman & Leben (2017) cites Woo (1969) as the first to formalize the phenomenon by rule.

moreover, the detail in which such descriptions have dealt with tonology, now permit a broader survey to be undertaken. The data and discussion in this paper confirm and subsequently build upon what is currently known about this topic; I illustrate that word-level replacive tone is indeed a robust phenomenon that is characteristic of nearly every language in Western Mande for which sufficient data is available to make such a determination. The few exceptions to this include languages that exhibit replacive tonal patterns in higher phrasal categories rather than at the word level. In addition, this survey reveals more about sub-types of RT patterns and other language-specific idiosyncrasies related to RT that have not figured into the literature on the subject except, perhaps, in passing. Finally, with these RT patterns presented, I discuss correlations between these patterns and the genetic classification of Mande proposed by Vydrin (2009a; 2016). This can, in turn, be compared to other Mande classifications, such as that offered in Kastenholz (1997) and represented in resources such as the Ethnologue (Simons & Fennig 2017).

The rest of this paper is organized as follows: Section 2 provides an overview of the current state of the science concerning replacive tonal patterns in Western Mande languages. Section 3 then turns to a brief comparison of contemporary proposals aimed at genetically classifying Mande languages. This provides a means by which to ground the groupings of Western Mande languages that are assumed in this survey and the lower-level taxa contained therein. Sections 4 and 5 provide data from the two major branches of Western Mande with sub-sections offering data from languages that represent each of nine well-accepted mid-level taxa in the Western Mande family tree. Section 6 then offers a summary and concluding thoughts.

2. Overview of replacive tonal patterns in Western Mande

Replacive tonal patterns in Western Mande generally arise upon the juxtaposition of two elements (henceforth Word 1 (W1) and Word 2 (W2)) standing in certain syntactic relations to one another. Well-known instances involve two nouns forming a compound, or sequences of a noun and particular modifiers, such as attributive adjectives and some derivational suffixes. On this point, Vydrin (2016:115) states that such tonal neutralizations can be interpreted as "a grammatical operation marking a syntactic relation" in certain constructions. While some languages exhibit only a single RT pattern, others may have more than one pattern, with each being characteristic of a particular type of syntactic relation that holds between two words (Creissels 2013:26–27). The conditions under which RT neutralizations occur are illustrated below, and their tonal outcomes are language-specific.

Many contemporary descriptions of Western Mande languages make reference to RT patterns by one of the aforementioned terms; older sources may provide data that implicate RT-like tonal neutralization patterns but fail to point them out or discuss them

in detail. Moreover, the sheer difficulty of obtaining sources on particular Mande varieties due either to their age, status as unpublished or out of print, and/or logistics of negotiating library viewing/borrowing rights has further hindered a comprehensive survey of these patterns. Up until now, the statement made in Bird (1982:42) that "it is not clear at this point to what extent these patterns spread across the Mande dialects" arguably still holds.

Absent of a contemporary survey of RT patterns in Western Mande, there has yet to be a direct basis against which to compare proposed genetic classification schemas for these languages alongside the tonal patterns that they exhibit. The current paper aims to fill this gap and, in doing so, to explore whether there is tonological evidence to support the classification of Western Mande languages found in Vydrin (2009a; 2016) which is based primarily upon comparative lexicostatistics.

In order to lay the foundation for the remainder of this paper, I first introduce the basic characteristics of two well-established Western Mande RT patterns. In both of these major patterns, the lexical tonal melody of W1 dictates the melody of the larger construction. By DICTATE, I mean that the tonal melody of the larger construction is largely predictable based upon the lexical tonal melody of W1 though outcomes are often influenced by language-specific characteristics including the relevant tone bearing unit (TBU) as well as other processes that may result in tonal alternations. The two major patterns differ most clearly in the presence of tone spreading between W1 and W2 which occurs in one major pattern but is absent in the other.

The first major RT pattern, which I refer to as Type 1 RT, involves i) the initial lexical tone (minimally) or the entire tonal melody (maximally) of W1 being maintained; and ii) the tonal melody of W2 being neutralized to some language-specific melodic sequence. Such outcomes can be seen, for example, in the Bamana compounds in (1) where, in (1a), a sequence of /HH/ + /LH/ becomes [HH#HH]; in (1b), /LH/ + /LH/ becomes [LL#HH]; in (1c), /LHH/ + /HH/ becomes [LLL#HH]; and finally in (1d), /HLH/ + /H/ becomes [HHH#H]. In each instance, if the lexical melody of W1 begins with /H/ (a "High" melody word), then the resulting compound's melody is "all High". However, if the lexical melody of W1 begins with /L/ (a "Low" melody word), the resulting compound's melody is entirely Low up until the last element of the compound, whose tone bearing units are realized High. These examples illustrate that most tones in a given word's melody in this pattern have no bearing on resultant RT patterns; the initial tone of W1 is key. This outcome can clearly be seen in more complex compounds like (1e), where it is still the melody of W1 that dictates the

overall melody; here, a sequence of three compounded lexically /LH/ words is realized [LL#LL#HH].[2]

(1) Bamana

a. /nɔ́nɔ́/ 'milk' + /kùmún/ 'sour' → [nɔ́nɔ́kúmún] 'sour milk'
b. /nɛ̀gɛ́/ 'iron' + /jùrú/ 'rope' → [nɛ̀gɛ̀júrú] 'iron thread'
c. /mìsírí/ 'mosque' + /wélé/ 'call' → [mìsìrì-wélé] 'call to prayer'
d. /bámànán/ 'Bambara' + /kán/ 'language' → [bámánánkán] 'Bambara'
e. /fàlí/ 'donkey' + /kɔ̀rɔ́/ 'old' + /tígí/ 'owner' → [fàlìkɔ̀rɔ̀tígí] 'old donkey owner'

From an analytical standpoint, these outcomes have been attributed to the spreading of tone within the prosodic word domain, as discussed in Green (2013) for Bamana. Vydrin (2016:115) states that such patterns involve the "spread of the lexical tonal contour of the initial word...on the subsequent word(s)." While this is certainly the case in Bamana words like (1a), the same statement cannot be applied as clearly to words like (1d); in this example, the first word's /HLH/ melody is not in fact distributed over the compound, as the compound's melody is all H. Thus, additional factors contribute to the tonal outcomes in these and related words.

The second major Western Mande RT pattern, which I call Type 2 RT, differs most clearly from Type 1 RT in that i) non-final tones of W1's lexical tonal melody are maintained on W1; and ii) a final lexical H tone of W1 spreads on to the initial TBU of W2 (minimally) but further (beyond the first TBU) in some language-specific instances. Remaining TBUs in W2 are assigned a language-specific melodic sequence.

[2] Throughout this paper, I use H to indicate High tone, L to indicate Low tone, and M to indicate Mid tone. Combinations of these tones are also possible in certain languages. These tones are indicated by acute (v́), grave (v̀), and macron (v̄) diacritics over vowels, wherever appropriate. Prosodic word boundaries are often indicated by #, and syllable boundaries may be indicated by . in some examples. Because transcription conventions vary widely between sources, in presenting data on a given language, I utilize the transcription provided in the source itself, with few deviations. The reader should not assume that these transcriptions are necessarily representative of the International Phonetic Alphabet nor of some standard or semi-standard orthography developed for a given language. The precise nature of the consonant or vowel segments plays no significant role in RT; rather, the distribution of tones associated with them is of the greatest importance. Likewise, segmental alternations and other sandhi effects commonly result from compounding and other instances of word formation, but they are of no consequence to RT and will not be discussed. Because tone is the main focus of this paper, I have adapted the tonal transcriptions provided in the cited data to indicate more explicitly the intended tonal contours gleaned from a given source.

Type 2 RT is exhibited, for example, by Mende (Dwyer 1971; Dwyer 1978a; Dwyer 1978b; Spears 1967) and is illustrated in the examples in (2), which are adapted from Spears (1967). Examples (2a) and (2b) are most striking in that the final H tone of W1 comes to be associated with the first TBU of W2. While one might contend that the outcomes in examples (2c) and (2d) involve analogous L tone spreading, the true nature of this outcome is the matter of some debate. M. Konoshenko points out that there are other instances in Mande for which it has been proposed that W2 melodies are lowered in their entirety by one rule, after which another rule triggers H spreading between W1 and W2. Thus, whether or not L has spread from W1 in these instances is not clear. Note that any tonal decontouring in these and other instances can be attributed to tonal absorption.

(2) Mende

a. /gbɛ̀hɛ́/ 'stool' + /nìnǎ/ 'new' → [gbɛ̀hɛ́#nínà] 'new stool'
b. /pɛ́lɛ́/ 'house' + /nìnǎ/ 'new' → [pɛ́lɛ́#nínà] 'new house'
c. /pùndȉ/ 'mosquito' + /nìnǎ/ 'new' → [pùndí#nìnà] 'new mosquito'
d. /kɔ̂wù/ 'box' + /nìnǎ/ 'new' → [kɔ́wù#nìnà] 'new box'

There appear to be other sub-types of RT in the Mande literature, but thus far, it is unclear how widely they are distributed or how they relate formally to the attested major patterns. For example, Kingi Soninke exhibits a type of RT that has been called PARTIAL COMPACITÉ TONALE (Creissels 2013); the examples in (3) from this language are adapted from Creissels (2016:46–54). In each compound, the lexical tonal melody of W2 is maintained in its entirety while that of W1 is partially neutralized in favor of the first tone of W1's lexical melody. For example, in (3a), W1's /LLHL/ melody is neutralized to [LLL] while, in (3d), W1's /HLHL/ melody is neutralized to [HHH]. In each instance, the neutralized melody of W1 is either all-H or all-L, depending on the initial tone of the word's lexical tonal melody. This differs somewhat from what occurs in Bambara (Type 1 RT), however, wherein the lexical tonal melody of W2 is replaced by some language-specific tonal sequence rather than being maintained. It also differs from Mende (Type 2 RT) where the tonal melody of W2 is influenced by tonal spreading from W1. The PARTIAL nature of this type of RT pattern distinguishes it from the more sweeping TOTAL tonal neutralizations of W2 like those found in Bambara, Mende, and (as I illustrate below) many other instances in Western Mande. In this paper, I will be primarily concerned with instances of TOTAL RT.

(3) Kingi Soninke

a. /kìidê/ 'baobab' + /táxàyê/ 'sauce' → [kìidì-táxàyê] 'baobab sauce'
b. /yúgò/ 'man' + /séntààdê/ 'comb' → [yúgú-n-céntààdê] 'man's comb'
c. /tùbáábù/ 'European' + /qálìsî/ 'money' → [tùbààbù-n-qálìsî] 'European money'

d. /qálìsî/ ‘money’ + /dárè/ ‘leaf’ → [qálísí-dárè] ‘paper money’
e. /kìtáábè/ ‘book’ + /kónpè/ ‘piece’ → [kìtààbì-n-kónpè] ‘library’
f. /sòònìnkê/ ‘Soninke’ + /qánnè/ ‘language’→ [sòònìnkà-n-qánnè] ‘the Soninke language’

These preliminaries serve as a baseline against which to compare other RT outcomes found in Western Mande languages. A number of languages exhibit RT patterns that are remarkably similar to those introduced above, but there are additional subtleties to the tonal outcomes observed in particular languages that are notable, worth mention, and ultimately provide a more nuanced picture of word-level replacive tonal neutralizations from a phenomenological level across the language family. With these basic characteristics of Western Mande RT patterns stated, I turn next to discussing the state of the science concerning the genetic classification of these languages.

3. Genetic classification of Mande languages

The genetic classification of Mande languages remains a matter of some debate among scholars. As outlined in Vydrin (2009a; 2016), several internal classification proposals have been offered, the more recent being Grégoire & de Halleux (1994) and Kastenholz (1997); importantly, the latter forms the basis for the classificatory schema that has come to be adopted in the Ethnologue (Simons & Fennig 2017). In addition to these, Vydrin (2009a; 2016) proposes a newer classification that shares some similarities with earlier proposals but diverges from them in notable ways. While I direct the interested reader to Vydrin’s works for the finer details of his proposal, I briefly summarize major points that he offers that pertain to the shortcomings inherent in Grégoire & de Halleux (1994) and Kastenholz (1997). It is not my goal in this paper to offer a critical review of various classificatory proposals and their merits, but rather, I include the information below in order to situate the reader within the current state of the science on this topic.

To begin, the approach to Mande classification taken in Grégoire & de Halleux (1994) is grounded in glottochronology (e.g., Swadesh 1955); however, as Vydrin has pointed out, the outcomes arrived at by the authors suffer due to several factors, but chiefly because the authors utilize truncated and/or modified wordlists for many languages being compared, due either to unavailability of necessary data or lexical gaps. The classificatory approach taken in Kastenholz (1997), on the other hand, is based on shared lexical innovation, rather than on lexicostatistics; however, Kastenholz himself intimates that there are shortcomings inherent in his work. Indeed, he suggests that his findings need to be further substantianted by additional research. Despite these shortcomings, and as mentioned just above, the Kastenholz classification forms the basis for the Mande genetic data in the Ethnologue. As such, it is often cited, despite being deemed questionable by some scholars.

Taking these shortcomings as a cue, and citing great strides made in glottochronology in work by Starostin (2000), Vydrin (2009a; 2016) offers a new Mande classification that improves upon earlier proposals. He does so by explicitly outlining his methodology, which is closely aligned to a standard 100-word Swadesh list with substitutions eliminated, and also by providing his wordlists and a clear statement on the calculations that he uses and how they are implemented. Importantly, Vydrin was able to take into consideration data from an array of Mande languages for which new and more reliable information is now available. With these stated advances in mind, it is Vydrin's classification of Mande, and specifically of Western Mande languages, around which I organize the presentation of data in this paper.

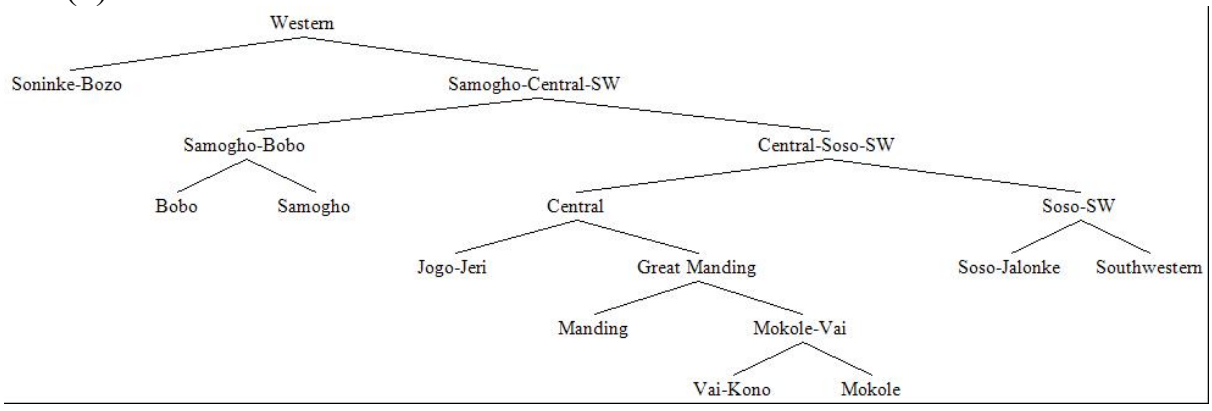
Vydrin (2009a; 2016) outlines eleven fairly uncontroversial mid-level taxa in the Mande family; these are given in (4). Also uncontroversial is the highest level distinction between Western Mande (4a-i) and South-Eastern (4j-k) Mande; in this paper, I concern myself exclusively with languages that constitute the former group.

(4)

a. Manding
b. Mokole
c. Vai-Kono
d. Jogo-Jeri
e. Soso-Jalonke
f. Southwestern
g. Soninke-Bozo
h. Samogho
i. Bobo
j. Southern
k. Eastern

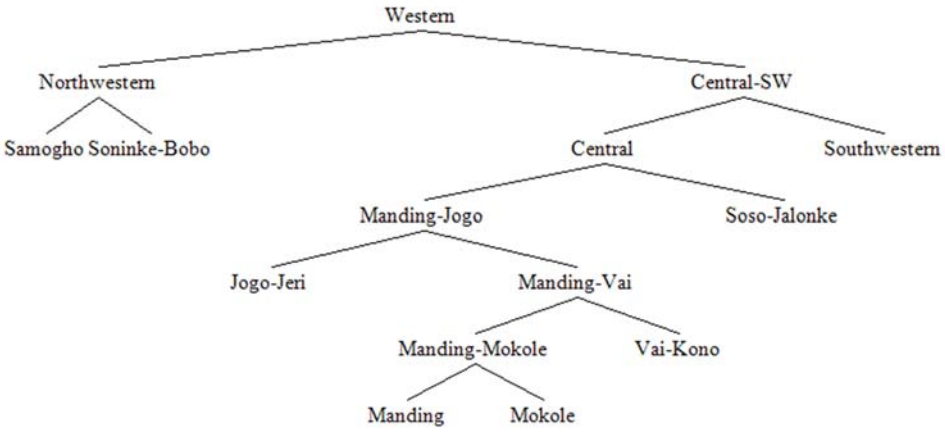
A visual representation of Vydrin's classification, beginning with the Western Mande node and extending to the taxa proposed in (4) is in (5).

(5)



For the sake of comparison, a visual representation of Kastenholz's classification, as adapted from the Ethnologue, is in (6).

(6)



A comparison of (5) and (6) reveals several key differences between the two classifications. Both classifications generally arrive at the same mid-level taxa in (4), yet Vydrin's classification differs from Kastenholz's in the ways in which certain taxa are grouped (either together or separately) into successfully higher level branches of the genetic tree; the distinction between Eastern and Western Mande holds in both classifications. As Vydrin explicates, and as I enumerate below, major innovations to Vydrin's classification include:

1. omission of a high level NORTHWESTERN group, with Samogho and Bobo instead being placed within a SAMOGHO-CENTRAL-SOUTHWESTERN node;
2. removal of Soso-Jalonke from the CENTRAL group, instead being placed within a SOSO-SOUTHWESTERN node;
3. reassignment of Mokole from the MANDING-MOKOLE node to a MOKOLE-VAI node.

In addition to these taxa, there are additional, lower level branches in both classifications to which I refer later in this paper. My goal is to provide and discuss word-level RT patterns in Western Mande in the most comprehensive way possible. I do so by considering data from at least one language within each of the Western Mande mid-level taxa, as represented in Vydrin (2009a:143) and wherever possible from each lower-level grouping that Vydrin has proposed. In most instances, I have been successful in this endeavor, but some gaps exist in the comparatively less well-described languages of the Samogho-Bobo and Soninke-Bozo branches of the family.

Establishing a baseline genetic classification of Mande languages is important to the goals of this paper, both descriptively and theoretically. From a descriptive perspective, the information on replacive tonal patterns that I present below far

surpasses that offered in two earlier works, namely Dwyer (1973) and deZeeuw (1979), which unfortunately fail to provide a comprehensive picture of these phenomena across all branches of Western Mande. In his thesis, Dwyer considers data only from five Southwestern Mande languages: Mende, Loko, Bandi, Loma, and Kpelle. This provides respectable coverage of this sub-branch of the family, as there are fewer than ten Southwestern Mande languages in total. deZeeuw (1979) provides somewhat better coverage; data considered are from the same five Southwestern Mande languages as Dwyer, but in addition, deZeeuw also includes Vai, Susu, "Mandekan",[3] and Soninke. Taken together, and regardless of which classification one adopts, there remain branches of the Western Mande family tree that are un- or under-represented in these two surveys. In the current paper, I include data from these previously reported languages, but more importantly, I fill in many of the gaps in coverage for languages that these earlier works did not include. From a theoretical standpoint, this paper sets the stage for further inquiry into the typology of word-level replacive tonal patterns in Mande languages, including the ways in which they compare to analogous patterns found in other African languages.

4. Samogho-Central Southwestern Mande

In this section, I discuss those languages falling within the Samogho-Central-Southwestern (SCS) node in (5). Vydrin (p.c.) suggests that this not be considered an actual "branch", as the division of Western Mande into its major sub-branches (Soninke-Bozo, Samogho-Bobo, etc.) occurred almost simultaneously. As such, I consider reference to SCS Mande to be merely a matter of descriptive convenience in this paper. In discussing the languages in this section, I sub-divide SCS Mande into three smaller groups in order to discuss their properties relative to one another. I first discuss Central Mande languages in Section 4.1, which are followed by Soso-Southwestern Mande in Section 4.2. These two groups together form the Central-Soso-Southwestern (CSS) node of Western Mande and contain the vast majority of languages in the higher SCS grouping. Following discussion of these two sub-branches, I turn in Section 4.3 to discussing properties of the Samogho-Bobo languages; recall that the inclusion of these languages alongside other Central and Southwestern Mande languages is an innovation in Vydrin's classification. Samogho-

[3] The use of Mandekan here is in the spirit of Bird (1982) who uses this term to refer to the sub-group of Mande languages more commonly known as Manding, which includes varieties of Bambara, Dyula, Maninka, and Mandinka, among others. In his thesis, deZeeuw makes specific reference to Bambara, Guinean Maninka, and Gambian Mandinka. For a critique of the use of Mandekan, as compared to other Mande ethnonyms and linguonyms, see Vydrine (1995).

Bobo languages, along with the Soninke-Bozo languages discussed in Section 5 are, in the Kastenholz classification, designated as Northwestern Mande.

4.1. Central Mande

The genetic tree in (5) divides Central Mande languages into two major sub-branches, namely Jogo-Jeri and Great Manding, with the latter comprising far more languages than the former. In some instances, a higher branching category contains one or more constituent languages but may also be further sub-divided into smaller groupings which, in turn, may contain one or more languages. For example, according to Vydrin's classification, the Jogo-Jeri node of the family tree has a direct descendent (Jeri), but two other languages (Jogo and Numu) constitute a lower-level grouping, though one not designated by name. An analogous, though more complex situation arises in Great Manding, which is first subdivided into Manding and Mokole-Vai, and thereafter into a number of smaller groups. Of concern in this paper will be the degree to which the tonal behavior of these languages aligns with their proposed classificatory groupings. Four of the eleven taxa in (4) are discussed in this section: Manding (Section 4.1.1), Mokole (Section 4.1.2.1), Vai-Kono (Section 4.1.2.2), and Jogo-Jeri (Section 4.1.3).

4.1.1 Manding

Vydrin's Manding branch contains additional sub-groupings, which I discuss in Sections 4.1.1.1 and 4.1.1.2. In terms of direct descendants of the Manding node, one language is represented in his classification, namely Mandinka [iso:mnk]. A few other well-described languages, however, could also arguably be placed in this group, including Kagoro [iso:xkg] and certain varieties of Maninkakan, including those spoken in Kita [iso:mwk] and Niokolo [iso:mlq].

Beginning with Mandinka, as described in Creissels & Sambou (2013:49–50), the language exhibits a Type 1 RT pattern. The authors provide data exhibiting the neutralizing property of such word-level tonal patterns; the example of [jàtà-kúlú], which might mean either 'lion skin' or 'lion bone,' has segmentally-identical, but tonally unique W2s [kùlú] 'skin' and [kúlú] 'bone' that surface with the same [HH] tonal melody in the compound. As the authors explain, and similar to what was seen in our Bambara exemplar in (1), the Mandinka RT patterns are [H#H] and [L#H].

The RT patterns found in Kagoro compounds reported in Vydrine (2001:53) are also undeniably Type 1. The examples provided in this source show that the tonal melody of a given compound is dictated by the tonal melody of W1 and always results in one of two outcomes, [H#H] or [L#H]. More striking overall is the ascending outcome seen in examples like /jàkúmá/ 'cat' + /fîn/ 'black' → [jàkùmà#fín] 'black cat' and /mìsí/ 'cow' + /kŭn/ 'head' → [mìsì#kún] 'cow head.'

The RT patterns are similar in Kita Maninkakan as reported in Creissels (2009:29–30) and Keita (1984:30–33). Despite the fact that Kita Maninkakan has a larger inventory of lexical tonal melodies with the addition of /HL/, the RT behavior of this melody is analogous to words with a simple /H/ melody. Examples of Kita Maninkakan compounds in (7) are adapted from Creissels and show a Type 1 RT pattern. If W1 has some type of High melody (be it /H/ or /HL/), the resulting compound is [H#H]; if W1 has a Low melody (i.e., /LH/ in some distribution), the resulting compound in [L#H].

(7) Kita Maninkakan
   a. /yírí/ 'tree' + /búlú/ 'arm' → [yírí#búlú] 'branch'
   b. /jànkúmá/ 'cat' + /kúlú/ 'bone' → [jànkùmà#kúlú] 'cat bone'
   c. /tùbàbú/ 'European' + /mùsù/ 'woman' → [tùbàbù#músú] 'European woman'
   d. /báràmà/ 'cooking pot' + /nèkè/ 'iron' → [bárámá#néké] 'iron for cooking pot'

The RT patterns in certain other closely related Manding languages differ in notable ways from those seen thus far in Kagoro and Kita Maninkakan. In the remainder of this section, I discuss data from Niokolo Maninkakan (also called Nyoxolonkan) as reported in Creissels (2013) and some unpublished data from Dantila Maniŋgaxaŋ presented by Doucouré & Patin (2015).

Niokolo Maninkakan exhibits a somewhat unique "total" RT pattern in comparison to its closer cousins. As illustrated in Creissels (2013:26–28), the RT pattern in Niokolo Maninkakan compounds is like other Type 1 languages in that it is dependent on the initial lexical tone of W1 (be it /H/ or /L/). However, if this tone is /H/, the High is maintained, with any non-initial Highs in both W1 or W2 being neutralized to Low (toneless). If the initial tone of W1 is /L/, all tones of W1 and W2 become Low (toneless). The examples in (8) show that the word-initial H tone (8a, 8d) or L tone (8b, 8c) of W1 is key in determining the tonal melody in compound formation, and all other tones are neutralized.

(8) Niokolo Maninkakan
   a. /tíbààbù/ 'European' + /músù/ 'woman' → [tíbààbù#mùsù] 'European woman'
   b. /fùlà/ 'Fulbe' + /músù/ 'woman' → [fùlà#mùsù] 'Fulbe woman'
   c. /bàránsàŋ/ 'tree species' + /jámbà/ 'leaf' → [bàránsàñ#jàmbà] 'leaf of *baránsaŋ*'
   d. /wóròŋkòféndàà/ 'snail' + /nòò/ 'trail' → [wóròŋkòfèndàà#nòò] 'snail trail'

This is arguably another instance of a Type 1 RT pattern. A difference from other instances of Type 1 RT, however, is that rightward tone spreading does not occur within W1 (as in the Bambara exemplar in 1). Rather, all tones other than the first are neutralized to L in all instances.

It is worthwhile to note that Niokolo Maninkakan also exhibits two types of "partial" RT that are limited to particular constructions. Rather than being dictated entirely by the tonal specification of W1 like in (8), the tonal melodies resulting in these instances of "partial" RT maintain tonal features of W2.

Next, and though preliminary, the tonal behavior reported for Dantila Maniŋgaxaŋ compounds is unique. The examples in (9) are adapted from a conference paper presented by Doucouré & Patin (2015). These data show that upon compounding, tonal neutralization does in fact occur; however, in this variety, the lexical tonal melody of W1 is copied in its entirety onto both input elements of the resulting compound. This outcome is most striking in (9c) where the ascending tonal melody W1 replaces the all-H lexical melody of W2. While the RT pattern in Dantila Maniŋgaxaŋ exhibits melodic neutralization, the neutralized melody is sometimes arguably more complex than that of the individual words themselves. Note that the final vowel alternation and lengthening is due to the presence of the definite article.

(9) Dantila Maniŋgaxaŋ

a. /fúlá/ 'Fulbe' + /súŋgútú/ 'girl' → [fúlá#súŋgútòː] 'the Fulbe girl'
b. /fúlá/ 'Fulbe' + /mùsú/ 'woman' → [fúlá#músòː] 'the Fulbe woman'
c. /tìbáːbú/ 'European' + /súŋgútú/ 'girl' → [tìbáːbú#sùŋgùtôː] 'the European girl'
d. /tìbáːbú/ 'European' + /mùsú/ 'woman' → [tìbáːbú#mùsôː] 'the European woman'

Despite its unusual outcomes, the RT patterns observed in Dantila Maniŋgaxaŋ are similar to other Type 1 outcomes. More specifically, the tonal melody of W1 dictates the melody of the larger compound, with the melody of W1 being more reliably maintained, and that of W2 being replaced.

4.1.1.1 Eastern Manding

A major sub-grouping beneath the Manding node in Vydrin's classification is Eastern Manding. Several languages in this group descend directly with no additional sub-grouping; however, there are others that are proposed to form a lower, cohesive unit. In this section, I specifically discuss those languages that branch directly from the Eastern Manding node, reserving discussion of the lower sub-grouping for Section 4.1.1.2.

Two Eastern Manding languages are among the best described of all Mande languages more broadly. One of these is Bambara (also called Bamanankan or Bamana) [iso:bam], and the other is Jula (also called Dyula, Julakan, or Dioula) [iso:dyu]. Varieties of Bambara are spoken widely in Mali, but the Jula-speaking area is much more widespread (see Donaldson 2016 for an overview). There are several major works that carefully detail components of the Bambara tonal system, including

its RT patterns, all of which generally focus on the so-called standard dialect (e.g., Creissels 1978; Creissels 1988a; Creissels 1992a; Dumestre 1987; Dumestre 2003; Green 2013). Components of the Jula tonal system have also been well-established (e.g., Braconnier 1990; Coulibaly 1983; Keita 1989; Sanogo 1995), but only some works concern themselves directly with the language's RT patterns.

As introduced in Section 2, Bambara is an often-cited exemplar for what I call a Type 1 RT pattern. The examples in (1), repeated here in (10) for convenience, illustrate that the lexical tonal melody of W1 in a compound dictates the tonal melody of the larger construction. As we have come to expect of this pattern, when W1 has some type of "High" tonal melody, be it /HH/ (10a) or even /HLH/ (10d), the resulting compound's tonal melody is all-H. When W1 instead has a "Low" tonal melody, however, the resulting compound is all-L up until its last input morpheme, which will be all-H (10b, 10c).[4]

(10) Bambara (Bamana)

a. /nɔ́nɔ́/ 'milk' + /kùmún/ 'sour' → [nɔ́nɔ́#kúmún] 'sour milk'
b. /nɛ̀gɛ́/ 'iron' + /jùrú/ 'rope' → [nɛ̀gɛ̀#júrú] 'iron thread'
c. /mìsírí/ 'mosque' + /wélé/ 'call' → [mìsìrì#wélé] 'call to prayer'
d. /bámànán/ 'Bambara' + /kán/ 'language' → [bámánán#kán] 'Bambara'

Similar outcomes are found in some non-standard varieties of Bambara, such as Colloquial Bamako Bambara (Green 2010:237–239) and the variety of Bambara spoken in Fuladugu, Mali (Diarra 1992). They are not discussed, however, in the available phonological description of Bɛlɛdugu Bambara (Konatè & Vydrine 1989). They are briefly mentioned in Dumestre & Hosaka (2000) concerning the Kolona variety of Bambara; however, this variety differs in one aspect compared to the "standard" described just above. That is, in Kolona Bambara compounds whose W1 has a lexical "Low" melody, the LH ascending contour of the word does not alternate when compounded. The authors provide the example of [mòsó#cámánnín] 'the young woman,' whose W1 [mòsó] 'woman' is LH both in isolation and in the compound itself. If Kolona Bambara behaved like "standard" varieties, one might instead expect *[mòsò#cámánnín].

According to the descriptions of Jula tone in Braconnier (1983:46–54) and Sanogo (1995), there are dialectal differences in RT outcomes in Jula compounds. The

[4] As discussed elsewhere (e.g., Creissels 1988a:48–49; Green 2013), some Bambara words and phrases that one might expect to behave tonally like compounds fail to do so. However, these non-conforming instances have morphosyntactic properties that differ from that of compounds and other constructions exhibiting CT. These include comparatives, distributives, and instances of a verb and its incorporated object, among others.

examples extracted from Sanogo (1995) in (11) exhibit an identical RT outcome as those described above for "standard" varieties of Bambara in (10) with W2 being neutralized to all-H. The examples in (12), adapted from Braconnier (1983), however, show that W2 is neutralized to all-L; I thank V. Vydrin (p.c.) for pointing out that in the Odienne variety of Jula reported by Braconnier, all tones are the inverse of those found in Bambara and other Jula varieties. In any case, the RT patterns in Jula are clearly Type 1.[5]

(11) Burkina Jula (Sanogo 1995)

a. /báárá/ 'preference' + /mùsó/ 'woman' → [báárá#músô] 'favorite wife'

b. /kàrá/ 'to try hard' + /mɔ̀gɔ́/ 'person' → [kàrà#mɔ́gɔ́] 'teacher'

(12) Odienne Jula (Braconnier 1983)

a. /jélí/ 'griot' + /ɲúmá/ 'good' → [jélí#ɲùmà] 'good griot'

b. /nɔ̀nɔ̀/ 'milk' + /ɲúmá/ 'good' → [nɔ̀nɔ̀#ɲùmà] 'good milk'

4.1.1.2 Maninka, Dafiŋ, and Mau

Other languages falling under Eastern Manding include Dafiŋ (also called Marka, Maraka, or Markakan [iso:rkm]), Mau (also called Mahou or Mawukakan [iso:mxx]), and certain dialects of Maninka, including that spoken in Kankan, Guinea. To this list, one might add Koro [iso:kfo] and Koyaga [iso:kga], which have been treated separately in some descriptions but are elsewhere referred to as varieties of the aforementioned languages in this group.

I begin with the tonal systems of Kankan Maninka, Koro, and Koyaga, which share the most similarities with other Eastern Manding languages. Kankan Maninka has been discussed to some extent in Spears (1968) and far more comprehensively in Grégoire (1986). It is clear from the examples in (13), adapted from Grégoire (1986:Chapter 2), that the RT patterns in this language are like those found, for example, in Bambara (Section 4.1.1.1) where the final morpheme of a given construction is assigned a High tonal sequence regardless of its own lexical tonal melody or that of a preceding morpheme.

(13) Kankan Maninka

a. /nìsí/ + /gbɛ́n/ + /dén/ → [nìsìgbɛ̀ndén] 'cow-herd'

b. /wùlú/ + /mùsó/ → [wùlù#músó] 'female dog'

c. /jɛ́ɛ́/ + /mìná/ + /-lá/ → [jɛ́ɛ́#míná#lá] 'fisherman'

The tonal system of Koro is described in Creissels (1987), and its RT patterns in compounds are like those described thus far for most Manding languages. The

[5] V. Vydrin (p.c.) also suggests an alternative for (11b) in which W1 is analyzed as /kàrán/ 'to read.'

examples in (14), adapted from Creissels (1987), illustrate this point. In all instances, the tonal melody of a compound is dictated by that of W1, where compounds surface either [H#H] or [L#H].

(14) Koro

a. /krǒ / 'Koro' + /cɛ̌ / 'man' → [krò#cɛ́] 'Koro man'
b. /tɔ́n/ 'Baoule' + /cɛ̌ / 'man' → [tɔ́#ɲɛ́] 'Baoule man'
c. /kɔ̀jɣá/ 'Koyaga' + /mìsó/ 'woman' → [kɔ̀jɣà#mísó] 'Koyaga woman'
d. /tùbàbú/ 'European' + /mìsó/ 'woman' → [tùbàbù#mísó] 'European woman'

Tonal neutralizations in Koyaga compounds are also like those found in Koro, as gleaned from the brief discussion on the topic in Creissels (1988b:85–86). Creissels provides just a single illustrative example of this point: /tùbàbú/ 'European' + /cɛ̌/ 'man' → [tùbàbù#cɛ́] 'European man'. It is clear, however, from looking elsewhere in the description of Koyaga that this assertion holds throughout the language.

Dialects of Dafiŋ have been described in Diallo (1988), Ouonni (1995), and Zié (1985), and the Zaba dialect's grammar is described in Prost (1977). Zié (1985:71–74) illustrates RT neutralizations in Marka that are analogous to those found elsewhere in Western Mande. However, Marka differs in that it exhibits two possible tonal sequences on a W2 (i.e., the last element involved in the construction); the sequence can be either all-L or all-H. If W1+W2 form a compound, W2 will be all-L, as in (15a)-(15c). However, when W2 is "syntactically subordinate" to W1 (as in an associative construction), W2 will be H or L, as in (15d)-(15f), with the choice being dictated by the initial lexical tone of the preceding W1. Importantly, the examples in (15) show that in all instances the lexical tonal melody of W1 predicts that of the larger construction. In (15a)-(15c), W1s melody is maintained with W2 being assigned a L sequence in all instances. In (15d)-(15f), W2's tonal melody is instead directly predicated on that of W1. The first outcome is more a prototypical instance of Type 1 RT, but the second deviates slightly from the usual outcome.[6]

(15) Marka

a. /só/ 'horse' + /kɛ́/ 'man' → [só#kɛ̀] 'stallion'
b. /sò/ 'house' + /té/ 'to break' + [mósó] 'woman' → [sò#tè#mòsò] 'cruel wife'
c. /máráká/ 'Marka' + /mósó/ 'woman' → [máráká#mòsò] 'Marka woman'
d. /sáá/ 'sheep' + /kìrì/ 'hair' → [sáá#círí] 'hair of a sheep'
e. /sà̰/ 'rain' + /bɛ́rɛ́/ 'pebble' → [sà̰#bɛ̀rɛ̀] 'hail' (rain of pebbles)
f. /kálà/ 'straw' + /fóóró/ 'to assemble' → [kálá#fóóró] 'pile of straw'

[6] One exception to this pattern in Zie's data appears to be /sò/ 'house' + /lɛ́ɛ́/ 'pig' → [sò#lɛ́ɛ́] 'pork.'

Compared to what I have discussed thus far in this section, the RT patterns observed in Mahou are unique. To begin, and although the details differ in the three descriptions of Mahou consulted (Bamba 1984; Creissels 1982; Ebermann 1986), all three descriptions posit that there are more than two major lexical tonal melodies for monomorphemic words in the language. Ebermann, for example, proposes that each Mahou word is associated directly with either a /H/ or /L/ tone, but in addition, each word's lexical melody also contains a post-segmental floating tone which itself may be either /H/ or /L/. Thus, he describes four possible melodies in Mahou monomorphemic words: /H(L)/, /H(H)/, /L(H)/, and /L(L)/.

The examples adapted from Ebermann (1986:56–57) in (16), suggest a much different RT outcome than what is witnessed, for example, in Koro or Koyaga. That is, according to Ebermann's analysis, the tonal melody of a compound is determined by a combination of the tone associated directly with W1 and the post-segmental (i.e., floating) tone of W2 (indicated by rightward floating tones given in parentheses in (16), though with at least one complicating factor that must be taken into consideration. In (16a), W1 has an associated H tone, while W2 has a post-segmental L tone. In (16b), the associated tone of W1 is again H, as is the post-segmental tone of W2. In both these instances, the resulting melody is [H#H]. The outcome is transparent in (16b), but the fact that the outcome in (16a) is not *[H#L] is unexpected and may be attributed to the absence of HL contours more broadly in the language. Moving on to (16c), when W1 has an associated L tone and W2 has a post-segmental H, the result is [L#H]. Finally, in (16d), W1 has an associated L tone and W2 has a post-segmental L, resulting in a [L#L] melody for the compound.

(16) Mahou

a. /kwɔ́/ 'rear' + /kìì`/ 'egg' → [kwɔ́#kíí] 'testicle'
b. /lɔ́ɔ̀`/ 'market' + /cɛ́/ 'space' → [lɔ́ɔ́#cɛ́] 'time between two markets'
c. /gbà`/ 'hearth' + /bùù́/ 'shack' → [gbà#búú] 'kitchen'
d. /sòò`/ 'flesh' + /bú`/ 'soft part' → [sòò#bù] 'flesh without bone'

With the exception of (16a), the tonal outcomes in Mahou compounds are transparent. Importantly, however, the tonal outcomes in Mahou differ from that of its closest relatives in one obvious way. That is, the tonal melodies of compounds are not dictated solely by the lexical tonal melody of W1. Rather, the melodies of both W1 and W2 appear to play a role in determining the resulting compound melody in a quasi "edge-in" fashion. These outcomes are unique among other Mande languages more broadly.

4.1.2 Mokole-Vai

Recall that the creation of a Mokole-Vai branch of Great Manding is one key innovation in Vydrin's classification. In Kastenholz (1987), Mokole is instead part of the Manding-Mokole group. There are two major subdivisions within Mokole-Vai: Mokole (Section 4.1.2.1) and Vai-Kono (Section 4.1.2.2).

4.1.2.1 Mokole

There are four languages in the Mokole group: Kakabé [iso:kke], Kuranko [iso:knk], Lélé [iso:llc], and Mogofin [iso:mfg]. There have been significant lexical resources produced for Kakabé (Vydrina 2015) and Lélé (Vydrine 2009b), but little published data is available for Mogofin. The most extensive, published tonal description among these languages is found for Kuranko (Kastenholz 1987), which I use as the exemplar for this group.

Kastenholz (1987:157–162) discusses the behavior of tone in compounds in detail, illustrating that the tonal melodies encountered in Kuranko compounds are reminiscent of other Type 1 RT patterns found in many of the language's Manding cousins. The examples in (17) are adapted from Kastenholz and show that the tone of W1 dictates the tonal melody of the overall compound. The surface tonal melodies of individual "Low" words may be [L] or [LH], and the melodies of "High" words may be [H] and [HL]; however, the resulting tonal melodies attested for compounds are consistent, being either [L#H] or [H#H]. W2s in all instances surface H. These RT outcomes are comparatively somewhat simpler than what is found in Vai-Kono, as discussed next.

(17) Kuranko

a. /kàrɜ̃́/ 'learn' + /mɔ̀è/ 'man' → [kàrà#mɔ́é] 'teacher'
b. /gbùndɛ̀/ 'secret' + /ɲɔ̃̀ɔ̀/ 'holder' → [gbùndù#ɲɔ̃̀ɔ̃́] 'confidant'
c. /bólɛ́/ 'hand' + /kàlɛ̀/ 'stick' → [bóló#kálɛ́] 'arm'
d. /kómá/ 'to speak' + /kɜ̃́/ 'throat' → [kómá#kɜ̃́] 'voice'

4.1.2.2 Vai-Kono

The two languages in the Vai-Kono group are Vai [iso:vai] and Kono [iso:kno] themselves, with both languages benefitting from a good amount of description of their phonological systems. The description of Vai tonology in Welmers (1976) is fairly extensive and deals with the subject of compounds in detail. The tonal system of Vai is such that the language has both H and L tones and four major tonal melodies: H, L, LH, and HL. Certain more complex combinations of tones are possible in morphologically-complex words.

The examples in (18) are adapted from Welmers (1976) and are representative of the tonal outcomes observed in Vai compounds. These examples show that compounds whose W1 is /H/ (18a-18b), /HL/ (18c-18d), or /L/ (18e-18f) retain the lexical melody

of W1 in its entirety; however, the surface tonal melody of W2 is neutralized entirely to [L] in all instances. Compounds whose W1 is lexically /LH/ (18g-18h) are exceptional; when compounded, the tonal melody of W1 is [L], while that of W2 becomes [HL]. Such outcomes that appear to involve H spreading from W1 to W2 are more common in Soso-Southwestern Mande.[7] In any event, there are two slightly different surface RT outcomes in this language for similarly constructed compounds. According to Welmers, any other exceptions to these patterns pertain only to borrowed words.

(18) Vai

a. /jí/ 'water' + /sóó/ 'hole' → [jí-sòò] 'water hole, well'
b. /wúnú/ 'mortar' + /kŏŋ/ 'stick' → [wúnú-kòŋ] 'pestle'
c. /kávù/ 'rattan' + /jàndá/ 'thatch' → [kávù-jàndà] kávù 'thatch'
d. /bâ/ 'mother' + /léŋ/ 'child' → [bâ -lèŋ] 'maternal aunt'
e. /bò'ò/ 'cultivated greens' + /kúú/ 'fenced enclosure' → [bò'ò-kùù] 'garden'
f. /màà/ 'anger' + /wù'ú/ 'dog' → [màà-wù'ù] 'angry dog'
g. /jàmbá/ 'leaf' + /mŏ/ 'person' → [jàmbà-móò] 'herbalist'
h. /kŭŋ/ 'head' + /kpàsá/ 'kerchief' → [kùŋ-kpásà] 'head cloth'

[7] A reviewer suggests that these outcomes in Vai could be attributed to an overarching process that assigns [L] to all W2s followed a second rule that involves H spread over a boundary, but only when contributed by /LH/ and not /H/. This is certainly possible (with the necessary stipulation that only /LH/ is able to spread its High tone being somewhat unsatisfying); my focus here has been on identifying surface tonal patterns shared between languages and not necessarily on the mechanism(s) that yield them. Under such an approach, however, one possibility is that Type 2 RT patterns could have evolved from Type 1 RT via the addition of such phonological, local spreading rules. These rules would have to be more general in Type 2 languages, like Susu, that involve either /L/ or /H/ spreading (see Green, Anderson & Obeng 2013) but more restrictive in a language, like Vai, that involves only H spreading and then only from a /LH/ melody. The same reviewer points out that some Southern Mande languages also exhibit RT behavior and that this behavior is more in line with what is seen in Central Mande and less like Soso-Southwestern Mande. The reviewer suggests that this may present a challenge to the Type 1 vs. Type 2 dichotomy discussed here because Southern Mande languages are more closely aligned both genetically and geographically with Soso-Southwestern Mande. It is possible, however, if one assumes that Soso-Southwestern languages have innovated their phonological spreading rules, that this is a reasonable outcome from a preceding stage in which all Mande languages were unified in their neutralization of W2, which is maintained in a wider variety of languages. This is clearly a matter to explore in future research.

The outcomes in Vai are unique in that all similarly-constructed compounds do not behave in the same way. Indeed, the RT patterns in Vai share some similarities with both the exemplar Type 1 and Type 2 RT patterns introduced in Section 2. Like Type 1 RT, tonal outcomes in Vai compounds generally involve maintenance of W1's melody and neutralization of W2's melody. Like Type 2 RT, however, Vai compounds like (18g-18h) witness the final tone of W1's melody being copied onto the first TBU of W2. The /LH/ to [LL] alternation that occurs subsequently in the first word may be due to AFFAISSEMENT, or a similarly-motivated process. In sum, it appears that Vai RT patterns in compounds represent a hybrid of Type 1 and Type 2.

Turning to Kono, its tonology has been described in Manyeh (1983), Foday-Ngongou (1985), and in an unpublished manuscript by Odden (n.d.). None of these resources provides data pertaining specifically to compounds, though each discusses noun+adjective constructions which at least in some languages (e.g., Bambara and Susu) behave like noun+noun compounds from a tonal perspective elsewhere in Western Mande.

The examples in (19) adapted from Manyeh (1983:175–182) illustrate that in the variety of Kono described, RT patterns are more in keeping with those expected of Type 1 RT. In each instance, the tonal melody (whether L of H) of W1 is maintained, while that of W2 is assigned a HL tonal melody.

(19) Kono (Manyeh 1983)

a. /fɛ́tú/ 'pineapple' + /sàwà/ 'three' → [fɛ́tú sáwà] 'three pineapples'
b. /kàà/ 'snake' + /sàwà/ 'three' → [kàà sáwà] 'three snakes'
c. /kài/ 'man' + /jànsà/ 'tall' → [kài jánsàmà] 'tall man'
d. /káá/ 'gun' + /kɔ̀nɔ́tɔ̀/ 'nine' → [káá kɔ́nɔ̀tɔ̀] 'nine guns'

The variety of Kono described in Foday-Ngongou (1985:120–175) is similar, but certain complexities emerge from the more extensive data presented. Note that this work is fairly comprehensive, yet its presentation and classification of tone classes and their behavior is haphazard in that it groups nouns first by shape (i.e., monosyllabic vs. disyllabic) and then by tonal behavior. Moreover, the classification of tonal behavior within a noun shape group does not match across groups. As such, I have reorganized the relevant data below, which I hope makes them more coherent.

The data in (20) illustrate three RT patterns in constructions whose W1 is either monosyllabic or disyllabic, and two further RT sub-patterns found only for disyllabic words. The first pattern involves constructions whose W1 is simply /L/; when compounded, there is no tonal alternation in either W1 or W2 (20a-20b). A second pattern involves constructions whose W1 is /HL/; this is realized as [HL] on monosyllables and [HHL] on disyllables. When compounded, W1 surfaces [H], while

W2 surfaces [HL] (20c-20d). A third pattern involves instances where W1 is /LHL/; this is somewhat opaque, as the melody is realized [HL] on monosyllables but [LHL] on disyllables. When compounded, W1 surfaces [L], while W2 again surfaces [HL] (20e-20f). Despite the complications of the third pattern, the RT outcomes reported in Manyeh and Foday-Ngongou resemble one another and are generally in keeping with other Type 1 RT patterns. The lexical melody of W1 dictates that of the larger compound, with W2 exhibits a static [HL] melody.

(20) Kono (Foday-Ngongou 1985)

a. /dè/ 'mother' + /jámâ/ 'bad' → [dè#jámâ] 'bad mother'
b. /pìmbì/ 'snake' + /jámâ/ 'bad' → [pìmbì#jámâ] 'bad snake'
c. /jî/ 'river' + /cɛ̀ndɛ̀/ 'good' → [jí#cɛ́ndɛ̀] 'good river'
d. /bénâ/ 'horn' + /cɛ̀ndɛ̀/ 'good' → [béná#cɛ́ndɛ̀] 'good horn'
e. /dû/ 'town' + /cɛ̀ndɛ̀/ 'good' → [dù#cɛ́ndɛ̀] 'good town'
f. /dìsâ/ 'apology' + /cɛ̀ndɛ̀/ 'good' → [dìsà#cɛ́ndɛ̂] 'good apology'
g. /kɔ̀pɔ́/ 'eagle' + /jámâ/ 'bad' → [kɔ̀pɔ̀#jámâ] 'bad eagle'
h. /cɔ́cì/ 'church' + /jámâ/ 'bad' → [cɔ́cì#jámâ] 'bad church'

Note that there are two additional RT sub-patterns represented in (20g) and (20h) that pertain only to a smaller class of disyllabic words, some of which are clearly borrowings. In compounds like (20g), W1 is lexically /LH/ and alternates to [LL], which may be another instance of AFFAISSEMENT. For compounds like (20h), the /HL/ W1 does not alternate.

Taken together, Vai and Kono behave somewhat differently compared to one another in terms of their RT patterns. While both appear to exhibit some Type 1 RT outcomes, there are some instances specific to Vai that are more reminiscent of Type 2 RT outcomes. Concerning the Mokole-Vai sub-grouping more broadly, the tonal systems in Vai-Kono appear to be relatively more complex; though their RT patterns share some similarities with the Mokole group, Mokole is a clearer Type 1 language.

4.1.3 Jogo-Jeri

The Jogo-Jeri branch of Central Mande is split between dialects of Jeri and a smaller, lower level grouping containing Jogo. One variety of Jeri, namely Jeri-Kuo [iso:jek], is spoken in Côte d'Ivoire, while the other, Jalkunan, is spoken in Burkina Faso. The most thorough description of Jeri-Kuo is Tröbs (1998), but some information is also found in Kastenholz (2001). Tone is marked to some degree in the latter, but it is not discussed in any detail; words are either indicated as H or L on their first TBU, and as such, any further detail about the possible tonal melodies in the language is unclear. Unfortunately, tone is not indicated in any substantive way in Tröbs (1998); the author states that tone is not the "object" of the study, and tone is omitted from all

non-expository chapters of the book. Thus, the tonal information reported below is summarized solely from what I have been able to extract from the lexical entries in Kastenholz (2001).

From the standpoint of RT patterns in Jeri-Kuo, the few examples in (21) are of compounds that I gathered from Kastenholz (2001), and they illustrate three possible outcomes. Examples (21a) and (21b) are interesting given that W1s of both compounds are lexically /L/, and both share a W2 that is lexically /H/ but realized either [H] or [L]; the melody of W1 is the one maintained. This outcome suggests either that variation is possible in Jeri-Kuo or that the tonal melody of W1 is perhaps more complex than the provided transcriptions suggest. Examples (21c) and (21d) both show compounds containing words that are reported to be lexically /H/; however, the resulting compounds are [H#L].

(21) Jeri-Kuo

a. /kàlà/ ‘bow’ + /yélí/ ‘hole’ → [kàlà#yèlì] ‘armpit’
b. /tùrù/ ‘mountain’ + /yélí/ ‘hole’ → [tùrù#yélí] ‘cave’
c. /kúmá/ ‘right’ + /búlú/ ‘hand’ → [kúmá#bùlù] ‘right-hand’
d. /dá/ ‘mouth’ + /gbáláŋ/ ‘entry’ → [dá#gbàlàŋ] ‘jaw’

Further information is needed to substantiate the outcomes seen in these few data. However, it should be clear that the lexical tonal melody of W1 of the compound (to the extent that we can observe it) appears to be maintained, while that of W2 appears to be neutralized to one (or possibly two) static melodies. This would therefore be a variant of a Type 1 RT pattern.

Turning to Jalkunan [iso:bxl] (also called Ble, Dyala, or Dyalanu), the only source of information that I am aware of is a partial, unpublished grammar by Heath (2017), which is available on the website of the Dogon and Bangime Languages Project (dogonlanguages.org). Compared to other Central Mande languages discussed thus far, the tonal system of Jalkunan is unique owing to its larger inventory of lexical tonal melodies. There are three underlying tone levels (L, M, and H), and contour tones are possible in most combinations except ML and LM.

Heath (2017:143–155) describes the tonal behavior of nominal and adjectival compounds in some detail, indicating that tonal alternations upon compounding tend to affect W2. As the examples adapted from Heath in (22) illustrate, in the “most productive” instances of compounding, the lexical tone of W1 remains intact, while the melody of W2 is neutralized to one of two outcomes (overlays) that are reported to depend on the syntactic relationship that holds between the two elements.[8] For most

[8] Heath states that “compounds that do not fit into a productive type are best left to the lexicon.” It is beyond the scope of this paper to evaluate this claim, and thus, I report only on

compounds, W2 surfaces with a [HM] melody, regardless of its lexical tonal melody in isolation (examples 22a-22c). However, for so-called possessive-type compounds, as in examples (22d) and (22e), W2 surfaces instead with a [L] melody. As Heath provides nominal examples with their accompanying nominal suffix, which is realized [-la], [-ra], or [-na] depending on context, I adopt the same practice in the examples provided. Note that the tone of the nominal suffix also appears to vary according to context.

(22) Jalkunan

a. /bɔ̄l-ɔ̄/ 'hand' + /kláā-rà/ 'ring' → [bōl#kláā-rà] 'ring' (on finger)
b. /bɔ̄l-ɔ̄/ 'hand' + /cīī-nā/ 'hair' → [bōl#cíī-nà] 'hair' (on hand)
c. /bɔ̄l-ɔ̄/ 'hand' + /dègà/ 'unable to enter' → [bōl#dégē-rà] 'menstruation'
d. /jū/ 'millet' + /fi-ná/ 'flower' → [jū#fi-ná] 'flower of millet'
e. /jū/ 'millet' + /dí-rá/ 'child' → [jū#dì-rá] 'grain of millet'

There are other compounds provided for which it is not possible to discern the compound tone pattern. For example, Heath (2017:146–147) discusses a special set of exocentric compounds whose W1 is /ál-là/ 'sky, God,' and whose W2 purportedly surfaces with a [L] melody. The issue, however, is that the tonal melody in isolation for all W2 provided is L; thus, no alternations are able to be observed. Other compound types are reported, but these involve elements such as deverbal nouns, agentive nouns derived from verbs, and internal postpositions. Accordingly, their properties differ from the compounds described just above.

Assuming that the compounds behaving like those in (22) are representative of Jalkunan compounds more generally, and despite the more complex tonal properties of the language overall, it appears that Jalkunan exhibits Type 1 RT. That is, the tonal melody of W1 of the compound remains entirely intact while that of W2 alternates to a fixed surface melody.

4.1.4 Central Mande summary

In Section 4.1, I presented data on a variety of languages that are situated in four of nine proposed mid-level taxa in Vydrin (2009a; 2016); in some instances, I have provided data for languages in even lower sub-groupings that are not identified by name, as well as other languages that are known to be closely related to those explicitly named in the proposed classification. Each Central Mande language surveyed displays at least one word-level RT pattern. While there are many similarities between languages in this group in terms of their word-level replacive tonal patterns, the data presented reveal interesting micro-variations.

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the patterns that Heath deems to be productive.

All Central Mande RT patterns have in common that W1 of a compound (or other construction exhibiting RT) dictates the tonal melody of the larger construction. It may be that the entire lexical melody of W1 is maintained, or, otherwise, that the initial tone of W1's lexical melody remains intact while subsequently neutralizing all other tones. Furthermore, in each instance, the lexical melody of W2 is more susceptible to neutralization (i.e., being replaced or overwritten). Central Mande RT patterns differ in the precise tonal behavior of the last word or morpheme (i.e., the W2) of a construction. In some languages, W2 melodies are entirely overridden by one or more language-specific, static melody. In other instances, the W2 directly inherits some tonal property or feature of the W1 itself, but sometimes in a manner that differs from what is seen in Type 2 RT. In at least one language (i.e., in Mahou), the lexical tonal specification of W2 appears to play a key role in determining the surface tonal melody of the larger construction. Similarly, languages like Vai appear to exhibit hybrid behavior in that some melodic combinations result in tone spreading between W1 and a subsequent word.

Thus far, from the standpoint of Vydrin's classification, the RT phenomena exhibited by these languages generally offers support to the classificatory groupings proposed, with the Vai-Kono branch of Mokole-Vai being the most divergent among the languages surveyed. In the next section, I consider the RT phenomena exhibited by Soso-Southwestern Mande languages.

4.2. Soso-Southwestern Mande

The genetic tree in (5) assigns two of the nine mid-level taxa of Western Mande in (4) to the Soso-Southwestern branch of the family. This group is accordingly sub-divided into two groups, namely Southwestern Mande and Soso-Jalonke, which I discuss in Sections 4.2.1 and 4.2.2, respectively. This is a significant development in Vydrin (2009a; 2016) because languages falling under the heading of Soso-Jalonke have elsewhere been considered part of Central Mande (see Section 4.1). While the Soso-Jalonke group contains just two languages, there are additional sub-groupings proposed within Southwestern Mande. My goal in this section is to consider the degree to which the RT patterns exhibited by these languages substantiate the genetic realignment and sub-groupings that have been proposed.

4.2.1 Southwestern Mande

The tonal behavior of Southwestern Mande languages as it pertains to complex nominal compounds has been fairly well established and, particularly, in two notable works: Dwyer (1973) and deZeeuw (1979). These works offer thorough descriptions of the tonal behavior of Southwestern Mande languages, but neither makes great strides in synthesizing their similarities to one another, nor do they spell out notable differences between them. More recently, Babaev (2010) describes the tonal properties

Zialo, which is considered part of Southwestern Mande. What is immediately clear in looking at any description of the tonal systems of these languages is that they are more diverse and more complex relative to Central Mande. In this section, I bring together old and new facts in order to compare the RT phenomena in Southwestern Mande to what was covered for Central Mande languages above, looking again for similarities and differences between them. Before beginning, however, it is important to note that in Vydrin's classification Southwestern Mande is first sub-divided into two higher level categories: Mende-Loko (Section 4.2.1.1) and Looma-Kpelle (Section 4.2.1.2). Each of these nodes contains an additional lower level grouping and one direct descendant. In addition, I discuss Zialo separately in Section 4.2.1.3 as it is not directly addressed in Vydrin's classification.

4.2.1.1 Mende-Loko

The languages of the Mende-Loko group include Mende [iso:men] and Loko [iso:lok], themselves, as well as Bandi [iso:bza]. The tonal system of Loko is described in Dwyer (1973), deZeeuw (1979), and Kimball (1983), but Mende's is comparatively better described, having been discussed in Dwyer (1971; 1973; 1978a; 1978b), Rodewald (1989), and Spears (1967). As introduced in Section 2, Mende is the often-cited exemplar for one of the two major RT patterns observed in Western Mande (i.e., Type 2 RT).

Word-level RT patterns in Mende involve the non-final tones of the lexical tonal melody of W1 (not just the initial tone, as typical in Type 1 RT) being distributed across the word itself upon compounding or a related operation, while the final H tone of the W1 melody is copied rightward (or spreads) onto the first tone bearing unit of W2. I will assume, following others before me (e.g., deZeeuw 1979; Dwyer 1973) that the tonal melody of W2 in Mende is neutralized to [L] via a Lowering rule before tone spreading from W1 occurs. It may be reasonable to assert that analogous morphosyntactic tonal rules are characteristic of the tonology of certain other Type 2 languages as seen below. In this way, one could posit a parallel between Type 1 and Type 2 RT in that the lexical melody of W2 is neutralized, only to be subsequently further altered via spreading. Mende and other Type 2 RT languages also differ from languages exhibiting Type 1 RT in that the melody of the W1 is better left intact. The examples in (23), repeated from (2) for convenience, illustrate various RT melodies in Mende.

(23) Mende

a. /gbɛ̀hɛ́/ 'stool' + /nìnǎ/ 'new' → [gbɛ̀hɛ́#nínà] 'new stool'
b. /pɛ́lɛ́/ 'house' + /nìnǎ/ 'new' → [pɛ́lɛ́#nínà] 'new house'
c. /pùndî/ 'mosquito' + /nìnǎ/ 'new' → [pùndí#nìnà] 'new mosquito'
d. /kɔ̂wù/ 'box' + /nìnǎ/ 'new' → [kɔ́wù#nìnà] 'new box'

Both the RT patterns that occurs in Mende and what we have observed thus far in Central Mande are dictated by the tonal melody of W1, with subsequent tones in W2 being neutralized. What differs is that surface tonal melody of W2 in Type 2 RT inherits the final H tone of W1 (where applicable). This is most clearly seen in the alternation between [HL] and [LL] on the adjective 'new' in (23). As we shall see, RT patterns like that in Mende are indeed characteristic of most Southwestern Mande languages, and they are also attested in the Soso-Jalonke group (Section 4.2.2).

Turning next, in this group, to Bandi (also called Gbandi), descriptions of its tonology are found in Dwyer (1973) as well as in Rodewald (1989) and Mugele & Rodewald (1991). Pertaining specifically to alienable compounds, the examples in (24) are adapted from Rodewald (1989:62–69) and illustrate that the lexical tonal melody of W2 is susceptible to alternation, while that of W1 is largely maintained, though a W1's word-final /HL/ sequence is decontoured to [H].[9]

(24) Bandi

a. /nìkà/ 'cow' + /kòlè/ 'white' → [nìkà#wòlé] 'white cow'
b. /nìkà/ 'cow' + /kpèá/ 'red' → [nìkà#bèá] 'red cow'
c. /pésɔ̂/ 'pencil' + /kòlè/ 'white' → [pésɔ́#wòlè] 'white pencil'
d. /pésɔ̂/ 'pencil' + /kpèá/ 'red' → [pésɔ́#bèà] 'red pencil'
e. /pɛ̀lɛ́/ 'house' + /kòlè/ 'white' → [pɛ̀lɛ́#wólé] 'white house'

Rodewald (1989:68) warns that these outcomes "only give a glimpse of the perturbations that occur" in Bandi compounding, but they arguably suggest that Bandi follows a similar Type 2 RT pattern to that exhibited by Mende. This is particularly apparent in (24e) as well as in examples from Mugele & Rodewald (1991) like /kéké/ 'dog' + /wù-ngí/ 'head-DEF' [kéké#wú-ngí] 'the dog head,' wherein W2 alternates under compounding due to tone copy from the preceding word in the construction. Bandi appears not to undergo a Lowering rule upon compounding that affects W2s because [LH] contours are still possible on W2s following compounding in examples like (24a,b). Examples like (24e) also suggest that spreading from W1 is not always limited to a single, rightward-adjacent TBU.

Loko word-level RT patterns, as summarized in deZeeuw (1979:49), share similarities with Mende and Bandi. The examples adapted from this source in (25) show at least some evidence that the final H tone of W1 spreads to W2 (e.g., 25a). deZeeuw also attributes the outcome in (25c) to H spread from W1, though it spans

[9] Inalienable compounds in Bandi (and in many other languages) are said to be syntactically nonequivalent to alienable compounds and are governed by a tonal pronoun which exhibits its own influences on its dependents; as a result, the tonal outcomes differ between compound types.

beyond the first syllable; the outcome in (25d) is similarly attributed to H spread from W1, though it traverses another lexical L tone.

(25) Loko

a. /pɛ́ré/ ‘house’ + /mbă/ ‘rice’ → [pɛ́ré#bá] ‘house rice’
b. /bɛ̀lɛ̀/ ‘trousers’ + /kútú/ ‘short’ → [bɛ̀lɛ̀#wùtù] ‘short trousers’
c. /màhá/ ‘chief’ + /súkùlù/ ‘school’ → [màhá#súkúlù] ‘chief's school’
d. /nyàhâ/ ‘woman’ /kútú/ ‘short’ → [nyàhá#wútù] ‘short woman’
e. /kɔ́pà/ ‘money’ + /hàndâ/ ‘business’ → [kɔ́pà#hàndà] ‘money business’

4.2.1.2 Looma-Kpelle

The Looma-Kpelle terminal branch of Southwestern Mande contains only a few languages; Looma [iso:lom], itself, has been described in Mishchenko (2009), Sadler (2006), Dwyer (1973), and Vydrine (1989). Taken together, the tonal analyses offered in these works are diverse and sometimes contradictory. According to Dwyer (1973:137), the tonal system of Gbunde Looma is the most complex of all the Southwestern Mande languages, and this complexity is substantiated in other analyses of Looma tone.[10]

The analysis offered by Mishchenko (though only one of several proposed analyses of Looma tone) designates seven tonal classes in Woi-Balagha Looma nouns. The first three of these participate in RT neutralizations when they are the head of an "attributive phrase", while the other four, according to Mishchenko, contains loans, ethnonyms, toponyms, and anthroponyms and, accordingly, behave differently. In addition, for the first three noun classes, there is reason to posit an abstract, underlying H-tone "referential article" that leads to all nouns having an all-H surface tonal melody. Their true underlying form, however, is clear from the influence that they have on their

[10] Dwyer’s analysis of Gbunde Looma, for example, proposes nine noun classes, most of which have both so-called strong and weak realizations that depend on the presence vs. absence of a stem-final nasal consonant. His analysis appeals to a series of some 16 sequentially applied rules in order to account for the surface tonal patterns observed in nominal compounds. Included among these are a Raising rule triggered by various suffixes, which is followed by High Tone Anticipation; there is also a subsequent Low Tone Spread rule that removes High tones in some circumstances. A notable shortcoming of Dwyer’s work is that the surface tonal outcomes of compounds beginning with nouns from some of the proposed noun classes are absent. Indeed, Dwyer provides specific information only for compounds beginning with nouns from classes 1 (strong and weak), 2 (weak only), 6 (weak only), 7 (strong and weak), 8 (weak only), and 9 (weak only). While the data that are provided offer some insight into Gbunde Looma, they are not enough to provide a comprehensive picture of the tonal behavior of its compounds.

modifiers in attributive phrases. The examples in (26) are adapted from Mishchenko (2009). The noun in (26a) is from Class 1 and is underlyingly /H/ tone; its H tone is realized on the following adjective. The noun in (26b) is from Class 2; its surface [H] tone is due to a preceding referential article, but its underlying toneless nature (I indicate this with L tone for the sake of convenience) is clear from the L tones on the following adjective. Finally, the noun in (26c) is from Class 3; it too has a surface [H] tone due to a preceding referential prefix. According to Mishchenko's analysis, Class 3 nouns are said to be underlyingly toneless. However, the fact that they trigger a different effect on a following adjective implies that there may be more to this, such as the presence of an underlying floating tone.

(26) Looma

a. /ŋ́-díɣí/ 'REF-pot' + /wola-i/ 'big-DEF' → [díɣí#wólá-í] 'the big pot'
b. /ŋ́-pɛ̀lɛ̀/ 'REF-house' + /wola-i/ 'big-DEF' → [pɛ́lɛ́#wòlà-ì] 'the big house'
c. /ŋ́-sèè/ 'REF-elephant' + /wola-i/ 'big-DEF' → [séé-wólà-ì] 'the big elephant'

The tonal outcomes of these constructions appear to be driven by the tonal specification of their W1, but there are complications to their realization, including the presence of an underlying abstract prefixal tone and (at least according to Mishchenko's analysis) no predictable differentiation between Class 2 and 3 nouns from an underlying perspective. Even with these complications in mind, however, Looma appears to exhibit Type 2 RT.

Turning next to Kpelle, the Liberian [iso:xpe] and Guinean [iso:gkp] varieties are deemed to be separate languages. The tonology of Liberian Kpelle has been the subject of several works, including Welmers (1962) and Dwyer (1973), and more recently Konoshenko (2008). Descriptions of this language generally agree on the presence of multiple tone classes for Liberian Kpelle nouns which are based upon the tonal patterns observed on a given noun in isolation. The examples in (27), adapted from Dwyer (1973:185–189), illustrate that there are two main RT patterns in this language's compounds. The first pattern, as in examples (27a-27c), is found when W1 has a lexical /H/, /HL/, or /LHL/ melody. In these instances, upon compounding, W1 retains its melody in full, while the surface tonal melody of W2 is [L]. While Dwyer considers the W1s in examples (27d-27e) to be toneless, it is clear (upon comparison to Guinean Kpelle) that they should be properly analyzed /LH/, with the H being a floating tone. Thus, upon compounding, W1 retains its melody in full, but the W2 melody is [HL] with the [H] being contributed from the lexical melody of W1. As M. Konoshenko points out, an associated High tone cannot spread in this language, while a floating

High is able to do so. These facts generally put Liberian Kpelle RT in line with what is observed in other Southwestern Mande languages.

(27) Liberian Kpelle

a. /ɣálóŋ/ ‘moon’ + /kɔ̀lɔ̀/ ‘paper’ → [ɣálóŋ#kɔ̀lɔ̀] ‘calendar’
b. /ɣálà/ ‘God’ + /tà.à/ ‘town’ → [ɣálà#tà.à] ‘heaven’
c. /kpɔ̀nóò/ ‘young bush’ + /kwàlà/ ‘monkey’ → [kpɔ̀nóò#kwàlà] ‘young bush monkey’
d. /kɔ̀lɔ́/ ‘paper’ + /lá.á/ ‘leaf’ → [kɔ̀lɔ̀#lá.à] ‘page’
e. /kàlí/ ‘snake’ + /pàlà/ ‘sore’ → [kàlì#pálà] ‘snake bite’

The tonal system of Guinean Kpelle is discussed in Konoshenko (2008; 2014) and Odden (2015). While compounds are not specifically discussed in these works, it appears from the presentation of analogous constructions that these sequences are neutralized in a way that aligns with the examples of compounds in Liberian Kpelle in (27). I thank M. Konoshenko for confirming that the final /H/ tone of a W1 will also replace an initial /L/ of a W2 in Guinean Kpelle compounds.

Another language, Kono [iso:knu], is closely related to Liberian and Guinean Kpelle. A recent publication on Kono by Konoshenko (2017) discusses tone but does not deal directly with tonal neutralizations related to compounds or other constructions that one might expect to exhibit RT tone patterns. As such, I cannot comment further on its behavior.

4.2.1.3 Zialo

Linguistic research on Zialo [iso:zil] has only a short history, and the only description of the language that I am aware of is that found in Babaev (2010). Babaev identifies six tone classes for Zialo, the first two of which are said to contain approximately 90% of all nouns; the other four classes contain borrowings, and their tonal properties diverge somewhat from what is observed in Classes 1 and 2. Class 1 and 2 nouns appear phonetically identical in some contexts (e.g., the definite) wherein a preceding "referential H-tone prefix" triggers rightward H tone spread onto the noun, resulting in a tonal alternation. This can be seen in a comparison of Class 1 [báy] ‘the rice’ (cf. /bà/) and Class 2 [táy] ‘the town’ (cf. /táá/). In other instances (e.g., in compounds), however, the underlying differences between nouns in these two classes become apparent. The examples in (28), adapted from Babaev (2010:49–52, 68–69), suggest that Zialo (at least in compounds whose head is not a borrowed noun) follows a Type 2 RT pattern, similar to what occurs in Mende. That is, the final H tone of the

W1's lexical tonal melody is copied rightward to the first TBU of W2, resulting in W2's lexical tonal melody being obscured.[11]

(28) Zialo

a. /ŋàzà/ 'woman' + /dòpò/ 'child' → [ŋàzà#lòpò] 'daughter'
b. /já/ 'water' + /kpèlà/ 'near' → [já#ɓélà-y] 'river bank'
c. /tókó/ 'hand' + /kpèɣà/ 'finger' → [tókó#ɓéɣà] 'finger'

4.2.2 Soso-Jalonke (Susu-Yalunka)

Information on word-level tonal neutralizations in Susu [iso:sus] and Yalunka [iso:yal] can be found in several sources, including Green, Anderson, & Obeng (2013), Grégoire (1978), Houis (1963), Touré (1994), but not all sources agree with one another on specific outcomes. Most recently, Green, Anderson, & Obeng (2013), provided a summary and reanalysis of the various, sometimes conflicting perspectives on RT phenomena in Susu, and the examples in (29) are adapted from this source and illustrate various outcomes.

(29) Susu

a. /bárí/ 'to be born' + /mìxíí/ 'person' → [bárí#míxì] 'parent'
b. /gɛ̀mɛ́/ 'stone' + /xɔ́rì/ 'grain' → [gɛ̀mɛ̀#xɔ́rì] 'pebble'
c. /ɲáálì/ 'tape worm' + /mìxíí/ 'person' → [ɲáálí#mìxì] 'public nuisance'
d. /dòndólì/ 'ant' + /tɛ̀ɛ́/ 'nest' → [dòndólí#tɛ̀] 'ant hill'
e. /tábéè/ 'buttocks' + /xɔ́rì/ 'bone' → [tábéé#xɔ̀rì] 'femur'
f. /yɛ̀xɛ́ɛ̀/ 'sheep' + /yɔ́rɛ̀/ 'small' → [yɛ̀xɛ́ɛ́#yɔ̀rɛ̀] 'lamb'

Green, Anderson, & Obeng (2013) argue that the word-level RT patterns in Susu are most similar to those observed in Mende. That is, the last tone of W1 is copied onto the first TBU of W2. These authors propose other downstream processes, namely AFFAISSEMENT and its counterpart RAISING, in order to account for other instances of neutralizations such as /LHH/ → [LLH] and /HLL/ → [HHL]. A series of nearly identical outcomes is reported for Yalunka in Keita (1989). Thus, from the standpoint of word-level RT, languages of the Soso-Jalonke are well placed alongside most other Southwestern Mande languages.

4.2.3 Soso-Southwestern summary

With Mende serving as the Type 2 RT exemplar from this group, the data presented in this section illustrate that Bandi, Loko, Looma, Kpelle, Zialo, Susu, and Yalunka all

[11] The tonal behavior of compounds headed by nouns from Classes 3 through 6 does not diverge significantly from what is observed in other compounds; however, I was unfortunately not able to locate sufficient examples that would permit the clear substantiation of this observation in Babaev (2010).

behave in a manner that is reminiscent of Mende. That is, compounds and related constructions in these languages involve neutralization via rightward copy of the final H tone of W1 onto at least one (but sometimes more than one) TBU of W2. Thus, generally speaking, Soso-Southwestern Mande languages are fairly unified from the standpoint of their RT patterns.

As introduced above, M. Konoshenko suggests that one way to explain these Type 2 RT patterns and potentially to further unify the outcomes of Type 1 and Type 2 RT patterns is to propose that Type 2 RT languages generally involve W2 first being assigned a static melody (as is generally the case in Type 1 RT) or that W2 lexical tones are first removed via some morphosyntactic tonal rule. After this rule, local spreading proceeds from W1 via some strictly morphophonological tonal rule to one (or sometimes more) rightward TBUs in W2. The reviewer's perspective stems from the fact that in some languages (e.g., Guinean Kpelle), there are instances in which analogous local spreading of High occurs in a broader range of syntactic contexts. This would suggest, therefore, that local spreading is more general and not an inherent property of RT itself.

This approach is entirely plausible, but additional factors must be taken into consideration in languages like Susu where /LHL/ + /HL/ sequences become [LHH#LL]. Further explanation is also needed to account for /LHL/ to [LHH] raising, which is triggered by a following H tone. Raising would have to occur before the W2 lowering rule, and local H spreading would not apply after it. Language-specific rules would also need to be proposed to explain why the High of a /H/ word can spread locally in one language (e.g., Mende) but not in another (e.g., Vai). Along similar lines, one would need to address strictly-local High spread (as in Mende), versus spreading within a longer span (as in Bandi and Loko).

With these observations on Southwestern Mande languages in place, as well as those concerning Central Mande languages summarized in Section 4.1.4, I turn in the next section to RT patterns seen in the Samogho-Bobo group, which is the final branch found within Samogho-Central-Southwestern Mande.

4.3 Samogho-Bobo

Two of the nine Western Mande mid-level taxa under consideration in this paper are discussed in this section. Despite their apparent grouping of Samogho-Bobo in Vydrin (2009a), Vydrin (p.c.) cautions that the two are fairly genetically distant from one another. For the purpose of this survey, I discuss them together in order to consider their properties independent of Central-Soso-Southwestern Mande languages. By and large, languages within this group, as well as several within the Soninke-Bozo group (Section 5) are comparatively more diverse and relatively less well-studied than other Western Mande languages. As such, descriptions of these languages are fewer and

there is less detailed information available about their tonology than many of the others discussed thus far.

For Bobo, Prost (1983:17–19) offers some comment on the tonal behavior of complex nouns in the Tansila dialect, and additional discussion can be found in Le Bris & Prost (1981:29–32). It is clear particularly from the latter source that there are several RT phenomena that occur in the language and that these yield diverse outcomes that depend on the syntactic relation that holds between involved words. Data illustrative of one particular type of outcome in Bobo involving two nouns in an associative construction are in (30); these data suggest that at least some word-level tonal neutralizations in Bobo are dictated by the final tone of W1. If W1 ends in a L (30a) or M tone (30b-30c), W2's melody is L or L-M, respectively. If the final tone of W1 is H (30d), however, W2's melody is H-L. These outcomes taken together may suggest a hybrid Type1/Type2 system, similar to what was seen in Vai (Section 4.1.2.2); that is, some instances involve the assignment of a static W2 melody, while others additionally involve some type of tone copy from W1 to W2. As I mention, however, this is just one of several outcomes reported by the authors.

(30) Bobo

a. *à nyàà nànɛ̀* (cf. *nānɛ̄*) the woman's chicken
b. *à nōn kɔ̀lō* (cf. *kɔ̀lō*) the child's fish
c. *à nōn sègē* (cf. *sēgé*) the child's goat
d. *kòkōrí pɛ́gè* (cf. *pɛ̄gè*) the rooster's tail

In the Samogho group, word-level RT phenomena have been reported for Dzùùngo in Solomiac (2007:365–380) which appear to be more in keeping with what is observed in Central Mande languages. The examples in (31), adapted from Solomiac's thesis, illustrate various tonal outcomes in Dzùùngo compounds. When W1 begins with a lexical /L/ tone, regardless of the lexical tonal melody of W2, one of two possibilities is observed. Either the surface tonal melody of the compound is [L#H] (31a) or it is [L#M(H)], where a tone in parentheses indicates a floating tone (31b). When W1 begins with either a lexical /H/ or /M/ tone, two additional outcomes are possible. Either the surface tonal melody of the resulting compound is [M#H], as in (31c), or it is [M#M(H)], as in (31d).

(31) Dzùùngo

a. /fòròbā´/ 'communal' + /nìì/ 'cow' → [fòròbà#níí] 'communal cow'
b. /fààmā´/ 'king' + /dzín/ 'child' → [fààmà#dzīn´] 'prince'
c. /nānmārā/ 'cheating' + /mòò/ 'person' → [nānmārā#móó] 'spy'
d. /dúùn/ 'stomach' + /góó/ 'thing' → [dūūn#gōō´] 'thought'

In each instance, the tonal melody pattern of the resulting compound is determined by the initial tone of W1; however, the particular 'type' of Low melody or Mid melody of the compound is unpredictable based on the shape or tonal melody of W1. Rather, and as Solomiac suggests, it appears to be conditioned in some way by W2, though in a way that is yet unclear.

Word-level replacive tone is mentioned, but only in passing, for Jɔ in Carlson (1993:12). The author provides a few examples in which compounds with words of any lexical melody following another High melody word becomes 'Top' (a fourth, highest tonal level; i.e., Super High), but the reader is warned that there is variation in these outcomes that is dependent on other factors.

Recently, McPherson (2017) has reported on the tonal system of Seenku, but concerning replacive tone in this paper, she mentions only that a similar type of tonal neutralization appears to occur between a verb and its non-pronominal object. This type of replacive tone is also the subject of an earlier conference presentation, McPherson (2015). Seenku nominal compounds are also discussed briefly in Prost (1971:30–31), though the patterns reported in the data are quite diverse. Prost himself intimates, "nous n'avons pu établir de règles quant à la variation des tonèmes des composants entrant dans la formation du composé." Teasing apart these details will involve a great deal more research that is beyond the scope of this survey.

5. Soninke-Bozo

The Soninke-Bozo branch of Western Mande represents one of the nine mid-level taxa under consideration in this paper, as defined in (4). Soninke [iso:snk] is a direct descendent of this node, with Bozo languages comprising another lower sub-grouping. Soninke has been the subject of a great deal of research (e.g., Creissels 1991; Creissels 1992b; Creissels 2016; Diagana 1984; Diagana 1985; Diagana 1990a; Diagana 1990b; Platiel 1981; Rialland 1990; Rialland 1991) and Bozo languages less so, with an exception being work by Blecke (1996).

According to the description of the Kingi dialect of Soninke in Creissels (2016), the type of CT witnessed in this language is noticeably different from that found in both Central and Southwestern Mande languages. The examples in (32) are adapted from Creissels (2016:46–54).

(32) Kingi Soninke

a. /kìidê/ 'baobab' + /táxàyê/ 'sauce' → [kìidì-táxàyê] 'baobab sauce'
b. /yúgò/ 'man' + /séntààdê/ 'comb' → [yúgú-n-céntààdê] 'man's comb'
c. /tùbáábù/ 'European' + /qálìsî/ 'money' → [tùbààbù-n-qálìsî] 'European money'
d. /qálìsî/ 'money' + /dárè/ 'leaf' → [qálísí-dárè] 'paper money'
e. /kìtáábè/ 'book' + /kónpè/ 'piece' → [kìtààbì-n-kónpè] 'library'

f. /sòònìnkê/ 'Soninke' + /qánnè/ 'language' → [sòònìnkà-n-qánnè] the Soninke language

In each instance, unlike what we have come to expect in most Central and Southwestern Mande compounds, in Kingi Soninke, the lexical tonal melody of W2 in a compound is maintained in its entirety, while that of W1 is clearly neutralized. Recall that it has generally been the case elsewhere in Western Mande that the tonal melody of W2 was most susceptible to being neutralized, while that of W1 was more closely maintained. These Kingi Soninke data show, however, that the tonal melody of W1 is always neutralized in favor of its initial tone. For example, in (32a), W1's /LLHL/ melody is neutralized to [LLL], while in (32d), W1's /HLHL/ is neutralized to [HHH]. The same applies in each instance. Thus, in every instance, the neutralized melody of W1 is either all-H or all-L, while the melody of W2 is maintained. Thus, the substantive difference between what is found in Soninke vs. other languages discussed above pertains most clearly to the tonal behavior of W2.

Word-level replacive tone is discussed only briefly for Tigemaxoo Bozo in a conference presentation by Blecke (2011) in relation to noun incorporation. Only a single example is provided, and the outcomes seen are reminiscent of what McPherson (2017) discusses for similar constructions in Seenku.

Even by looking at Kingi Soninke alone, it is clear that word-level replacive tone in this language (and presumably others in Soninke-Bozo) is unique compared to other languages discussed thus far in this survey, but there are some similarities shared among all languages. The RT divergences seen in Kingi Soninke (absent additional data from languages in this group) are in line with its proposed place in the Western Mande family tree, apart from Samogho-Central-Southwestern Mande languages. The latter languages' RT patterns witness neutralization of some type in W2, while W2 neutralizations are absent in Soninke-Bozo.

6. Summary and concluding thoughts

In this paper, I have presented the results of a survey of word-level replacive tonal patterns in Western Mande languages. This survey is significant in that it is the first to report on the distribution of such tonal patterns across all branches of the Western Mande family tree. Earlier surveys have included only select groups of languages in this group. Certain other descriptive and theoretical works have offered comments or analyses of these patterns that pertain only to one or two closely related language varieties without considering how they are situated or relate to other languages in the family. In addition to reporting on replacive tonal patterns themselves, I have considered the ways in which different sub-patterns correlate with a given language's taxonomic position in a contemporary genetic classification of Mande languages proposed in Vydrin (2009a; 2016). Vydrin's classification is based on shared lexicon,

rather than on tone; thus, this survey sheds some light on the ways in which the tonal component of Western Mande grammar aligns with taxonomic divisions based on lexical distinctions. I have discussed throughout the preceding sections that there are many ways in which the groups of languages exhibiting a given replacive tonal sub-pattern align with Vydrin's categories; however, there are a few notable instances in which these correlations are not as clear. I next summarize these correlations and divergences.

To begin, this survey illustrated that all Western Mande languages exhibit replacive tonal patterns of some type. Branches of Western Mande differ, however, in the particular patterns that they manifest. Generally speaking, there is a high level genetic distinction between those languages exhibiting what have come to be recognized as prototypical word-level replacive tonal patterns like Bamana (Type 1) and Mende (Type 2) and those exhibiting some other pattern or patterns that diverge from these exemplars. More specifically, most languages that I discussed under the heading of Samogho-Central-Southwestern (SCS) are those that generally exhibit prototypical RT patterns, but there are exceptions; prototypical RT patterns involve (again, generally speaking) neutralization of the tonal melody of the second of two words in certain syntactic relationships, with the first word's tonal melody being less susceptible to neutralization and that of the second word arguably always being neutralized to some degree. Western Mande languages outside of SCS, namely those classified as Soninke-Bozo, behave differently. We have seen that Kingi Soninke has replacive tonal patterns wherein the tonal melody of the first of two words is neutralized, while that of the second is maintained without alternation. Tigemaxoo Bozo, on the other hand, appears to have replacive tonal patterns that hold in larger syntactic constructions, such as between a verb and its object.

Samogho-Central-Southwestern languages, which I discussed under the heading of Samogho-Bobo, exhibit hybrid behavior; some languages follow the prototypical patterns of many other Central-Soso-Southwestern languages, but replacive tonal patterns in Seenku, for example, look more like those seen in Tigemaxoo Bozo.

There is a clearer correlation between replacive tonal patterns and genetic groupings within the Central-Soso-Southwestern itself; Central Mande generally exhibits Type 1 RT, and Soso-Southwestern Mande exhibits Type 2 RT. Among the Central Mande languages surveyed, all exhibit Type 1 RT, with the exception of Vai which seems to exhibit a type of hybrid behavior between Type 1 and Type 2 RT. Within Soso-Southwestern Mande, all languages exhibit Type 2 RT, but the abstract nature of underlying forms in some languages renders some tonal outcomes fairly opaque. It is notable that Susu and Yalunka, as well as Zialo, have RT patterns that are

closely aligned with other languages that are unquestionably classified as Southwestern Mande, such as Mende and Bandi.

Recall from Section 3 that while Vydrin's classification of Western Mande arrived at similar mid-level taxonomic groupings as earlier classifications, it differed in three notable ways. One of these concerned the removal of a Northwestern Mande group from the family tree, with the subsequent reassignment of Samogho-Bobo to a Samogho-Central-Southwestern group alongside Central-Soso-Southwestern Mande languages. The second innovation reassigned Soso-Yalunka from Central Mande to a sub-group more closely related to Southwestern Mande, while the third reassigned the Mokole group to a node alongside Vai-Kono.

The tonal phenomena discussed in this survey at least partially align with these designations. First, there is evidence that some Samogho-Bobo languages (e.g., Dzùùngoo) behave more like Central-Soso-Southwestern languages than do Soninke-Bobo languages, but more detailed information on the tonology of these languages must be brought to bear in order to further tease apart this finding. Second, the strongest alignment concerns the tonal behavior of Susu and Yalunka, whose RT patterns are clearly like those found in other Southwestern Mande languages. Lastly, little can be gleaned from the tonal behavior of Mokole languages, because their Vai-Kono counterparts have tonal behavior that is internally inconsistent.

In closing, it is my hope that this survey and summary of replacive tonal patterns in Western Mande can serve as a foundation for further research on this subject. Basic descriptive work focused on tone must be accomplished on certain languages that have not figured into this survey, particularly those in the Soninke-Bozo and Samogho-Bobo groups because their RT patterns are most unique compared to other Western Mande languages. Languages for which RT has been mentioned only in passing, or for which only a few data points are available would benefit from expanded data collection in this regard. In addition, future research will certainly benefit from looking at replacive tone in a wider variety of constructions in order to witness the extent to which different RT patterns emerge in different contexts. In Western Mande, word-level replacive tonal patterns have received the most attention, but they are only just emerging in the literature as they pertain to higher, phrase-level constructs.

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A survey of word-level replacive tonal patterns in Western Mande

Word-level replacive tonal patterns are characteristic of the tonology of many Western Mande languages. Such patterns are explicitly discussed in extant descriptions of some languages but mentioned only in passing or not at all for others. This survey of replacive tonal patterns seeks to offer a broad, more comprehensive picture of this phenomenon in Western Mande by discussing not only major replacive tone patterns, but also highlighting and discussing micro-variations in these patterns across this group. In doing so, I illustrate that patterns of replacive tone generally correlate with and support the recently proposed re-alignment of classificatory genetic sub-groupings of these languages in Vydrin (2009a, 2016). Because Vydrin's classification is based primarily on comparative lexicostatistics, and not on tonology, this is an interesting finding.

This survey is also significant in that it reports on word-level replacive tonal patterns in languages from each of nine well-accepted mid-level genetic taxa in Western Mande, which far surpasses earlier surveys that aimed to catalog and analyze this phenomenon, namely Dwyer (1973) and deZeeuw (1979).

Keywords: Mande languages, replacive tone, tone overlay, classification, tonology

Étude des schémas tonals substitutifs au niveau du mot dans les langues mandé de l'ouest

Les schémas tonals substitutifs au niveau du mot sont propres à la tonologie de beaucoup de langues mandé-ouest. Ces schémas sont parfois explicitement abordés dans les descriptions existantes, mais souvent de manière très brève. La présente étude a pour but de proposer une description plus générale et complète du phénomène dans les langues mandé-ouest, non seulement en évoquant les principaux schémas tonals, mais également en soulignant et en examinant les micro-variations que l'on peut y trouver. Pour ce faire, je montre que les schémas en question corroborent la redéfinition des sous-groupes de classification génétique de ces langues récemment proposée par Vydrin (2009a, 2016). Étant donné que sa classification est basée principalement sur la lexicostatistique comparative, et non sur la tonologie, ce constat est intéressant. Mon étude est d'autant plus importante qu'elle fait état des schémas tonals au niveau du mot dans chacun des neuf taxa génétiques acceptés en mandé-ouest, ce qui va au-delà des études précédentes, notamment celles de Dwyer (1973) et deZeeuw (1979), dont le but était de catégoriser et d'analyser le phénomène.

Mots clés : langues mandé, schémas tonals substitutifs, morphologie tonale, classification, tonologie.

Christopher R. Green

Кристофер Р. Грин

Обзор типов замещащих тональных моделей в западных манде

Для тонологии многих западных языков манде характерно наличие замещающих тонов. В некоторых описаниях языков модели тонозамещения обсуждаются эксплицитно, в других они лишь упоминаются, а в какоих-то вообще обходятся молчанием. Данный обзор имеет целью представить широкую и более полную картину распространения этого явления в западных манде, при этом обсуждаются не только основные типы тонозамещающих моделей; рассматривается также микро-варьирование таких моделей в рамках этой группы. Делается вывод, что варьирование моделей тонозамещения коррелирует с генетической классификацией подгрупп этих языков в работах (Vydrin 2009a; Vydrin 2016). Поскольку классификация Выдрина базируется в первую очередь на лексикостатистике, а не на тонологии, этот результат нетривиален.

Данный обзор важен также в том отношении, что он затрагивает тонозамещающие модели в каждой из девяти общепризнанных генетических таксонов низшего уровня западной ветви манде, превосходя в этом отношении более ранние аналогичные обзоры (Dwyer 1973; deZeeuw 1979).

Ключевые слова: яыки манде, тонозамещение, наложение тонов, классификация, тонология