



quantifier have no tonal effect on preceding words. In N-Adj and N-Adj-Adj sequences, the final adjective preserves its lexical tone, while the preceding one or two words are tone-dropped. Demonstratives also control tone-dropping, so the noun in N-Dem is tone-dropped. However, this raises the question what happens when the demonstrative is preceded by both a noun (or N-Adj sequence) and an intervening numeral, as in [N-Num-Dem] or [N-Adj-Num-Dem]. In this situation, the numeral controls simultaneous tone-dropping on both the numeral and the final word of the N(-Adj) unit. To account for this, we need a further concept of **tonal terrace**, which in particular must identify (at each level in a derivation) those words that are already **tonally bound** by other elements. In (3.a), the noun is tonally bound, having been tone-dropped (by the adjective), whereas the adjective and the numeral remain **tonally free**, preserving their lexical tones (so far). Words that are tonally free at an inner syntactic level are vulnerable to tone-dropping controlled by a word at a higher level. This is exemplified by (3.b), where a demonstrative added to (3.a) controls tone-dropping on both the adjective and the numeral. There is no way to determine whether the demonstrative in (3.b) would also have controlled tone-dropping on the noun, if it had not already been tone-dropped by the adjective in (3.a). A final universal quantifier ('all') has no tonal effect on preceding words in the NP.<sup>1</sup>

- (3) a. tonally free terrace: adjective numeral  
 tonally bound terrace" *noun*
- b. tonally free terrace: demonstrative 'all'  
 tonally bound terrace *noun adjective numeral*

These facts suggest a complex texture to NP, where the noun controls morphological agreement on adjectives and demonstratives, but is itself vulnerable to tone-dropping imposed on it by words to its right, and where quantifiers behave differently from referential elements.

Two further complications are possessors and relative clauses.

Dogon **relative clauses** are internally headed; (most of) the head NP remains inside the relative clause, which ends with a verbal participle. The latter lacks the usual subject agreement that occurs on verbs in main clauses. Instead, the verbal participle in a relative clause either has no agreement, or it agrees in intrinsic features (e.g. Sg, Pl, Inanimate) with the head NP. Determiners, the Plural particle, and the 'all' quantifier appear, not with the clause-internal NP, rather after the verbal participle. The verbal participle controls tone-dropping on the head NP, audibly affecting those words (other than the possessor) previously on the free terrace.

Possessors precede possessed NPs, and control a tone counter, variably {L} or {HL}, on the possessed NP. The scope of this possessor-controlled tone contour minimally extends to modifying adjectives, and in some cases also to a following numeral, but not to NP-final elements such as determiners and the 'all' quantifier. A somewhat simplified schema of a possessed NP is (4).

- (4) tonally free terrace: [possessor] (numeral) demonstrative 'all'  
 tonally bound terrace: noun adjective (numeral)

This is **left-to-right** tonal control. Since the other pattern of tonal control (see above) is right-to-left, the two patterns may conflict.

When the head NP of a relative contains a possessor, as in '[Seydou's brother] who lives in Bamako', we have the same potential conflict as in [possessor noun demonstrative]. In languages with {HL} as the possessor-controlled contour, the possessor seeks to impose this {HL} on the noun, while the relative-clause verb seeks to impose tone-dropping (to {L}) on the noun. How these conflicts between left-to-right and right-to-left control is resolved is discussed in §xxx, below.

This paper is designed to help put tonosyntax on the map as an important and revealing ingredient in the analysis of NP and relative-clause structures. The descriptive facts are complex, and we concentrate on presenting them clearly, making them accessible to linguists working in various frameworks. However, it is difficult to see how any model can handle these facts without allowing grammatical processes to have simultaneous access to rich syntactic categorial information, linear relations, and phonological representations.

<sup>1</sup> In Jamsay, one of two 'all' quantifiers has a local intonational effect on the final syllable of a preceding word within the NP. Grammaticalized and lexicalized intonation will be covered in another paper.

## 2. Dogon languages

There are approximately twenty Dogon languages in eastern Mali, West Africa. A genetic relationship to Niger-Congo is unproven. Most Dogon languages are verb-final, have TAM, negation, and pronominal-subject agreement suffixes on verbs, and have relative clauses with internal head NPs.

The few grammatical studies on Dogon languages published prior to 2008 lacked tonal markings and did not discuss the phonology or syntax of tone. This paper is based on our recent grammatical analysis of several languages in the northern half of Dogon country. These are shown, in roughly north to south order, in (5).<sup>2</sup>

(5)	abbreviation	language	location in Mali
	Tr	Toro Tegu	Tabi mountain near Boni
	Jm	Jamsay	widespread in plains of northern Dogon country
	Bn	Ben Tey	Beni village south of Douentza
	Nj	Najamba	several valleys west of Douentza
	Tm	Tommo-So	widespread on central Dogon elevated plateau
	Ng	Nanga	cluster of villages including Anda

For Jamsay see Heath (2008). For the other languages, and others not discussed here, see the unpublished draft grammars on the project website (<http://www.dogonlanguages.org>).

Notation: curly brackets as in {H} and {HL} represent stem- or word-level tone contours, whether lexical or syntactically controlled. They are realized phonetically over whatever number of syllables the target stem provides. {HL} can be realized as monosyllabic <HL>, bisyllabic HL or H<HL>, and trisyllabic HLL or HHL. Angled brackets as in <HL>, <LH>, and <LHL> represent contour tones in single syllables. Before a word, # indicates ungrammaticality.

## 3. Lexical tones

In these languages, lexical stems (verb, noun, adjective, numeral) must have at least one high-tone component. In other words, there is a constraint against lexically {L} stems. Morphologically simple (i.e. uncompounded) stems other than verbs have lexical tone contours {H}, {HL}, {LH}, and {LHL}, and in Toro Tegu also {HLH}, but never #{L}. Verb stems have a narrower choice between {H} and {LH}, sometimes with {HL} or (in Toro Tegu) {HLH} with a tiny number of irregular verbs. For multisyllabic non-verb stems, complex contours like {HL} and {LHL} generally locate tone breaks as close as possible to the right edge, e.g. {HL} realized on a trisyllabic as HHL rather than HLL. However, in the case of the {LH} contour for verbs, the languages divide into those with a tone break after the first syllable (or mora), as in LHH, and those with a tone break near the right edge, as in LLH.

Importantly, the constraint against lexical {L} stems guarantees that overlaying a grammatical {L} contour is always audible. Similarly, the virtual absence of lexically {HL} verbs means that an overlaid {HL} contour is detectable on verbs. For nouns, an overlaid {HL} contour is usually audible, but not so in the minority of nouns whose lexical contour is already {HL}.

## 4. Overlaid tone contours

The most important syntactically controlled tone contours overlaid on NP-internal words are summarized in (6). The stem/word on which the contour is phonetically realized is the **target**. The triggering word is the **controller**. Overlaid {L} contour is also called **tone-dropping**.<sup>3</sup>

<sup>2</sup> [granting agency acknowledgements, project website link]

<sup>3</sup> This paper is mainly about NPs, but for the record we note that {H}, {HL}, and {L} contours can also be overlaid on verb stems. For example, in Jamsay the verb 'come' is lexically *yèré* with {LH} contour, but among its forms are Imperative *yéré*, unsuffixed Perfective *yèrè-*, and the latter's participial form *yérrè-* in relatives, respectively with {H}, {HL}, and {LH} contours. In several Dogon languages, the {L} contour is required on a verb stem followed by one of the negative mood-aspect-negation (MAN) suffixes, e.g. Imperfective Negative:



(8)	language	intrinsic category marking	example
	a. Jm	on both noun and adjective	<i>n̄è:r<sup>n</sup>-ùm dáyá-m</i> 'small girls'
	Nj	" "	<i>sĩ:ηgò jàlá-ηgó</i> 'a long rope'
	b. Tr	on noun only (usually)	<i>à-nù jêr<sup>n</sup>ú</i> 'a good man'
	c. Bn	on adjective only	<i>nà: èsû-m</i> 'a good cow'
	d. Ng	on neither (expressed on determiner)	<i>ndò òwó gù</i> 'the big house(s)'
	Tm	on neither	<b>xxx</b>

## 6. Numerals and extended core NPs

A cardinal numeral may be added to a core NP, constituting an **extended core NP**. The latter, in its maximal form, is equivalent to numeral phrase (NumP) in other models, but we allow the term to apply in cases where the numeral is absent, i.e. where extended core NP converges with core NP or even with a simple noun. We will see in §xxx, below, that the extended core NP remains intact in internal relative heads, while more peripheral NP-final words appear to shift to a position following the verb.

The numeral '1' functions in some of the languages as a modifying adjective, or is otherwise irregular. Numerals from '2' up never behave like adjectives. Unlike adjectives, they do not agree in intrinsic features with a preceding noun. Furthermore, there is no tonological interaction between a numeral from '2' up and any word in a preceding core NP. "Numeral" in the schemas below should be understood to be '2' or greater. Schemas of extended core NPs are in (9), with the core NP bracketed. As before, italicization indicates tone-dropping.

(9)	a.		noun	numeral
	b.	[ <i>noun</i>	adjective]	numeral
	c.	[ <i>noun</i>	<i>adjective1</i> <i>adjective2</i> ]	numeral

For example, the Jamsay core NP (noun plus two adjectives) *ùrò dàyà píró* 'small white house', mentioned in §5 above, combines with the following numeral *kúróy* 'six' to constitute the extended core NP *[[ùrò dàyà píró] kúróy]* 'six small white houses', schematically *[[house small white] six]*. Both the core NP and the numeral have the same tones they would have in each other's absence. This pattern is common to all of the languages considered here.

## 7. Demonstrative pronouns

A demonstrative pronoun ('this', 'that') may follow an extended core NP (i.e. a core NP, with or without a numeral). The number of demonstrative categories (maximally Proximal, Near-Distal, Far-Distal, and a marked Discourse-Definite) varies from one to four depending on the language. Demonstrative pronouns agree with the core NP in at least some intrinsic nominal features.

A demonstrative pronoun induces tone-dropping to {L} of an immediately preceding noun, as in [*noun* Dem], of an immediately preceding adjective, as in *[[noun adjective] Dem]* (from input [*noun* adjective] with the noun already tone-dropped), and of an immediately preceding numeral, as in [*six* Dem] 'these/those six'. More interestingly, when the demonstrative follows an extended core NP containing a numeral, tone-dropping applies **simultaneously** to the final word of the core NP and to the numeral. Adding a demonstrative to the schemas in (9) above results in (10), where all words except the demonstrative are tone-dropped.

(10)	a.		<i>noun</i>	<i>numeral</i>	demonstrative
	b.	[ <i>noun</i>	<i>adjective</i> ]	<i>numeral</i>	demonstrative
	c.	[ <i>noun</i>	<i>adjective1</i> <i>adjective2</i> ]	<i>numeral</i>	demonstrative

For example, from Jamsay extended core NP *[[ùrò dàyà pírú] kúròy]* 'six small white houses', schematically *[[house small white] six]*, mentioned in §6 above, by adding demonstrative *núḡò* 'this/that' we get *[[[ùrò dàyà pírù] kùròy] núḡò]* 'these six small white houses', schematically *[[[house small white] six] this]*, where both 'white' and 'six' have been tone-dropped. This is the first example (so far) in which a controller succeeds in audibly tone-dropping a nonadjacent word ('white'), in addition to the immediately preceding word ('six').

## 8. Remaining NP-final elements

A NP may also contain one or more of the following elements: Definite morphemes, Plural particle,<sup>4</sup> 'all' or 'each' quantifier, and discourse particles like 'too' and Topic markers ('as for X'). As we will see in § xxx, all of these elements (and demonstratives) are detachable from (the rest of) the NP, when the NP is head of a relative, appearing after the verb. Only the Definite (in some languages) controls tone-dropping in preceding words within the NP.<sup>5</sup>

Definite morphemes have a variable morphosyntactic and tonological status across languages. The main issue is the relationship between the Definite morpheme(s) and demonstrative pronouns in the same language (6). Recall that demonstratives agree with nouns, and control tone-dropping on preceding NP-internal words in all of the languages. In Toro Tegu and Nanga, Definite morphemes behave like demonstratives in controlling tone-dropping (11a). The other languages (11b) show no tonal interactions between Definite morphemes and preceding words, even when there is full or at least segmental identity between Definite and demonstrative forms.<sup>6</sup>

(11)		Definite...		
	language	...agrees with noun	... = Dem in form	... controls tone-dropping
a.				
	Tr	yes (Sg/Pl only)	no	yes
	Ng	yes	no	yes
b.				
	Jm	no	no	no
	Bn	yes (Sg/Pl only)	yes (segmentally, not tonally)	no
	Nj	yes	yes	no
	Tm	xxx	xxx	xxx

In languages that morphologically distinguish distributive (i.e. non-totalizing) 'each X' from universal 'all Xs, every X', the **distributive quantifier** ('each') is added directly to a core NP and does force tone-dropping in the same manner as final adjectives, thus *[house each]* 'each house' and *[[house small] each]* 'each small house'. The 'each' quantifier does not normally combine with other NP-final elements (determiners, Plural, 'all'). Jamsay

<sup>4</sup> The Plural particle is of low text-frequency in languages that regularly mark number by suffixation on the noun or adjective. For example, in Jamsay, Plural particle *bé* is common with kin terms (which cannot take a Plural suffix), and is sporadically used with nonhuman nouns (which have no suffixal number-marking).

<sup>5</sup> The universal quantifier in Jamsay does frequently impose an intonational effect (the "dying quail" terminal intonation) on the final syllable of the preceding word, but this is unrelated to the imposition of phonological tone contours under consideration here.

<sup>6</sup> In Najamba, Definite morphemes are identical in form to corresponding Near-Distant demonstratives; the two differ only in that the demonstrative but not the Definite controls tone-dropping on preceding words. For example, *mó* (Animate Singular) is Definite in *pègè mó* 'the sheep' and demonstrative (with tone-dropped noun) in *pègè mó* 'that (Near-Distant) sheep', cf. *pègè* 'sheep'. In Ben Tey, *kù* is the Definite form for Animate Singular and for Inanimate. This is identical segmentally, but not tonally to *kú*, a Near-Distant demonstrative pronoun, and only the demonstrative controls tone-dropping: *kúr<sup>n</sup>ù* 'stone', *kúr<sup>n</sup>ù kù* 'the stone', *kùr<sup>n</sup>ù kú* 'that (Near-Distant) stone'. Jamsay Definite *kù<sup>n</sup>* is invariable in form (no agreement with the noun) and has nothing in common with demonstratives.

examples: noun *úró* 'house', adjective *gàrá* 'big', *ùrò gàrá* 'a big house' (core NP), *ùrò kâ:<sup>n</sup>* 'each house', *ùrò gàrà kâ:<sup>n</sup>* 'each big house'.

## 9. Summary of tonally controlling and noncontrolling words

(12) summarizes the preceding data regarding which words do and do not control tone-dropping.

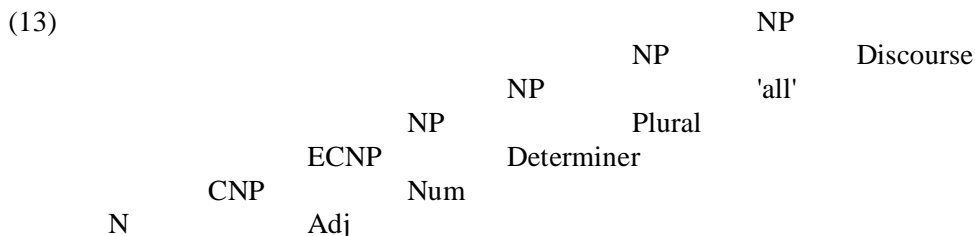
### (12) Control tone-dropping?

yes	no	variable by language
adjective	numeral ('2' plus)	Definite
demonstrative	Plural particle	
'each'	'all'	
	Discourse (topic, etc.)	

The generalization is that the elements that consistently control tone-dropping are those that restrict the range of referents that can be denoted by the noun. Definite morphemes, which do not constitute sets, but are less restrictive referentially than demonstratives or adjectives, control tone-dropping in some but not all languages. The elements that consistently fail to induce tone-dropping are either nondistributively quantificational in nature, i.e. they constitute nonsingular sets from common nouns, or else (discourse categories) have neither a reference-restricting nor quantificational function.

## 10. Structure of NP

A bracketing of the general type [##### [noun adjective\*] numeral] determiner] plural] 'all'] discourse-function], expressed as a branching structure in (13), would account for the linear sequencing. CNP = core NP, ECNP = extended core NP. We omit empty positions and do not assume any movement. The labeling of nodes is not important.



Arboreal structure per se does not account for the nuances of internal structure of NP. For this we turn to intrinsic-category marking and especially tone-dropping.

Intrinsic-category marking, as summarized in (8) above, shows significant variation across languages, and these differences do not correlate with differences in linearization or tone-dropping. Any syntactic analysis will therefore have to be ad hoc, in effect just stipulating where intrinsic categories are marked for each language. We will not deal with this in detail here.

By contrast, the tone-dropping patterns are consistent across these languages (except for Definite morphemes). We therefore need a mechanism to distinguish words that are and are not capable of controlling tone-dropping. In addition, we need a mechanism to identify which words are subject to tone-dropping, i.e., which are exposed (visible) to the tone-dropping controller.

Our first suggestion is for a notational distinction, among elements that can combine with a noun, between reference-restricting elements (symbol  $\mathfrak{R}$ ) and other elements (no symbol). With adjectives and demonstratives (in some languages, also Definite morphemes) marked by  $\mathfrak{R}$ , we can associate  $\mathfrak{R}$  with the power to control tone-dropping.

We suggest that a hierarchical model like (13) be progressively flattened, as the speaker converts conceptual structure into audible form, into a terraced model. This can be expressed using rows, but it should be understood that elements of all rows belong to a single linear sequence (one could alternatively use color-coding

or the like, instead of rows). Minimally, we would recognize a **free terrace** (shown as the top row) whose words are potentially subject to higher-level tonal control, and one or more **frozen terraces** whose words have been tonally fixed. Once an element has been consigned to the frozen level, its own  $\mathfrak{F}$  value is no longer relevant and is not indicated.

This can be implemented either cyclically or noncyclically. In a **cyclical model**, we start with the noun and work up, each cycle adding an additional element (numeral, determiner, etc.). For example, a NP meaning 'these three big red mangoes' (e.g. Jamsay *màŋgòrò bàn gàrà tààn núŋò*) would be derived via the stages in (14). As before, italicization indicates tone-dropping.

i>

- (14) a. mango
- b. [mango  $\mathfrak{F}$ -red] (core NP)  
 free: mango red  
 frozen: *mango*
- c. [mango  $\mathfrak{F}$ -red  $\mathfrak{F}$ -big] (core NP)  
 free: mango red  $\mathfrak{F}$ -big  
 frozen: *mango red*
- d. [mango  $\mathfrak{F}$ -red  $\mathfrak{F}$ -big three] (extended core NP)  
 free: mango red  $\mathfrak{F}$ -big three  
 frozen: *[mango red]*
- e. [mango  $\mathfrak{F}$ -red  $\mathfrak{F}$ -big three  $\mathfrak{F}$ -these] (extended core NP plus demonstrative)  
 free: mango red  $\mathfrak{F}$ -big three  $\mathfrak{F}$ -these  
 frozen: *[[mango red big three]*

Alternatively, our representations could preserve some of the layered input structure. For example, (13e) could be rewritten as (15).

- (15) [mango  $\mathfrak{F}$ -red  $\mathfrak{F}$ -big three  $\mathfrak{F}$ -these]  
 free: mango red  $\mathfrak{F}$ -big three  $\mathfrak{F}$ -these  
 frozen: *mango red big three*  
 frozen: *[[[mango red big three]*

The difference between (14e) and (15) is notational, since both are compatible with a bottom-up cyclical derivation. However, it is also possible to consider a **noncyclical model** where the highest  $\mathfrak{F}$ -element controls tone-dropping on all words in its scope. In this model, all of the tone-dropping observed in 'these three big red mangoes' is attributable to the demonstrative, so that (14e) is produced in a single step. Even in the cyclical model (14), the demonstrative 'these' clearly controls simultaneous tone-dropping on 'big' and 'three' in going from (14d) to (14e). However, there is no way (in these languages) to determine whether 'these' would have controlled tone-dropping on e.g. 'mango' in a hypothetical Dogon language in which modifying adjectives did not already control tone-dropping on this word.

Our account of NP structure so far must be adjusted to account for the tonological (and other) effects of relativization and/or adding a possessor.

## 11. Variable linear order in Tommo-So and its tonosyntactic consequences

In Tommo-So, the most common linear order is (16a), which differs from the other languages in placing a determiner immediately after the core NP, and in placing a numeral just before the 'all' quantifier. However, the more familiar Dogon pattern (16b), with the numeral following the core NP, is also allowed. Determiners and the Plural morpheme may be phonologically cliticized (boundary symbol  $\equiv$ ) to the words to their left.

- (16) a. Noun Adj\* Determiner Plural Numeral 'all' Discourse

## b. Noun Adj\* Numeral Determiner Plural 'all' Discourse

Control or tone-dropping operates as in other Dogon languages in most respects. The synonymous (17a-b) show that a demonstrative controls tone-dropping on a preceding but not on a following numeral. The Plural morpheme is optional in both examples.<sup>7</sup>

- (17) a. jàndùlù      nò(=mbé)      tà:ndú-gó  
 donkey.L      Dem(=Pl)      three  
 'these three donkeys'
- b. jàndùlù      tà:ndù-gò      nò(=mbé)  
 donkey.L      three.L      Dem(=Pl)  
 [= (a)]

Infrequently, an adjective follows a numeral, in which case the syntactic distinction we have made between core NP and extended core NP (=numeral phrase) becomes problematic. In both orderings, the adjective controls tone-dropping only on words to its left. Therefore [N.L Adj Num] keeps lexical tones on the adjective and on the numeral, but in the less common [N.L Num.L Adj] the adjective controls tone-dropping on both preceding words (18a-b).

[more study needed; the three attestations vary in form, including a strange one where the noun is H, despite being a LH noun, and then the numeral is L /Laura]

- (18) a. gǐnè      píl      tà:ndú-gó  
 house.L      white      three  
 'three white houses'
- b. gǐnè      tà:ndù-gò      píl  
 house.L      three.L      white  
 [= (a)]

In a core NP with two adjectives, only the final adjective retains its lexical tone, as in the other languages: [N.L Adj.L Adj]. When a numeral is added to such a combination, it usually follows the entire core NP; as usual, the core NP and the numeral do not interact tonally, so we get [[N.L Adj.L Adj] Num] (19a). However, it is also possible to intercalate the numeral between the two adjectives. In this combination, one might expect the output to be [N.L Adj.L Num.L Adj], with the final adjective controlling wide-scope tone-dropping. Instead, we get the unexpected [N.L Adj Num.L Adj.L], which could be bracketed as [[N.L Adj] [Num.L Adj.L]], as in (19b). Here it would seem that the first adjective, which retains its lexical tone, controls simultaneous tone-dropping on the numeral and on the second adjective. In the other languages, such left-to-right tonal control is confined to possessive constructions (§xxx, below).<sup>8</sup>

- (19) a. [gǐnè      píl      kàndá]      tà:ndú-gó  
 [house.L      white.L      new]      three  
 'three new white houses'
- b. [gǐnè      píl]      [tà:ndù      kàndà]  
 [house.L      white]      [three.L      new.L]  
 [= (a)]

## 12. Head NPs in relative clauses

<sup>7</sup> -gó suffix occurs on simple numerals in most, but not all, positions.

<sup>8</sup> Superficially, (19b) might therefore be bracketed and glossed tonosyntactically as '[[white house's] new three (ones)]'. However, the tones are not quite correct for this parsing, since a possessor NP ending in H-tone (here, píl 'white') should control {HL}, not {L}, on the possessed NP, as indicated below.

In most Dogon languages the head NP is internal to the relative clause, meaning that it may be preceded by another clause-internal constituent such as an adverb. The "verb" of the relative clause always follows the head NP, perhaps with intervening constituents. The evidence for internal position is equivocal only in Toro Tegu, where the head NP is predominantly clause-initial (as in English), but occasionally preceded by clause-internal adverbs. Two of the languages, Toro Tegu and Ben Tey, have Relative particles at the end of the head NP; the Ben Tey particle is optional and occurs in fewer than half of the relative clauses in our texts. The (clause-final) verb, which in main clauses has full pronominal agreement with the subject, is replaced in relatives with a form (often participial) that either agrees with the head NP in intrinsic (but not pronominal-person) features or has no agreement. The head NP is broken up, with the extended core NP remaining intact, while NP-final elements (determiners, non-numeral quantifiers, discourse-function markers) appear post-verbally.

The distribution of these parameters is summarized in (20).

(20) Relative clauses

language	internal head?	Relative particle?	verb (participle)	head NP divided?
Tr	(unclear)	yes	no agreement	yes
Jm	yes	no	agrees with head	yes
Bn	yes	yes (optional)	agrees with head	yes
Nj	yes	no	agrees with head <sup>9</sup>	yes
Ng	yes	no	no agreement <sup>10</sup>	yes
Tm	yes	no	no agreement	yes

Using Jamsay as a typical case, compare the ordinary NP (21a) and the main clause containing it (21b) with the subject relative clause (21c). "Ppl" means participle. In interlinears, ".L" at the end of a word indexes tone-dropping, and ".HL" at the end of a word indexes the overlaid {HL} tone contour.

- (21) a.    *àr<sup>n</sup>-úm    tǎ:n    kù<sup>n</sup>*  
           man-Pl    three    Def  
           'the three men'
- b.    *yá:*            [*àr<sup>n</sup>-úm    tǎ:n    kù<sup>n</sup>*]    *mí*            *láγá-tù-bà*  
           yesterday    [man-Pl    three    Def]    1SgO            hit-Perf-3PlS  
           'The three men hit me yesterday.'<sup>11</sup>
- c.    *yá:*            [*àr<sup>n</sup>-ùm    tà:n*]            *mí*            *láγà-m*                    *kù<sup>n</sup>*  
           yesterday    [man-Pl.L    three.L]    1SgO            bite.Perf.HL.Ppl-Pl            Def  
           'the three men who hit me yesterday'

(21c) illustrates the internal position of the head NP '(the) three men', the absence of a Relative morpheme with the head NP, the agreement of the verbal participle ('bite') with the (human) plural head NP (suffix *-m* or allomorph *-um*), and the break-up of the head NP into its extended core NP ('three men') and its NP-final elements (here, Definite), which appear after the verbal participle.

But (21c) also shows tone-dropping of words within the extended core NP functioning as relative head; the high tones in 'men' and 'three' in (21a-b) are absent from (21c). So our previous list of words that control tone-dropping is incomplete; we must now add relativization to the "yes" column in (12). Like demonstratives, relativization controls simultaneous tone-dropping on two distinct words if a numeral is present. Using the terrace representation as in (14e) above, (21c) can be represented as (22). It shows a Relativizing Operator

<sup>9</sup> Najamba verbal participles distinguish subject from non-subject participles, in addition to agreeing with intrinsic features of the head.

<sup>10</sup> Nanga verbal participles idiosyncratically agree with 3Pl subject (!) in negative inflections only, but have no agreement with head NPs.

<sup>11</sup> Nonhuman nouns have 3Sg agreement in Jamsay. *cér-tì-Ø* is pronounced [tʃét:ì].



are internally headed. Furthermore, its relative-clause verbs have noun-like (i.e. participial) morphological features, and are followed by quantifiers and demonstratives that have logical scope over the head NP.

The previously noted flexibility of Tommo-So in the linear ordering of postnominal NP-elements, see (16a-b) above, is also observed in relatives. Specifically, a numeral may occur within the clause-internal head NP, as in the other languages, or alternatively in postparticipial position. In the latter case, it retains its lexical tones, as in (25), since it is not under the scope of the right-to-left tonosyntactic control of the relative verb-participle.

- (25) *yá: jàndùlù mí=béndè tà:ndú-gó=gè=mbè*  
 yesterday donkey.L 1SgS=hit.Perf.Ppl three=Def=Pl  
 'the three donkeys that I hit yesterday'

also give the version with the numeral after 'donkey'

### 13. Possessors

All of the preceding cases of tone-contour control involve an element to the right controlling tone-dropping to {L} on one or more preceding words. Possessors, by contrast, precede possessed NPs and control tone contours {L} or {HL} on elements to their right. Conflict is possible between right-to-left and left-to-right tone-contour control.

All of the languages have a possessive NP construction in which the possessor NP is juxtaposed to a following possessed NP, with no Genitive marking (affixal or adpositional). If the possessor is a nonpronominal NP, it has its independent tones, but it does control tone contours on the possessed noun. In Jamsay, this construction is confined to possessed kin terms; other possessed nouns occur in a construction with a Possessive morpheme *mà* linking the possessor and possessed, both of which have their independent tones. Thus *sáydu* 'Seydou (man's name)', the juxtaposed-possessor construction in *sáydu dérè* 'Seydou's brother', but *sáydu mà úró* 'Seydou's house' with the Possessive linker. In the other languages, only the juxtaposed-possessor construction is possible for nonpronominal possessors.

### 14. Possessor-controlled tone contours

The possessor-controlled tone contour is variably {L} or {HL}, as indicated in (21), repeating information from (6b) above.<sup>14</sup>

- (21) controller precedes target, {L} or {H} (or both) depending on language

<u>target contour</u>	<u>controller</u>	<u>target</u>	<u>languages</u>
{L}	possessor NP	possessed NP	Nj
{HL}	"	"	Jm
{L} ~ {HL}	"	"	Bn Ng Tr Tm

The four languages (Toro Tegu, Ben Tey, Nanga, and Tommo-So) that allow both {L} and {HL} possessor-controlled contours do not have free variation. Rather, they have precise conditions for each of the two contours, as summarized in (22).

- (22) language            possessor-controlled contour after possessor that is...
- | language | pronoun |         | simple core NP |         | quantified/determined NP |         |
|----------|---------|---------|----------------|---------|--------------------------|---------|
|          | L-final | H-final | L-final        | H-final | L-final                  | H-final |
| Tr       | {HL}    |         | {L}            |         | {HL}                     |         |

<sup>14</sup> In Tommo-So, the {HL} possessed contour is realized phonetically as <sup>↓</sup>HL, beginning with a downstepped high.

Bn	{L}	{HL}	{L}	{HL}		{HL}
Ng	{L}	{HL}	{L}	{HL}	{L}	{HL}
Tm	—	{HL}	{L}	{HL}		

In Toro Tegu, the choice between {HL} and {L} requires reference to the **internal syntactic structure** of the possessor. We get {L}, i.e. tone-dropping, after a simple core NP, which is maximally [noun-adjective\*]. We get {HL} after a pronoun, or after a nonpronominal NP more complex than a simple core NP, i.e. one that contains a quantifier (numeral, Plural, 'all') or another NP-final element such as a determiner. The tones of the possessor are not a factor; for example, pronominal possessors may be high- or low-toned (e.g. 2Sg *ú*, 3Sg *wə̀*), but are followed in either case by a {HL} possessed NP. Since {HL} has the more general distribution, one might take it as basic, and posit a process suppressing the initial H-tone component of {HL} after a simple core NP.

In Nanga, the choice between {HL} and {L} requires reference to the **phonological form** (but not internal syntactic structure) of the possessor. The possessor precedes, and controls the tone contour of, the possessed NP.<sup>15</sup> The overlaid contour is {L} when the possessor ends in a low tone, and {HL} when the possessor ends in a high tone. In other words, the initial tone of the possessed NP conforms to the final preceding tone. This is not a regular phonological rule; there is no general process by which tones spread across word or phrase boundaries in this language. Furthermore, in Nanga the initial tone of the {HL} contour spreads to the penultimate syllable in trisyllabic nouns, as in *yǎ-ŋ dónđíyè* 'a woman's cat', compare the {L} contour in *ár<sup>n</sup>à dòndíyè* 'a man's cat' (noun *dòndíyè* 'cat'). The rule specifying {HL} or {L} contour must refer to both the phonological form and the overall syntactic status (as possessor) of the possessor NP. There is no syntactic asymmetry between {HL} and {L}, so in Nanga there is no basis for taking one or the other as basic.

In Beni, the choice between {HL} and {L} requires reference to **both the internal syntactic structure and the phonological form** of the possessor. When the possessor is a pronoun, or a simple core NP, the initial tone of the possessed NP conforms to the final tone of the possessor: we get {HL} after final H-tone, {L} after final L-tone. However, if the possessor is a more complex NP including a quantifier or NP-final element, the possessor-controlled contour is {HL} regardless of the tones of the possessor. As with Toro Tegu, one might posit a primary {HL} possessor-controlled contour, along with a rule suppressing the initial H-tone in certain syntactically and phonologically specified combinations. Since Beni has the most complex pattern, it is exemplified in (23). The possessed noun 'village' combines with {L} as *ísè:* (23b,d) and with {HL} as *ísè:* (23.a,c,e,f).

(23)	form		gloss
	possessor = pronoun		
a.	<i>ú</i>	<i>ísè:</i>	'your-Sg village'
b.	<i>ú:</i>	<i>ísè:</i>	'your-Pl village' <sup>16</sup>
	possessor = simple core NP		
c.	<i>yǎ-m</i>	<i>ísè:</i>	'(a) woman's village'
d.	<i>ár<sup>n</sup>à-m</i>	<i>ísè:</i>	'(a) man's village'
	possessor = more complex NP		
e.	<i>[ár<sup>n</sup>à-m tǎ:nú]</i>	<i>ísè:</i>	'[three men]'s village'
f.	<i>[ár<sup>n</sup>à-m kù]</i>	<i>ísè:</i>	'the man's village'

<sup>15</sup> For Nanga (and Tommo-So), the relevant construction is that with a possessed kin term. Such nouns take preceding pronominal (as well as nonpronominal) possessors. Non-kin nouns express pronominal possession by an appositional construction involving a kind of possessive classifier, schematically e.g. [*house [my thing]*] meaning 'my house'. There is no tonal interaction between 'house' and 'my thing'.

<sup>16</sup> The 2Pl pronoun here written *ú:* is arguably better transcribed *ú.:*, i.e. 2Sg /ú/ plus a "dying-quail" intonation feature involving prolongation and slow pitch fall. This and related phenomena will be discussed elsewhere. For present purposes the relevant point is that the 2Pl form ends in a low pitch.

## 15. Domain of possessor-controlled tone contours

There is also the issue of how much of the possessed NP is subject to the contour controlled by a preceding possessor. In none of the languages does the contour extend to the right of the extended core NP (or NumP), but its precise right boundary is variable.

The languages agree that at least the possessed core NP (i.e. noun plus any adjectives) is included in the tone-contour domain. Consider a noun-adjective sequence like [house big] 'big house'. In unpossessed contexts this is realized as [*house* big], with italics indicating tone-dropping, as in Ben Tey *ùrò díy<sup>n</sup>à-w<sup>n</sup>* '(a) big house' (*úró*). When 'big house' adds a possessor like 2Sg that requires {L} possessor-controlled contour, the entire noun-adjective sequence appears in tone-dropped {L} form, resulting in [you(r) [*house big*]]. In Ben Tey this is *ú ùrò díy<sup>n</sup>à-w<sup>n</sup>* 'your-Sg big house', where the lexically {HL} toned adjective appears as {L}.

However, the languages do not agree as to whether a numeral following the possessed core NP is also included in the overlaid possessor-controlled tone contour. In Ben Tey, a numeral is included in the relevant domain, whether the contour is {L} or {HL} (in either case, the numeral is all-low toned). Therefore the high tones of *pérú* 'ten' are lowered in (24), along with those of the noun and the adjective (*úró* 'house', *díy<sup>n</sup>à-w<sup>n</sup>* 'big-Inanimate').

- (24) *ú*            [*úrò*            *díy<sup>n</sup>à-w<sup>n</sup>*            *pèrù*]  
2SgP        [house.HL        big-Inan.L        red-Inan.L]  
'your-Sg ten big houses'

Najamba agrees with Ben Tey: a numeral is included in the domain of the possessor-controlled {L} contour.

In Tommo-So, however, a numeral is not included in the domain of the possessor-controlled tone contour.

#### Tm example (25)

Jamsay agrees with Tommo-So, though in Jamsay the only relevant construction is that with a kin term as possessed noun. For example, *lèsú* 'maternal uncle' takes {HL} contour in *mĩ lésù* 'my maternal uncle', but a following numeral is unaffected: *mĩ lésù kúróy* 'my six uncles'.

For Nanga, our informant allows the possessor-controlled contour to extend to a numeral in the case of ordinary (alienable) possession, but not to possession of kin terms.

NP-final elements that come later in the NP, including demonstratives, Definite morphemes, the Plural morpheme, and the 'all' quantifier, are never affected by possessor-controlled tone contours. Some are already low-toned, so being included at the end of either a {L} or {HL} contour would not audibly affect them anyway. However, many demonstratives and 'all' quantifiers (and Definite morphemes in Toro Tegu) contain a high tone, and these tones are never dropped; that is, they are always on the free terrace, cf. (3) above.<sup>17</sup> For example, Ben Tey *ngú* 'this-Inanimate' is not tone-dropped in (26), although 'house' (*úró*) and 'big-Inanimate' (*díy<sup>n</sup>à-w<sup>n</sup>*) do drop tones under the influence of the possessor.

- (26) *á:mádù*    *ùrò*            *díy<sup>n</sup>à-w<sup>n</sup>*            *ngú*            *kù*  
Amadou    house.L        big-Inan.L        Prox-Inan    Def  
'this big house (or: these big houses) of Amadou'

The cross-linguistically variable data on whether numerals are included in the scope of a possessor-controlled tone contour suggest that further fieldwork, involving additional informants and dialects, might reveal interspeaker and/or interdialectal variation within single languages.

<sup>17</sup> In Toro Tegu, the {HL} contour cannot be fully expressed on a monomoraic possessed noun, so only the high tone is heard: *í ló* 'your-Sg hand' (*ló* 'hand'). However, the covert L-tone ending of the {HL} contour is expressed as downstep on a following H-initial Definite morpheme, hence *í ló ↓kúnú* 'your-Sg hand (definite)', compare unpossessed *ló kúnú* 'the hand'. This is a phonological rather than tonosyntactic phenomenon.

However, it is clear that numerals are sometimes included, and sometimes excluded, from the domain of possessor-controlled tone contours. In varieties (languages, dialects, idiolects) where the numeral is included, the extended core NP is in the tonosyntactic scope of the possessor. That is, the numeral quantifies the core NP, and this quantified unit is then possessed (27a). This is consistent with the fact that the extended core NP is the unit that remains intact when NP-final elements are separated from the head NP of a relative clause, as described earlier. On the other hand, in varieties where the numeral is excluded, the core NP is in the tonosyntactic scope of the possessor, while the numeral quantifies this entire possessed core NP (27b).

(27)		core NP	(extension)
	a.	possessor [[noun adjective*]	numeral]
	b.	[possessor [noun adjective*]]	numeral

#### 16. Location of break between H- and L-tones in {HL} contour

In the case of the {HL} contour, we must also consider where the break between H-tone and L-tone components occurs. When a possessor-controlled {HL} contour has a domain consisting of just one word (i.e. a possessed noun), the break point is regulated by general tonological rules. The languages differ as to whether the break is after the leftmost syllable (or, for monosyllabics, the leftmost mora), giving a HLL pattern for trisyllabics, or before the rightmost syllable (or mora), resulting in trisyllabic HHL. This is essentially a phonological matter.

However, when the possessor-controlled {HL} is applied to at least a two-word domain, i.e. noun-adjective, and when the first word is monosyllabic, there are two theoretically possible outcomes. One is to treat the domain as a single phonological sequence without reference to word boundaries. The resulting tone contour should be the same for a sequence of CvC noun and CvCv adjective as for an uncompounded CvCCvCV noun. For a language where {HL} is realized as HLL on a trisyllabic, the result would be (28a). On the other hand, if the {HL} contour is fully realized on the noun, with the L-tone component then also spreading across the adjective, we would get a different result for noun-adjective [CvC][CvCv] than for a CvCCvCv noun, because in the latter case the first syllable would simply be H-toned (28b).

(28)	possessed domain	combines with {HL} as ...	syllabic sequence
	a.	[CvC][CvCv]	[C <sup>ˈ</sup> vC][C <sup>ˈ</sup> vCv]
		[CvCCvCv]	[C <sup>ˈ</sup> vCC <sup>ˈ</sup> vC <sup>ˈ</sup> v]
			HLL
			HLL
	b.	[CvC][CvCv]	[C <sup>ˈ</sup> vC][C <sup>ˈ</sup> vCv]
		[CvCCvCv]	[C <sup>ˈ</sup> vCC <sup>ˈ</sup> vC <sup>ˈ</sup> v]
			<HL>LL
			HLL

The data show that (28b) is correct. For example, in Ben Tey (29) the noun  $\tilde{n}\hat{e}y^n$  'meal' becomes <HL>  $\tilde{n}\hat{e}y^n$  as possessed noun not only when unmodified (29a) but also when followed by an adjective (29b).<sup>18</sup>

(29)	a.	$\acute{u}$	$\tilde{n}\hat{e}y^n$	'your-Sg meal'
	b.	$\acute{u}$	$\tilde{n}\hat{e}y^n$ $d\grave{u}m d\grave{o}$ :	'your-Sg last meal'

#### 17. Conflict between left-to-right and right-to-left tonal control

<sup>18</sup> (28) above assumes that {HL} is realized as HLL on a trisyllabic. In a language where {HL} is realized on a trisyllabic as HHL, the tonal differences between possessed noun-adjective and possessed multisyllabic noun would be even greater. In Nanga, for example,  $g\grave{o}nd\grave{u}g\acute{o}$  'blood' has a possessed form with HHL contour, as in  $y\grave{a}-\eta$   $g\acute{o}nd\acute{u}g\grave{o}$  'a woman's blood'. By contrast, when a bisyllabic noun is possessed, even if an adjective (or numeral) follows, the noun has HL contour, schematically [possessor-[C<sup>ˈ</sup>vC<sup>ˈ</sup>]][C<sup>ˈ</sup>v...], as in  $y\grave{a}-\eta$  [ $\tilde{n}\hat{e}r^{n\acute{i}}$   $b\grave{a}r^{n\acute{i}}$ ] 'a woman's red (= brown) dog'  $\tilde{n}\hat{e}r^{n\acute{i}}$  'dog',  $b\grave{a}r^{n\acute{i}}$  'red'. Once again, the possessor-controlled {HL} must be fully expressed on the noun.

The most interesting tonosyntactic issue in Dogon languages is what happens when a left-to-right (possessor-controlled) tone contour conflicts with a right-to-left (modifier-controlled) tone contour. This happens in the combinations in (29). The crucial target here is the noun in (29a) and the extended core NP in (29b-c).

- (29) a.      possessor      noun                      adjective  
       b.      possessor      [noun (numeral)]      demonstrative  
       c.      possessor      [noun (numeral)]      ... participle

We have already seen some examples of (29a). The conflict arises only when the possessor-controlled contour is {HL}, which conflicts with the adjective-controlled {L} contour. The Ben Tey example (28b) above shows that the possessor-controlled contour wins out, and the noun appears with {HL} contour. This is because the noun-adjective sequence as a whole is in the domain of the possessor-controlled contour, so the adjective has {L} contour, as also in (25) above, also from Ben Tey. The tonosyntactic bracketing is therefore [possessor *[noun adjective]*], where italics indicate the possessor-controlled tone contour. We cannot determine whether, at an inner cycle, the adjective controls tone-dropping on the noun, since any such inner-cycle tonal processes would be overridden anyway by the possessor-controlled contour.

Similar constructions occur in Nanga, as in [*yǎŋ [sôm bàr<sup>m</sup>i]*] 'a woman's red (=brown) horse', and in Toro Tegu, e.g. [*m̄ [ílò nâ:]*] 'my big house'. In both examples, the possessed noun has {HL} controlled by the possessor, and the following adjective continues the final L-tone of {HL}.

In (29b), an extended core NP (either a noun, or a noun-numeral sequence) is followed by a demonstrative. In the absence of a possessor, both the noun and the numeral are tone-dropped under the control of the demonstrative, compare the schema (10a). If we add a possessor that, in the absence of the demonstrative, would control {L} contour, we cannot tell whether the {L} contour on the noun or noun-numeral sequence is controlled by the possessor (left-to-right) or by the demonstrative (right-to-left). For example, if we remove the adjective 'big' and the final Definite morpheme from the Ben Tey example (25) above, we get *á:mádù ùrò ñgú* 'this house of Amadou's', where the tone-dropping of 'house' from lexical *úró* to {L} *ùrò* could be attributed either to the possessor 'Amadou' (which ends in a low tone) or to the demonstrative *ñgú*.

However, if the possessor, in the absence of the demonstrative, would control {HL} on the noun, there is a conflict. (30), also from Ben Tey, shows that the possessor wins out over the demonstrative and controls {HL} on the noun; compare unpossessed *ùrò ñgú* 'this house' with {L} contour on the noun. Similar patterns occur in the other languages, except Jamsay (which is treated in a separate section below).

- (30) [*yǎ-m              úrò]*              *ñgú*  
       [woman-Sg    house.HL]      Prox.Sg  
       'this house of a/the woman'

(30) also shows that the possessor ('woman') has no tonal effect on the demonstrative, which retains its lexical bisyllabic LH pattern. Therefore the correct bracketing is [[possessor *noun*] demonstrative]. But if this bracketing is correct, one might have expected the possessor to control {HL} on the noun, and for the possessor-noun sequence to then be subject, at an outer cycle, to the {L} controlled by the demonstrative, overriding the tones of the earlier cycle. This would have produced the incorrect output [[*possessor noun*] demonstrative], with {L} overlaid on the possessor and the noun. We conclude that the possessor-noun combination (and more generally, the combination of a possessor with a core NP or, in some languages, with an extended core NP) constitutes a **tonosyntactic island**. That is, once the possessor-controlled contour is overlaid on its domain, the entire sequence is tonally frozen, and is impervious to further tone-contour control at higher syntactic levels.

The same pattern occurs in Nanga, e.g. [[*yǎŋ ídò*] *ñgú*] 'this house of a/the woman', and in Toro Tegu, e.g. [[*m̄ ílò*] *ñgú*] 'this house of mine'. In both examples, the noun 'house' is {HL} under the control of the possessor, while the final demonstrative has its lexical tones.

In (29c) above, the issue is whether a possessed NP (noun, noun plus numeral) also constitutes a tonosyntactic island with respect to a relative-clause verbal participle. The latter (in the absence of a possessor) controls tone-dropping on a clause-internal head NP, which consists maximally of an extended core NP (since demonstratives and other NP-final elements appear after the participle). In the languages other than Jamsay (on which see below), we do in fact observe a tonological island in this construction. An example from Ben Tey is (31), where the key is the overlaid {HL} contour on *nâ*: 'cow' (lexically *nǎ*), which must be attributed to the possessor.

- (31) *ú [nâ: bàr<sup>n</sup>à kùròy] í éwé-mà bû:*  
 2SgP [cow.Pl.HL red.Pl.L six.L] 1SgS buy.Perf-Ppl.Pl Def.Pl  
 'your-Sg six brown cows that I bought'

Again, the bracketing must be [[possessor [(*extended*) core NP]] ... participle], with the possessed NP constituting a tonosyntactic island that is impervious to tone-contour control from the participle at a higher syntactic level.

Nanga again matches the Ben Tey pattern, as in [*yǎ-ŋ pèrgè*] *yègè-sè né* '(a/the) woman's sheep-Sg that fell', where the possessor 'woman' (*yǎ-ŋ*) has its lexical tones and the possessed noun 'sheep' (lexically *pèrgè*) has {HL} contour controlled by the possessor.

Toro Tegu?

## 18. Jamsay inalienable possessors

In Jamsay, most possessor-possessed combinations are expressed using a Possessive morpheme *mà* that links the two: [*X mà Y*] 'the Y of X'. There is no tonal interaction between the two constituents; both the possessor NP and the possessed NP have their independent forms, tonally and otherwise. However, when the possessed noun is a kin term or a similar relationship term like 'friend', we get a special inalienable-possession construction that resembles the all-purpose possessive constructions of the other languages, with a possessor NP juxtaposed to a possessed NP with no intervening Possessive morpheme.<sup>19</sup>

In this inalienable construction, the possessor retains its regular tonal form, following the by-now familiar Dogon pattern. The possessed noun takes overlaid {HL} controlled by the possessor (32), cf. unpossessed *tě:<sup>n</sup>* 'friend'.<sup>20</sup>

- (32) *sàydù tèn*  
 Seydou friend.HL  
 'Seydou's friend'

In Jamsay, unlike the other languages covered here, the possessor NP and the possessed NP do not form a tonosyntactic island. On the contrary, not only the possessed NP, but also the possessor, are subject to tone-dropping controlled by an adjective (33a), a demonstrative (33b), or a relative-clause verbal participle (33b).

- (33) a. *sàydù tèn ñnè gǎ-n*  
 Seydou.L friend.L person.L old-Sg  
 'Seydou's old (=elderly) friend'
- b. *sàydù tèn nùŋò-bâ:<sup>n</sup>*  
 Seydou.L friend.L Dem-owner  
 'this/that friend of Seydou's'
- c. [*sàydù tèn*] *bàmàkó wô-n kù<sup>n</sup>*  
 [Seydou.L friend.L] Bamako be.Hum-Ppl.Sg Def  
 'Seydou's friend who lives in Bamako'

In Jamsay, the inalienable possessor must be closely bracketed with the possessed noun in each of these examples: [[*possessor noun*] adjective] (33.a), [[*possessor noun*] demonstrative] (33.b), and [[*possessor noun*] ... participle] (33.c). The bracketing for (33.b-c) is the same as in the previously discussed languages (e.g. Ben Tey),

<sup>19</sup> Jamsay possessor pronominals do not occur with *mà*, but there are distinct sets for alienable and inalienable possession, e.g. 1Sg inalienable *mĩ* as in *mĩ tèn* 'my friend' versus alienable *má* as in *má èjú* 'my field'. The inalienable possessor pronominals control the same {HL} tone contour on the possessed nouns as do nonpronominal NP possessors.

<sup>20</sup> For the noun 'friend', the possessed and unpossessed form are slightly different segmentally.

the difference being that Jamsay has no tonosyntactic islands, so the words in the inner bracket are subject to tone-contour control from higher constituents. The bracketing for (33a) is different from that in the other languages, since the adjective includes the possessor in its tone-contour controlling domain.

19. Discussion.

...

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