Compositionality in the lexical and morphological specifications for tone in Shilluk

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Several West Nilotic languages stand out typologically with respect to the complexity of their suprasegmental systems. They present independent contrasts of tone, vowel length, and phonation, and these contrasts have a high functional load in the morphology. The West Nilotic languages that are most complex in this respect are Dinka, Shilluk, Thok Reel and Nuer. Of these, only Dinka has been investigated in depth, to the extent that we have a clear understanding of the way tone is involved in its morphology (Andersen 1992-1994, 1993). In this presentation, I will lay out the morphological functions of tone in Shilluk, and consider the diachronic development of the tonal morphology, based on original fieldwork data.

Of all the West Nilotic languages, Shilluk is the one that presents the most complex tone system. There are a total of eight phonemic tone categories, i.e., eight tone patterns that result from a combination of lexical and morphological specification (Remijsen & Ayoker 2014). They are illustrated in Table A (next page), which shows that the Shilluk inventory is particularly rich in terms of falling contours. These differ in a) height of the starting point (High / Mid); b) height of the end point (Mid / Low), and c) timing of the fall (Early / Late).

The verb paradigms in Table I below illustrate how this rich inventory of tone categories is involved in the morphology. Like other West Nilotic languages (Andersen 1992-1994 on Dinka, and Reh 1996 on Anywa), Shilluk transitive verbs belong to one of two tone classes, labeled Low and High in Table I. In the infinitive and in the past tense 2nd singular (shown in Table I), these two classes are expressed as Low and Low Fall, respectively.

Table I. Subsets of the morphological paradigms for six of the seven classes of transitive verbs. Sound examples are embedded. Based on Remijsen, Miller-Naudé & Gilley (to app.).

Verb classes	Fixed Short		Short with Grade		Long	
	Low	High	Low	High	Low	High
Example	|ŋɔl|	|lɛŋ|	|cam|	|mʌl|	|keel|	|lʊʊɲ|
	'cut'	'drum'	'eat'	'roast'	'spear'	'pluck'
PAST	á-ŋɔ̂l	á-lɛ̂ŋ	á-cầm	á-mʌ̂l	á-kêel	á-lôʊɲ
PAST 2SG	á-ŋɔ̀l	á-lɛ̂ŋ	á-càaam	á-mʌ̂ʌʌl	á-kèeel	á-lôʊʊɲ
PAST APPLIC	á-lɛ̂ɟ̄	á-lɛ̂ɟ̄	á-cāaam	á-mʌ̂ʌʌl̄	á-kēeel	á-lôʊʊɲ̄
PAST APPLIC 2SG	á-ŋɔ̌l	á-lɛ́ŋ	á-cǎaam	á-mʌ́ʌʌl	á-kěeel	á-lóʊʊɲ

Wherever the inflections of the Low and the High verbs diverge in terms of tonal specification, the High verbs display a tone pattern that is higher in pitch than that of the Low verbs. Moreover, the rich inventory of Shilluk makes it possible for Low and High verbs to display the same end target, and yet diverge in terms of the beginning part of the tonal configuration, as a function of tone class. Consider, for example, how in the past applicative both the Low and High verbs both end on a Mid target, but they differ in the initial specification, which is High for the High verbs, and Mid for the Low verbs. Here we can attribrute the Mid end target to the lost suffix, which presumably gave rise to the stem-internal marked applicative (cf. Andersen 1990). I will illustrate this kind of compositionality both in transitive verbs and in nouns.

These findings further the study of tonal morphology in West Nilotic: Andersen (1992-1994) highlighted how, in Dinka, one layer of tonal specification can overwrite another completely; Shilluk presents evidence of compositionality within the syllable-level specifications for tone.

Table A. A minimal-set illustration of the eight Shilluk tone categories. Each category is illustrated by an inflection selected from the paradigms of two transitive verbs: Fixed Short / Low {lɛŋ} 'take (gradually)', and Fixed Short / High {lɛŋ} 'drum'. Based on Remijsen & Ayoker (2014). Sound examples are embedded.

Tone category	Transcription and morpheme glosses				Translation
Low	ŋjēeɲ money:P	á-**lèŋ** PAST-take:2SG	kì PRP	kê̞ɲ place:S.DEM	'You have taken money in this place.'
Mid	mʌ̂ʌṯ friend:S	á-**lēŋ** PAST-take:APPL	ŋjēeɲ money		'Somebody used a friend to take money.'
High	lʊ̀ʊṯ stick:S	á-**léŋ** PAST-drum:APPL.2SG	bùul drum:S		'You have used a stick to beat the drum.'
Early Low Fall	bùul drum:S	á-**lɛ̂ŋ** PAST-drum:2SG	kì PRP	kê̞ɲ place:S.DEM	'You have beaten the drum in this place.'
Early High Fall	bùul drum:S	á-**lɛ̂ŋ** PAST-drum	kì PRP	kê̞ɲ place:S.DEM	'Somebody has beaten the drum in this place.'
Late High Fall	ŋjēeɲ money:P	á-**lɛ̂ŋ** PAST-take:FUG	pâac village:S		'Somebody went to the village to take money.'
High Fall to Mid	lʊ̀ʊṯ stick:S	á-**lɛ̂ŋ** PAST-beat:APPL	bùul drum:S		'Somebody used a stick to beat the drum.'
Rise	mʌ̂ʌṯ friend:S	á-**lěŋ** PAST-take:APPL.2SG	ŋjēeɲ money:P		'You used a friend to take money.'

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