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A novel way to diagnose phonological vs. suppletive allomorphy:
Progressive STAMP morph formation in Lobi

Puzzle. In Lobi (Gur; Côte d'Ivoire), pronominal subjects surface as STAMP morphs, i.e. portmanteaux encoding subject features (person, number, etc.), tense, aspect, mood, and polarity (Anderson 2016). For example, Lobi 1SG subject pronouns are realized differently in past perfect (1a), present imperfective (1b), and present progressive (1c).

(1) <u>1SG STAMP morphs across TAM contexts</u>

a. *mɪ cár*	b. *mĭ-n cár*	c. *m-ã-n cár*
1SG run	1SG-IPFV run	1SG-PROG-IPFV run
'I ran.'	'I run (e.g. habitually).'	'I am running.'

The full paradigms are given below in (2). At first glance, Lobi STAMP morphs look like phonologically-derivable concatenation of pronominals and TAMP morphs (e.g. *mɪ* = 1SG, *-n* = IPFV, *-a* = PROG) by means of regular phonological processes like vowel hiatus resolution. However, this analysis doesn't extend to 3SG pronominal subjects. In present progressive, they surface with a progressive auxiliary *na* instead (i.e. *á nã-n* '3SG PROG-IPFV', rather than **ã́ãn*).

(2) **Lobi default & progressive STAMP paradigms**

PERSON	1SG	2SG	3SG	1PL	2PL	3PL
PST STAMP (default)	mɪ	fɪ	á	sɪ	nɪ	wɔ́
IPFV STAMP	mĭn	fĭn	ã́n	sĭn	nĭn	wɔ́n
PROG STAMP	mãn	fãn	á nãn	sãn	nãn	wãn

Lexical DPs also obligatorily trigger *na* in present progressive (3). Realizing [PROG] on the nominal is impossible (i.e. **bũd-ã-n* 'mouse-PROG-IPFV', **kɔ́k-ã-n* 'monkey.PL-PROG-IPFV').

(3) **Lexical DP subjects trigger auxiliary *na***

a. *bũdɪ*	⌈*nã-n*⌉	*cár*	b. *kɔ́kɔ́*	⌈*nã-n*⌉	*cár*
mouse	PROG-IPFV	run	monkey.PL	PROG-IPFV	run
'A mouse is running.'			'Monkeys are running.'		

In sum, we observe **two cases of allomorphy**: 1) the obligatory co-realization of subject and progressive features for non-3SG pronominals, and 2) the realization of [PROG] as *na* (for 3SG and non-pronominal subjects) vs. *-a* (for other pronominal contexts).

Possible analyses. A purely phonological analysis, as alluded to previously, operates on exponents and employs independently motivated phonological processes to derive allomorphy. A purely morphological analysis couched in a Distributed Morphology framework (Halle & Marantz 1993) is blind to the phonological content of STAMP features but uses operations like Fusion (post-Linearization and pre-Vocabulary Insertion, à la Felice 2022) to realize linearly adjacent features on one terminal (Embick 2015). On this analysis, suppletive PROG STAMP morphs result from VI targeting Fused bundles that contain both subject features and [PROG]. When Fusion fails to apply, the PROG auxiliary *na* is inserted at a separate node. One can also imagine a hybrid analysis where PROG STAMP morphs are derived via the phonological concatenation of default STAMP forms and the suppletive surface realization of [PROG] (e.g. *na* for 3SG subjects and *-a* elsewhere). This morpho-phonological approach relies on largely the same assumptions as the purely phonological analysis—crucially, VI must first realize subject features as, for example, *mɪ* in order for phonology to derive *mãn*.

Proposal. I argue for a purely **morphological** analysis, with the most striking evidence from STAMP formation at origin sites of syntactic movements. I show that reduced movement copies somehow exhibit the same STAMP allomorphy, despite lacking the expected phonological material. In other words, STAMP morphs result solely from appropriate morphological triggers.

Assuming a copy theory of movement (Chomsky 1995), syntactic movements leave behind copies whose featural content are subject to chain reduction in PF (Nunes 2004). In (4a), raising the embedded 1SG subject produces a reduced lower copy, i.e. *ń* not *mɪ*. (4b) shows that raised subjects can still be interpreted idiomatically, substantiating the movement dependency between a matrix subject and the embedded pronominal subject.

(4) **Lobi raising construction**

　a. *mɪ₁ tɛɛnă* [⌐$ń_i$/*mɪ₁¬ *l'ʋɔ́r bíí*]
　　　1SG be.right　1SG　　cook soup
　　　'It is right that I cook soup.'

　b. *tʰăngbá-n₁ tɛɛnă* [*á₁* *ĩn*]
　　　god-IPFV be.right　3SG come
　　　'It is right that it is raining.' (Lit. 'It is right that God is coming.')

However, [PROG] must be co-realized on the reduced embedded subject pronoun as *mãn* in (5a). Since a phonological analysis relies on post-VI processes that operate on appropriate exponents like *mɪ*, it's unclear how it can derive *mãn* via concatenation when *mɪ* cannot be spelled out in that position. On the other hand, a morphological analysis obtains since Fusion combines STAMP features—not exponents—and feeds portmanteau insertion.

(5) **1SG PROG STAMP formation w/ movement copy**

　a. *mɪ₁ tɛɛnă* [⌐m-$ã$-n_i¬　　*l'ʋɔ́r bíí*]
　　　1SG be.right　1SG-PROG-IPFV cook soup
　　　'It is right that I am cooking soup.'

　b. *mɪ₁ tɛɛnă [*ń₁* ⌐$nã$-n¬ *l'ʋɔ́r bíí*]
　　　1SG be.right　1SG PROG-IPFV cook soup
　　　Int. 'It is right that I am cooking soup.'

To spell out the morphological analysis in more detail, I assume a privative feature geometry where third-person is underspecified for person features, and 3SG is further underspecified for number features (Harley & Ritter 2002). Also following Sichel and Toosarvandani (To appear), I assume that pronominal and lexical DPs share the feature [δ], but only pronominals are specified for [π]. The feature bundles that represent Lobi pronominal and lexical DPs are shown below:

(6) **Featural representations of Lobi pronominal & lexical DPs**

　a. 1SG: [δ,π,PART,SPKR] ↔ mɪ
　b. 2SG: [δ,π,PART] ↔ fɪ
　c. 3SG: [δ,π] ↔ á
　d. 1PL: [δ,π,PART,SPKR, PL] ↔ sɪ

　e. 2PL: [δ,π,PART, PL] ↔ nɪ
　f. 3PL: [δ,π,PL] ↔ wɔ́
　g. SG lexical DPs: [δ] ↔ bŭdɪ ...
　h. PL lexical DPs: [δ,PL] ↔ kɔ́kɔ́ ...

The allomorphy can thus be captured with two Fusion rules combining [PROG] with [π,PL] and [π,PART] respectively to target only non-3SG pronominal subjects.

(7) **PROG STAMP formation: Fusion rules**

　a. D[π,PART]^Asp[PROG] → [π,PART,PROG]　　b. D[π,PL]^Asp[PROG] → [π,PL,PROG]

Since no Fusion rule targets 3SG pronominals, VI will apply to D and Asp separately, outputting *á* and *na* in progressive contexts. The VI rules responsible for STAMP formation are given below. Also note that I have eliminated the hyphens in the PROG STAMP morphs as they now each correspond to a single Fused feature bundle targeted by VI on my analysis.

(8) **PROG STAMP formation: VI rules**

　a. [π, PART, SPKR, PROG] ↔ mãn;
　b. [π, PART, PROG] ↔ fãn;
　c. [π, PART, SPKR, PL, PROG] ↔ sãn;

　d. [π, PART, PL, PROG] ↔ nãn;
　e. [π, PL, PROG] ↔ wãn;

Additional arguments. Other evidence also points to a morphological analysis of Lobi PROG STAMP morphs. First, the fact that lexical DPs pattern with 3SG pronominals in terms of triggering the PROG auxiliary *na* is challenging for a phonological analysis. Recall in (3), [PROG] cannot be co-realized on lexical DPs even though they provide the appropriate phonological environment for the same hiatus resolution process that would drive STAMP formation (*mɪ* → *mãn*, but *bŭdɪ* → *bŭdãn). Stipulating a person-sensitive suppletion of [PROG] on a hybrid analysis is also untenable because no feature system allows us to pick out *only* 3SG pronominals as well as singular and plural lexical DPs.

Implications. This paper contributes to the description and analysis of STAMP systems in languages spoken along the Macro Sudan Belt (cf. Russell 2022, Felice 2022, Rolle 2022). It provides novel arguments for suppletion analyses of apparent phonologically-predictable STAMP morphs. The findings also underscore the importance of leveraging syntactic evidence and language family-specific diagnostics to elucidate morpho-phonological patterns.

References ▶ Anderson, G. D. S. 2016. STAMP morphs in the Macro-Sudan Belt. ▶ Felice, L. 2022. Spanning and linear adjacency in Gã portmanteaux. ▶ Nunes, J. 2004. *Linearization of chains and Sideward Movement*. ▶ Rolle, N. 2022. Unpacking portmanteaux: non-linear morphology in the Ebira STAMP system. ▶ Russell, K. R. 2022. A unified account of grammatical tone and length in Gã. ▶ Sichel, I. & M. Toosarvandani. To appear. The featural life of nominals.