

Persistence vs. improvement in prosodic opacity

Persistent rules, as proposed by Chafe (1968) and Myers (1991), apply whenever their structural conditions are met, at any given point in the derivation, yielding, for example, systematic gaps in language structures. This paper discusses the role of rule persistence in explaining surface opacity found in Yimas [New Guinea; (Foley, 1991)]. The discussion is placed within the context of recent developments in Optimality Theory which allow for serial ordering conditioned by harmonic improvement and constraint ranking [Harmonic Serialism, henceforth HS (McCarthy, 2000, 2008; Pruitt, 2008)]. It is shown that in its current shape HS cannot accomodate persistent rules, thus overlooking the insights brought by persistence to the discussion on serial derivations.

Persistent footing provides a solution to the puzzle of opacity in the stress-epenthesis interaction found in Yimas. The initial main stress pattern found in Yimas (1a) is disrupted in words where the first vowel is epenthetic, as shown in (1b) (the underlined vowels are epenthetic).

However, initial epenthetic vowels *can* receive stress when they are immediately followed by another epenthetic vowel, as shown in (2).

- (2) Metrically visible epenthetic vowels
krímkinawt 'wasp'
tímpinàwkwan 'sago palm'

The solution to the puzzle proposed here is the following. Footing in Yimas is persistent, i.e. it applies at any point in the derivation where there are unparsed stressable elements. However, in cases where there is not enough prosodic material to construct a foot, footing is blocked creating surface opacity, as shown by the derivation in (3).

- | | | | |
|------------|-----------------------------|---|---|
| (3) | Persistent footing in Yimas | $\times \quad \times \times$ | $\times \quad \times$ |
| UR | /nmp a nm a r a / | $\langle \times \quad \times \rangle \times$ | /tmpn a wkw a n /
$\langle \times \quad \times \rangle$ |
| Footing | nmp a nm a r a | $\times \quad \langle \times \quad \times \rangle \times$ | tmpn a wkw a n
$\times \quad \times \langle \times \quad \times \rangle$ |
| Epenthesis | n i mp a nm a r a | t i mp i n a wkw a n
$\langle \times \quad \times \rangle \langle \times \quad \times \rangle$ | |
| Footing | <i>blocked</i> | \times | t i mp i n a wkw a n
\times |
| | | $\times \quad \langle \times \quad \times \rangle \times$ | $\langle \times \quad \times \rangle \langle \times \quad \times \rangle$ |
| Stress | n i mp a nm a r a | t i mp i n a wkw a n | |
| Output | nimpánmara | tímpinàwkwan | |

The generalisation that footing in Yimas applies whenever there is unparsed prosodic material provides a simple and accurate analysis of Yimas stress. However, it will be shown that this generalisation is entirely elusive for HS.

Stress-epenthesis interaction in Yimas is tentatively considered here as following from two constraints: PARSE- σ (=Do not have unparsed syllables) and a provisional constraint against onset clusters *CMPLXONS(=Do not have complex onsets). Either ranking of the two constraints will fail to license one of the two subchains underlined in (4).

- (4) a. $\frac{\langle \times \quad \times \rangle \quad \times \quad \langle \times \quad \times \rangle \quad \times \quad \times \langle \times \quad \times \rangle \quad \langle \times \quad \times \rangle \langle \times \quad \times \rangle}{\langle \times \quad \times \times \quad \langle \times \quad \times \rangle \times \quad \times \quad \langle \times \quad \times \rangle \times}$
 <tmpnawkwan, t̩impnawkwan, t̩impinawkwan, t̩impinawkwan>
 b. <nmpanmara, nmpanmara, n̩impanmara>

Ranking of PARSE- σ over *CMPLXONS falsely predicts that there can be no epenthesis once foot assignment has taken place, as shown in (5a). Ranking *CMPLXONS over PARSE- σ , on the other hand, makes the incorrect prediction that all foot assignment must be delayed until after all complex onsets have been repaired, as illustrated in (5b).

(5)

a. PARSE- σ \gg CMPLXONS			b. CMPLXONS \gg PARSE- σ		
$\langle \times \quad \times \rangle$ /tmpnawkw an/	PARSE- σ	CMPLXONS	$\times \quad \times \times$ /nmpanmara/	CMPLXONS	PARSE- σ
$\langle \times \quad \times \rangle$ tmpnawkw an		**	$\times \quad \times \quad \times \times$ n i mp anmara		****
$\times \quad \langle \times \quad \times \rangle$ t i mpnawkw an	*!	*	$\langle \times \quad \times \rangle \times$ nmpanmara	*!	*

Importantly, the serial OT analysis cannot be salvaged through the introduction of extrinsic ordering, e.g. by means of PRECEDENCE constraints (McCarthy, 2007), as PREC constraints have no way of capturing the fact that footing occurs both before and after epenthesis. This problem of serial OT has been acknowledged by McCarthy (2007) in a discussion on rule sandwiching (Bye, 2001) and the Duke of York gambit (Pullum, 1976). The solution proposed by McCarthy is re-analysing the opaque cases as transparent. However, the viability of this solution for the Yimas data is rejected by the present account.

A transparent account of Yimas has, indeed, been proposed by Alderete (1999), who analyses the partial metrical visibility in Yimas as an optimal resolution of a conflict between output constraints on stress assignment and an inherent restriction against stressing epenthetic vowels. However, this analysis is problematic in employing the constraint HEAD-DEP, which conflates an evaluation of an input-output relationship (typical of faithfulness) with an output well-formedness condition (typical of markedness). What is more, the transparent analysis must resort to *assuming* unstressability of epenthetic vowels, thus partially axiomatising a phenomenon that it set out to explain. The present account, on the other hand, derives the opacity in Yimas from ordering and persistence only, in an attempt to gain a better understanding of how phonological processes might interact.

References

- Alderete, John. 1999. Head dependence in stress-epenthesis interaction. In *The Derivational Residue in Phonological Optimality Theory*, ed. Ben Hermans and Marc van Oostendorp, 29–50. Amsterdam Philadelphia: John Benjamins Pub. Co.
- Bye, Patrik. 2001. Virtual Phonology. Rule sandwiching and multiple opacity in Northern Saami. Doctoral Dissertation, University of Tromsø.
- Chafe, Wallace L. 1968. The ordering of phonological rules. *International Journal of American Linguistics* 34:115–136.
- Foley, William A. 1991. *The Yimas language of New Guinea*. Stanford, Ca : Stanford University Press.
- McCarthy, John J. 2000. Harmonic serialism and parallelism. In *Proceedings of the North East Linguistics Society*, ed. Masako Hirotani, 501–524. Amherst, MA: GLSA Publications.
- McCarthy, John J. 2007. *Hidden Generalizations. Phonological Opacity in Optimality Theory*. London: Equinox.
- McCarthy, John J. 2008. The serial interaction of stress and syncope. *Natural Language and Linguistic Theory* 26:499–546.
- Myers, Scott. 1991. Persistent rules. *Linguistic Inquiry* 22:315–344.
- Pruitt, Kathryn. 2008. Iterative foot optimization and locality in stress systems. URL <http://roa.rutgers.edu/>, Rutgers Optimality Archive #999.
- Pullum, Geoffrey. 1976. The Duke of York gambit. *Journal of Linguistics* 12:83–102.