Is anything possible in Murrinhpatha morphotactics? Not with phonology.

Overview: The arbitrariness of morphological rules in affix order is a problem when building restrictive theoretical models on affix order. In this paper, I investigate templatic effects in Murrinhpatha morphology and show that the phonology reveals a cyclic make-up of the word and helps to limit the scope and thus the arbitrariness of morphological rules.

Background: The relative order of affixes within a word is claimed to be predictable from grammatical factors, such as syntax (e.g. Baker 1985, 1988), semantic scope (e.g. Rice 2000), and potentially also phonology (e.g. Kim 2010). In the descriptive literature, however, we find patterns in which these grammatical factors seem to be overwritten by language-specific, arbitrary morphological rules. The implementation of the arbitrariness of morphotactics in linguistic theory is problematic: the more arbitrary the rules of morphology, the more powerful and unpredictable the theoretical model. Consequently, it is highly desirable to limit the scope of morphological rules in theoretical models on affix order in order to build restrictive models.

Templatic effects in Murrinhpatha: In Murrinhpatha (Southern Daly, Australia), the predicate consists of two parts: the word-initial *finite stem*, which encodes features of the subject, and an uninflected coverb, see (1). Number marking is distributed among the finite stem and additional markers, such as *ngintha*. Nordlinger & Mansfield (2021) observe a rather peculiar phenomenon in Murrinhpatha, which is claimed to be evidence for *position classes* in morphology: the finite verb stem changes if the dual non-sibling marker *ngintha* is not adjacent. In (1a), it is adjacent to the finite stem which carries the features of the subject. In that case, the form of the finite stem is *ba*, which marks singular non-sibling subjects. If the object argument is 1st or 2nd person, an overt object marker appears to the right of the finite stem (see 1b). In that case, the finite stem of 'to see' changes to *nguba*, which is otherwise used for dual subjects. Moreover, the dual non-sibling marker *ngintha* is shifted to the right edge of the word in (1b). In that position, it follows the coverb *ngkardu* 'to see'. Nordlinger & Mansfield (2021) take the varying placement of *ngintha* to be evidence for position classes in morphology, assuming that the object marker and *ngintha* compete for the same position class, yielding to a suppression of *ngintha* in (1b). In short, the generalization by Nordlinger & Mansfield (2021) about the data in (1) suggests a theoretical model that makes reference to *position classes* in morphology.

(1) Allomorphy of the classifier stem (Nordlinger & Mansfield 2021, 8)

a. ba-ngintha-ngkardu-nu
see.1SG.SUBJ-DU-see-FUT
'We (dual non-sibling) will see him / her.'

b. nguba-nhi-ngkardu-nu-ngintha
see.1DU.SUBJ-2SG.OBJ-see-FUT–DU
'We (dual non-sibling) will see you'

Phonological correlates of affix order: Mansfield (2017) presents phonological evidence that the word in Murrinhpatha can be separated into several domains. Specifically, the finite verb stem has to be bimoraic: when CV roots do not carry affixes, their vowel is obligatory lengthened, as in (2a). However, some affixes block lengthening of the root vowel (see 2b), while others do not, as shown in 2c. This suggests that affixes are attached at two different levels: Object markers belong to the domain where the minimum quantity is evaluated. In this domain, word stress is assigned to the penultimate syllable. Other affixes, like tense markers, are attached in a later step. Thus, they are too late to be considered for the bimoraicity condition and stress assignment. Crucially, these phonological diagnostics reveal differential phonological behaviour of *ngintha*: in 2d, it receives word stress suggesting that it is part of the inner domain. In 2e, however, where *ngintha* is attached to the right of the non-finite coverb, it is attached outside the stress domain. I follow Mansfield (2017) in assuming that the word in Murrinhpatha is layered and conclude that *ngintha* may attach at two different levels: it may occur either before the coverb, where it is part of the stress domain (1a and 2d), or after the coverb, where it is outside the stress domain (1b and 2e).

(2) Minimum quantity and phonological levels (Mansfield 2017, 362, 366, 368)

a. ké:
'nerite shell'

b. [ná-nge]
say.2SG.IRLS-3SG.FEM.OBJ
'tell her'

c. [tí:]-nu
sit.2SG.IRLS-FUT
'you will sit'

d. [pirim-ngíntha]
stand.3SG.NONFUT-DU
'the two of them are standing'

e. [pumam-nga-páta]-ngintha-pibim
use.hands.3PL-1SG.OBL-make-DU-IMPFV
'the two of them are making it for me'

Analysis: Once the layered structure of the word is adopted, the allomorphy of the classifier stem and the position of *ngintha* can be explained without making reference to position classes, thus providing a restrictive theory without stipulating arbitrary morphological rules. The cyclic fashion of the word is modelled in StratalOT (Kiparsky 2000; Bermúdez-Otero 2011, 2016). I adopt the following well-established constraints: M(AX) constraints ensure that all parts of the word are concatenated: finite stem, coverb, number marker and object marker, thus ruling out candidates (3f) and (3g). Moreover, L⇐PERS (Trommer 2001) causes person exponents of all arguments to be positioned maximally left. COH(ERENCE) ensures that features of the same argument are realized in proximity to each other. The tableau in (3) illustrates how the interaction of these constraints explains the allomorphy of the finite stem and the position of *ngintha*. Due to L⇐PERS, both the finite stem and the object marker need to be at the left edge of the word, ruling out candidate (3b). Thus, the number marker *ngintha* can no longer be realized in adjacency to the finite stem, leading to a violation of COH in (3a) and (3d). Since L⇐PERS and COH are ranked higher than M(NUM), *ngintha* is not realized in the inner domain, the stem-level. In short, the object marker blocks the realization of *ngintha* in its preferred position, which yields non-realization of the number marker in this domain. However, the [Dual] feature of the subject argument is not realized due to the non-realization of *ngintha*, which yields a violation of MAX_{ARG} in candidate (3c). Consequently, *nguba* is chosen as a finite stem exponent, since it is the more specific marker in this context. In the outer domain, the word-level, *ngintha* will be concatenated to realize the remaining feature [Sibling] of the subject.

Stratum	**Category**	**Specification**	**Form**
Stem	[finite stem]	[1, subject]	ba
		[1, dual, subject]	nguba
	[coverb]	'to see'	ngkardu
	[OBJ]	[2, object]	nhi
Word	[TMA]	FUT	nu
unspecified	[NUM]	[non-sibling, dual]	ngintha

Table 1: Feature specifications of Murrinhpatha exponents

(3) Derivation of the inner domain of (1b)

$\sqrt{see}$, [•fin stem•], [•coverb•], [•NUM•], [•OBJ•] Arg: [Subject, 1, Dual, Sibling]		M(FIN STEM)	M(COVERB)	M(OBJ)	L⇐PERS	COH	MAX_{ARG}	M(NUM)
a.	ba-nhi-ngintha-ngkardu				*	*!		
b.	ba-ngintha-nhi-ngkardu				**!			
c.	ba-nhi-ngkardu				*		**!	*
d.	ba-nhi-ngkardu-ngintha				*	*!*		
e. ☞	nguba-nhi-ngkardu				*		*	*
f.	ba-ngintha-ngkardu			*!	*		*	
g.	nhi-ngintha-ngkardu	*!			*		**	

Summary: In sum, a flat perspective on the morphological structure of Murrinhpatha suggests multiple exponence of the [Dual] feature and a discontinous dependency between the finite stem and *ngintha*. Taking the phonological correlates of affixes into considerations resolves those issues: within the inner domain, the choice of the finite stem and the position of *ngintha* is derived by well-established morphotactic constraints on the position of argument features.