Seenku tone sandhi is compatible with traditional cyclicity

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Introduction and data. In Seenku (Mande, Burkina Faso; McPherson 2019), morphological and phrasal tone alternations determine the surface shape of nouns. In plural formation (PL), underlyingly extra-low (X) and high (H) nouns raise to low (L) and superhigh (S), respectively (1-a,b), and underlyingly S-toned nouns also surface as S (1-c). In phrasal tone sandhi (PTS), a possessed noun surfaces with a tone that depends both on the preceding possessor's tone and its underlying specification; for example, underlyingly H-toned nouns surface as X when they follow a H-toned possessor (second column in 2-c).

(1) PL: pattern (McPherson 2017)

	SG	PL	
a.	bɛɛ^{X}	bɛɛ^{L}	'pig'
b.	bi^{H}	bi^{S}	'goat'
c.	su^{S}	sui^{S}	'antelope'

(2) PTS: pattern (McPherson 2019)

		possessed noun			
		kɔ̃n^{X}	ɲa^{H}	ni^{S}	
		'head'	'mother'	'father'	
a.	bɛɛ^{X}	L L	X X	X X	'pig's N'
b.	bɛɛ^{L}	L L	L L	L L	'pigs' N'
c.	mo^{H}	H S	H X	H X	'my N'
d.	məni^{S}	S S	S S	S S	'woman's N'

(3) PL-PTS interactions

a. [bi^{S} ɲa^{S}]
/bi$^{H\,+\,PL}$ ɲa^{H}/
goat.PL mother
'goats' mother' (McPherson 2016)

b. [mo^{H} cɛ^{L}]
/mo^{H} cɛ$^{H\,+\,PL}$/
1SG.EMPH hand.PL
'my hands' (McPherson 2019)

(4) PTS non-undergoers (McPherson 2019)

		do^{X}do^{H}	ts͡ɪ̃ɔ̃^{S}	
		'thigh'	'stalk'	
a.	a^{X}	... do^{X}do^{H}	... ts͡ɪ̃ɔ̃^{S}	'his/its N'
b.	mo^{H}	... do^{X}do^{H}	... ts͡ɪ̃ɔ̃^{S}	'my N'
c.	mi^{S}	... do^{X}do^{H}	... ts͡ɪ̃ɔ̃^{S}	'our N'

Problems. ① PL-PTS *interactions require* PL *to both precede and follow* PTS. When the possessor is plural, PL must precede PTS: H-toned possessors, which pluralize to S, also behave as S sandhi triggers, since a following H-toned possessed noun surfaces as S (3-a). However, when the possessed noun is plural, PL must follow PTS: H-toned possessed nouns, which pluralize to S, do not surface as X, the expected outcome for S in that configuration, but as L, which corresponds to the PL outcome for X, itself the expected PTS outcome for H in that configuration (3-b). The PTS ≺ PL ordering is especially problematic for theories of phonology such as Stratal OT, because post-lexical alternations (PTS) are not expected to affect lexical alternations (PL). ② PTS *is productive, but highly irregular.* PTS outputs are not straightforwardly analysable in terms of feature spreading or dissimilation (2-c), and the alternation itself is subject to lexical exceptions (4), some of which are tonally indistinguishable from actual undergoers (e.g. 'stalk'). McPherson (2019) argues that this constitutes evidence for treating PTS as root allomorphy. However, this requires most roots in the language to have at least 3 phonologically conditioned allomorphs, and allomorph selection, since it depends on the preceding possessor's tone, to run afoul of well-established locality conditions on allomorphy (e.g. Bobaljik 2012; Bobaljik & Harley 2017). **Main claims.** ① Seenku PTS and its interaction with PL are amenable to a fully phonological analysis whereby PL strictly precede PTS, as expected in models where lexical alternations cyclically precede post-lexical alternations. ② PTS can be modelled as autosegmental spreading at the post-lexical level, and thus requires no additional technical devices. **Analysis.** ① *Tonal*

representations. We follow McPherson (2017) in her featural decomposition of Seenku tones into ±u(pper) and ±r(aised), yielding the feature matrices –u–r (X), –u+r (L), +u–r (H), and +u+r (S). ② *Underlying representations*. We capture the contrast between PTS undergoers and non-undergoers via underspecification, with the former being tonally underspecified and the latter, fully specified. More concretely, we propose +r, –u and +u as the URs for PTS undergoers, which correspond to McPherson (2019)'s X, H and S, respectively. ③ *Word-level morphophonology*. At this level, roots combine with either a TH(ematic) or EZ(afe) morpheme, the latter being selected in the context of possessor modification. Each of these morphemes comes with a set of allomorphs conditioned by the root tone (5-a-i,iii,v;b-i,v). The root-TH/EZ complex may additionally combine with the PL morpheme, which is exponed as +r (McPherson 2017). If +F and –F compete for realisation, association prioritizes rightmost features (5-a-i,iii,iv; 5-b-v,vi).

(5) Word level

a. No possessor modification

	root	TH	PL	Output
i.	~~+r~~	–r		–r
ii.	+r	~~+r~~	+r	+r
iii.	~~+u~~	+u		+u
iv.	~~+u~~	+u	+r	+u+r
v.	+u	+r		+u+r
vi.	+u	+r	+r	+u+r

b. Possessor modification

	root	EZ	PL	Output
i.	+r	Ø		+r
ii.	+r	Ø	+r	+r
iii.	–u	Ø		–u
iv.	–u	Ø	+r	–u+r
v.	~~+u~~	–u		–u
vi.	~~+u~~	–u	+r	–u+r

(6) Post-lexical level

a. No possessor modification

i.	–r	→	–u–r
ii.	+r	→	–u+r
iii.	+u	→	+u–r
iv.	+u+r	→	+u+r

b. Possessor modification

i.	+r	→	–u+r
		→	+u+r
ii.	–u	→	–u–r
		→	–u+r
iii.	–u+r	→	–u+r

④ *Post-lexical phonology*. At this level, tonal matrices are required to be fully specified, which is achieved in two different manners depending on the context. When no possessor is present (6-a), the noun stands alone in its domain, and epenthesis provides a –F to all feature matrices that require it (6-a-i,ii,iii). When a possessor is present (6-b), it can share the required feature with the possessed noun via spreading (6-b-i,ii). The word level PL outputs (boxed in 5-a,b) are all mapped onto the proper surface forms by the proposed post-lexical grammar: in sandhi and isolation contexts, the relevant outputs are –u+r (6-a-ii, 6-b-i,iii; L) and +u+r (6-a-iv, 6-b-i; S). PTS non-undergoers are also captured in that their full specification means they are not subject to either epenthesis or spreading at the post-lexical level. Two additional constraints *XL and *SL derive raising of X to L before L, and raising of L to S after S. **Discussion.** The proposed analysis voids the need for generalized root allomorphy as proposed by McPherson (2019). It additionally illustrates that "traditional cyclicity", i.e. lexical ➟ post-lexical, which is hardwired into models like Stratal OT, can handle apparently counter-cyclic patterns (post-lexical ➟ lexical) like that of Seenku. Finally, it provides an additional argument in favour of the featural decomposition of tone for both phonological and morphological purposes. **References.**

Bobaljik, Jonathan. 2012. Universals in comparative morphology. **Bobaljik, Jonathan and Heidi Harley.** 2017. Suppletion is local: evidence from Hiaki. **McPherson, Laura.** 2016. Cyclic spell-out and the interaction of Seenku tonal processes. **McPherson, Laura.** 2017. Multiple feature affixation in Seenku plural formation. **McPherson, Laura.** 2019. Seenku argument-head tone sandhi.