

Backness Harmony in Fungwa

Samuel Akinbo
University of British Columbia

The analyses of root-controlled harmony involving clitic and affix targets assume prosodic word (PWd) as the domain of harmony (e.g. Hudu, 2013; Kimper, 2011; Akinlabi, 2009, etc.). Although research have shown cliticization and affixation involve prosodic integration (Selkirk, 1980; Booij, 1996; Peperkamp, 1999), these analyses of harmony rarely incorporate constraints nor structure of PWd. This poses an analytical gap and raises questions on (1) what triggers the prosodic integration of affixes and clitics into the domain of harmony; (2) the effect of constraints on PWd in harmony. Using an optimality theory (OT) framework (Prince & Smolensky, 2008), this presentation shows the constraint on PWd triggers the prosodic integration of clitics and affixes into the domain of harmony and accounts for a stem-affix disharmony. This presentation is based on data from Fungwa (Kainji, Benue-Congo), an endangered language with about 1000 speakers in Nigeria. The data are results of a language documentation project funded by Graduate Research Awards from UBC and Endangered Language Development Program (ELDP, SOAS).

Fungwa has seven vowels which can be classified into front /i, e, ε/ and back /u, o, ɔ, a/. Structurally, all native root morphemes in Fungwa are onsetful and mostly bisyllabic.

The vowels in Fungwa are implicated in backness harmony. For example, the vowel of a CV prefix agrees in backness with an adjacent root/stem vowel. In (1), the C12 singular prefix is [bi]- when the following stem vowel is front, but [bu]- when the following stem vowel is back. However, the vowels within a stem/root can be disharmonic. For instance, [dúlè] ‘room’ contains a back and a front vowel.

(1)	C12.base		C12.base	
	a. bí-píʔí	‘he-goat’	bú-dúlè	‘room’
	b. bí-télà	‘tailor’	bù-sòkòtó	‘trouser’
	c. bí-gétè	‘heart’	bú-báʔà	‘child’

Unlike CV prefixes, the vowel of the complementiser in an associative construction (AC) could agree in backness with the preceding or following stem vowel. For instance, the complementiser is [ná] when the following or preceding vowel is back (2-a), but [nɛ] when the following or preceding vowel is front (2-b). The vowel of the complementiser only agrees with the preceding or following stem vowel when both stems are, at least, bisyllabic. However, when one of the stems in AC is monosyllabic, the vowel of the complementiser always agrees with the vowel of the monosyllabic stem (3).

(2)	NP C NP	
	a. nɛʔɛ + ná + báʔà → nɛʔɛ ná=báʔà ‘the goat of the child’	
	bú-kà + ná + kéléʔè → bù-kà=ná kéléʔè ‘the killer of sheep’	

- (3)
- | | | | |
|----|-----------------------|-----------------|---------------------------|
| b. | lábò + nǎ́ + nɛ́ʔɛ̀ → | làbò nɛ́=nɛ́ʔɛ̀ | ‘the goat of the child’ |
| | nɛ́ʔɛ̀ + nǎ́ + báʔà → | nɛ́ʔɛ̀=nɛ́ báʔà | ‘the goat of the child’ |
| | NP C NP | | |
| a. | dèní + nǎ́ + kâ → | dèní nǎ́=kâ | ‘the fence of the killer’ |
| b. | vê + nǎ́ + báʔà → | vê=nɛ́ báʔà | ‘the finger of the child’ |

Although vowels of the CV prefix and complementiser agree with an adjacent stem vowel, V-initial prefixes do not agree with the following stem vowel (4). For instance, the C1A plural prefix is [á] when the following stem vowel is either front or back. Similarly, the C20 singular prefix is [í] when the following stem vowel is either front or back.

- (4)
- | | | | | |
|----|----------------|---------------|----------------|------------------|
| | SG-base | | SG-base | |
| a. | í-kédʒì | ‘cage’ | í-kókójù | ‘rooster’ |
| b. | á-rèkè | ‘sugar canes’ | á-dʒógálà | ‘moringa leaves’ |

Vowels of the CV prefix and complementiser agreeing in backness with an adjacent stem vowel can be described as root-controlled harmony: the obligatory agreement of adjacent segments in a particular phonological feature within a specified domain (Archangeli & Pulleyblank, 2007; Rose & Walker, 2011). While the vowels of the CV prefix and complementiser agreeing with an adjacent stem vowel is typical of root-controlled vowel harmony (VH) crosslinguistically, it is rare for the presence or absence of an onset to condition vowel harmony and for syllable size to determine the trigger in root-controlled VH. These rarities raise questions on (1) the relevant domain of harmony; (2) the disharmony of V-initial prefixes; (3) the vowel of the complementiser agreeing with either a preceding or following stem vowel in AC with at least two bisyllabic stems; (4) the vowel of the complementiser always agreeing with the vowel of a monosyllabic stem.

For the analysis of VH in Fungwa, I incorporate constraints on PWd. Given that root morphemes are onsetful and mostly bisyllabic in Fungwa, I argue PWd is onsetful and bisyllabic. Using OT framework, onsetfulness and bisyllabicity are accounted for with ONSET (Ito & Mester, 2009) and Minimality (Downing, 1999) respectively. Considering the domain of harmony spans prefixes and clitic complementiser, I assume the domain of VH in Fungwa is PWd.

To fulfil Minimality, the CV prefixes and clitics are integrated into PWd, the domain of harmony. The vowels of the CV prefix and complementiser harmonizing with an adjacent root vowel is as a result of the prosodic integration. More so, the vowel of the complementiser harmonising with a monosyllabic stem also serves as evidence for prosodic integration because the prosodic integration of the CV clitic into a monosyllabic stem fulfils Minimality for both the stem and the clitic. By violating ONSET, the V-initial prefixes occur outside the domain of harmony (i.e PWd), but prosodified into a higher prosodic unit (i.e prosodic phrase). The disharmony of the V-initial prefixes is an evidence of occurring outside PWd. While harmony is accounted for with SPREAD [α back]_{PW} (Padgett, 1997, 2002), the disharmonic roots are accounted for with a positional faithfulness constraint which preserves the value of [α back] feature in roots (Beckman, 1998).

References

- Akinlabi, A. (2009). Neutral vowels in lokaa harmony. *Canadian Journal of Linguistics/Revue canadienne de linguistique*, 54(2), 197-228.

- Archangeli, D., & Pulleyblank, D. (2007). Harmony. In P. de Lacy (Ed.), *The Cambridge handbook of phonology* (p. 353-378). Cambridge: Cambridge University Press.
- Beckman, J. N. (1998). *Positional faithfulness* (Dissertation). University of Massachusetts Amherst.
- Booij, G. (1996). Cliticization as prosodic integration: the case of dutch. *The Linguistic Review*, 13(3-4), 219-242.
- Downing, L. J. (1999). Prosodic stem \neq prosodic word in bantu. In T. A. Hall & U. Kleinhenz (Eds.), *Studies on the phonological word* (p. 73-98). Amsterdam/Philadelphia: John Benjamins Publishing Co.
- Hudu, F. (2013). Dagbani tongue-root harmony: triggers, targets and blockers. *Journal of African languages and linguistics*, 34(1), 47-73.
- Ito, J., & Mester, A. (2009). The onset of the prosodic word. In S. Parker (Ed.), *Phonological argumentation: Essays on evidence and motivation* (p. 227-260). London: Equinox.
- Kimper, W. (2011). Domain specificity and vata atr spreading. *University of Pennsylvania Working Papers in Linguistics*, 17(1), 154-164.
- Padgett, J. (1997). Partial class behavior and nasal place assimilation. In K. Suzuki & D. Elzinga (Eds.), *Proceedings of the southwest optimality theory workshop* (p. 1-40). Tucson: : University of Arizona.
- Padgett, J. (2002). Feature classes in phonology. *Language*, 78(1), 81-110.
- Peperkamp, S. (1999). Prosodic words. *Glott international*, 4(4), 15-18.
- Prince, A., & Smolensky, P. (2008). *Optimality theory: Constraint interaction in generative grammar*. Malden, MA: Wiley-Blackwell.
- Rose, S., & Walker, R. (2011). Harmony systems. In J. Goldsmith, A. Yu, & J. Riggle (Eds.), *The handbook of phonological theory* (2nd ed., p. 240-290). Malden, MA: Wiley- Blackwell.
- Selkirk, E. (1980). On prosodic structure and its relation to syntactic structure. In J. L. Morgan & K. Demuth (Eds.), *Signal to syntax: Bootstrapping from speech to grammar in early acquisition*. Indiana University Linguistics Club.