An illusory violation of the affix ordering generalisation in Tigrinya
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Introduction: Stratal analyses such as Stratal OT (Kiparsky 2000) or Lexical Phonology and Morphology (Kiparsky 1982), do not permit the stratal structure in (1), where a word level affix (WL) appears in a more internal position than a stem level affix (SL). This follows from the affix ordering generalisation (henceforth AOG) (Selkirk 1982 a.o.).

(1) $\sqrt{}$ - Affix$_{WL}$ - Affix$_{SL}$

However, much work has shown that structures in (1) exist (see Fabb 1988, Giegerich 1999 a.o.) and that the AOG should be abandoned. In this paper, I present a case of (1) in the language Tigrinya (Semitic, glottocode: tigr1271) and argue that the violation of the AOG is illusory under the assumption that the default stratal association of an affix can be changed to satisfy semantic conditions on affix ordering. **Data:** In Trigrinya, the phonological process of ɨ-epenthesis, which breaks up coda consonant clusters, provides evidence for a cyclic approach to phonology. Consider the example in (2a), where the epenthetic [ɨ] (word-finally [iː]) syl-labifies the final coda consonant in *kälb* and *siʕl* as an onset consonant (data from Wolf 2009 citing Leslau 1941, Pam 1973, Buckley 1994). Example (2b) shows that POSS affixation bleeds final ɨ-epenthesis via choice of a vowel-initial, phonologically conditioned allomorph (/u/ after consonants and /ʔu/ after vowels). In the example in (2c), a consonant-initial allomorph of the PL affix surfaces (/-at/ after consonants, /-tat/ after vowels) which counterbleeds ɨ-epenthesis.

(2) a. /kälb/ → [kälbiː] 'dog'   b. /kälb-u/ → [kälbu]   c. /siʕl-tat/ → [siʕlɨtat]
    /siʕl/ → [siʕliː]   dog-3SG.MASC.POSS   picture-PL
    'picture'   'his   dog'   'pictures'

We can straightforwardly account for the data in (2) by positing a stratal analysis; ɨ-epenthesis applies at stem level phonology, POSS affixes are stem level affixes, therefore they bleed ɨ-epenthesis. The PL affix is a word-level affix, its affixation comes too late to bleed ɨ-epenthesis, leading to the counterbleeding effects. If POSS is a stem-level affix and PL is a word-level affix, the AOG predicts that the POSS suffix should precede PL. This prediction is not borne out. It is the PL affix which precedes POSS in example (3a). Thus, the resulting stratal structure appears to violate the AOG, shown in (3b).

(3) a. siʕli-tat-u   b. $\sqrt{\text{picture}}$ - PL$_{WL}$ - POSS$_{SL}$
    picture-PL-POSS

Although the example in (3a) presupposes the stratal structure in (3b), the phonological domains do not indicate a violation of the AOG. The application of ɨ-epenthesis to the root requires both the PL and the POSS affixes to undergo word-level phonology, schematised in (4a). Crucially, there is no evidence that the phonological domains are isomorphic to a structure in (3b), schematised in (4b), because the phonological context for stem-level phonology and therefore ɨ-epenthesis to apply again, after suffixation of the POSS affix, is not given.

(4) a. ✓[[$\sqrt{}$]$_{SL}$ -PL - POSS]$_{WL}$ b. ✗[[[$\sqrt{}$]$_{SL}$ -PL]$_{WL}$ - POSS]$_{SL}$

Thus, I argue that the actual stratal structure of (3a) is: $\sqrt{\text{picture}}$-PL$_{WL}$-POSS$_{WL}$, where the POSS is treated exceptionally as a word level affix. The POSS thus constitutes a chameleon affix (Kiparsky 2020), also known under the term dual-level affix, an affix which can either associate with the stem-level or the word-level. **Analysis:** In this presentation, I claim that the example in (3a) is not a violation of the AOG. Instead, the default stratal affiliation of the POSS affix changes to satisfy a semantically transparent order of affixes. The analysis suggests that stratal affiliation is not a static property that is stored in the representation of each affix. Instead, stratal affiliation is determined in a parallel morphological computation couched in Optimality Theory, where constraints on stratum affiliation are ranked with respect to constraints on semantic and morphological well-formedness. For the case of Tigrinya, the PL affix is affiliated by default with the word level, while a POSS affix is affiliated with the stem level, enforced by the constraints in (5).

(5) a. PL=WL : Assign a violation mark for every plural affix that is not associated with the word level.

   b. POSS=SL : Assign a violation mark for every possessor affix that is not associated with the word level.

These two constraints derive the correct stratal affiliations when either affix appears in isolation with the root, as in examples (2b) and (2c). However, when both affixes appear in combination, as in example (3a), the constraints in (5) and the AOG predict the unattested, anti-scopal order: $\sqrt{\text{picture}}$-POSS$_{\text{SL}}$-PL$_{\text{WL}}$. This order indicates that POSS scopes over only the noun to the exclusion of plural. Yet, the POSS affixes, which encode person, number and gender of the possessor, scope over the entire pluralised noun, reflected by the attested affix order in (3a). I introduce the constraint SCOPE (Hyman 2002) which is violated by an order of affixes that is anti-scopal. SCOPE and PL=WL ranked above POSS=SL computes the attested affix order where POSS follows PL, thereby outscoping PL, and POSS is associated with the word-level. This is demonstrated in the tableau below by candidate a., which violates the lowest-ranked constraints POSS=SL. Candidates b. and c. violate SCOPE because they have ordered POSS before PL. Candidates c. and d. violate the high-ranked constraint PL = WL by associating the plural affix to the stem-level stratum. No output violates the AOG, I stipulate that the AOG is an unviolable constraint. After the computation in the tableau, the optimal candidate a. is sent to spell-out cyclically. First, the root is spelled-out and undergoes stem level phonology, where ɨ-epenthesis applies. Then, the two affixes are spelled-out and undergo word-level phonology.

{ $\sqrt{\text{picture}}$ POSS, PL }	PL=WL	SCOPE	POSS=SL
☞ a. $\sqrt{\text{picture}}$-PL$_{\text{WL}}$-POSS$_{\text{WL}}$			*
b. $\sqrt{\text{picture}}$-POSS$_{\text{WL}}$-PL$_{\text{WL}}$		*!	
c. $\sqrt{\text{picture}}$-POSS$_{\text{SL}}$-PL$_{\text{SL}}$	*!	*	
d. $\sqrt{\text{picture}}$-PL$_{\text{SL}}$-POSS$_{\text{SL}}$	*!		

The stratum affiliation analysis predicts that a reranking of the two stratum constraints results in different stratal domains. If PL=WL is ranked below POSS=SL and SCOPE, the optimal candidate produces a large stem-level domain (cmp. to candidate d). This prediction is borne out by the English derivational affix /-ment/ in combination with the affix /-al/ in, for example, [develop-mént-al]. /-ment/ is argued to be a word-level affix because it does not shift stress, /-al/ shifts stress and is classified as a stem-level affix. Thus, develop-ment$_{\text{WL}}$-al$_{\text{SL}}$ also appears to violate the AOG. However, /-al/ imposes stem-level phonology onto the entire word complex, indicated by the stress shift onto the affix /-ment/. Thus, in the English case, the more internal /-ment/ changes its default affiliation from word level to stem level to abide by the AOG, yielding [develop-ment$_{\text{SL}}$-al$_{\text{SL}}$]. This is achieved simply by ranking the constraint ment=WL below al=SL. The order of affixes in develop-ment-al is achieved by morphological well-formedness. A further prediction made by the stratum association analysis is that when SCOPE or any other morphological well-formedness constraint is ranked below stratum constraints, anti-scopal or morphologically ill-formed affix orders surface to abide by stratum affiliation. **Conclusion:** Illusory AOG violations involve at least one affix whose stratal association is variable depending on the morphological and semantic environment it appears in. This is implemented under the assumption that stratal association is computed by language specific stratum constraints which are ranked with respect to each other and with respect to morphological and semantic well-formedness constraints. Importantly, the stratum association approach abides by the AOG and provides evidence that the AOG still holds despite apparent conflicting evidence.

Selected references: Buckley, E. 1994. Tigrinya vowel features and vowel coalescence. *manuscript*. ● Kiparsky, P. 1982. Lexical phonology and morphology. In: *Linguistics in the morning calm* ● Kiparsky, P. 2000. Opacity and cyclicity. *The Linguistic Review* 17. ● Kiparsky, P. 2020. Morphological units: stems. In: *Oxford research encyclopedia of linguistics.* ● Selkirk, E. 1982. *The Syntax of Words*. The MIT Press. ● Fabb, N. 1988. English suffixation is constrained only by selectional restrictions. *NLLT 6(4)*. ● Giegerich, H. 1999. *Lexical strata in English: Morphological causes, phonological effects*. Cambridge University Press. ● Hyman, L. 2002. Suffix ordering in Bantu: A morphocentric approach. In: *Yearbook of Morphology*. ● Leslau, W. 1941. *Documents tigrigna (éthiopien septentrional): Grammaire et textes*. Paris: Klincksieck. ● Pam, M. 1973. *Tigrinya phonology*. City University of New York dissertation ● Wolf, M. 2009. Local ordering in phonology/morphology interleaving: Evidence for OT-CC. *83rd LSA meeting*.