

Dogon tonosyntax of NP

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tonosyntax and tonomorphology

Tonal processes are critical in the grammatical systems of Dogon languages. There are several types of tonal configuration:

- **lexical tone melodies** associated with specific lexical items (see also the separate piece “Dogon lexical tones of stems”); notation is slashes /.../, e.g. /LH/.
- **tonal morphemes** (affixes and clitics), each consisting of a “floating” tone (H or L) that is realized on a neighboring morpheme;
- word- or stem-level **tone overlays**, consisting of abstract melodies whose realizations depend on the syllabic structure of the relevant stem; notation is curly brackets {...}, e.g. {LH};
- surface **tone patterns** (after all tone processes apply) by syllable, with . as the syllable boundary and <...> enclosing tone contours expressed on a single syllable, e.g. trisyllabic H.H.L, L.H.L, and L.L.<HL>;
- for the notation $\sqsubset \dots \sqsupset$, see the section below on tonosyntactic islands.

There are also hybrid patterns. One type is a partial tone overlay that allows a portion of the lexical melody to surface. Another is a tone overlay that consists of a spreading tone plus a single tone at the left or right edge, e.g. {L}+H (all-low except for a final H-tone).

Tonosyntax occurs when one word or phrase controls a tone overlay on another word or word string. Schematically, the construction is $[T^O C]$ or $[C^O T]$, where the C[ontroller] imposes an O[verlay] on a T[arget] to its immediate right or left. This is typical of Dogon NPs.

Tonomorphology works the same way at word-level, for example when a suffix controls a tone overlay on a stem. This is typical of Dogon verbs and some types of derived noun. The distinction between tonosyntax and tonomorphology is blurry in verbal morphology, since some “suffixes” still have some features of chained auxiliary verbs. Nominal compounds, which have their own tone overlays, are also intermediate between syntax and morphology.

A tone overlay erases (or over-writes) the underlying lexical tone melody of the target. The most common is {L}, followed by {HL}, while the others are relatively uncommon. {L} has a special status since in most languages it cannot be confused with a lexical melody. Most Dogon languages have a **constraint** on noun, verb, adjective, and numeral stems **against all-low lexical tone melodies**. This means that lexical melodies may be {H}, {HL}, {LH}, {LHL}, and in some languages also {HLH}, but not {L}. So the {L} tone overlay is always audible. By contrast, overlaid {HL}, {H}, and {LH} contours occasionally replicate (accidentally) the underlying lexical contour.

While tonal processes of these types apply to compounds and to verb complexes, the most systematic tonosyntax occurs within NPs (DPs). To understand how it works, consider the typical (linear) structure of NPs (1), omitting some details:

(1) Poss N Adj Num RelCl Dem/Def ‘all’/Pl DiscFunct

The underlined elements are tonosyntactic controllers. The single-underlined forms are postnominal controllers. They are **right-to-left** controllers, target the string to their left, beginning with the noun (rarely extending beyond it to the possessor). In most Dogon languages, right-to-left control always involves {L} as the overlay, i.e. the target is **tone-dropped**. The double-underlined possessor is a **left-to-right** controller, targeting the noun to its right and usually extending to include N-Adj and N-Num. Possessor control can be expressed by any of {L}, {H}, {HL}, {LH}, depending on the language. In some languages, two or even three of these possessor-controlled overlays occur, depending on the tone of the possessor, the syntactic status of the possessor, and the syllabic weight (in vocalic moras) of the possessum.

ontology of tonosyntactic control

What the underlined elements in (1) share is that they restrict reference. The target domain (often just a noun) denotes a set of entities, e.g. ‘dog’. A reference restrictor (or intersective modifier) divides the set into two subsets, one whose individuals are eligible to be referred to and one whose individuals are excluded: ‘my dog’ (not anyone else’s dog), ‘black dog’ (not a dog of any other color), ‘this dog’ (not ‘that dog’ or any non-present dog), ‘the dog that ran away’ (not any other dog). The elements that do not control overlays are either quantifiers (numerals, ‘all’, free plural) that do not exclude individuals (any dog has a chance to be part of ‘six dogs’) or discourse-functional elements (‘only’, ‘as for’, ‘even’) that do not alter the denotation of the NP.

Elements on the border between reference restrictors and non-reference restrictors are the numeral ‘one’, the definite marker, distributive ‘each’, and the partitioning quantifier ‘certain (ones)’. These borderline elements have variable tonosyntactic control powers. Of particular interest is the fact that in several Dogon languages an original demonstrative (near-distant ‘that’) has split into a demonstrative and a watered-down discourse-definite, and the latter but not the former has lost its tonosyntactic control powers.

For a full discussion of the ontology see Heath & McPherson (2013).

tonosyntactic conflicts and their resolution

When both a preposed possessor and a postnominal reference restrictor occur in the same NP (DP), there is the potential for conflict. Take a language where the possessor-controlled overlay is

{HL} and the right-to-left overlay is {L}.¹ Then given an input Poss-N-Adj, as in ‘this dog of Seydou’s’, if the possessor “wins” the output is Poss^{HL}N Adj or Poss^{HL}[N Adj], while if the adjective “wins” the output is Poss N^L Adj or [Poss N]^L Adj.

Resolution of simple one-on-one conflicts of this type lends itself to analysis in terms of ranked constraints. This is a **zero-sum** game; whichever controller “wins” imposes its regular overlay on the target domain, while the other controller watches helplessly from the sidelines, or is itself included in the target domain of the successful controller. For example, the lexically /LH/-toned Togo Kan noun *gír^{ní}* ‘house’ is overlaid with {L} before an adjective (1a) and with {H} (reduced for a bimoraic noun from the full form {HL}) after a possessor (1b). If we combine N-Adj and Poss-N into Poss-N-Adj, we see that the possessor trumps the adjective. In fact, the adjective is included in the possessor-controlled {HL} overlay.

- (1) a. *gír^{ní}*^L *gàrà*
house^L big
‘a big house’
- b. *sè:dú* *gír^{ní}*^H
S ^Hhouse
‘Seydou’s house’
- c. *sè:dú* *[gír^{ní}*^{HL} *gàrà]*
S ^{HL}[house big]
‘Seydou’s big house’

There is some variation across Dogon languages in the constraint rankings, though in most cases the semantically higher element “wins.” For an analytical framework using Optimality Theory see McPherson & Heath (2015).

constructional tone overlays

Many cases of controller conflict can be handled as indicated just above, by ranking constraints so that one controller “wins” and another “loses” (zero sum). However, some Dogon languages also have special tone patterns that are triggered by specific combinations of nominal modifiers and that cannot be modeled by the zero-sum approach. Such **constructional** overlays are best developed in southeastern Dogon languages (Donno So, Toro So group).

¹ Languages with a possessor-controlled overlay {L} present some analytical difficulties. For example, if the noun in a string Poss-N-Adj surfaces with {L} overlay, we cannot be sure whether this is due to left-to-right control (the possessor) or right-to-left control (the adjective).

To give one example from Donno So, there are no tonosyntactic operations in either N=Def (with enclitic discourse-definite marker) or N-Num (2a-b). The lexical forms of the noun and the numerals surface in (2b). However, if we combine (2a) and (2b) into N-Num=Def, the output is [N Num]^{L+H}=Def (2c).

- (2) a. *ódù = gò* (~ *ódò = ò*)
road=Def
‘the (afore-mentioned) road’
- b. *ódù* *tà:ndú / kùlè: / lěy*
road 3/6/2
‘three/six/two roads’
- c. [*òdù*^L *tà:ndó / kùlé: / lěy*]^{L+H} = ò
[road 3/6/2]^{L+H}=Def
‘the (afore-mentioned) three/six/two roads’

In (1c), the N-Num combination is the target of a constructional {L}+H overlay, i.e. {L} except for a single final H-toned syllable or mora. This {L}+H obviously cannot be accounted for by any combination of one-on-one tonosyntactic overlays with the numeral and/or the definite enclitic as controller, since in isolation neither of them has any tonosyntactic control power. It is clearly a construction-specific overlay requiring simultaneous presence of the numeral and the definite marker, i.e. minimally N-Num=Def. Recall that discourse-definite elements are borderline reference restrictors. Here the numeral **catalyzes** the otherwise **latent** tonosyntactic control power of the definite marker.

A paper on this topic has been submitted to a journal.

tonosyntactic islands and chunks

In most cases where one controller “wins” a conflict, it is at least arguably the higher of the two competing controllers in terms of semantic scope. “Arguably” because alienable and inalienable possessors may occupy different semantic-syntactic positions within NPs (DPs).

In cases where the winning controller is clearly lower (closer to the noun) than the unsuccessful controller, we can speak of a **tonosyntactic island**. In such a case, the form of the target outputted at the lower level becomes locked, resisting the attempt of a higher controller to modify it. The notation is $\subset \dots \supset$.

Based on semantic scope, for example, Nanga sequences of the type Poss-N-Dem should be realized as Poss N^L Dem, with the (higher) demonstrative winning the battle to control the tone overlay on the noun. The actual output, however, is \subset Poss^{H(L)}N[⊃]Dem as in (3).

- (4) a. *séydù* *mà* *ùrò*^L *gàrá* *kúróy* *kù*ⁿ
 S 1SgPoss [house]^L big **six** Def
 b. *séydù* *mà* *ùrò*^L *kùròy*^L *gàrá* *kù*ⁿ
 S 1SgPoss [house]^L **six**^L big Def
 ‘Seydou’s six big houses’ [Jamsay]

This shows that tonosyntactic processes apply after ANI, which in turn means that the stem-class distinction between adjectives and numerals is maintained during ANI. Adjectives are strictly right-to-left controllers, overlaying {L} on the preceding noun and on any intervening words (another adjective, and/or an inverted numeral). Numerals have no independent control power, but after ANI they are always part of the domain targeted by the adjective. It follows that neither postsyntactic scrambling nor full stem-class merger can account for ANI. However, a more modest partial stem-class merger into a **hyperclass** “postnominal modifier” could account for the data, with relinearization based on this hyperclass while tonosyntax continues to distinguish the subclasses (adjective, numeral).

A paper on ANI and related relinearizations has been submitted to a journal.

tonosyntax and other syntactic processes: relative clauses

As indicated in the separate piece on “Dogon relative clauses,” RCs are internally-headed in these languages. However, the internal head is maximally Poss-N-Adj-Num, so determiners and non-numeral quantifiers follow the verb-participle. This can be accounted for by a model in which the internal head NP is simply the set of words to the left of the RC in (5).

- (5) Poss - N - Adj - Num - RC - Det - ‘all’/Pl - DiscFunc

To account for the surface position of the Poss-N-Adj-Num string, it is necessary to posit a movement rule, by which this string moves to the relativization site within the RC proper.

Tonosyntax is part of the mix. An RC is a reference restrictor, and indeed the internal head NP is subject to tone-dropping. For example, N-Num do not interact tonosyntactically (6a), but N-Num as internal head NP is tone-dropped (6b).

- (6) a. N Num
 b. [_{RC} ... [N Num]^L ... Verb-Participle_{RC}]

This indicates that tonosyntax applies before the movement process, i.e. at the level of (5). In this model, the RC is an ordinary postnominal reference restrictor, controlling {L} on the noun and on any intervening elements such as a numeral. The target domain, along with a possessor if present, subsequently moves into the relativization site. If the head NP were base-generated in the relativization site, there would be no reason for it to be tone-dropped.

An example of type (6b) is (7). Compare *úró tǎ:n* ‘three houses’ with lexical tone melodies.

- (7) *[_{RC} yá: [ùrò tǎ:n]^L mì éwè-Ø_{RC}] (kù^H)*
[_{RC} yesterday [house three]^L 1SgSubj buy.Pfv-Ppl.Inan_{RC}] (Def)
‘(the) three houses that I bought yesterday.’ [Jamsay]

references

- Heath, Jeffrey & Laura McPherson. 2013. Tonosyntax and reference restriction in Dogon NPs. *Language* 89:265–296.
- McPherson, Laura & Jeffrey Heath. 2015. Phrasal grammatical tone in the Dogon languages: The role of constraint interaction. *Natural Language and Linguistic Theory*.