

Resultative Secondary Predicates and Prefixes in German and Dutch

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Dutch verbal prefixes like *be-* are incompatible with adjectival Resultative Secondary Predicates (henceforth RSPs) (1). It has been argued that such prefixes and RSPs are in complementary distribution with the syntactic slot in a Small Clause (SC) in which both elements occur (Hoekstra 1988; Hoekstra, Lansu, and Westerduin 1987). For German (2), it has been argued that prefixed verbs are incompatible with RSPs due to these verbs being transitive (Kratzer 2005). We instead propose a unified analysis for the two languages in which prefixes and RSPs are incompatible due to a semantic restriction akin to Tenny’s Generalization (Tenny 1987), which states that only one result state is possible per event. We argue that prefixes and RSPs encode result states, and that therefore, prefixes preclude RSPs (and not a structural complementary distribution or transitivity).

- (1) * Zij hebben de tuin **vol be-**plant. (2) * Sie haben uns **arm be-**raubt.
 they have the garden full BE-plant they have us poor BE-robbed

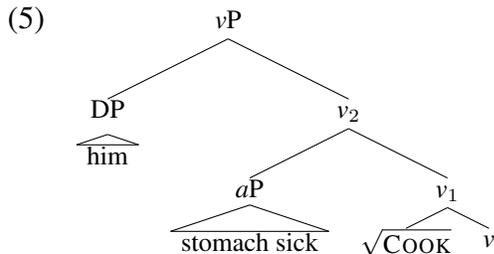
Proposal First, we argue that both prefixed verbs and resultative constructions in German and Dutch denote a complex event, with a state that was caused by some prior event. We propose that prefixes and RSPs denote result states, and therefore express a stative complement to an eventive *v*-head. This structural configuration triggers an interpretative rule that introduces a causative relation between an event and a state (cf. Hale and Keyser 1993; Higginbotham 2000; Schäfer 2012; Von Stechow 1995; Wood 2015, i.a.). The semantic formula in (3) is returned according to which two eventualities stand in a causative relation, such that the activity or accomplishment denoted by *v* is interpreted as causing the state denoted by the complement of *v*. Second, we argue that the incompatibility of prefixes and RSPs follows from a semantic restriction according to which only one result state is possible per (complex) event, akin to Tenny’s Generalization (Giannakidou and Merchant 1999; Tenny 1987). Since German and Dutch prefixes encode result states, it follows that no RSP (also denoting a result state) can combine with a prefixed verb. Third, we show that both RSPs and prefixed verbs require a post-verbal NP that functions as a State Holder: RSPs obey the Direct Object Restriction (DOR; Levin and Rappaport Hovav 1995) which states that a RSP is always predicated of the immediately post-verbal NP, and the occurrence of a verbal prefix in Dutch and German corresponds directly to the requirement to have an internal argument realized (Van Hout 2004; Zeller 2001). We argue that prefixed verbs and RSPs require a Holder of the target state, which follows from the causation rule in (3). We take *v* to introduce an eventuality variable and Root+*v* to determine transitivity (*v* may or may not introduce a Patient with transitive verbs, as the object may be unspecified, cf. Levin 1999). The introduction of the State Holder accounts for the DOR with RSPs, and for the fact that prefixed verbs are not found with unspecified objects.

- (3) **CAUSATION RULE:** If α is a branching node, $\{\beta, \gamma\}$ is the set of α ’s daughters, and $\llbracket\beta\rrbracket$ expresses an eventuality that is an event, and $\llbracket\gamma\rrbracket$ an eventuality that is a state, then:
- a. *When v does not introduce a Patient role:*
 $\llbracket\alpha\rrbracket = \lambda y_e \lambda e_s. \exists e'. [\llbracket\beta\rrbracket](e) \wedge \text{CAUSE}(e, e') \wedge \llbracket\gamma\rrbracket(e') \wedge \text{HOLDER}(y, e')$
 - b. *When v introduces a Patient role:*
 $\llbracket\alpha\rrbracket = \lambda y_e. \lambda e_s. \exists e'. [\llbracket\beta\rrbracket](y)(e) \wedge \text{CAUSE}(e, e') \wedge \llbracket\gamma\rrbracket(e') \wedge \text{HOLDER}(y, e')$

Analysis We assume a complex predicate analysis (following Embick 2004; Marantz 1989) for RSPs and prefixes. The different rules in (3a) and (3b) account for selected/unselected objects with RSPs: The rule in (3a) results in *unselected* objects with RSPs (4), while the rule in (3b) results in *selected* objects (7), as it expresses that when *v* introduces a Patient thematic role, the DP that is introduced in spec,*v*P functions as both the Patient of the Means predicate and the State Holder of the Result predicate. The object DP, thus, saturates both thematic roles (cf. Carrier and Randall 1992’s doubly θ -marked postverbal NP). Under our analysis, *v* in (4) does not introduce a Patient

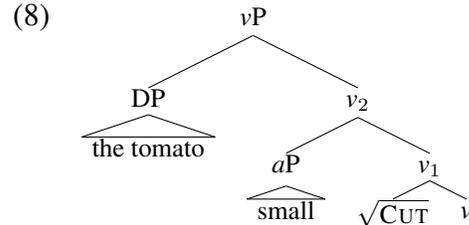
role, and hence triggers the rule in (3a) at v_2 , while (7) does introduce a Patient role, and hence triggers the rule in (3b). The result denotes the set of events that are cutting events of which *the tomato* is the Patient, and for which it holds that they cause some eventuality (state) of smallness of which *the tomato* is the State Holder. With prefixed verbs, the Patient is always explicitly realized as the internal argument of the verb. Therefore, v introduces a Patient role, and (3b) is applied.

(4) Er hat ihn magenkrank gekocht.
he has him stomach sick cooked



(6) $\llbracket vP \rrbracket = \lambda e_s. \exists e'. [\text{cook}(e) \wedge \text{CAUSE}(e, e') \wedge \text{stomach sick}(e') \wedge \text{HOLDER}(\text{him}, e')]$

(7) Er hat die Tomate klein geschnitten.
he has the tomato small cut



(9) $\llbracket vP \rrbracket = \lambda e_s. \exists e'. [\text{cut}(e) \wedge \text{PATIENT}(\text{the tomato}, e) \wedge \text{CAUSE}(e, e') \wedge \text{small}(e') \wedge \text{HOLDER}(\text{the tomato}, e')]$

Further Evidence Previous accounts have explained the incompatibility of prefixes and RSPs in Dutch, and prefixed (i.e., transitive) verbs and RSPs in German through a SC analysis, which makes several predictions. First, Kratzer (2005) argues that in German the object DP could only move out of the projection of the RSP into that of the Means verb because the verb was unergative. We show that, in fact, ‘core’ transitive verbs (Levin 1999) (10), unaccusative verbs, and inherently reflexive verbs can occur with RSPs in German, similar to Dutch and English. Second, in a SC analysis, the RSP and direct object that it is predicated of form a SC to the exclusion of the Means verb. This does not allow the object to bind any relation to the Means event, and hence, the object is predicted to be potentially unrelated to the Means event. However, we show that in Dutch (9) (cf. Neeleman and Weerman 1993, but contra Hoekstra 1988) and German obligatorily (core) transitive verbs, the object cannot be unselected. Rather, it needs to be selected and functions as both the Patient of the Means event (*break*) and the Holder of the target state (*tired*).

(10) H hat den Stock kaputt gebrochen.
H has the stick broken broken

‘Hans broke the stick s.t. it was broken.’

(11) *H hat seine Hände müde gebrochen.
H has his hands tired broken

Implications We give a unified explanation for the incompatibility of German and Dutch prefixes and RSPs as a semantic restriction according to which only one result state is possible per event. Our account takes causative semantics to be read off from a particular structural configuration, rather than from a CAUS head in the syntax. Moreover, we reject a SC analysis based on the realization and interpretation of the internal argument. Crucially, it is not transitivity that precludes RSPs and prefixed verbs, but the prefixes themselves (being result states). For German, this has been overlooked due to the prevalent occurrence of prefixes, especially with transitive verbs, which led researchers to falsely claim that transitive verbs preclude RSPs (see Kratzer 2005; Müller 2002; Oppenrieder 1991; Wunderlich 1997, i.a.). This means that German resultative constructions are more similar to resultatives in English and Dutch than previously argued.

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On the Ordering and Copying of Gothic Preverbs

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1. Introduction While the utility of conducting syntactic analyses on Gothic data has been questioned due to the lack of autochthonous texts, in this paper I argue that Gothic instantiates significant morphosyntactic constraints in its preverb compounds (PVC) that are generalisable to other Indo-European languages, and that these compounds provide evidence for a potentially cyclic process of diachronic grammaticalisation. **i)** I model the relative ordering of multiple preverbs in Gothic within DM, drawing from work on the feature geometry of local cases, while also capturing parallels in cognate preverb ordering in Sanskrit, Ancient Greek, and Old Irish. **ii)** I account for P-Copying in Gothic as the result of P-incorporation, morphological fusion, and multiple copy Spell-Out under the Copy Theory of Movement (CTM), which predicts the environments in which P-copying is licit as well as its interaction with multiple preverb compounds (MPCs), idiomaticisation, and tmesis. **iii)** I argue that Gothic PVCs represent an intermediary stage of diachronic change, exemplifying grammaticalisation and its subsidiary components, including syntactic reanalysis via loss of movement steps, phonological reduction, and semantic bleaching. Furthermore, I draw parallels between the development of Gothic preverbs and the Jespersen Cycle, such that P-Incorporation and -Copying are potentially cyclic in nature.

2. Preliminary Data As in the other early Indo-European languages like Sanskrit, Ancient Greek, and Old Irish, Gothic possesses a range of indeclinable prefixes that attach to verbs:

(1)	Pre-Verb	Meaning	E.g.	Constituents
	a. <i>af</i>	‘away, from, out of’	<i>af-niman</i> ‘take away’	‘away’ + ‘take’
	b. <i>fra</i>	‘ahead, forward’	<i>fra-kunnan</i> ‘forgive’	‘forward’ + ‘give’
	c. <i>miþ</i>	‘with, among’	<i>miþ-qiman</i> ‘accompany’	‘with’ + ‘come’

These preverbs can append transparently adpositional meaning as in (1)a or idiomatic meaning as in (1)b. A verb may take more than one preverb, producing a MPC:

- (2) a. *inn-at-tiuhan* ‘bring in to’ b. *ana-in-sakan* ‘add to, contribute’

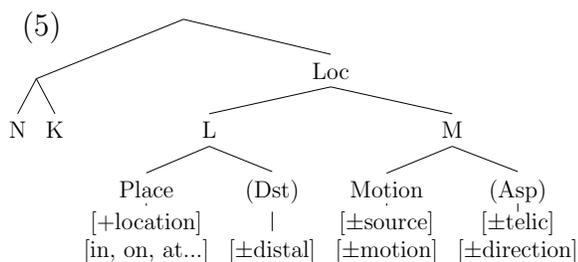
These preverb compounds can also be reinforced with an additional copy of the preverb:¹

- (3) *jah afnimands ina af managein sundro*
 and take-away.PPL he.ACC away multitude.DAT many
 ‘And [he] took him aside from the multitude’ (Mark 7:33)

3. Preverb Ordering Attested multiple preverb orderings comprise the following in (4):

(4)	ana-in	inn-at	miþ-fra	miþ-us
	du-at	inn-uf	miþ-in	ut-us
	faur-bi	miþ-ana	miþ-inn	

Considering the structure in (5), proposed by Radkevich (2010) for suffixing local cases, I argue that Gothic preverbs are ordered ASP-MOT-DST-PLC-V:



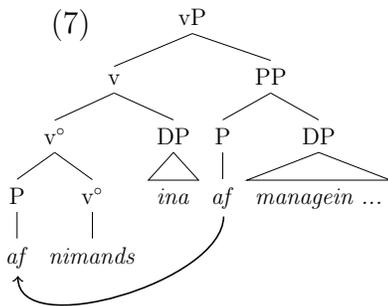
- *ana* ‘into, onto, upon’ > *in* ‘in, on’
ASP > PLC
- *du* ‘towards, against’ > *at* ‘at, by’
ASP > PLC
- *inn* ‘into’ > *at* ‘at, by’; *uf* ‘under’
MOT > PLC
- *faur* ‘in front of, before’ > *bi* ‘at, by’
DST > PLC

Some diagnostics for assigning head-status include the obligatoriness of a goal argument (ASP), and selecting for verbs of inherent motion (MOT). Preverb *miþ* ‘with’ instantiates a MannerP external to Radkevich’s L (Place) and M (Path) projections. This hypothesis can be extended to ModGer. *Doppelpartikelverben* (e.g. *heraus*, *hinab*). Furthermore, incorporating data from Vedic, Old Irish, and Ancient Greek (Papke, 2010), cognate preverbs display a similar relative ordering:²

(6)

Got.	ufar	∅	af	ana	uf	at	∅	fra	∅	#ut
Skt.	∅	?abhi	(apa)	anu	upa	∅	pari	pra	ni	ud
OIr.	for	imb(e)	∅	∅	fo	?ad	ar(e)	ro	ne	uss
Grk.	(huper)	amphi	apo	ana	(hupo)	∅	peri	pro	∅	∅

4. **P-Copying** Integrating Baker’s (1988) account of P-Incorporation as head-to-head adjunction into the CTM, we can easily account for sentences like (3), with the structure in (7):



The tail copy of *af* is not deleted by Chain Reduction (Nunes, 1995) due to morphological fusion between the incorporated preverb and verb. This fusion renders the higher copy of *af* invisible to ordering contradictions under Kayne’s (1994) Linear Correspondence Axiom, enabling multiple copy Spell-Out. Evidence for fusion comes from the complementary distribution of P-Copying and tmesis (i.e. separation by clitics). This predicts *[PreV-Clitic-(Clitic)-V PreV] to be illicit, which holds true in The Gothic Bible data. This also correctly predicts that PVCs which have undergone tmesis block idiomatic readings. I

argue that there is a diachronic change where these incorporated [PreV + V] units are lexicalised as independent roots which can be directly inserted during VI, accounting also for their idiomatic meaning. In the case of MPCs, when a second preverb is incorporated, the morphology cannot ‘see inside’ the Spelt-Out [PreV₁ + V] unit due to the cyclic nature of Rewrite Rules. This correctly predicts the impossibility of P-Copying with the first-merged preverb *[PreV₂-PreV₁-V PreV₁], while PreV₂ can be copied as in (8). Additionally, as in (9), tmesis is possible between PreV₂ and PreV₁ within a compound, but never between PreV₁ and the Verb:

- (8) *mīþ-inn-galaīþ* *mīþ Iesua in rohsn* (9) *ga-uh-þan-mīþ-sandededum imma broþar*
with-into-go.3SG.PST with Jesus in temple GA-and-then-with-send he.DAT brother.ACC
‘[He] went with Jesus into the temple’ ‘And then [we] sent the brother with him’
(John 18:15) (CorII 8:18)

Finally, this correctly predicts that PreV₂ cannot add idiomatic meaning to the MPC. We hence constrain the distribution of P-Copying and its interaction with tmesis, idiomaticisation, and MPCs.

5. **Grammaticalisation & Diachrony** PVCs thus instantiate a loss in both the independence of the preverb and the internal structure of the compound. I argue that this is a case of grammaticalisation and its subsidiary processes, borne out in comparison to Modern German. P-Incorporation (without Copying) provided the necessary surface ambiguity for syntactic reanalysis, where the preverb is taken to be merged directly with the root rather than as the result of head movement. This follows Roberts & Roussou’s (2003) account of diachronic change as the loss of movement steps, motivated by economy, and explains why P-Copying is no longer licit in Modern German. Furthermore, these preverbs have undergone phonological reduction (e.g. adverb *faura* vs. preverb *faur-*, Gothic /ga-/ vs. Mod. German /gə-/) and semantic bleaching (cf. loss of locative meaning, rise of idiomatic meaning.) Additionally, this change parallels Jespersen’s Cycle in instantiating a cyclic diachronic change (van Gelderen, 2011), where P-Copying is similar to Stage 2 with two adpositions/negators, before the lower adposition/marker becomes optional in Stage 3 and deleted in Stage 4, where finally the incorporated preverb becomes part of the lexical root (which parallels the new negator taking on primary function.) Thus, Gothic data is diachronically relevant for morphosyntactic study.

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²Bracketed forms are unattested in multiple preverb constructions; null symbols indicate an absence of confirmed cognates

The featural content and syntactic structure of first, second, and third person has received extensive attention in the morphosyntax literature. In Harley & Ritter’s feature geometry for pronominal phi-features, the discourse-dependent [speaker] and [addressee] features are “used to represent person, specifically, 1st and 2nd person (3rd person being unmarked)” (2002:486). Aspects of this proposal have been applied fruitfully in, for example, some analyses of person-case constraint effects (Adger & Harbour 2007), but critiqued in others (Nevins 2007). This paper brings data from the form and distribution of full pronouns and possessive pronouns to bear on such issues of phi-feature representation.

Specifically, this paper contributes to this literature by uniting a curious pattern in Khoekhoe (aka Nama-Damara, Central Khoisan, Namibia) possession, which affects first person singular and second person singular possessors, with a general analysis of the “person” features in Khoekhoe’s full pronoun paradigm. Working within the Distributed Morphology (Halle & Marantz 1993) framework, the proposal supports Harley & Ritter 2002’s participant feature organization, including the use of the absence of participant features to represent third person. In particular, I suggest that $[\pm\text{addressee}]$ and $[\pm\text{speaker}]$ occupy distinct positions within the functional structure of the pronominal DP: spec-DP and spec-NumP, respectively. I argue that this accounts for both the observed morphosyntactically conditioned allomorphy in the pronominal paradigm, and the possession facts.

Khoekhoe makes pronominal distinctions for **gender** (masculine, feminine, common), **number** (singular, dual, plural), and “**person**” (1st exclusive, 1st inclusive, 2nd, 3rd). Of particular note in this pronominal paradigm is the identity of form between the participant-feature-oriented part of all 1st person inclusive pronouns in the dual and plural, as in (1), and all 2nd person pronouns, as in (2): *sáǎ*. This contrasts with that of the 1st person exclusive pronouns, as in (3): *síí*.

- | | |
|---|--|
| <p>(1) <i>sáǎ</i> -k^h-m̃
 [+s, +a] -M-DU
 1st inclusive dual masculine (<i>us two guys</i>)</p> | <p>(2) <i>sáǎ</i> -k^h-ò
 [-s, +a] -M-DU
 2nd dual masculine (<i>you two guys</i>)</p> |
| <p>(3) <i>síí</i> -k^h-m̃
 [+s, -a] -M-DU
 1st exclusive dual masculine (<i>us two guys, not you</i>)</p> | |

That is, 1st inclusive and 2nd person pronouns seem to only spell out the [+addressee] portion of their participant feature values, suggesting that the $[\pm\text{addressee}]$ feature is its own target for Vocabulary Item insertion. However, there is number allomorphy throughout the paradigm that depends on the morphosyntactic presence of the $[\pm\text{speaker}]$ feature, too. Consider how the dual morpheme in (1): *m̃*, differs from the dual morpheme in (2): *ò*. The only distinction that could be triggering this allomorphy is a [+speaker] feature in (1) vs. a [-speaker] feature in (2). (Note that the 1st person exclusive (3), which has a [+speaker] value, triggers the *m̃* dual morpheme as well.)

Taken together, these facts require that any analysis of the participant features of Khoekhoe pronouns include morphosyntactic representations of both $[\pm\text{speaker}]$ and $[\pm\text{addressee}]$ features that are separate enough to serve as distinct targets for Vocabulary Item insertion, but are also located locally enough and correctly to condition the allomorphy we observe. Within a Separationist, Cyclical morphosyntax, where spell-out proceeds via Root-outwards insertion of Vocabulary Items that expone terminal nodes in the syntax (Bobaljik 2000), such morphosyntactic triggers must be syntactically outside of but local to affected allomorphs.

Looking across the rest of the pronominal paradigm, then, the exponence of gender features is conditioned by number, while the exponence of number features is conditioned by the $[\pm\text{addressee}]$ feature value or its absence (in 3rd person). This supports the DP-internal structure of phi-featural terminal nodes given in Figure 1: gender features are hosted on Root-attached nominalizers (Kramer 2015), while number features head their own projections (Ritter 1993).

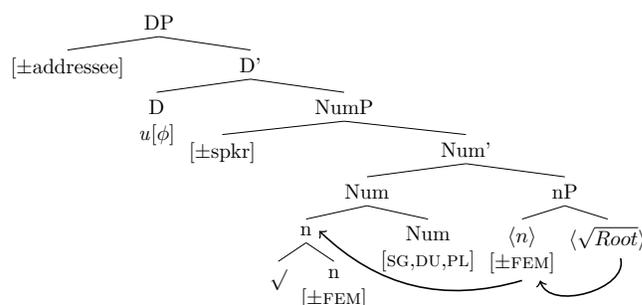


Fig 1. Proposed pronominal structure

The patterns of possession structures in Khoekhoe shed light on the precise syntactic locations of the $[\pm\text{speaker}]$ and $[\pm\text{addressee}]$ features within the articulated functional structure of the DP. This is because I take Khoekhoe possessives to be formed with a possessive D head that is optionally spelled out as *tii*, which crucially probes for a phi-valued possessor that it then moves to its specifier (Alexiadou, Haegeman, & Stavrou 2008:Ch2). Example (4), using the female name Mutani, demonstrates how a genitive DP possessor that is originally base-generated near the possessed noun is raised, as a full DP with all its phi-features intact. (For concreteness, I assume its base position is in Spec-nP, but this isn't crucial.)

- (4) *mütání-s (tii) ?àrí-kú*
 Mutani-F.SG (POSS) dog-M.PL
 Mutani's (male) dogs

Under this analysis, the features spelled out in that pre- D_{poss} -head possessor landing position are clues as to the internal structure of the DP base-generated below. The moved possessor must have been phi-complete enough to qualify as a goal for the D_{poss} head, and the syntactically closest possible goal to satisfy Relativized Minimality. Constituent phrases like the DP *mütání-s* are moved even when only their head is phi-complete, due to modern labeling (Danon 2013).

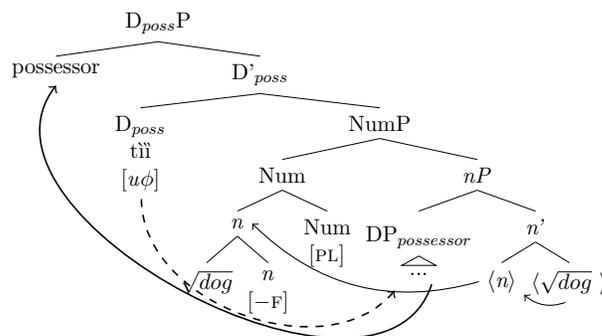


Fig 2. Proposed possessive structure

Indeed, turning to pronominal possessors, the vast majority work like (4) and raise the full DP to pre-*tii* position (5)-(6). Having subpieces of the pronoun appear there is ungrammatical (7)-(8). All duals and plural pronominal possessors act like the third person singular (5)-(8).

Full pronoun + <i>tii</i>	Full pronoun	Part pronoun + <i>tii</i>	Part pronoun
(5) ✓ ʔi-s <i>tii</i> ?àrí-p 3-F.SG POSS dog-M.SG	(6) ✓ ʔi-s ?àrí-p 3-F.SG dog-M.SG	(7) * ʔi <i>tii</i> ore-ñ 3 POSS sin-MIX.PL	(8) * ʔi ?àrí-p 3 dog-M.SG
(9) *tíí-tá <i>tii</i> ?àrí-p 1-F.SG POSS dog-M.SG	(10) *tíí-tá ?àrí-p 1-F.SG dog-M.SG	(11) ✓ tíí <i>tii</i> ore-ñ my POSS sin-MIX.PL	(12) ✓ tíí ?àrí-p my dog-M.SG
(13) ✓ sáá-ts <i>tii</i> ?àrí-p 2-M.SG POSS dog-M.SG	(14) *sáá-ts ?àrí-p 2-M.SG dog-M.SG	(15) ✓ sáá <i>tii</i> ore-ñ your POSS sin-MIX.PL	(16) ✓ sáá ?àrí-p your dog-M.SG

Only the first singular (i.e. *my*) and second singular (i.e. *your*) possessive pronouns have a different pattern. The full first person *tíí-tá* is never grammatical as a possessor as is, whether D_{poss} is expressed overtly (9) or not (10). Only the *tíí* portion appears, as in (12) ((11) is best with a restricted subset of biblical / archaic items). This means the full 1st SG DP *tíí-tá* must be a defective goal, and *tíí* must be the closest phi-complete goal: I argue it spells out a terminal node specified for $[\pm\text{speaker,SG}]$ in Spec-NumP position. As long as no $[u\phi]$ -bearing D head intervenes between it and D_{poss} , Num is not phi-complete, and it occupies spec-NumP, the movement will target this $[\pm\text{speaker,SG}] \leftrightarrow [\text{tíí}]$ alone. Similarly, a portion of the second singular pronoun across all genders, namely $[\pm\text{addressee,SG}] \leftrightarrow [\text{sáá}]$, may appear as a possessor, as in (15)-(16). But this alternates with the full DP *sáá-tsin* spec- D_{poss} P position. A terminal node specified for $[\pm\text{addressee,SG}]$ in Spec-DP position would no longer be closest to D_{poss} , if the DP that dominates it were headed by a $[u\phi]$ -bearing D head that successfully valued all its features. That leaves the full DP open to being targeted for movement, as in (13). Importantly, the *[sáá]* Vocabulary Item found in non-singular 2nd and 1st inclusive pronouns is *not* spelling out a phi-complete $[\pm\text{addressee,SG}]$ node, but rather a run-of-the-mill $[\pm\text{addressee}]$ feature in the specifier of a phi-complete, originally $u\phi$ -bearing D. In essence, these phi-complete 1.SG and 2.SG nodes in Khoekhoe are grammatically encoding the intuitive and cognitively real specialness of one's own self (as speaker) and one's interlocutor. This provides new cross-linguistic support, from possession constructions, for a Harley & Ritter-style representation of pronominal participant information.

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Mobile affixes in Armenian: phase-based domains at spell-out

Keywords: Armenian, mobile affixes, information structure, clitic, prosody, phase
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Introduction: In Western Armenian (Vaux, 1998), the indicative is marked by adding an affix to the verb. The affix has different positions in different dialects and contexts. We describe its placement in four Western dialects: Standard Western (SWA), Hamshen (HA), Gyumri (GA), and Akhalkalaki (AA). Across these dialects, we see morphologically-arbitrary affix order (SWA, HA, GA, AA), phonologically-conditioned affix mobility (HA, GA, AA), syntactically-conditioned affix mobility (GA, AA), and prosodically-conditioned clisis (AA). These patterns need a holistic approach to affix order involving morphological, phonological, syntactic, and prosodic factors (6). We explain some of the data and factors below.

- | | | | | | | | | | |
|-----|-----------------------------------|-----|-----------------------------------|-----|-----------------------------------|-----|-----------------------------------|-----|---------------|
| (1) | SWA | (2) | HA | (3) | GA | (4) | AA | (5) | Gloss |
| | a. g -ertas | | a. g -ertas | | a. k -ertas | | a. g -ertas | | a. ‘you go’ |
| | b. gə -k ^h ales | | b. k ^h ales- gu | | b. k ^h elés- gə | | b. k ^h eles- gə | | b. ‘you walk’ |
- (6)
- Arbitrary prefixhood (SWA, HA, GA, AA): INDC → INDC- / { , V}
 - Phonological mobility (HA, GA, AA): INDC → INDC- / { , [+vowel]V}
 - Syntactic mobility (GA, AA): INDC → INDC- / [_{phase} ... X ... { , V}]
 - Prosodic separability (AA): F ... INDC → F INDC ...
 - Suffixation elsewhere (SWA, HA, GA, AA): INDC → -INDC elsewhere

I. Standard Western: In SWA (1), the indicative affix has two surface allomorphs: [g-] before V-initial bases (1a) and [gə-] before C-initial bases (1b). Underlyingly, the affix is /g/ with schwa epenthesis to repair complex onsets. Complex onsets are banned in Armenian. Although Armenian is primarily suffixing, the affix is arbitrarily a prefix because it originated from the construction *kaj ev X* ‘I stand and X’. Its arbitrary status as a prefix can be modeled with rule that prefixes it to the verb (6a), while other affixes are suffixes elsewhere (6e). We set aside schwa epenthesis for space.

II. Hamshen: For Hamshen (2), the affix is the prefix [g-] before V-initial bases (2a) but a *suffix* [-gu] (2b) after C-initial bases. For simplicity, let us assume that [g-] and [-gu] are two suppletive allomorphs, not derived from a common UR /gu/.¹ The prefix [g-] is used to provide an onset to the V-initial verb; the suffix [-gə] is used elsewhere. This is formalized with a rule placing the affix before a V-initial verb (6b)². Such phonologically-conditioned mobility is rare but attested, e.g. Huave (Kim, 2010), but still controversial (Paster, 2006)

III. Gyumri: Similar to Hamshen, the affix in Gyumri (3) is [k-] before V-initial bases (3a) and [-gə] after C-initial bases (3b). However in Gyumri, a C-initial base is forced to use [g(ə)-] as a prefix in specific syntactic contexts. We describe two of these contexts below. In both, underlining marks sentential stress. The phase is *vP* or *FocP* and it coincides with the verbal predicate. Specific objects move out of *vP* (Kahnemuyipour, 2009).

¹This is purely for illustrative purposes. There is little empirical evidence for or against having one UR.

²This can alternatively be modeled with ONSET»ALIGN-L with no change in adequacy.

Bare Object: Armenian is SOV. In Gyumri, if the C-initial verb has a non-bare object, the suffix [-gə] is used (7a). But if the verb has a *bare* object, the prefix [kə-]³ is instead used (7b). An object is bare if it lacks the definite suffix. It semantically acts as a generic plural.

- (7) a. ara-n gir^h-ə [_{vP} tsaxe-gə] b. ara-n [_{vP} gir^h kə-tsaxe]
 Ara-DEF book-DEF sells-IND Ara-DEF book IND-sells
 ‘Ara is selling the book’ ‘Ara is selling books’

Focus: For focus-neutral sentences, C-initial verbs take the suffix [-gə] (8a); if there’s narrow focus, then the prefix [kə-] (8b) is used. Note the distance between the affix and focus.

- (8) a. [_{FocusP} ov gir^h-ə gə-tsaxe] b. [_{FocusP} ara-n gir^h-ə kə-tsaxe]
 who book-DEF IND-sells ara-DEF book-DEF IND-sells
 ‘Who is selling the book?’ ‘ARA is selling the book’

The prefix-suffix switch is correlated with the predicate changing or expanding. Structurally, the prefix is used to mark a larger syntactic phase (Kahnemuyipour, 2009). We model this with a rule that prefixes the affix when the phase is larger than the verb (6c). Prefixation (6a), phonological (6b), syntactic (6c), and elsewhere rules (6e) are ordered.

IV. Akhalkalaki: In Akhalkalaki (4), the affix has a similar distribution as in Gyumri (9). But, it has an additional prosodic requirement: it must be adjacent to sentential stress (10). This adjacency is formalized in (6d). Pauses mark the direction of attachment for the affix.

- (9) a. ara-n gir^h-ə [_{vP} tsaxe-gə] b. ara-n [_{vP} gir^h gə-tsaxe]
 Ara-DEF book-DEF sells-IND Ara-DEF book IND-sells
 ‘Ara is selling the book’ ‘Ara is selling books’
- (10) a. [_{FocusP} ov-gə gir^h-ə tsaxe] b. [_{FocusP} ara-n-gə gir^h-ə tsaxe]
 who-IND book-DEF sells ara-DEF-INDC book-DEF sells
 ‘Who is selling the book?’ ‘ARA is selling the book’

Conclusion: In sum, these Armenian dialects display rare and theoretically controversial processes. In terms of theoretical insights and formalizations, affix mobility requires the use of cross-modular constraints and factors which challenge current theories of affix order. In specific, the data provides robust evidence for affix mobility conditioned by phonology, syntax, and prosody. Integrating these multiple factors can be formalized as an interaction of cross-modular rules or constraints within a single grammar.

References: [1] Kahnemuyipour, A. (2009). *The syntax of sentential stress*. Number 25 in Oxford Studies in Theoretical Linguistics. Oxford: Oxford University Press. [2] Kim, Y. (2010). Phonological and morphological conditions on affix order in huave. *Morphology* 20(1), 133–163. [3] Paster, M. (2006). *Phonological conditions on affixation*. Ph. D. thesis, University of California, Berkeley, Berkeley, CA. [4] Vaux, B. (1998). *The phonology of Armenian*. Oxford University Press, USA.

³Note schwa epenthesis to repair the banned onset cluster.