Narcissistic allomorphy in Santiago Tz'utujil*

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1 Getting started

1.1 The data

- Today: the surface form of imperfective/incompletive aspect in Santiago Tz'utujil (ST) Mayan
- In ST, there are three surface forms of this morpheme, and each form has a distinct environment in which it surfaces[1]
- Template for intransitive verbs in ST:

  TAM-ABS(SET B)-ROOT-(DERIVATIONAL MORPHOLOGY)-(STATUS SUFFIX)

(1) Intransitive *oq'a'* 'cry'

a. **K**-in-oq'a'.
IMPFV-B1S-cry
'I cry.'

b. **Nk**-at-oq'a'.
IMPFV-B2S-cry
'You cry'

c. **N**-∅-oq'a'.
IMPFV-B3S-cry
'He/she cries.'

d. **N**-qo-oq'a'.
IMPFV-B1P-cry
'We cry.'

e. **Nk**-ix-oq'a'.
IMPFV-B2P-cry
'Y'all cry.'

f. **Nk**-i-oq'a'.
IMPFV-B3P-cry
'They cry.'

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[1]Glossing follows (more or less) typical Mayanist conventions, including use of Set A (ergative/genitive) and Set B (absolutive): A—ergative/genitive/Set A; B—absolutive/Set B; DISTR—distributive; IMPFV—imperfective/incompletive aspect; ITR—intransitive; MOD—modal; NEG—negation; SS—status suffix; TR—transitive. Glosses from other work are left as the authors originally wrote.

* (1a) shows that, when adjacent to B1S morphology, imperfective surfaces as /k-/
* (1c) shows that, when adjacent to B3S morphology, imperfective surfaces as /n-/
* When adjacent to any other person, imperfective surfaces as /nk-/
* In (1d), imperfective surfaces as /n-/. We attribute this to phonological conditioning—the velar stop /k/ cannot precede the uvular stop /q/, and so deletes.
* Descriptively, this appears to be allomorphy triggered by the morphosyntactic properties of an **adjacent** agreement morpheme
* That the surface form of aspect (and TAM more generally) varies depending on morphosyntactic properties of an adjacent agreement morpheme is found in closely related languages, e.g. Kaqchikel

(2) Kaqchikel imperfective aspect

a. **Y**-in-atin.
IMPFV-B1S-bathe
'I'm bathing.'

b. **Y**-at-atin.
IMPFV-B2S-bathe
'You're bathing.'

c. **N**-∅-atin.
IMPFV-B3S-bathe
'(S)he's bathing.'

d. **Y**-oj-atin.
IMPFV-B1P-bathe
'We're bathing.'

e. **Y**-ix-atin.
IMPFV-B2P-bathe
'Y'all are bathing.'

f. **Y**-e'-atin.
IMPFV-B3P-bathe
'They're bathing.'

García Matzar & Rodríguez Guaján (1997:171)

* Here we see only two forms: /n-/ when adjacent to B3S morphology, and /y-/ for all other persons
  - The situation in ST is similar, except for the fact that there is a special form of imperfective when adjacent to B1S morphology
* When we turn to transitive verbs, the picture becomes more complicated: even non-adjacent ERGATIVE 1S (A1S) conditions the insertion of imperfective aspect as /k-/
* Template for transitive verbs in ST:
  TAM-ABS(SET B)-ERG (SET A)-ROOT-(DERIVATIONAL MORPHOLOGY)-(STATUS SUFFIX)

(3) Transitive verb *chop* 'touch'

	1SG.ERG	2SG.ERG	3SG.ERG	1PL.ERG	2PL.ERG	3PL.ERG
1SG.ABS	N/A	**k**-n-a-chop	**k**-in-ru-chop	N/A	**k**-in-i-chop	**k**-in-ki-chop
2SG.ABS	**k**-at-nu-chop	N/A	**nk**-at-ru-chop	**nk**-at-qa-chop	N/A	**nk**-at-ki-chop
3SG.ABS	**k**-∅-in-chop	**n**-∅-a-chop	**n**-∅-u-chop	**n**-∅-qa-chop	**n**-∅-i-chop	**n**-∅-ki-chop
1PL.ABS	N/A	**n**-qu-a-chop	**n**-qo-ro-chop	N/A	**n**-qu-i-chop	**n**-qu(q)-ki-chop
2PL.ABS	**k**-ix-nu-chop	N/A	**nk**-ix-ru-chop	**nk**-ix-qa-chop	N/A	**nk**-ix-ki-chop
3PL.ABS	**k**-i-nu-chop	**nk**-i-a-chop	**nk**-i-ru-chop	**nk**-i-qa-chop	**nk**-i-i-chop	**nk**-i-ki-chop

* The pattern observed in intransitives extends to transitives with one important elaboration: whenever the ergative morpheme is 1s, we also see /k-/ as the form of the imperfective

* This is important for two reasons:
  - This form trumps what we would otherwise expect to surface based on person morphology immediately adjacent to TAM
  - This pattern is unattested in other K'ichean Mayan languages, including other dialects of Tz'utujil (Dayley 1985: 87)

Presentation outline:

1. Tz'utujil and Santiago Tz'utujil background information (§1.2)
2. Theoretical background on allomorphy (§2.1)
   - structural adjacency
   - linear adjacency
   - up- vs. downward sensitivity to features
3. Theoretical background on the syntax of ST (§2.2)
   - syntactic structure of intransitives
   - syntactic structure of transitives
4. Analyses/Proposals
   - allomorph sensitive to absence of features (3sg) - elsewhere rule (§3.1)
   - allomorph sensitive to non-adjacent features (1sg) - Agree-based account (§3.2)
   - ordering allomorphy rules via Subset Principle
5. Summary (§4)

1.2 The language

* Tz'utujil is a K'ichean Mayan language spoken in several municipalities in the vicinity of Lake Atitlán, Guatemala
  - We use the official spelling for the language used by the Academia de Lenguas Mayas de Guatemala (ALMG); other scholars used other spellings, e.g. Tz'utujiil (García Ixmatá 1997)
  - Since the phonology of ST deviates from the orthographic standard, we present our transcriptions faithfully
  - Our data comes from direct elicitation with four native speakers, complemented with data from narratives
* Santiago Tz'utujil (ST) is an under-described dialect of Tz'utujil spoken in the town of Santiago Atitlán by roughly 63,200 speakers (Eberhard et al. 2019)
* While two published grammars of Tz'utujil exist, neither focuses on ST
  - Dayley (1985) describes San Juan la Laguna Tz'utujil, only briefly comparing the phonology of that dialect with ST
  - García Ixmatá (1997) discusses only the San Pedro la Laguna dialect
* The morphosyntax of ST has only been explored recently; see Levin et al. (2019) and Lyskawa & Ranero (2019)
* All varieties of Tz'utujil are head-marking, and are morphologically and syntactically ergative—the latter means that the ergative subject cannot undergo A-bar movement in the active voice (Polinsky 2016, Aissen 2017)
* As is common across Mayan, 3SG absolutive is phonologically null; following Preminger (2014), we take this to be failure of agreement
  - That is, not only is there no *overt*, phonological form of B3S agreement, there is no element in the syntax corresponding to B3S agreement

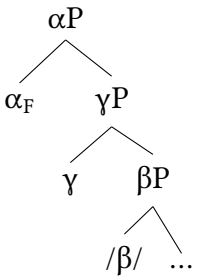
2 The theoretical problem

2.1 In brief

* The surface form of a morpheme is often sensitive to the environment in which that morpheme is found—this is allomorphy
  - Morphophonological allomorphy: the English plural morpheme surfaces as a voiceless fricative [-s] in *cat-s*, whereas it surfaces as a voiced fricative [-z] in *dog-s*
    * The phonological properties of the preceding consonant (i.e. voicing) condition the plural morpheme's form

- Suppletive allomorphy: the English plural surfaces as [-en], for specific lexical items, e.g. *ox-en*
- Similarly, the past form of *go* surfaces as *went*
  - In both cases we have replacement of one surface form with a phonologically unrelated one

* There are restrictions, however—allomorphy is not unconstrained
* The broad question we wish to explore via the ST puzzle is the following: *Under what circumstances may one morpheme condition allomorphy for another morpheme?*
* Typically, locality restrictions play a role in determining whether one node can trigger allomorphy of another node
  - Structural adjacency and/or linear adjacency have been proposed in different frameworks as governing allomorphy (Siegel 1978, Bobaljik 2000, 2012, Embick 2003, 2010, a.m.o.)
* Furthermore, the directionality of the relation between the node triggering allomorphy and the node displaying allomorphy also matters
  - For example, many theories of morphology take morphosyntactic features to be 'used up' when exponed by vocabulary items, and that therefore they are no longer present in the structure (Bobaljik 2000, i.a.; cf. Halle & Marantz 1993, Noyer 1997)
  - As a result, the surface form of a head γ cannot be sensitive to the syntactic features of a lower head β (subject to certain conditions) since by the time γ is inserted, β's morphosyntactic features are absent from the structure
  - In contrast, the insertion of γ can be sensitive to the morphosyntactic features of a higher head α



* As we've seen, in ST the surface form of imperfective aspect varies depending on the morphosyntactic features of agreeing arguments cross-referenced by agreement morphology
* **The problem**: on standard assumptions about K'ichean Mayan clausal structure, the head that expones ergative morphology is **structurally lower** than aspect, and crucially non-adjacent to it (Coon 2016 a.o.)

- This results in both a structural adjacency problem *and* a directionality problem

* Additionally, ergative morphology is not *linearly* adjacent to aspect, since absolutive morphology intervenes, so any constraint taking such adjacency to be a necessary component of allomorphy triggers is too strict (cf. Embick 2010)

(4) Non-linearly adjacent morpheme conditioning allomorphy

a. K-at-nu-chop.
IMPFV-B2S-A1S-touch
'I touch you.'

b. Nk-at-ru-chop.
IMPFV-B2P-A3S-touch
'You touch him/her.'

* So, the data in (3) are *prima facie* problematic for some theories of constraints on allomorphy

2.2 The structure of ST verbs

* ST, like other K'ichean languages, is a 'high absolutive' language—ABS morphology uniformly precedes the verbal stem (Tada 1993, Coon et al. 2014)

* This is typically taken to reflect an agreement relation between some high head (e.g. T^0/$Infl^0$) and a DP (Coon et al. 2014, Douglas et al. 2017)

* We define the operation Agree as follows: syntactic operation that transmits phi-features, (e.g., person and number), from an argument to a predicate.

  - Coon (2016) discusses the view that aspect sits in $Infl^0$; this means the origin of absolutive is aspect
  - Preminger (2014) argues extensively that Kaqchikel (K'ichean) 1st and 2nd person absolutive morphology are doubled clitics, whereas 3rd plural is the spell out of number agreement[2]

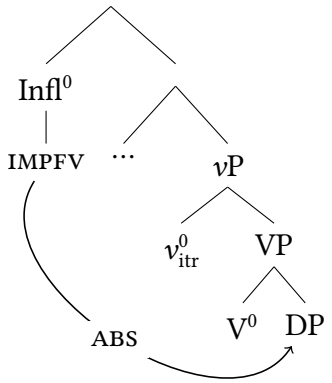
* Ergative is typically taken to be an inherent case assigned by transitive v^0 to a vP external argument[3]

* Let's look at the derivation of an intransitive verb first; we'll assume Baker & Kramer's (2018) analysis of clitic doubling

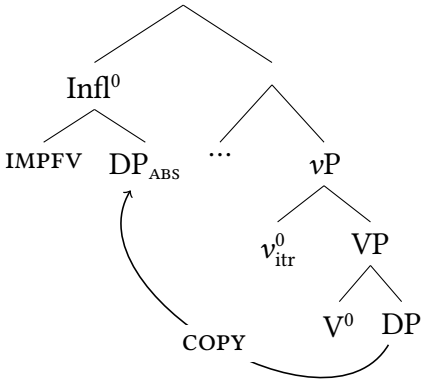
[2]Mateo-Toledo (2008) and Coon et al. (2014) argue the same for Q'anjobal; Coon (2013) makes the same argument for Ch'ol.

[3]Preminger (2014) assumes ergative morphology has clitic status, but doesn't (need to) argue for it; Coon (2017) argues that at least in Ch'ol it is genuine φ-agreement. For our purposes, it won't matter.

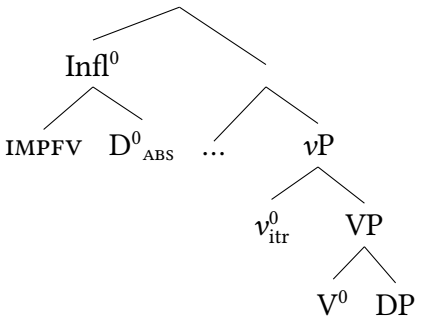
(5) Step 1: Infl^0 is merged & probes for an available DP



(6) Step 2: DP copied and head moved into Infl^0



(7) Step 3: DP reduced to D

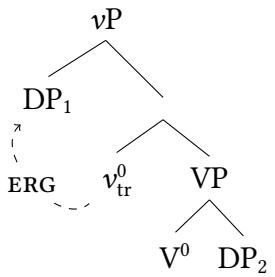


∗ Transitive clauses aren't much different, except:

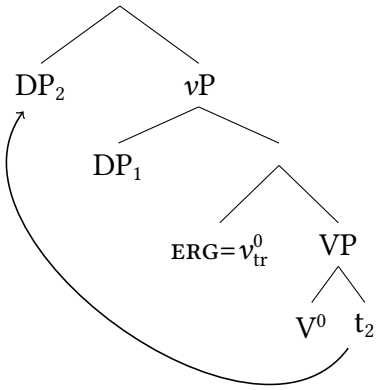
- The absolutive object moves to a position higher than the ergative subject (this derives syntactic ergativity; see Aldridge 2004, Coon et al. 2014, Ranero 2019)

- v^0 assigns inherent ergative case to the external argument
- Following Coon (2017) we'll assume that ergative morphology is spelled out on v^0

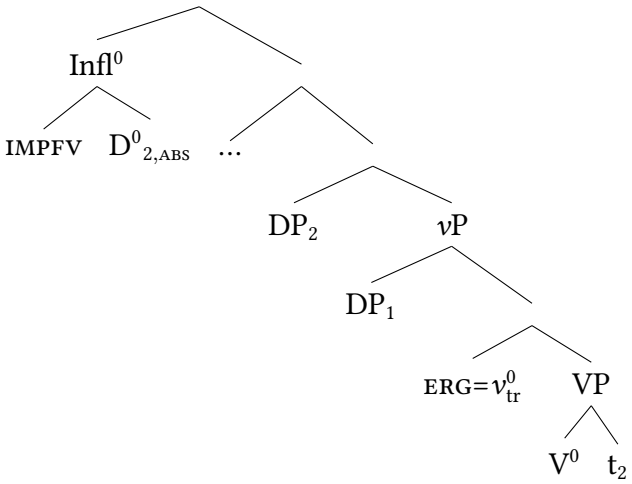
(8) Step 1: Merger of external argument DP and agreement via v^0



(9) Step 2: Movement of lower DP to edge of vP



(10) Step 3-5: as above



∗ At this point, ergative morphology is structurally non-adjacent to the imperfective node

* Successive cyclic head movement starting with V derives the fact that derivational morphology higher than v^0 surfaces to the right of verbal roots
  - Even if this succession of heads end up adjoining to Infl^0, ergative morphology is still structurally distant from the target morpheme

3 A solution: allomorphy *and* agreement

3.1 B3S vs. everything else

* In several K'ichean languages, TAM (as in (2) above) exhibits allomorphy for some aspects; when the absolutive argument is B3S, one allomorph surfaces, and another surfaces for all other person features
* As far as we know, this has not been given a formal analysis; furthermore, spelling that out is an essential part of our analysis of ST
* As it turns out, we can formalize an analysis quite handily
* Following Preminger (2014), we take the absence of B3S agreement to be failure of Agree, whereas the presence of morphology cross-referencing all other arguments is the result of successful agreement and clitic doubling[4]
* So, as schematically shown above in (5)-(10), this results in a configuration in which aspect morphology is adjacent to some clitic D with φ-features in every case except B3S
* Couched in Distributed Morphology (Halle & Marantz 1993, 1994, et seq.) we can thus posit the following Vocabulary Insertion rules for Kaqchikel imperfective

(11) Kaqchikel imperfective VI rules
  a. /y-/ ↔ IMPFV \ [_ D_φ]
  b. /n-/ ↔ IMPFV elsewhere

* These rules yield *y-* as the surface form of imperfective in Kaqchikel in the event that Agree is successful and has created absolutive morphology; setting aside *k-* in ST, this also extends to that language

(12) ST imperfective VI rules (incomplete)
  a. /nk-/ ↔ IMPFV \ [_ D_φ]
  b. /n-/ ↔ IMPFV elsewhere

[4]This is not, strictly speaking, true of Preminger's analysis in the sense that he views B3P agreement as genuine φ-agreement, rather than a doubled clitic. This simplification doesn't affect us crucially; we can adhere more closely and make a few minor changes to our proposal.

* At this point, we can explain why only absolutive morphology can in principle affect the surface form of aspect—it's about the presence of some φ-feature bearing element adjacent to it

  - Returning to our problem: Ergative morphology is not adjacent, so we wouldn't expect it to affect insertion of TAM

* However, as we know, in ST both absolutive and ergative 1SG morphology affect the realization of imperfective, the latter apparently long-distance

3.2 Fixing 1SG ergative (and absolutive)

* To account for how morphosyntactic properties of an ergative argument can affect the surface form of aspect long-distance, let's look at one of the few similar cases in the literature

* Adger, Béjar & Harbour (2001, 2003; also Bonet & Harbour 2011) show that in Kiowa (Tanoan), the future modal suffix varies depending on the transitivity of the verb ((13a) vs. (13b))

* Furthermore, they show that it's not about adjacency, structural or linear ((13) vs. (14))

(13) a. héíb-e-tɔɔ/*-t!ɔɔ
enter-TR-MOD$_{tr}$/*MOD$_{itr}$
'will bring in'

b. héíb-é-t!ɔɔ/*-tɔɔ
enter-ITR-MOD$_{itr}$/*MOD$_{tr}$
'will come in'

(14) a. héíb-e-gụụ-mɔɔ-tɔɔ/*-t!ɔɔ
enter-TR-DISTR-NEG-MOD$_{tr}$/*MOD$_{itr}$
'will not bring in at different locations/times'

b. héíb-é-gụụ-mɔɔ-t!ɔɔ/*-tɔɔ
enter-ITR-DISTR-NEG-MOD$_{itr}$/*MOD$_{tr}$
'will not come in at different places/times' Bonet & Harbour (2011)

* One could posit that the modal head probes for transitivity; (un)successful Agreement with the head marking (in)transitivity then can be written into the rules for inserting the morpheme (based on Adger, Béjar & Harbour 2001)

(15) MOD VI rules
a. /tɔɔ/ ↔ MOD \ MOD[TR]
b. /t!ɔɔ/ ↔ MOD elsewhere

* Adger, Béjar & Harbour (2001) argue that *all* cases of apparent long-distance allomorphy can, and should, be treated as agreement

* If we adopt this view of long-distance allomorphy, that means that ergative-conditioned allomorphy must be the result of Agreement—probing by aspect for a [1SG] feature[5]

* We can do this neatly and without making terribly substantial changes to the syntax proposed above for ST

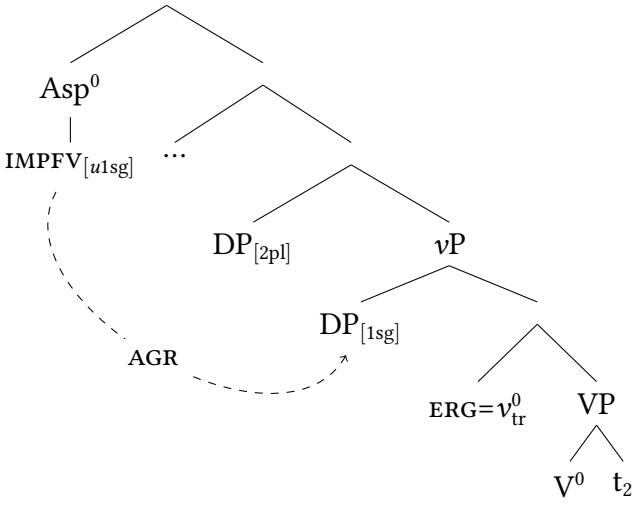
* First, we'll posit that aspect does *not* originate in Infl^0, but rather its own dedicated projection *below* Infl^0 (similar to, but not exactly as in, Pye (2010))

  – Infl^0 (or T^0) are generally taken to be projections above aspect cross-linguistically; the syntactic and semantic picture of Reichenbach (1947) and Klein (1994), a.m.o., makes such a split

* Infl^0 will still be the locus of ABS morphology, but imperfective, in its own dedicated Asp^0 projection, also enters into the syntax looking to probe

* Let's look at a sample derivation for *k-ix-nu-chop* (IMPFV-B2P-A1S-touch) 'I'm touching you.'

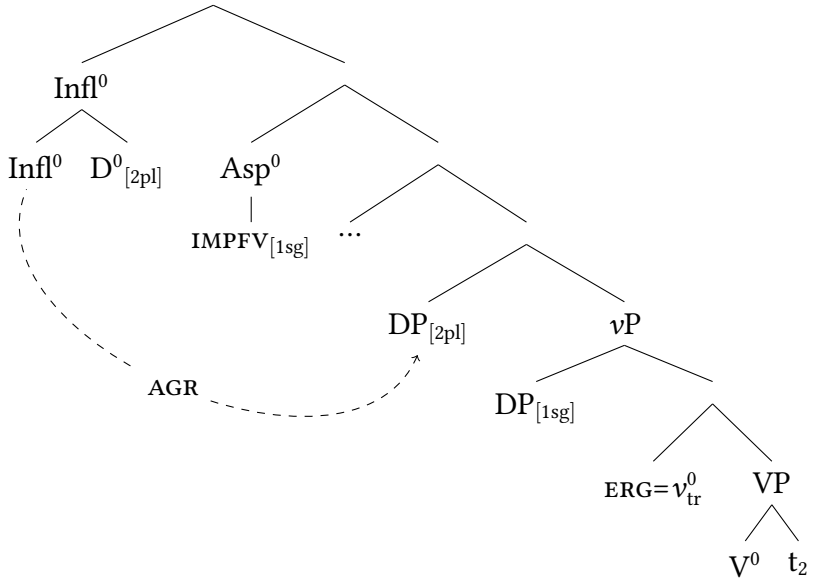
(16) Merger of Asp^0; IMPFV probes for 1SG; valuation of IMPFV



* We follow Preminger (2014) in taking Agree to fail without crashing the derivation if a probe does not find a suitable argument bearing the feature it is looking for, so IMPFV probing for 1SG is innocuous

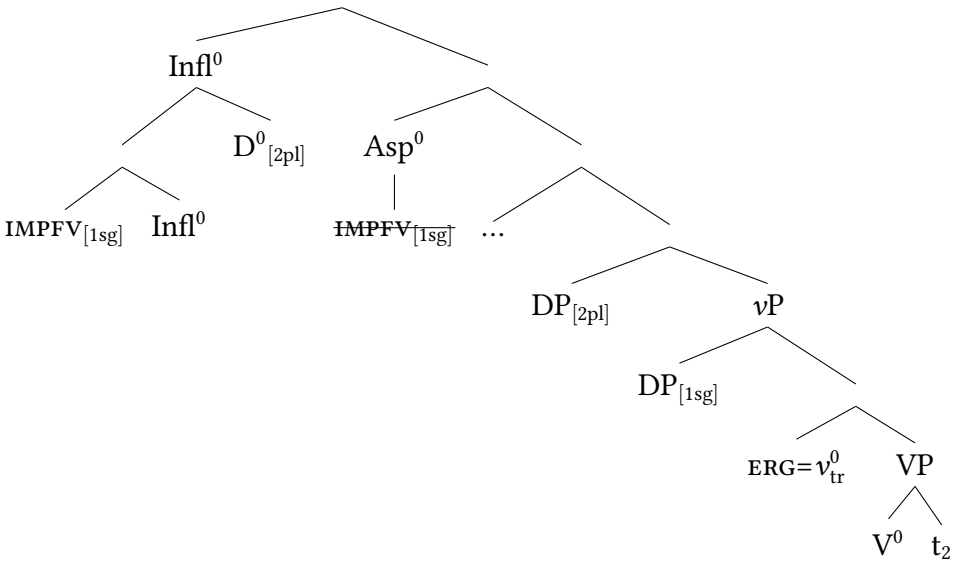
[5]An important caveat: we deviate from Preminger (2014) in that we are allowing there to be in the syntax singular DPs with a φ-feature structure that is disjoint from plural DPs, rather than a view where φ-features in the syntax are privative. This simplification does affect our proposal in some substantial ways, but not in any crucial ways.

(17) Merger of Infl^0 & its probing for DP (resulting in absolutive marking); clitic doubling



* Finally, in order to get the linear order right, we need Asp^0 to head-move into Infl^0
* Following Adger, Béjar & Harbour (2001), we take 'structural adjacency' to be defined as follows: a node C is structurally adjacent to nodes A/B iff A and B are immediately contained by C's sister
  - This assumption means that a clitic on Infl^0 is structurally adjacent to IMPFV in the configuration in (18)
  - ...and so is a possible trigger for allomorphy!

(18) Asp^0 to Infl^0 head movement



* We will now add to our rules in (11) a rule for 1SG-conditioned allomorphy

(19) ST imperfective VI rules (complete)

a. /k-/ ↔ IMPFV \ IMPFV[1SG]

b. /nk-/ ↔ IMPFV \ [_ D_{φ}]

c. /n-/ ↔ IMPFV elsewhere

* At first blush, rules (19a) and (19b) seem to be problematic in two cases:

(i) When aspect is valued for 1SG by an absolutive argument, there is also a clitic D, (i.e. any time the absolutive argument is 1S), and

(ii) Whenever aspect is valued by an ergative 1SG DP, and there is absolutive agreement (and therefore a clitic D in Infl^0, i.e. any time there is A1S and ABS morphology)

* Problem: In these cases, both /k-/ and /nk-/ meet the context for insertion

* Solution: the Subset Principle in DM allows us to pick out /k-/ in both of these situations

(20) SUBSET PRINCIPLE: Halle (1997)
The phonological exponent of a Vocabulary Item is inserted into a morpheme in the terminal string if the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the vocabulary item contains features not present in the morpheme. Where several Vocabulary items meet the conditions for insertion, **the item matching the greatest number of features specified in the terminal morpheme must be chosen**.
(emphasis added)

* The decision between (19a) and (19b) comes down to this: when imperfective is valued for [1SG], then (19a) is triggered because /k-/ is the item matching the greatest number of features specified *in the terminal morpheme*

  - (19b), while viable, is a contextual rule, and doesn't make reference to the features in the terminal morpheme itself
  - So, all else equal, (19a) will be selected over (19b) across the board
  - ...even when the relevant argument conditioning allomorphy is ergative!

4 Summing up

* Empirical contribution: we've a documented pattern of aspect allomorphy conditioned specifically by 1S that had not been documented for Mayan—uniquely, even ergative 1S conditions allomorphy, trumping the (apparently) more local conditioning triggered by the absolutive morpheme

* The fact that A1s conditions allomorphy, even (apparently) long distance, raises issues for restrictive theories of allomorphy triggers

* Theoretical contributions: We have shown how a (minimally) more detailed clausal structure for ST minimizes the issue; what appears to be problematic on the surface may actually not be

* We've also provided the first analysis (to our knowledge) of exactly how the B3s vs. everything else pattern of TAM allomorphy in K'ichean can be analyzed

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