Polarity, Floating Tones and the OCP in Anywa

Outline: In this talk, I show, based on data from Reh (1996), that floating H-tones in Anywa (Western-Nilotic, South Sudan and Western Ethiopia) induce L-tone insertion before other H-tones, filling an important gap in the typology of effects that can be triggered by floating phonological features and providing additional evidence for a relativized notion of adjacency in OCP-effects (Myers 1987, Hewitt and Prince 1989, Odden 1994, Archangeli and Pulleyblank 1994, Myers and Carleton 1996). I provide a detailed OT-analysis of the data which accounts for the asymmetries of floating tones in spreading and dissimilation ('polarity') at different morphoprosodic boundaries. **Data:** H-tones in Anywa trigger basically two effects at morpheme boundaries: Rightwards-spreading to a L-tone syllable (/ká:t-ɔ̀/ 'weave:sth:there-INF' → [kát-ɔ́])) and insertion of a L-tone before another H-tone resulting in a rising tone in a monosyllabic and a H-L sequence in a bisyllabic prosodic word (/ŏ-máth-à/ → [ŏ-màth-á] HAB-drink:AP-1SG 'whenever I drink'). Crucially, both processes also happen after lexical floating H-tones which appear at the end of many L-tone syllables (Reh 1996 calls L-tone syllables with a following floating H 'mid tone' syllables). A floating H associates to a following L-tone syllable displacing its L-tone (/à^{H}-dhyàŋ/ → [à-dhyáŋ] 'durra bird'), and triggers insertion of a L-tone before a following H-tone (/à^{H}-gú:t/ → [à^{H}-gŭ:t] 'first born twin' (fem.), /à^{H}-kákká/ → [à^{H}-kàkká] 'cattle with white line on back' (fem.)). **Typological Significance:** The Anywa data fill two important typological gaps: *First*, virtually all cases of tone polarity discussed in the theoretical literature (e.g. Kenstowicz et al. 1988, Cahill 2004) instantiate alternations where stem tones trigger polarity on affixes (but see Hantgan 2009 for a partial extension of affix polarity to stems in Bangime). The Anywa case shows a polarity pattern with the opposite distribution: The same prefixes (e.g. the feminine prefix **à^{H}-** in the data above) triggers H-tone in roots starting with L-tones, and L-tone insertion in L-initial roots. *Second*, these data complement the known inventory of OCP-effects triggered by floating tones. Thus it has been shown that floating tones can be targets of OCP-driven processes, as in Zezuru Shona, where floating H-tones are deleted in adjacency to associated H-tone-syllables (Myers 1987) and that intervening floating L-tones either block other repairs of OCP-violations observed in a given language (cf. Paster 2003 on Gã) or are in fact used as repair operations to OCP-offending configurations, a plausible interpretation of the recurrent insertion of downstep between adjacent H-tones in Bantu (see Paster and Kim 2011 for recent discussion). The Anywa data exemplify a third option: A floating tone triggers an OCP-driven repair operation without being itself affected. The fact that floating tones can do in principle everything that associated tones can do lends additional support to autosegmental representations which have been called into question by recent attempts to reintroduce a purely segmental approach to tonal phonology (Shih and Inkelas 2014). **Morphoprosodic Factors:** Anywa tone sandhi shows a well-known asymmetry between stem-suffix boundaries vs. prefix-stem and stem-stem boundaries in compounds (Nespor and Vogel 1986, Revithiadou 2011). Underlyingly associated tones spread from lexical roots to suffixes (e.g. (/ká:t-ɔ̀/ 'weave:sth:there-INF' → [kát-ɔ́]), but not from prefixes to roots, or from roots to other roots. On the other hand, OCP-driven L-tone insertion is found at prefix-root, but not at root-suffix boundaries. A further asymmetry shows up in the association of underlyingly floating H-tones to a following syllable: At prefix-root boundaries, the floating H associates only to the following syllable (see the examples above), but at root-suffix junctures, it becomes doubly linked, to the suffix *and* the root, overwriting the underlyingly associated L-tone (/gàth^{H} -ɛ̀/ → [gáth-ɛ́] trade-PL 'types of trade'). **OT-Analysis:** I adopt Colored Containment Theory in the version of Trommer (2011) and assume that Anywa has recursive

prosodic words (Peperkamp 1997, Ito and Mester 2009): Every prefix and every root(+suffix) combination forms a PWord with the root PWord heading a complex PWord. As shown in (1), tone spreading is driven by the constraint σ ⇒ H ('Every syllable should be associated to a H-tone') and restricted by ${}_{PW}{}^{*}\underline{H}_{PW}$ blocking H-tones linked to two distinct prosodic words (eliminating (1-b)) and the constraint DERIVED ENVIRONMENT$_{Tone}$ which penalizes derived association of a tone τ to a tautomorphemic TBU if τ is not also associated to a heteromorphemic TBU (cf. van Oostendorp 2007), fatal for (1-c). On the other hand, the configuration in (1-b) becomes optimal at a root-suffix juncture, which doesn't coincide with a PWord boundary.

(1) **Floating High Tone Spreading from Prefix to Root**

Input: = d.	${}_{PW}{}^{*}\underline{H}_{PW}$	DE$_{Tone}$	DEP H	σ ⇒ H	FAITH |
☞ a. L H L | ╪ o- diek				*	**
b. L H L ╪ | ╪ o- diek	*!				***
c. L H L | | o- diek		*!		*	*
d. L H L | | o- diek				**!	

L-tone insertion (2) follows from a general version of the OCP extending to floating material. Given Containment Theory (i.e. the ban on deleting phonological structure), the only repair possible is inserting a L-tone. This associates to the following root bleeding at the same time the docking of the floating H because this would either lead to skipping of tones as in (2-c) or to other tonal configurations independently excluded in Anywa such as falling tones (2-b):

(2) **L-Insertion between Floating Prefix-H and Root-H**

Input: = d.	OCP	*FALL	NOSKIP	DEP H	σ ⇒ H	FAITH |
☞ a. L H L H | | na- ke:						*
b. L H L H | ╪ na- ke		*!			*!	**
c. L H L H | | na- no			*!			*
d. L H H | | na- ke:	*!					*

L-tone insertion (and hence OCP-compliance) is however blocked at root-suffix boundaries by higher-ranked [DEP τ]$_{PW}$ which penalizes tone insertion in Prosodic-Word-internal position, completing the account of the prefix-suffix asymmetry in Anywa spreading and dissimilation.

References

Archangeli, D. and Pulleyblank, D. (1994). *Grounded Phonology*. MIT Press, Cambridge MA.

Cahill, M. (2004). Tone polarity in Kɔnni nouns. *Studies in African Linguistics*, 33(1):1–33.

Hantgan, A. (2009). Does tone polarity exist? evidence from plural formation among bangime nouns. *Indiana University Working Papers in Linguistics (African Linguistics Across the Discipline)*, 8:69–83.

Hewitt, M. and Prince, A. (1989). Ocp, locality, and linking: the north karanga verb. In Fee, E. and Hunt, K., editors, *Proceedings of the Eighth West Coast Conference on Formal Linguistics*, pages 176–191, Stanford. CSLI.

Ito, J. and Mester, A. (2009). The extended prosodic word. In Kabak, B. and Grijzenhout, J., editors, *Phonological Domains: Universals and Derivations*, pages 135–194. Mouton de Gruyter, The Hague.

Kenstowicz, M., Nikiema, E., and Ourso, M. (1988). Tone polarity in two Gur languages. *Studies in the Linguistic Sciences*, 18(1):77– 103.

Myers, S. and Carleton, T. (1996). Tonal transfer in chichewa. *Phonology*, 13:39–72.

Myers, S. P. (1987). *Tone and the structure of words in Shona*. PhD thesis, UMass Amherst.

Nespor, M. and Vogel, I. (1986). *Prosodic Phonology*. Foris Publications, Dodrecht.

Odden, D. (1994). Adjacency parameters in phonology. *Language*, 70:289–330.

Paster, M. (2003). Floating tones in Gã. *Studies in African Linguistics*, 32(1):17–39.

Paster, M. and Kim, Y. (2011). Downstep in Tiriki. *Linguistic Discovery*, 9(1):71–104.

Peperkamp, S. (1997). *Prosodic Words*. PhD thesis, Holland Institute of Generative Linguistics.

Reh, M. (1996). *Anywa Language*. Rüdiger Köppe Verlag, Köln.

Revithiadou, A. (2011). The phonological word. In van Oostendorp, M., Ewen, C. J., Hume, E., and Rice, K., editors, *The Blackwell Companion to Phonology*. Wiley-Blackwell.

Shih, S. and Inkelas, S. (2014). A subsegmental correspondence approach to contour tone (dis)harmony patterns.

Trommer, J. (2011). Phonological aspects of Western Nilotic mutation morphology. Habilitation Thesis, University of Leipzig.

van Oostendorp, M. (2007). Derived environment effects and consistency of exponence. In Blaho, S., Bye, P., and Krämer, M., editors, *Freedom of Analysis?*, pages 123–148. Berlin: Mouton de Gruyter.