

## The cycle within a syllable: The role of the *vP* phase in Dinka morphophonology

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**1. Introduction.** Much work in morphosyntax has explored the idea that the operation of phasal Spell-Out yields morphophonological cycles (e.g. Newell 2009, Embick 2010, Sande et al. 2020). At the same time, it is clear that there are cases in which phonological properties established in an earlier domain can be altered by later processes, for example in processes of stress assignment, vowel harmony, and replacive tone. In addition, a key question that remains in research on cyclicity is which heads exactly introduce domain boundaries and whether syntactic and morphophonological domains must always be parallel (e.g. d’Alessandro and Scheer 2015, Fenger 2020).

**2. Cyclicity in a monosyllabic root.** This talk examines the question of cyclicity through the morphophonology of Dinka (South Sudan, Nilotic). A famous property of Dinka is that it expresses a large set of morphological categories only through nonconcatenative changes to a strictly monosyllabic root (Andersen 1993, 1995, 2017). As a result, many monosyllabic forms contain multiple nonconcatenative morphemes:

(1) *Centripetal triggers breathy voice, 1SG vowel lowering:*

Root	Centripetal (breathy voice)	1SG (lowering)	1SG centripetal (breathy voice+lowering)	Meaning
wèc	wèc	wèc	wèc	‘kick’
bàr	bèr	bàr	bàr	‘take along’
mìit	mìit	mjèet	mjèet	‘pull’

(Andersen 1993:28; Andersen 2017:12–13)

Most verbal categories then compete for realization within the same root syllable. At the same time, there is extensive work on syntactic phase boundaries in Dinka (Van Urk 2015, 2018; Van Urk & Richards 2015; Keine & Zeijlstra 2023). As a result, Dinka provides a great testing ground for the effects of cyclicity.

**3. A clause-internal domain in Dinka morphology.** Van Urk (2015, 2018) and Van Urk & Richards (2015) provide syntactic diagnostics that identify a clause-internal *vP* phase in Dinka, based on the distribution of two syntactic effects: pronoun copying and V2 satisfaction. These diagnostics line up exactly with a well-known distinction in work on Dinka, and Western Nilotic, morphology (Andersen 1993, 1995): the division between inflectional and derivational morphology. All derivational morphology, including the non-finite, applicative, antipassive, and associated motion marking, originates in the *vP* phase. These morphemes demarcate a phonological domain: i) the root with its derivational morphemes must map to a monosyllabic stem, so that overt suffixation is only permitted for higher, inflectional, affixes, and ii) in grammatical tone, only derivational morphemes have allomorphs that are sensitive to verb class, which I propose is blocked in inflectional morphemes due to the presence of a phase boundary. Similar asymmetries are found in closely related languages, such as Anywa and Nuer (Reh 1996; Reid 2020).

**4. Partial opacity in nonconcatenative processes.** Dinka also demonstrates that there is no total “phonological phase impenetrability”. All nonconcatenative morphemes, whether inflectional or derivational, trigger one of two processes that alter the root: vowel fronting or vowel lowering, accompanied by lengthening and replacive tone (see Andersen 1993 et seq.). However, there are some phonological properties that are *fixed* in the derivational domain: i) the same process of vowel fronting has a greater range of application in derivational morphemes than in inflectional morphemes, allowing for back vowels to front also (Andersen 2017), and ii) only derivational morphemes can introduce a shift to breathy voice. Similar asymmetries exist in Shilluk and Anywa. I model this partial opacity by proposing that phonological structure remains fully accessible after Spell-Out, but that a family of Optimality-theoretic faithfulness constraints preserves specific phonological properties of phases (Šurkalović 2013, McPherson 2014, McPherson and Heath 2016).

Dinka nonconcatenative morphology then provides evidence for a clause-internal phase, as well as the parallelism of syntactic and phonological domains. In addition, it offers novel insight into how phasal computation may cause specific phonological features to be inherited in later cycles of phonological grammar.