The three Shilluk right-edge Hs: an argument for both subtonal features and strata

Introduction and data. Grammatical tone alternations, and more specifically tonal overwriting effects, are often highly idiosyncratic in their effects, and have been used to argued in favour (e.g. Inkelas 1998; Rolle 2018) or against (e.g. Trommer 2022) the introduction of morpheme-specific computation in the phonology. In Shilluk (South Sudan; Western Nilotic), where inflectional categories in the nominal domain are realized via suprasegmental alternations (Remijsen and Ayoker 2019), tonal alternations largely depend on the morphological context in which they occur. Plural possession (PERT.PL), associative plural (APL) and vocative (VOC) contexts pattern together in that they introduce a H(igh) tonal element to the right of their base, but tonal effects are specific to each inflection. While monosyllabic bases adopt a rising contour shape (1a.i-vi), the final syllable of bisyllabic forms displays context-dependent alternations: in the PERT.PL, **partial overwriting** by H (1b.i-viii); in the APL, **vacillating partial overwriting** yielding M (1b.i,iii,v,vii,viii) or H (1b.iv,vi); and in the VOC, **pure addition** of H (1b.i-viii).

(1) Tonal inflection patterns in Shilluk (Remijsen and Ayoker 2019; 2021)

		BF	PERT.PL		APL		VOC		Gloss(es)
a.	i.	L	gʌːt	LH	gʌːt	LH	d̪ok	LH	‘riverbank’/ ‘cow’
	ii.	LH	gwaːŋ	LH	gwaːŋ	LH	?	?	‘wildcat’
	iii.	M	kʌːc	MH	dɛːŋ	MH	dɛːŋ	MH	‘hunger’ /‘(name)’
	iv.	ML	tɔk	MH	kɛːl	MH	kɛːl	MH	‘edge’ /‘cheetah’
	v.	H	lŋ	H	twɔːŋ	H	twɔːŋ	H	‘conflict’ /‘(name)’
	vi.	HL	ʊ-raːp	-H	?	?	ʊ-raːp	-HLH	‘spider’
b.	i.	L.L	bɔːt̪ɪ	L.H	bɔːt̪ɪː	L.M	bɔːt̪ɔː	L.LH	‘craftsman’
	ii.	L.H	t̪jaːŋɔ	L.H	?	?	?	?	‘stalk’
	iii.	M.M	djeːrɪ	M.H	taːnɪː	M.M	?	?	‘truth’/ ‘roof’
	iv.	M.H	ɲaːwɪ	M.H	ɲaːwɪː	M.H	ɲaːwɪː	M.H	‘cat’
	v.	ML.L	?	?	t̪ulɪ	ML.M	t̪ulɪː	ML.LH	‘owls’
	vi.	ML.H	wutɪ	ML.H	ɲʌːlɪː	ML.H	ɲʌːlɔː	ML.H	‘ostrich’ /‘python’
	vii.	HL.L	tulɪ	H.H	cɔlɪː	HM.M	cɔlɔː	HL.LH	‘owl’ /‘Shilluk’
	viii.	HM.M	ɟaːŋɪ	H.H	ɟaːkɪː	HM.M	ɟaːkɔː	HM.MH	‘chief’

In his “morphology-free” approach to grammatical tone overwriting effects, Trommer (2022a) derives overwriting idiosyncrasies from the phonology’s sensitivity to the linearization of affixes and the morphological structure, a solution which appears to run short of the Shilluk data presented in (1). Indeed, the PERT.PL, APL and VOC contexts all represent morphologically complex environments derived via suffixation, and yet diverge in terms of their outcomes. In this talk, I argue that representational differences are also required to derive overwriting idiosyncrasies, and enrich Trommer’s (2022) proposal concerning sensitivity to morphological structure with derivational timing: ① while the APL and the PERT.PL exponents are introduced at the same derivational stage, but the former is underspecified with respect to the latter, and ② the VOC exponent, otherwise identical to the PERT.PL exponent, is introduced at a later derivational stage.

Analysis. (A) *Tonal representations.* I follow Snider’s (1999) decomposition of tone into the combination of a melody ({H} or {L}) and a register ({h} or {l}) feature. I assign the fully specified representation {h,H} to both PERT.PL and VOC, while APL is realized as an underspecified {H}. Under morphological concatenation, PERT.PL and VOC are able to surface faithfully due to their complete specification, whereas APL’s variable shape is derived by spreading a neighbouring tone’s register feature onto it: if it has {h}, {h, H} [H] is produced, whereas {l, H} [M] obtains in the context of {l}. Assuming that /{h, L}/ and /{l, H}/ can be phonetically neutralized, these represen-

tations also explain why M can appear with either [H] (1a.iii-iv) or [M] (1b.iii). (C) *Derivations.* I formalize "derivational timing" in terms of *strata* (Kiparsky 2000 *et. seq.*): both the PERT.PL and APL exponents are introduced at the Word Level, whereas VOC is introduced at the Phrase Level. I also assume that nouns may display a variety of underlying idiosyncrasies: ① floating tones (e.g. LⒽ, 1a.ii-1b.11); ② underspecified tonal root nodes (e.g. H•, 1a.vi-1b.vii); ③ or a combination thereof (e.g. H•Ⓜ, 1b.viii). At the Word Level, a requirement for full specification of TBUs forces the grammar to choose between the noun's inherent floating tones and the tonal affixes introduced at that level. A preference for non-tautomorphemic docking of autosegments (e.g. van Oostendorp 2007, Wolf 2007) resolves the competition in favour of the tonal affixes (2a). In the absence of additional exponence at the Word Level, the grammar satisfies the requirement for full specification by realizing the noun's inherent floating tones or epenthesis (2b). At the Phrase Level, all inputs bear full tonal specification, which is protected by a highly-ranked MAX(TONE) constraint. This means that VOC realization can only be purely additive: on monosyllabic nouns, it proceeds without further ado (2c.i), but on bisyllabic nouns, it also induces lengthening due to a grammar-wide prohibition against light syllable contours (2c.ii).

(2) a. Word Level, affixation: realization preference for affixes

(i)	$X\text{Ⓨ} + \text{Ⓗ} \rightarrow XH$	PERT.PL, monosyllabic noun
(ii)	$X\text{Ⓨ} + \text{Ⓗ} \rightarrow X.H$	PERT.PL, bisyllabic noun
(iii)	$X\text{Ⓨ} + \text{Ⓗ} \rightarrow X\{$ h $,H\}$	APL, monosyllabic noun
(iv)	$X\text{Ⓨ} + \text{Ⓗ} \rightarrow X.\{$ h/l $,H\}$	APL, bisyllabic noun

b. Word Level, no affixation: last-resort specification

(i)	$X\text{Ⓨ} \rightarrow XY$	underlying floating tone: docking
(ii)	$X\bullet \rightarrow X$ L	underspecified tonal root node: epenthesis

c. Phrase Level: pure addition

(i)	$XY + \text{Ⓗ} \rightarrow XYH$	VOC, monosyllabic noun
(ii)	$X.Y + \text{Ⓗ} \rightarrow X.YH$:	VOC, bisyllabic noun

Discussion. Under the analysis advocated for here, the phonology does not require any morphological information to generate the correct outputs, which supports Trommer's (2022a) claim that overwriting idiosyncrasies can still be handled without reference to morpheme identity. The analysis also shows that a stratal architecture, which is otherwise independently motivated in the phonological literature, is sufficient to model complex same-edge grammatical tone patterns. Finally, the analysis also contributes to a body of work extending the theoretical relevance of subtonal features outside of the realm of modelling downstep and upstep (e.g. McPherson 2017, Meyase 2021, Trommer 2021).

References. Inkelas, Sharon. 1998. The theoretical status of morphologically-conditioned phonology: a case study from dominance. **Kiparsky, Paul**. 2000. Opacity and cyclicity. **McPherson, Laura**. 2017. Tone features revisited: evidence from Seenku. **Meyase, Savio**. 2021. Polarity in a four-level tone language: tone features in Tenyidie. **van Oostendorp, Marc**. 2007. Derived environment effects and consistency of exponence. **Remijsen, Bert, and Otto Gwado Ayoker**. 2019. Inflectional morphology and number marking in Shilluk nouns. **Remijsen, Bert, and Otto Gwado Ayoker**. 2021. The noun phrase in Shilluk. **Rolle, Nicholas**. 2018. Grammatical tone: typology and theory. **Snider, Keith**. 1999. The geometry and features of tone. **Trommer, Jochen**. 2021. Gestalt contours, polarity and construction-specific phonology in Gaahmg. **Trommer, Jochen**. 2022. The concatenative structure of tonal overwriting. **Wolf, Matthew**. 2007. For an autosegmental theory of mutation.