

# ‘Suspended affixation’ in Tzotzil

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## 1 The Phenomenon

Tzotzil is a head-marking language –  $\varphi$  features of the subject, object, and possessor are indexed on the appropriate head.

- (1) a. *Ch-i-bat.* *intransitive subject*  
ICP-ABS1-go  
I’m going.
- b. *Ta j-ve’.* *transitive subject*  
ICP ERG1-eat  
I will eat it.
- c. *L-i-s-k’opon .* *transitive object*  
CP-ABS1-ERG3-speak.to  
s/he/they spoke to me
- d. *j-na* *possessor*  
GEN1-house  
our (exc.) house

When the argument is 1st or 2nd person plural, number must also be indexed.<sup>1</sup>

- (2) a. *Ch-i-bat-otikotik.* *intransitive subject*  
ICP-ABS1-go-1EXC  
We (exc) are going.
- b. *Ta j-ve’-tikotik.* *transitive subject*  
ICP ERG1-eat-1EXC  
We (exc) will eat it.
- c. *L-i-s-k’opon-otikotik.* *transitive object*  
CP-ABS1-ERG3-speak.to-1EXC  
s/he/they spoke to us (exc)
- d. *j-na-tikotik* *possessor*  
GEN1-house-1EXC  
our (exc.) house

<sup>1</sup>Number agreement with 3rd person plurals is systematically optional. All examples cited here and below are 1st person, mostly exclusive.

There are contexts in which overt marking of 1st and 2nd person plurals is optional.

- (3) a. *Ch-i-bat-otikotik ta j-na-tikotik.*  
ICP-ABS1-go-1EXC P GEN1-house-1EXC  
We’re going to our house.
- b. *Ch-i-bat ta j-na-tikotik.*  
ICP-ABS1-go P GEN1-house-1EXC  
[i] I’m going to our house.  
[ii] We’re going to our house.
- (4) a. *Ta j-ve’-tikotik j-ve’el-tikotik.*  
ICP ERG1-eat-1EXC GEN1-meal-1EXC  
We’re eating our meal.
- b. *Ta j-ve’ j-ve’el-tikotik.*  
ICP ERG1-eat GEN1-meal-1EXC  
[i] I’m eating our meal.  
[ii] We’re eating our meal.

The phenomenon illustrated in (3b[ii]), (4b[ii]) is what I call ‘suspended affixation’ in Tzotzil.

These examples exhibit an interpretive dependency, such that marking on the right-most inflected head suffices to induce a plural interpretation for the head to the left, if the two heads are featurally compatible.

→ The question is how this dependency is established.

### 1.1 Two ways it is not established

- o It is not established via the discourse context.

- (5) *J-ti’-tikotik ti karlan-e, n-i-ve’-otikotik,*  
ERG1-bite-1EXC DET chicken-ENC CP-ABS1-eat-1EXC  
*k-uch’-be-tikotik ti skaltoal un-e.*  
ERG1-drink-APL-1EXC DET its.broth ENCS  
We ate the chicken, we ate, we drank its broth. SSS 173

- Omission of any of the plural suffixes in (5) yields a singular interpretation for the subject of that clause.
- This contrasts with 3rd person, where plurality is routinely recovered from discourse.
- o It is also not established directly with the agreement ‘controller’.

- (6) *Ch-i-bat-\*(otikotik) li vo’otikotik-e.*  
ICP-ABS1-go-1EXC DET 1EXC-ENC  
We will go.

In this the Tzotzil phenomenon contrasts with partial agreement in Arabic, inter alia, where plural marking on  $v$  is suppressed when followed by a plural subject. (Benmamoun and Lorimor, 2006; Ackema and Neeleman, 2003, 2012).

- o Suspended affixation in Tzotzil involves a relation between inflected (agreeing) heads, not between the controller and target of agreement per se.

## 1.2 The basic proposal

- o Suspended affixation is possible only when the two heads are linked to the SAME set of  $\varphi$  features via a series of feature sharing (‘agreement’) operations.
- o This permits suspension of plural morphology and at the same time assures recoverability.

## 2 The Language

- o Tzotzil is a Mayan language spoken by approximately 333,000 people in Chiapas, the southernmost state of Mexico.
- o Five or six dialects are usually identified. All exhibit the phenomenon discussed here; if there are differences, I am unaware of them at present.
- o One feature which does distinguish the dialects is the form of the 1st person exclusive suffix. For the dialects cited here:

Dialect	Erg/Gen	Abs
Zinacantán	-(ti)kotik	-ot(i)kotik
Chenalhó		-kutik
Chamula		-kutik
Huixtán		-tutik

Table 1: 1st plural exclusive suffixes in Tzotzil

- o Unless indicated otherwise, examples are from the Zinacantec dialect.

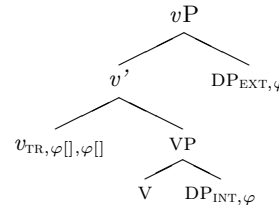
## 3 Agreement

For starters, assume two  $\varphi$  agreement operations:

- (7) a.  $\varphi$  AGREE, involving a Probe and a Goal, where the Probe is a set of unvalued  $\varphi$  features. It probes in its  $c$ -command domain for the closest set of  $\varphi$  features (the Goal) (Chomsky, 2000, 2001). The  $\varphi$  features of Probe and Goal unify (Frampton and Gutmann, 2000; Pesetsky and Torrego, 2007).
- b.  $\varphi$  SPEC-HEAD agreement: where the Probe is a set of unvalued  $\varphi$  features. It probes its specifier for a set of  $\varphi$  features (the Goal). The  $\varphi$  features of Probe and Goal unify.

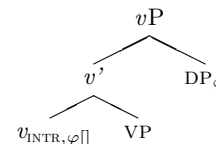
### 3.1 Morphological Agreement in Tzotzil

- (8) Transitive clause



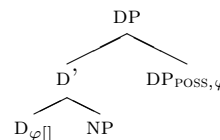
$v_{TR}$  comes with two sets of unvalued  $\varphi$  features. One set unifies with the valued  $\varphi$  features of the external argument (Spec-Head agreement), and the other with those of the internal argument (AGREE).

- (9) Intransitive clause



$v_{INTR}$  has one set of unvalued  $\varphi$  features. It unifies with the valued  $\varphi$  features of its specifier (Spec-Head agreement).

- (10) Possessed noun



D has one set of unvalued  $\varphi$  features. It unifies with the valued  $\varphi$  features of the possessor (Spec-Head agreement).

### 3.2 Multiple exponence

There are several contexts in which the  $\varphi$  features of a discourse entity are marked on several agreeing heads. A partial list, in pseudo-Tzotzil:

- (11) a. *he-ate his-meal* ‘he ate a/his meal’  
 b. *he-wants he-goes* ‘he wants to go’  
 c. *I-gave-him his-job* ‘I gave him a job’  
 d. *I-hit-him (in) his-head* ‘I hit him in the head’  
 e. *I-let-him he-sit* ‘I let him sit’

In each of these contexts, suspended affixation is possible.

#### Analytic strategy.

- show that the derivation of each case involves a series of operations which result in the two heads being linked via an ‘agreement chain’ to the SAME set of  $\varphi$  features (§4).
- leverage the feature sharing property at SPELL-OUT to account for the fact that some instances of the plural feature may be omitted.
- show that where the heads cannot be linked in an ‘agreement chain’, suspended affixation is not possible (§5).

## 4 Feature sharing

### 4.1 Feature transmission under binding: Extended reflexives

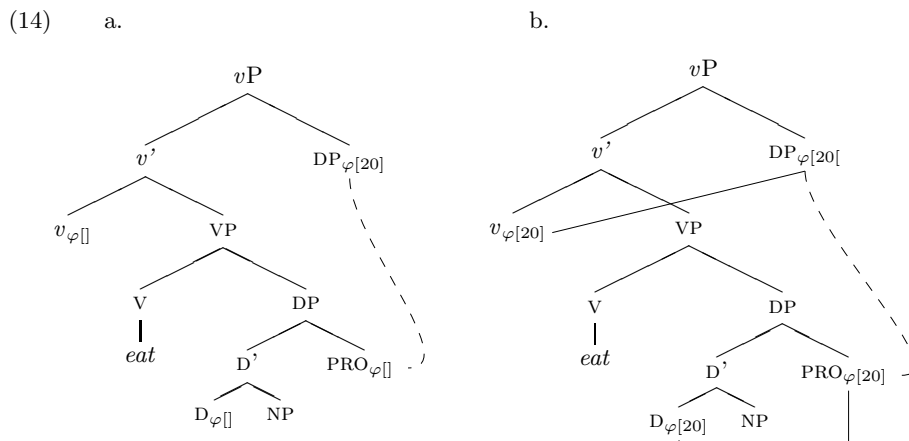
The verb in (12) can be interpreted with a 1st plural subject because the plurality of the same referent is marked on the internal argument

- (12) *Ta j-ve' j-ve'el-tikotik.*  
 ICP ERG1-eat GEN1-meal-1EXC  
 We're eating a/our meal.

I take the possessor to be a bound anaphor (like SE), an element which lacks referential and  $\varphi$  features. It seeks a c-commanding antecedent, which values its  $\varphi$  features and semantically binds it (Reuland, 2001; Kratzer, 2009; Schäfer, to appear; Tucker, 2010).

- (13) 'Feature transmission under binding'
- The anaphor, lacking referential and  $\varphi$  features, probes upwards for a Goal – seeking the closest set of c-commanding  $\varphi$  features. The two sets unify.
  - At LF, the relation between Probe and Goal is interpreted as semantic binding; at PF, the features of the Goal are spelled out on the Probe.

FTuB establishes the dependency in (14a)



- (15) Morphological agreement establishes the links in (14b).  $v$  and D are now members of a single chain of agreement relations, and each is associated with the SAME set of  $\varphi$  features. This is the precondition for suspended affixation – omission of the plural morpheme on the leftmost of the two heads.

Ellipsis suggests that the possessor is indeed interpreted as a bound variable.

- (16) *Ti j-ve' j-ve'el-tutik, ech uk j-Petul-e. Huixtán*  
 ICP ERG1-eat GEN1-meal-1EXC thus also CLS-Peter-ENC  
 We're eating our meal, and Peter is too [=Peter is eating his own /\*our meal].

### 4.2 Feature transmission across clauses: Control

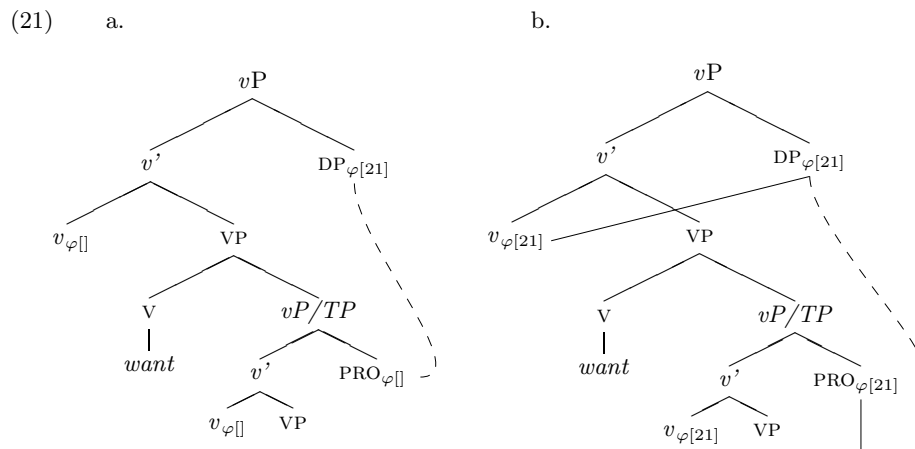
Several matrix verbs which select infinitives in English and many other languages select finite complements in Tzotzil.

- (17) *Mu j-k'an x-i-bat un.*  
 NEG ERG1-want ASP-ABS1-go ENC  
 I don't want to go.

This is another context in which suspended affixation is common:

- (18) *Mu j-k'an-(tikotik) x-i-bat-otikotik un.*  
 NEG ERG1-want-1EXC ASP-ABS1-go-1EXC ENC  
 We don't want to go.
- (19) *Mu x-k-a'i-tik ch-i-muy-otik.*  
 NEG ASP-ERG1-feel-1INC ICP-ABS1-ascend-1INC  
 We (inc) weren't aware of going up. SSS 9

- (20) Feature transmission under binding establishes the link in (21a), unifying the features of the Probe (PRO) with those of the c-commanding Goal (the controller) (Landau, 2004).



This single set of  $\varphi$  features is passed by morphological agreement to the higher and lower  $v$ 's. As each is now associated with the same set of  $\varphi$  features, the preconditions for suspended affixation are met.

- (22) Evidence from ellipsis suggests that PRO is interpreted as a bound variable.

*J-k'an ch-i-bat, ech uk j-Petul-e. Huixtán*  
 ERG1-want ICP-ABS1-go thus also CLS-Peter-ENC

I want to go, and Peter too (=Peter wants to go, *not* Peter wants me to go)

### 4.3 Intervention

Suspended affixation is normal (and usually preferred) in extended reflexive contexts:

- (23) *Mu'yuk ti j-chon-(tutik) j-ka'-tutik. Huixtán*  
 NEG ICP ERG1-sell-1EXC GEN1-horse-1EXC

We will not sell our horse.

But if (23) is expanded to a ditransitive, the plural reading entirely disappears if the plural suffix is dropped.

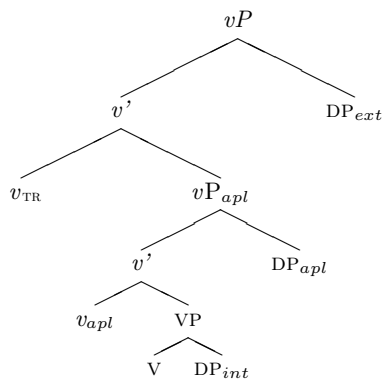
- (24) a. *Mu'yuk ti j-chon-be-tutik j-ka'-tutik atot. Huixtán*  
 NEG ICP ERG1-sell-APL-1EXC GEN1-horse-1EXC your.father

We will not sell our horse to your father.

- b. *Mu'yuk ti j-chon-be-~~tutik~~ j-ka'-tutik atot.*  
 NEG ICP ERG1-sell-APL-~~1EXC~~ GEN1-horse-1EXC your.father

*only:* I will not sell our horse to your father.

- (25) Ditransitive syntax



Only the applied object is accessible for morphological (object) agreement, passive, and a (reflexive) anaphoric relation with the subject (Aissen, 1987).

The applied object appears to act as an intervener for FTuB as well. I conclude that the  $\varphi$  features of the probe (the anaphoric variable) must unify with those of the CLOSEST potential antecedent.<sup>2</sup>

<sup>2</sup>Suspended affixation is also impossible between the external argument and the possessor of the applied argument. I have no account for this at present.

### 4.4 Object antecedents

This predicts that suspended affixation should be possible if the possessor of the internal argument is anteceded by the applied object.

- It is possible with a thematic applied object:

- (26) *Te laj y-ak'-b-un-~~tutik~~ k-abel-tutik. Huixtán*  
 there PF ERG3-give-APL-ABS1-~~1EXC~~ GEN1-work-1EXC  
 He had given us our work. John 3,22

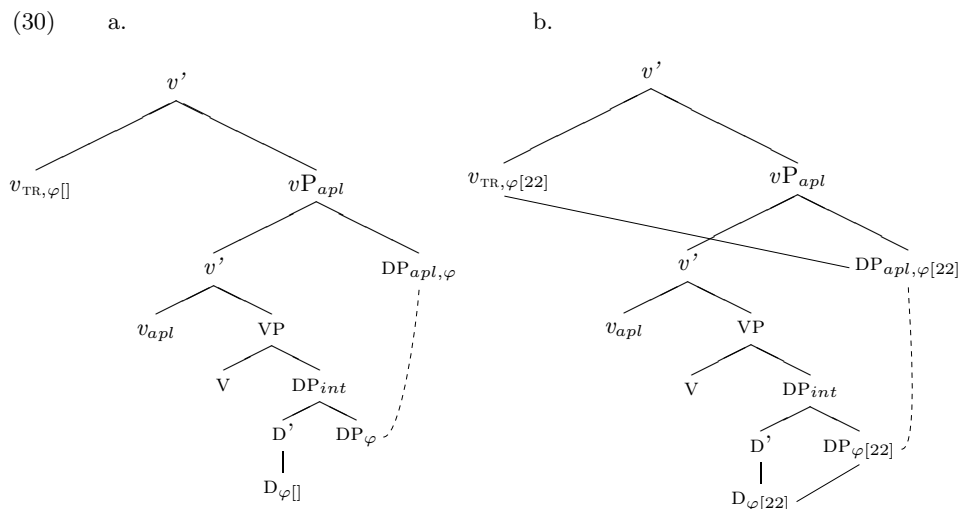
- Also with a non-thematic applied object. Next to (27), we have the applied construction in (28), with only very slight difference in meaning.

- (27) *S-tzak j-k'ob-tutik. Huixtán*  
 ERG3-grasp GEN1-hand-1EXC  
 He grasped our hand[s] (*nos agarró la mano*).

- (28) *S-tzak-b-un-~~tutik~~ j-k'ob-tutik. Huixtán*  
 ERG3-grasp-APL-ABS1-~~1EXC~~ GEN1-hand-1EXC  
 He grasped our hand[s] (*nos agarró la mano*). Galatians 2,9

- In Aissen (1987), I argued that the possessor of the internal argument generally raises to the position of the applied object in Tzotzil if that position is not thematically filled. This POSSESSOR RAISING associates one set of features (those of the possessor) with two syntactic positions.

- (29) Thus the dependency in (30a) can be created either by FTuB or by Possessor Raising. In either case, a single set of features is associated with two syntactic positions.



Morphological agreement establishes the links in (30b).

## 4.5 Feature sharing in situ

Clause Union is morphosyntactically similar to that of French except that the complement clause carries agreement (Aissen, 1987)

- (31) Intransitive complement

*Ak'-un x-i-naki-tutik.* *Huixtán*  
 let-ABS1 ASP-ABS1-sit-1EXC

Let us sit (one at your right hand, one at your left). Mark 20, 37

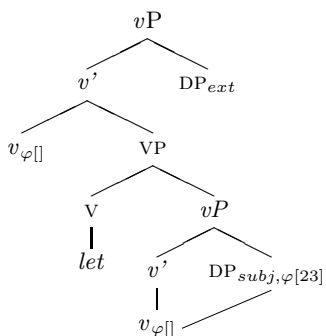
- (32) Transitive complement

*Ak'-b-on k-ojtikin-tikotik ti Jtotik Riox ta vinajel-e*  
 let-APL-ABS1 ERG1-know-1EXC DET our.father lord in heaven-ENC

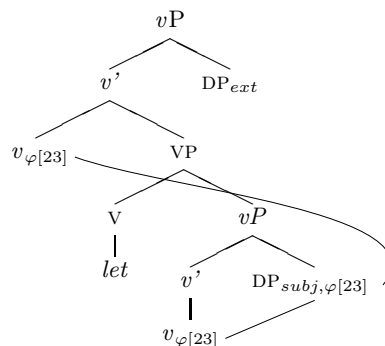
Show us the Father in Heaven. John 14,8

I address here just the intransitive case. Morphological agreement in the lower clause establishes the link in (33a).

- (33) a.



- b.



- (34) Morphological agreement (AGREE) in the higher clause probes downwards and finds the closest set of  $\varphi$  features on the complement subject. It establishes the new link in (b).

**Conclusion.** The two  $v$ 's are linked by two instances of (morphological) agreement, and they share a set of  $\varphi$  features. This provides the precondition for suspended affixation.

## 4.6 Summary

In our four constructions, the two heads involved in suspended affixation are linked by a series of feature sharing (agreement) operations:

- o By morphological agreement alone (Clause Union, intransitive complement)

- (35) *ak'-un x-i-naki-tutik.* *Huixtán*  
 let-ABS1 ASP-ABS1-sit-1EXC  
 Let us sit (one at your right hand, one at your left). Mark 20, 37

- o By morphological agreement + movement

- (36) *S-tzak-b-un j-k'ob-tutik.* *Huixtán*  
 ERG3-grasp-APL-ABS1 GEN1-hand-1EXC  
 He grasped our hand[s]. Galatians 2,9

- o By morphological agreement + feature transmission under binding

- (37) Extended reflexive

*Ta j-ve' j-ve'el-tikotik.*  
 ICP ERG1-eat GEN1-meal-1EXC

We're eating our meal.

- (38) Control

*Mu j-k'an x-i-bat-otikotik un.*  
 NEG ERG1-want ASP-ABS1-go-1EXC ENC

We don't want to go.

- o This does not exhaust the contexts in which suspended affixation is found, but analyses in terms of agreement chains are plausible for the others.

**Conclusion.** There is considerable positive support for the idea that the interpretive dependency involved in suspended affixation is established syntactically via agreement operations.

## 5 Where suspended affixation fails

If suspended affixation depends on a chain of agreement relations, failure to establish such a chain should block suspended affixation.

- o Failures of c-command
- o Intervention [see above]
- o Phase Impenetrability

### 5.1 Failure of c-command

- (39) a. *La s-ti'-un-tutik j-tz'i'-tutik.* *Huixtán*  
 CP ERG3-bite-ABS1-1EXC GEN1-dog-1EXC.  
 Our (exc) dog bit us (exc).

- b. *La s-ti'-un j-tz'i'-tutik.*  
 CP ERG3-bite-ABS1- GEN1-dog-1EXC.  
*only*: Our (exc) dog bit me.
- (40) a. *N-i-s-butz'-un-tutik j-kumpare-tutik.*  
 CP-ABS1-ERG3-kiss-ABS1-1EXC GEN1-compadre-1EXC  
 Our (exc) compadre kissed us (exc).  
 b. *N-i-s-butz'-un j-kumpare-tutik.*  
 CP-ABS1-ERG3-kiss-ABS1 GEN1-compadre-1EXC  
*only*: Our (exc) compadre kissed me.

## 5.2 Phase Impenetrability

Across CP

- (41) a. *Mu j-na'-tutik [<sub>CP</sub> bu ti j-ve'-(tutik) j-ve'el-tutik. H*  
 NEG ERG1-know-1EXC where ICP ERG1-eat-1EXC GEN1-meal-1EXC  
 We don't know where we're going to eat our meal.  
 b. *Mu j-na' [<sub>CP</sub> bu ti j-ve'-(tutik) j-ve'el-tutik.*  
 NEG ERG1-know where ICP ERG1-eat-1EXC GEN1-meal-1EXC  
*only*: I don't know where we're going to eat our meal.

Across *vP*

- (42) a. *[J-k'an-tutik [<sub>vP</sub> ch-a-ve' j-ve'el-tutik. Huixtán*  
 ERG1-want-1EXC ICP-ABS2-eat GEN1-meal-1EXC  
 We (exc) want you to eat our meal.  
 b. *[J-k'an [<sub>vP</sub> ch-a-ve' j-ve'el-tutik.*  
 ERG1-want ICP-ABS2-eat GEN1-meal-1EXC  
*only*: I want you to eat our (exc) meal.

## 5.3 Phase impenetrability + failure of c-command

. Adjunct clauses

- (43) a. *k'alal l-i-yal-otikotik tal-e, l-i-bat-otikotik ta ofisina.*  
 when CP-ABS1-ascend-1EXC DIR-ENC CP-ABS1-go-1EXC to terminal  
 After we had come up [by elevator], we went to the terminal. SSS 62  
 b. *k'alal l-i-yal tal-e, l-i-bat-otikotik ta ofisina.*  
 when CP-ABS1-ascend DIR-ENC CP-ABS1-go-1EXC to terminal  
*only*: After I had come up [by elevator], we went to the terminal.

. Extraposed complements: Declarative CP complements obligatorily extrapose, forming intonational phrases and islands for extraction (Aissen, 1992).

- (44) a. *J-na'-oj-otikotik ti ch-i-bat-otikotik ta Tuxta ta sob-e.*  
 ERG1-know-PF-1EXC COMP ICP-ABS1-go-1EXC P T. P morning-ENC  
 We know that we are going to Tuxtla in the morning.

- b. *J-na'-oj ti ch-i-bat-otikotik ta Tuxta ta sob-e.*  
 ERG1-know-PF COMP ICP-ABS1-go-1EXC P T. P morning-ENC  
*only*: I know that we are going to Tuxtla in the morning.

. Across utterances

- (45) *J-ti'-tikotik ti kaalan-e, n-i-ve'-otikotik, k-uch'-be-tikotik*  
 ERG1-bite-1EXC DET chicken-ENC CP-ABS1-eat-1EXC ERG1-drink-APL-1EXC  
*ti skaltoal un-e.*  
 DET its.broth ENCS  
 We ate the chicken, we ate, we drank its broth. SSS 173

Omission of any plural suffix yields a singular reading for the subject of that clause.

**Conclusion.** Failures of suspended affixation arise where one would expect, if the relations it depends on are established syntactically through agreement.

## 6 The PF Side

### 6.1 Linear Generalization

The rightmost plural suffix must be pronounced. Omitting it (and pronouncing instead a suffix further to the left) results either in a new interpretation...

- (46) a. *\*I-j-sa'-tikotik j-ve'el-tikotik.*  
 CP-ERG1-look-1EXC GEN1-meal-1EXC  
 intended reading: we're looking for our meal.  
 okay: we (exc) are looking for my meal.  
 b. *\*Ch-i-bat-otikotik ta j-na-tikotik.*  
 ICP-ABS1-go-1EXC P GEN1-house-1EXC  
 intended reading: We're going to our house.  
 okay: We (exc) are going to my house.

... or in ungrammaticality:

- (47) a. *I-j-k'exta-tikotik j-k'u'-tikotik ta be.*  
 CP-ERG1-change-1EXC GEN1-clothes-1EXC on road  
 We changed our clothes on the road. SSS 78  
 b. *\*I-j-k'exta-tikotik j-k'u'-tikotik ta be.*  
 CP-ERG1-change-1EXC GEN1-clothes-1EXC on road  
 (We changed our clothes on the road.)

There are cases in which the order of the two elements can be reversed. Patterns of suspended affixation show the effect of linear order.

- (48) a. *Ch-i-xanav-tutik ti k-akan-tutik. Huixtán*  
 ICP-ABS1-walk-1EXC P GEN1-foot-1EXC  
 We're going by foot.

- b. \* *Ch-i-xanav-tutik ti k-akan-tutik.*  
 ICP-ABS1-walk-1EXC P GEN1-foot  
 (We're going by foot.)

The PP in (48) can be fronted. Again, it is only the leftmost suffix which can be omitted.

- (49) a. *Ti k-akan-tutik ch-i-xanav-tutik.* *Huixtán*  
 P GEN1-foot-1EXC ICP-ABS1-walk  
 By foot we're going.  
 b. \* *Ti k-akan-tutik ch-i-xanav-tutik.*  
 P GEN1-foot-1EXC ICP-ABS1-walk  
 (By foot we're going.)

## 6.2 Possible Approaches

**Issue.** When two heads share a feature, how is that feature spelled out? on both heads? only on one? only on the other? (cf. Kramer (2009))

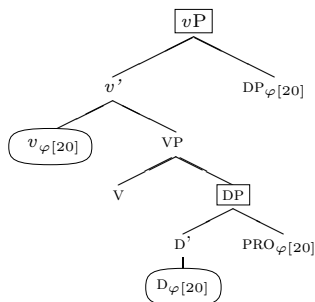
- (50) A linear proposal for Tzotzil  
 After linearization, a head which is linked to an uninterpretable PLURAL feature can be delinked if a head to its right is linked to an uninterpretable instance of the same feature.

Since Tzotzil is a right-branching language, a structural generalization also holds:

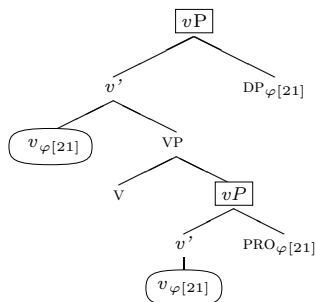
- (51) A structural generalization  
 A shared [PLURAL] feature is obligatorily spelled out on the lowest head on which it occurs; it is optionally spelled out on higher heads.

Nodes in oval frames indicate the heads involved in suspended affixation.

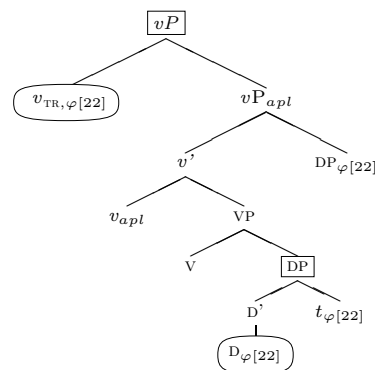
a. 'we ate our meal'



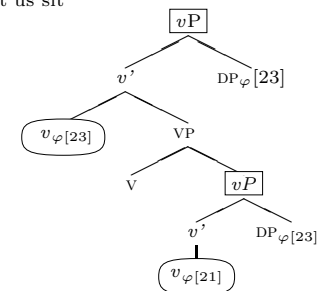
b. 'we want to go'



c. 'he grasped our hand'



d. 'let us sit'



It is less clear how to implement (51). Cyclic SPELL-OUT looks like a promising route. For illustration, assume that SPELL-OUT domains correspond to phases (= CP, vP, DP) (nodes in square boxes).

- (52) An uninterpretable plural feature is obligatorily spelled out in the initial phase in which it is encountered. Spell-out in subsequent phases is optional.

## 7 Conclusions

- Suspended affixation in Tzotzil is a morphological reflection of feature sharing (agreement) operations.
- Within a restricted domain, non-realization of a plural feature is permitted when the SAME feature has already been realized in another (lower) location.
- Though the realized affix occurs on the right (as in the suspended affixation phenomenon of Turkish), the reason is the opposite: rather than reflecting a 'high' position, it reflects a 'low' position.

## Abbreviations in glosses

ABS: absolutive  
 APL: applicative  
 ASP: ‘neutral’ aspect  
 CL: clitic  
 CLS: classifier  
 CP: completive aspect  
 DET: determiner  
 DIR: directional  
 ENC: enclitic  
 ERG: ergative  
 EXC: 1st plural exclusive  
 GEN: genitive  
 H: Huixtán dialect  
 INC: inclusive  
 ICP: incompletive aspect  
 NEG: negation  
 PF: perfect  
 PL: plural  
 P: preposition  
 SSS: Laughlin (1980)

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## Acknowledgements

I am indebted to a number of Tzotzil speakers for help over the years with the data presented here: Chep Kontzares, Manvel Peres, and Maruch Gomes (all of Zinacantán), Abraham Gomez Vazquez (of Chamula), and especially Rosendo Martinez Alvarez and Margarita Martinez Perez (of Huixtán).

Thanks too to Sandy Chung, Amy Rose Deal, and Jorge Hankamer for comments and suggestions.

Examples from the New Testament are from translations into various Tzotzil dialects (as indicated).