Dissociating the syntax and morphological realization of Kaqchikel Agent Focus[1]

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1 Introduction

A common property of many Mayan languages is a change to transitive verb morphology when the subject has been extracted, known as *Agent Focus* (AF) (Aissen, 1999; Stiebels, 2006; Norcliffe, 2009; Coon et al., 2011, a.o.). AF is traditionally described as obligatory whenever the subject (ergative argument) is $\overline{\text{A}}$-extracted. In this paper I will discuss the morphological realization of AF in Kaqchikel. I argue that the realization of AF in Kaqchikel must be governed by a morphological process which is independent of the syntax of AF. Specifically, I argue that AF morphology is the realization of an abstract [**AF**] feature which *spreads downwards within a certain domain*, following Bjorkman's (ms) feature-spreading approach to Affix Hopping-type verbal morphology.

Previous researchers have assumed a one-to-one mapping between $\overline{\text{A}}$-extraction and AF-marking on verbs (Aissen, 1999; Stiebels, 2006; Coon et al., 2011). In many cases, this is indeed the case. Consider example (1), which shows the verb "want" *ajo* with a full CP embedding. If we question the subject of the verb "want," this results in AF-marking on the verb "want," and no AF-marking on the embedded verb "write" (2a). If we question the subject of the embedded verb "write" through long-distance *wh*-movement, this results in AF-marking the verb "write," and no AF-marking on the higher verb "want" (2b). AF on both verbs or on neither one is ungrammatical in these examples.

(1) **"Want" *ajo* with a full CP complement:**

yïn n-∅-w-ajo [chin rät n-∅-a-tsb'aj ri karta]
I **INC-ABS**$_{3sg}$-**ERG**$_{1sg}$-want that you **INC-ABS**$_{3sg}$-**ERG**$_{2sg}$-write the letter

'I want you to write the letter.'

(2) **AF morphology tracks which verb's subject is $\overline{\text{A}}$-extracted:**

a. achike n-∅-jo-**van** [chin rje n-∅-ki-tsb'aj ri karta]?
who **INC-ABS**$_{3sg}$-want-**AF** that they **INC-ABS**$_{3sg}$-**ERG**$_{3pl}$-write the letter
'Who wants them to write the letter?'

[1]This work would not be possible without the patience and kindness of our informant Ana López de Mateo. *Matijox!* This work was supported by a MIT Ken Hale Fund fieldwork award. For helpful discussion and comments, I thank David Pesetsky, Jessica Coon, Omer Preminger, Norvin Richards, Judith Aissen, Heidi Harley, and Hadas Kotek, as well as the audience at the First American International Morphology Meeting at the University of Massachusetts, Amherst. All errors are mine.

Abbreviations used: AF = Agent Focus, ABS = absolutive, COM = completive aspect, ERG = ergative, FOC = focus marker, INC = incompletive aspect, RC = relative clause marker.

b. achike n-∅-r-ajo ri a Juan [chin n-∅-tsb'a-**n** ri karta]?
who INC-ABS$_{3sg}$-ERG$_{3sg}$-want Juan that INC-ABS$_{3sg}$-write-**AF** the letter
'Who does Juan want to write the letter?'

This simple one-to-one correspondence between AF-marking on a verb and $\overline{\text{A}}$-extraction of that verb's subject has dictated the desiderata of recent theoretical work aiming to explain the syntax of AF (e.g. Coon et al., 2011; Assmann et al., 2012).

In this paper I will present novel data which breaks this one-to-one correspondence, and therefore calls into question these recent approaches. The problematic data comes from the behavior of AF morphology in clauses with reduced clausal embeddings. The verb 'want' *ajo* also has the option of taking a reduced clausal complement, akin to the English control verb 'want' (3). The status of this reduced clausal complement will be discussed in section 2.3.

(3) **"Want" *ajo* with a reduced clausal complement:**

rhe n-∅-k-ajo n-∅-ki-tsb'aj ri karta
they INC-ABS$_{3sg}$-ERG$_{3pl}$-want INC-ABS$_{3sg}$-ERG$_{3pl}$-write the letter

'They want to write the letter.'

Given the assumption of one-to-one correspondance, we expect that one $\overline{\text{A}}$-extraction will result in one instance of AF-marking. However, when we extract the subject of this construction, **both verbs must be in their AF forms** (4a). The AF-marking of both verbs is obligatory, as seen through examples (b–c). *The single subject extraction in (4) results in two realizations of AF.* In section 2.3 I will show that this puzzling data leads us to abandon our straightforward mapping between the syntax and morphology of AF.

(4) **AF-marking on both *ajo* and main verb:**

a. achike n-∅-jo-**van** n-∅-tsb'a-**n** ri karta?
who INC-ABS$_{3sg}$-want-**AF** INC-ABS$_{3sg}$-write-**AF** the letter
'Who wants to write the letter?'

b. * achike n-∅-r-jo n-∅-tsb'a-**n** ri karta?
who INC-ABS$_{3sg}$-ERG$_{3sg}$-want INC-ABS$_{3sg}$-write-**AF** the letter

c. * achike n-∅-jo-**van** n-∅-u-tsb'aj ri karta?
who INC-ABS$_{3sg}$-want-**AF** INC-ABS$_{3sg}$-ERG$_{3sg}$-write the letter

I will argue that AF morphology *spreads* onto verbs in a particular domain. This solution is cast within the framework of Distributed Morphology, wherein features assigned in the syntax are realized on terminal nodes through Vocabulary Insertion rules at spellout. I argue that AF morphology is the spellout of an [AF] feature which is assigned by a higher head, and that this feature can spread onto multiple verbs in its domain, yielding the multiple AF-marking as in (4).

I begin by giving some background on AF in Kaqchikel in section 2.1 and discuss some properties of the reduced embedding under "want" *ajo* in section 2.2. In section 2.3 I argue against the one-to-one correspondance between the syntax and morphology of AF and instead for a morphological spreading approach. In section 2.4 I demonstrate that this spreading of AF morphology can be blocked by intervening adverbs. The patterns of this blocking supports the view that AF morphology spreads top-down. In section 3 I implement my proposal using a system of downward *feature spreading* for verbal inflection, following the work of Matushansky (2008) and Bjorkman (to appear,m).

The approach I advocate for here dissociates the syntax and morphological realization of AF. This contrasts with recent Case-based approaches (Coon et al., 2011; Assmann et al., 2012), which tie the syntactic effect of AF directly to its morphology, i.e. the disappearance of ergative agreement. In section 4 I will argue that such approaches are unable to explain these puzzling patterns of AF realization in Kaqchikel.

2 The distribution of Agent Focus in Kaqchikel

2.1 Background: AF morphology and environments

In order to discuss the patterns of AF realization, we must first describe the morphological form and syntactic distribution of AF.

The Kaqchikel transitive verb shows agreement with both its subject (ergative agreement; Set A) and object (absolutive agreement; Set B). A full agreement transitive verb is given in (5a), where the argument DPs themselves have been pro-dropped. In (5b), the subject is *achike* 'who.' The subject *wh*-question requires that the verb be in its AF form. In the AF form, the verb loses its ergative agreement slot and gains an AF suffix, whose form depends on the verbal stem.[2] The AF suffix is in bold throughout this paper.

(5) a. x-at-ki-tz'ët
COM-ABS$_{2sg}$-ERG$_{3pl}$-see
'They saw you (pl).'

b. achike x-a-tz'et-**ö**?
who COM-ABS$_{2sg}$-see-**AF**
'Who saw you (pl)?'

(6) *Full agreement transitive:* → *Agent Focus form:*
ASP-ABS-ERG-V → ASP-ABS-V-**AF**

[2]The agreement of the remaining absolutive agreement slot in AF is not relevant for my arguments here. See Preminger (2011) for a description.

AF verb forms appear in four different environments: (a) subject *wh*-questions, (b) subject relative clauses, (c) subject clefts, and (d) subject existential constructions.[3]

2.2 Properties of the reduced clausal embedding under "want" *ajo*

The primary data in this paper will come from examples involving the embedding verb "want" *ajo*, as was previewed in section 1, so it is important to take a moment to better understand the properties of this construction. The verb "want" *ajo* is able to take a full CP embedding as well as a reduced clausal embedding. Two basic examples are repeated from section 1 below:

(1) **"Want" *ajo* with a full CP complement:**

yïn n-∅-w-ajo [chin rät n-∅-a-tsb'aj ri karta]
I INC-ABS$_{3sg}$-ERG$_{1sg}$-want that you INC-ABS$_{3sg}$-ERG$_{2sg}$-write the letter

'I want you to write the letter.'

(3) **"Want" *ajo* with a reduced clausal complement:**

rhe n-∅-k-ajo n-∅-ki-tsb'aj ri karta
they INC-ABS$_{3sg}$-ERG$_{3pl}$-want INC-ABS$_{3sg}$-ERG$_{3pl}$-write the letter

'They want to write the letter.'

The primary arguments in this paper will come from the pattern of AF in structures such as (3). In this section I will give three arguments for the structure in (3) being distinct from that in (1) and, in particular, that the complement of "want" *ajo* in (3) is not a full clause. However, I will not attempt to distinguish between this reduced clausal embedding being a type of control, raising, or restructuring embedding.

The first argument comes from the fact that the subject of "want" and the interpreted subject of the embedded verb must be coreferential in the case of a reduced embedding but not in a full CP embedding. As seen in (1), with a full CP embedding, the subject of "want" and the subject in the embedding need not be the same. In (1) this also results in distinct ergative agreement on the two verbs: *ajo* above agrees with its subject "I," which is first-singular, while the embedded verb agrees with its local subject, "you," which is second-singular. In the case of "want" *ajo* with a reduced clausal embedding, however, it is impossible to have distinct subjects. This is shown below in (7), in which we minimally modify (3) by changing the ergative agreement of the embedded verb "write" to be different from that of the embedding *ajo*, resulting in ungrammaticality.

(7) **Reduced clausal complement with disjoint subject:**

[3] Topicalization of subjects notably does not trigger the AF verb form. See Erlewine (in preparation) for an explanation based on the differing position of topics.

* rhe n-∅-k-ajo (rät) n-∅-a-tsb'aj ri karta (rät)
they INC-ABS$_{3sg}$-ERG$_{3pl}$-want you INC-ABS$_{3sg}$-ERG$_{2sg}$-write the letter you
Intended: 'They want you to write the letter.'

The second argument comes from the unavailability of independent aspect and negation in the reduced embedding. Full CP embedded clauses under *ajo*, as in (1), are able to have sentential negation *ma...ta* or an independent aspect on the embedded verb "write," as seen in (8).

(8) **Negation and independent aspect on the full CP embedding:**

a. ✓ yïn n-∅-w-ajo [chin rät ma n-∅-a-tsb'aj ta ri karta]
I INC-ABS$_{3sg}$-ERG$_{1sg}$-want that you NEG INC-ABS$_{3sg}$-ERG$_{2sg}$-write NEG the letter
'I want you to not write the letter.'

b. ✓ yïn n-∅-w-ajo [chin rät x-∅-a-tsb'aj ri karta]
I INC-ABS$_{3sg}$-ERG$_{1sg}$-want that you COM-ABS$_{3sg}$-ERG$_{2sg}$-write the letter
≈ 'I want you to have written the letter.'

These manipulations are ungrammatical when *ajo* takes a reduced clausal complement, however, as seen in (9). I argue that this non-CP reduced embedding of *ajo* lacks the functional projections to host negation or an independent aspect. To be clear, the embedded verb in this reduced clausal embedding *is* marked for aspect—however, its valuation must match that of the embedding verb.

(9) **Negation and independent aspect on a reduced embedding:**

a. * rhe n-∅-k-ajo ma n-∅-ki-tsb'aj ta ri karta
they INC-ABS$_{3sg}$-ERG$_{3pl}$-want NEG INC-ABS$_{3sg}$-ERG$_{3pl}$-write NEG the letter
Intended: 'They want to not write the letter.'

b. * rhe n-∅-k-ajo x-∅-ki-tsb'aj ri karta
they INC-ABS$_{3sg}$-ERG$_{3pl}$-want COM-ABS$_{3sg}$-ERG$_{3pl}$-write the letter
Intended: 'They want to have written the letter.'

The third argument comes from the existential *k'o*. *K'o* may be translated as "someone" or "something," and obligatorily moves to a preverbal position (10). The question is where *k'o* moves to in the two different types of embeddings under *ajo*. As seen in (11), when *ajo* takes a full CP embedding, a *k'o* interpreted as an argument of the embedded verb "eat" can optionally appear before "eat" or before the higher verb *ajo*. When *ajo* takes a reduced clausal complement, however, the embedded verb's periphery is not a possible landing site for *k'o* to move to, and instead *k'o* obligatorily moves before *ajo*, as seen in (12).

(10) ***K'o* obligatorily moves to preverbal position:**

a. * ri xta Maria n-∅-u-tej k'o
Maria INC-ABS$_{3sg}$-ERG$_{3sg}$-eat something
Intended: 'Maria will eat something.'

b. ✓ ri xta Maria k'o n-∅-u-tej ___
Maria something INC-ABS$_{3sg}$-ERG$_{3sg}$-eat
'Maria will eat something.'

(11) ***K'o* in CP embedding can be before embedded verb or before *ajo*:**

a. ✓ ri a Juan n-∅-r-ajo chin ri xta Maria k'o n-∅-u-tej ___
Juan INC-ABS$_{3sg}$-ERG$_{3sg}$-want that Maria something INC-ABS$_{3sg}$-ERG$_{3sg}$-eat
'Juan wants Maria to eat something.'

b. ✓ ri a Juan k'o n-∅-r-ajo chin ri xta Maria n-∅-u-tej ___
Juan something INC-ABS$_{3sg}$-ERG$_{3sg}$-want that Maria INC-ABS$_{3sg}$-ERG$_{3sg}$-eat
≈ 'There's something that Juan wants Maria to eat.'

(12) ***K'o* in reduced embedding *must* appear before *ajo*:**

a. * ri a Juan n-∅-r-ajo k'o n-∅-u-tej ___
Juan INC-ABS$_{3sg}$-ERG$_{3sg}$-want something INC-ABS$_{3sg}$-ERG$_{3sg}$-eat
Intended: 'Juan wants to eat something.'

b. ✓ ri a Juan k'o n-∅-r-ajo n-∅-u-tej ___
Juan something INC-ABS$_{3sg}$-ERG$_{3sg}$-want INC-ABS$_{3sg}$-ERG$_{3sg}$-eat
'Juan wants to eat something.'

In this section I showed that "want" *ajo* can take two different types of embeddings: a full CP complement and a reduced clausal complement. While the two are sometimes superficially similar, I gave three arguments that the reduced embedding is a structure that is smaller than a full clause: first, it cannot have an independent subject; second, it cannot have negation or an independent aspect; and third, it cannot serve as the landing site of existential *k'o*.

2.3 AF morphology spreads downwards

In this section I will discuss in more detail the case of AF realization with the reduced clausal embedding verb "want" *ajo* discussed in the introduction. This is a pattern of AF realization where a one-to-one relationship between a verb in its AF form and $\overline{\text{A}}$-extraction of a subject does not hold. These facts will motivate an approach which dissociates the morphology of AF-marking from its syntactic effect.

The example of a subject *wh*-question of a clause with *ajo* taking a reduced clausal embedding (4) is repeated below from section 1. It shows us that in an AF environment, **both *ajo* and the embedded verb must use their AF forms**.

(4) **AF-marking on both *ajo* and main verb with reduced embedding:**

a. achike n-∅-jo-**van** n-∅-tsb'a-**n** ri karta?
who INC-ABS$_{3sg}$-want-**AF** INC-ABS$_{3sg}$-write-**AF** the letter
'Who wants to write the letter?'

b. * achike n-∅-r-jo n-∅-tsb'a-**n** ri karta?
who INC-ABS$_{3sg}$-ERG$_{3sg}$-want INC-ABS$_{3sg}$-write-**AF** the letter

c. * achike n-∅-jo-**van** n-∅-u-tsb'aj ri karta?
who INC-ABS$_{3sg}$-want-**AF** INC-ABS$_{3sg}$-ERG$_{3sg}$-write the letter

This contrasts with cases where *ajo* takes a full CP complement, where the subjects of 'want' and the embedded verb 'write' are interpreted as disjoint. In this case, AF appears on one verb, simply corresponding to the verb that a subject was extracted from:

(2) **AF morphology tracks which verb's subject is $\overline{\text{A}}$-extracted with full CP embedding:**

a. achike n-∅-jo-**van** [chin rje n-∅-ki-tsb'aj ri karta]?
who INC-ABS$_{3sg}$-want-**AF** that they INC-ABS$_{3sg}$-ERG$_{3pl}$-write the letter
'Who wants them to write the letter?'

b. achike n-∅-r-ajo ri a Juan [chin n-∅-tsb'a-**n** ri karta]?
who INC-ABS$_{3sg}$-ERG$_{3sg}$-want Juan that INC-ABS$_{3sg}$-write-**AF** the letter
'Who does Juan want to write the letter?'

This multiple AF-marking in (4) is the core puzzle I will consider in this paper. In the remainder of this section, I will show that this data forces us to abandon the idea of a simple one-to-one mapping of the syntax and morphology of AF:

(13) **A Straightforward Hypothesis for AF Morphology:**
A transitive verb switches to its AF form if and only if its subject is $\overline{\text{A}}$-extracted.

In the previous section, I showed that the reduced embeddings under *ajo* require that the subject of *ajo* "want" also be interpreted as the subject of the embedded verb. However, I did not attempt to identify exactly what type of reduced clausal embedding it is. Standard options include control, restructuring, and raising; for our purposes here, it will simply be important to consider derivations which do and do not include raising. These two potential derivations for the reduced clausal embedding in (4) are schematized in (14):

(14) **Two potential derivations for (4):**

a. who ____ want write the letter *control/restructuring*

b. who ____ want ____ write the letter *raising*

The first approach is to view *ajo* as a control or restructuring predicate, in which case the subject is base-generated as an argument of *ajo*. In this case, the subject *wh*-word *achike* is not generated as a subject of the embedded verb "write." If we assume straightforwardly that verbs become AF if and only if their subjects are extracted (13), we expect AF morphology on the higher verb *ajo* 'want' but not on "write," contrary to fact.

The other approach is to analyze *ajo* as a raising verb, in which case *achike* is base-generated as the subject of the embedded verb, "write," and then A-moves to be the subject of *ajo*. Again, if we assume the straightforward mapping in (13), *achike* is $\overline{\text{A}}$-moved from the subject position of "want" but not from "write," so we expect no AF morphology on the embedded 'write' verb in (4). Alternatively, if this raising analysis is telling us that both A-movement and $\overline{\text{A}}$-movement of subjects triggers AF, we falsely predict that the raising of the subject in the non-AF environment should also yield AF on the "write" verb in (3), repeated here:

(3) **"Want" *ajo* with a reduced clausal complement:**

rhe n-∅-k-ajo n-∅-ki-tsb'aj ri karta
they INC-ABS$_{3sg}$-ERG$_{3pl}$-want INC-ABS$_{3sg}$-ERG$_{3pl}$-write the letter

'They want to write the letter.'

This argument shows us that the simple view of the syntax/morphology mapping of AF in (13) is untenable. Two reasonable types of approaches to the analysis of the embedding verb *ajo* "want" are both unable to predict the data in (3–4). This leads us to conclude that our working assumption of a transparent mapping between the syntax and morphology of AF must be incorrect.

Let us step back for a moment to think of what type of analysis could account for this pattern of AF realization. From the arguments above, we can see that what is surprising in (4a) is not that the higher verb, *ajo*, is AF-marked. Under either analysis of the embedding verb *ajo* (14), the subject of *ajo* will be $\overline{\text{A}}$-extracted. What is surprising is the obligatory AF-marking on the *embedded* verb. In the derivation of these examples, at the point where the reduced clausal embedding has been constructed, there is no information available as to whether the subject of this construction will later be $\overline{\text{A}}$-moved or not. Thus we expect the syntactic structure of the embedded verb to be exactly the same between (3) and (4). The AF-marking on the embedded verb must be triggered countercyclically by the syntactic derivation above. **This data thus motivates a view where the effects of syntactic changes in the higher domain *spread downwards* into the reduced embedding, triggering AF morphology on the embedded verb.** In the next section, we will see further evidence for this downward-spreading approach to AF morphology.

2.4 AF morphology spreading is blocked by adverbs

In this section I will look at the behavior of adverbs in AF clauses. The addition of certain adverbs to AF clauses "turns off" AF morphology on verbs in the scope of the adverb, breaking the one-to-one correspondance between the syntax and morphology of AF. Consider the subject relative in (15). Since the subject of the transitive verb "eat" has been $\overline{\text{A}}$-moved for the relativization, the verb is obligatorily in its AF form, as expected. In (16) below, we simply add the adverb *nojel mul* "always" to (15):

(15) **Baseline: subject relative**

w-etaman wech [ri achin ri n-∅-tj-**ö** wäy]
know the man RC INC-ABS$_{3sg}$-eat-**AF** tortilla

'I know the man who eats tortillas'

(16) **With a preverbal adverb *nojel mul* "always"**

a. ✓ w-etaman wech [ri achin ri nojel mul n-∅-u-tej wäy]
know the man RC always INC-ABS$_{3sg}$-ERG$_{3sg}$-eat tortilla
'I know the man who always eats tortillas'

b. * w-etaman wech [ri achin ri nojel mul n-∅-tj-**ö** wäy]
know the man RC always INC-ABS$_{3sg}$-eat-**AF** tortilla

In (16), the adverb *nojel mul* forces the verb "eat" to be in its non-AF, full agreement form, without affecting the felicity of the subject relative. Continuing to use AF here is ungrammatical. This is a case where a subject of a transitive verb has been successfully $\overline{\text{A}}$-moved, and yet that verb is not and cannot be in its AF form.

Other pre-verbal adverbs which have this effect include *kanqtzij* "truly/actually," the Spanish "always" *siempre*, and *anineq* "quickly."[4] However, the effect is not limited to pre-verbal adverbs. In (17), the post-verbal adverb *yan* "already" is added to a variant of (15) in completive aspect, resulting in a grammatical subject relative without AF morphology.

(17) **With a postverbal adverb *yan* "already":**

a. ✓ w-etaman wech [ri achin ri x-∅-u-tej yan wäy]
know the man RC COM-ABS$_{3sg}$-ERG$_{3sg}$-eat already tortilla
'I know the man who already ate tortillas'

b. * w-etaman wech [ri achin ri x-∅-tj-**ö** yan wäy]
know the man RC COM-ABS$_{3sg}$-eat-**AF** already tortilla

What exactly does these adverbs' behavior tell us about the process of AF morphology? To answer this question, I will present how these adverbs affect the realization of AF-marking in cases where we suspect some process of morphological spreading occurs, as discussed in the previous section. We first find an adverb which is able to occur both before and after the embedding *ajo*. The adverb *ütz* "well" is one such adverb:

(18) **Baseline: adverb *ütz* "well" before and after *ajo*,** reportedly with no change in meaning:

[4]But note that other pre-verbal adverbs translated as "quickly," *pa animel* and *jonamin*, do not have this effect, and continue to require AF morphology in the configuration in (16). I will leave as an open question the proper typology of these adverbs which do and do not block AF morphology, as well as the deeper explanation thereof.

a. ri a Juan n-∅-r-ajo ütz n-∅-u-tsb'aj ri karta.
the Juan INC-ABS$_{3sg}$-ERG$_{3sg}$-want well INC-ABS$_{3sg}$-ERG$_{3sg}$-write the letter
'Juan wants to write the letter well.'

b. ri a Juan ütz n-∅-r-ajo n-∅-u-tsb'aj ri karta.
the Juan well INC-ABS$_{3sg}$-ERG$_{3sg}$-want INC-ABS$_{3sg}$-ERG$_{3sg}$-write the letter
'Juan wants to write the letter well.'

In the following example, we have created subject *wh*-questions out of the examples in (18). What we see is that for each position of *ütz*, there is only one possible pattern of AF-marking available on the verbs. In (19a), where the adverb comes between the verbs, AF is required on the auxiliary above the adverb but is blocked on the verb below the adverb. In (19b), where the adverb comes before *ajo*, AF is unavailable on both verbs. This pattern is summarized in the table in (20).

(19) **The position of *ütz* blocks AF:**

a. *ütz* between verbs: AF required on *ajo* but disallowed on embedded verb

i. * ...nrajo ütz nutsb'aj... * V *adverb* V

ii. ✓ ja ri a Juan n-∅-jo-**van** ütz n-∅-u-tsb'aj ri karta.
FOC the Juan INC-ABS$_{3sg}$-want-**AF** well INC-ABS$_{3sg}$-ERG$_{3sg}$-write the letter
'It's Juan who wants to write the letter well' ✓V-AF *adverb* V

iii. * ...nrajo ütz ntsb'a-**n**... * V *adverb* V-AF

iv. * ...njo**van** ütz ntsb'a-**n**... * V-AF *adverb* V-AF

b. *ütz* before *ajo*: AF disallowed on both verb

i. ✓ ja ri a Juan ütz n-∅-r-ajo n-∅-u-tsb'aj ri karta.
FOC the Juan well INC-ABS$_{3sg}$-ERG$_{3sg}$-want INC-ABS$_{3sg}$-ERG$_{3sg}$-write the letter
'It's Juan who wants to write the letter well' ✓ *adverb* V V

ii. * ... ütz njo-**van** nutsb'aj... * *adverb* V-AF V

iii. * ... ütz nrajo ntsb'a-**n**... * *adverb* V V-AF

iv. * ... ütz njo**van** ntsb'a-**n**... * *adverb* V-AF V-AF

(20) **The realization of AF on "want write" in an AF environment:**

No adverb (4a):		want-**AF**		write-**AF**
Adverb before 'write' (19a):		want-**AF**	*adverb*	write(*AF)
Adverb before 'want' (19b):	*adverb*	want(*AF)		write(*AF)

The generalization we see from this data is that AF-marking is available above one of these "blocking" adverbs but not below. This pattern supports the idea that AF-marking spreads top-down, as the blocking effect disallows AF-marking from being realized structurally below the adverb.

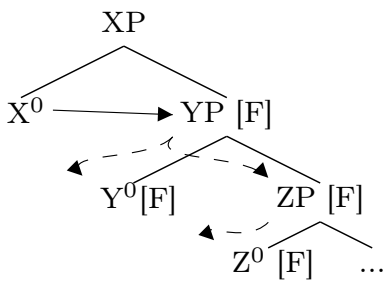
In the following section, I will present my technical proposal for this downward spreading of AF morphology as well as their blocking by intervening adverbs.

3 Proposal

In the previous sections I have given a descriptive characterization of AF morphology in Kaqchikel. When multiple verbs are in the same clausal domain, as happens with reduced clausal embeddings, AF morphology must be on both of the verbs in the domain. Moreover, the behavior of intervening adverbs shows that there is a directionality to this spreading process. This motivates a view where AF morphology *spreads downward* onto the verbs within its domain.

In this section I will adopt a technical proposal for the assignment and spreading of verbal inflectional features from Bjorkman (to appear; ms), based on Matushansky's (2008) work on Case. Bjorkman (to appear; ms) proposes a model of verbal morphology where inflectional features can spread within their domains. This operation is illustrated schematically using dashed lines in (21). Here, the head X assigns the feature [F] to its complement. This feature [F] then *spreads* into the daughters of YP. This spreading is in principle unbounded, though phase heads and other designated *blockers* can block this spreading.

(21)



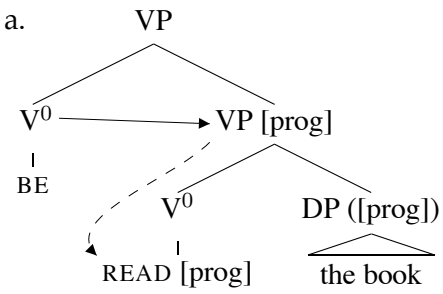
Consider how this approach captures the basic English Affix Hopping pattern in (22). This is a case where morphology associated with a particular head appears *within* its complement: here, the suffix *-en* on *been* expresses [PERFECT] together with the auxiliary HAVE and the suffix *-ing* expresses [PROGRESSIVE] together with the auxiliary BE.

(22) The students will **have been reading** the book.

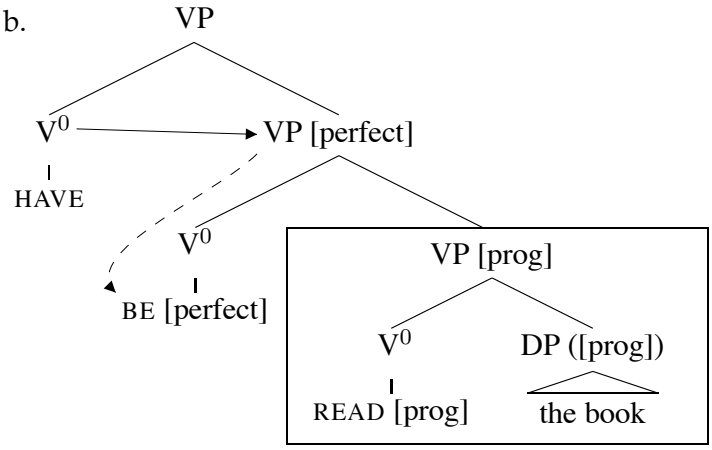
Bjorkman proposes that each of these inflectional heads is a blocker, allowing feature spreading to the blocking head but not to further daughters. In (22'a), the progressive auxiliary BE is merged with VP and assigns it the [PROGRESSIVE] feature. This feature then spreads onto each of the daughters of the VP, resulting in the progressive form of READ, "reading." The DP is also assigned the [PROGRESSIVE] feature, but has no spellout rules that are sensitive to it. In (22'b), the perfect auxiliary HAVE merges with the structure in (22'a) and assigns it the [PERFECT] feature. This [PERFECT] feature spreads onto the daughter BE, resulting in its spellout as "been," but does not spread further because BE is a blocker for inflectional feature spreading. That BE is a blocker is represented by the box on its complement, into which the [PERFECT] feature cannot spread.

(22′) The students will **have been reading** the book.

a.



b.



Unlike traditional Affix Hopping, however, this operation of feature spreading is in principle unbounded, and thus able to result in multiple exponents of a single feature. Bjorkman (to appear; ms) argues that such a process is necessary in order to explain the complex restrictions on *go get* constructions in English and other languages, while Matushansky (2008) motivates this model of feature assignment within the domain of Case realization (see also Pesetsky, ms). In the rest of this section I will apply this technology of head-complement agreement with feature spreading to explain the morphological patterns observed in Kaqchikel AF.

I propose that AF morphology is the spellout of an abstract [AF] feature on verbs. I assume that AF constructions involve the insertion of an expletive AF head above the TP from which a subject is extracted.[5] This AF head assigns the [AF] feature to its complement. The [AF] feature spreads down onto its daughters and triggers spellout of the AF forms of verbs in this domain. The structure of the Vocabulary Insertion rules will ensure that verbs with this [AF] feature will be realized in their AF form, with the AF suffix and without the ergative agreement slot.[6]

Consider example (4a), repeated below in (23)—an example with AF morphology spreading onto two verbs. I assume for illustration purposes that ergative agreement is mediated through T and that the subject is base-generated in Spec,TP.[7] (24) shows the derivation after T and the subject have merged. T assigns the [ERG:3SG] feature valuation to its complement, which then spreads onto both verbs in the domain.

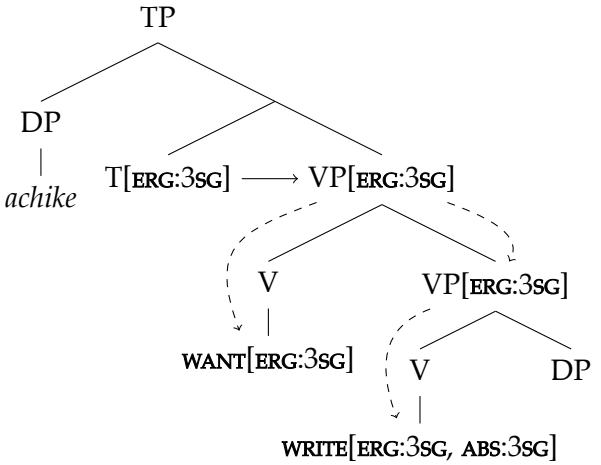
(23) achike n-∅-jo-**van** n-∅-tsb'a-**n** ri karta?
who INC-ABS$_{3sg}$-want-**AF** INC-ABS$_{3sg}$-write-**AF** the letter
'Who wants to write the letter?' (=4a)

[5]Syntactic evidence for the existence of this AF head is given in Erlewine (in preparation).

[6]Certain exceptions apply; see the third argument in section 4.

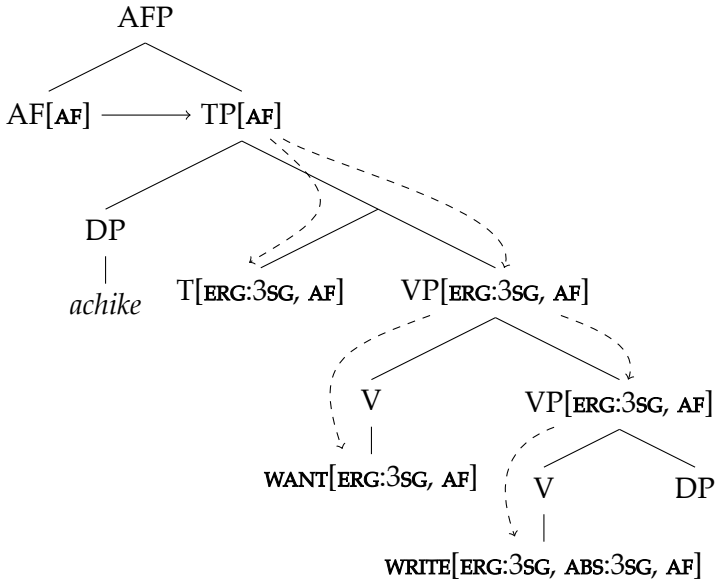
[7]In the derivations here I illustrate the subject position as a left specifier of TP. This position being a right specifier would accurately derive the unmarked VOS word order of the language. However, the theory presented here does not hinge on these assumptions and would be compatible with other approaches to ergative agreement and subject generation.

(24) **Derivation after merger of TP and [ERG:3SG] feature spreading:**



In the next step of the derivation, we introduce the source of AF morphology (25). I assume that the subject *wh*-extraction in (4a) requires the insertion of a dedicated AF head. This AF head is itself phonologically empty, but assigns the [AF] feature to its complement. This feature then spreads recursively within the VP.

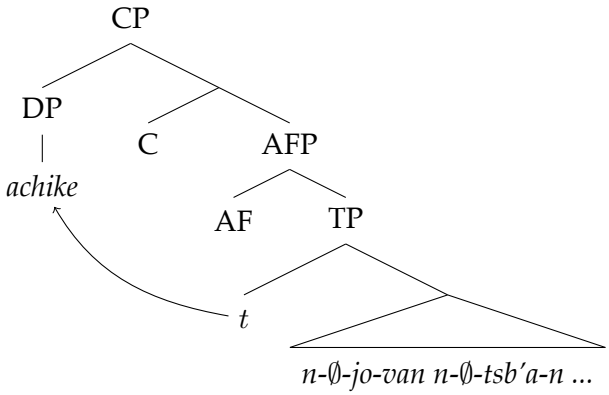
(25) **Derivation after merger of AF head and [AF] feature spreading:**



Finally, the complementizer is merged and the subject DP moves to Spec,CP. At spellout, the Vocabulary Insertion rules realize the verbs with the [AF] feature as AF-form verbs: i.e., with the AF suffix, whose form varies with the stem, and without an ergative agreement slot. The absolutive slot on the verb is determined by the ergative and absolutive agreement features on the verb. In this case we yield what would traditionally be described as third-singular absolutive agreement on both verbs: WANT[INC, ERG:3SG, AF] as "n-∅-jo-van" and WRITE[INC, ABS:3SG, ERG:3SG, AF] as "n-∅-tsb'a-

n."[8]

(26) **Final structure after merger of C and *wh*-movement:**



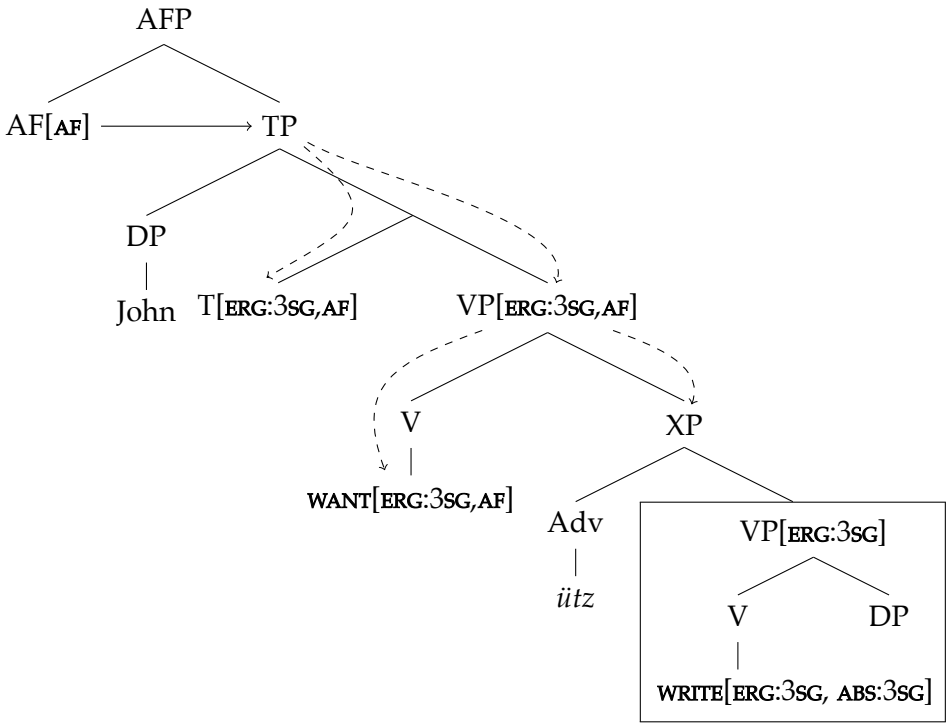
As we saw in section 2.4, certain adverbs block AF morphology from occurring within their scope. Under the analysis proposed here, such adverbs will be designated as *blockers* for the spreading of the [AF] feature. One such example we saw was the adverb *ütz* "well." Consider (19a), repeated here as (27). This example is similar to (23), except that the adverb *ütz* intervenes between the verb "want" and "write." The result is that only the higher verb, "want," is realized in its AF form.

(27) ja ri a Juan n-∅-jo-**van** ütz n-∅-u-tsb'aj ri karta.
FOC the Juan want-**AF** well write the letter
'It's Juan who wants to write the letter well.' (=19a)

After the AF head merges with the TP, the [AF] feature is assigned to TP and its spreading begins (28). Unlike in (25), where the [AF] feature spreads onto both of the verbs, the intervening *ütz* will block the spreading of the [AF] feature into its sister (boxed).

(28) **Derivation after merger of AF head, with [AF] features spreading blocked by *ütz*:**

[8]See Preminger (2011) for details on how phi-featural conflicts are resolved for the absolutive agreement slot in AF verb forms.



It is important to note that other features which spread across both verbs in these constructions continue to spread across these intervening adverbs. I propose that these blockers such as the adverb *ütz* be relativized to the spreading of the feature [AF], rather than block all feature spreading into their sisters. In this example, the [ERG:3SG] is one such feature; another is the [INCOMPLETE] aspectual feature specification (not show in these trees but discussed in section 2.2).

Finally, we explain why this spreading of AF morphology does not occur with full CP embeddings under *ajo*. Matushansky (2008) proposes that phase heads are blockers. This immediately explains why AF morphology does not spread across a full CP boundary:

(29) **AF morphology does not spread inside full CP embeddings:**

a. achike n-∅-jo-**van** [chin rje n-∅-ki-tsb'aj ri karta]?
who INC-ABS$_{3sg}$-want-**AF** that they INC-ABS$_{3sg}$-ERG$_{3pl}$-write the letter
'Who wants them to write the letter?' (=2a)

b. * achike n-∅-jo-**van** [chin rje y-e-tsb'a-**n** ri karta]?
who INC-ABS$_{3sg}$-want-**AF** that they INC-ABS$_{3pl}$-write-**AF** the letter

The proposal made here is able to explain not only the standard cases of AF, where one extracted subject does indeed correspond to one AF-marked verb, but also the complex patterns observed with reduced clausal embeddings and with intervening adverbs. In the next section, I will discuss other recent approaches to the syntax and morphology of AF and the problems that they face with this and other data in Kaqchikel.

4 Against Case-based approaches for Kaqchikel AF

Two recent approaches to Mayan AF attempt to explain AF as driven by considerations of Case and agreement. Coon et al. (2011) and Assmann et al. (2012) argue that the object cannot receive absolutive case when the ergative argument is extracted and that in these situations an AF head steps in as a last-resort absolutive case assigner. This AF head is then realized directly as the AF suffix. The resulting difference in Case-licensing pattern also affects the realization of agreement on the verb, explaining the lack of an ergative agreement slot in AF verbs.

While the connection between the syntax and morphology of AF seem less than accidental and such an approach may indeed be correct for AF in other Mayan languages, these approaches face serious difficulties with the patterns of Kaqchikel AF documented here.

First, the Case-driven approaches predict a one-to-one correspondance between an instance of AF-marking on a verb and an absolutive DP which must be exceptionally Case-licensed. This view is incompatible with the pattern of AF in examples involving a reduced clausal embedding. In example (4a), repeated below as (30), there is only one absolutive Case-marked DP (*ri karta*) but both verbs are AF-marked. This is unexpected under the Case-based approaches.

(30) **AF-marking on both *ajo* and main verb:**

achike n-∅-jo-**van** n-∅-tsb'a-**n** ri karta?
who want-**AF** write-**AF** the letter

'Who wants to write the letter?' (=4a)

Similarly, both Case-driven approaches predict incorrectly that AF is not required when there is no absolutive DP which must be licensed. On standard assumptions that clauses do not require case-licensing, the obligatory AF on CP-embedding verbs is unexpected:

(31) **Obligatory AF-marking of CP-embedding verb:**

a. achike x-∅-b'i-**n** [chin ri a Juan yawa]?
who COM-ABS$_{3sg}$-said-**AF** that Juan sick
'Who said that Juan is sick?'

b. * achike x-∅-u-b'ij [chin ri a Juan yawa]?
who COM-ABS$_{3sg}$-ERG$_{3sg}$-said that Juan sick

Second, the Case-driven approaches are unable to account for the adverb blocking effects documented here, as the addition of an adverb should not affect DP-licensing.

Third and finally, the Case-based approaches incur complications with certain agreement data. Preminger (2011) argues that 1st and 2nd person arguments in Kaqchikel must be agreed with by the verb (Person Licensing Constraint; cf Béjar and Rezac 2003). AF-marked verbs have only one

agreement slot and thus can only agree with one DP. This predicts that AF should be unavailable with 1st/2nd or 2nd/1st arguments. However, as noted by Preminger (2011), $\overline{\text{A}}$-extraction constructions can be constructed with 1st/2nd or 2nd/1st argument combinations in Kaqchikel. In these cases the verb simply stays in its non-AF form, agreeing with both arguments. This is demonstrated by the *ja*-cleft, an AF-triggering construction, in the following example:

(32) **$\overline{\text{A}}$-extraction with first- and second-person arguments grammatical without AF:**

a. ✓ ja yïn x-at-in-tzët rät
FOC me COM-ABS$_{2sg}$-ERG$_{1sg}$-see you
'It's me that saw you'

b. * ja yïn x-i-tzet-**ö** rät
FOC me COM-ABS$_{1sg}$-see-**AF** you

c. * ja yïn x-a-tzet-**ö** rät
FOC me COM-ABS$_{2sg}$-see-**AF** you

The availability of (32a) and the ungrammaticality of any AF version (32b–32c) supports the existence of the PLC in Kaqchikel, but at the same time presents a challenge to these Case-driven approaches to AF. Both Case-based approaches must view the AF suffix itself is a last-resort Case-assigner, in order to not overgenerate AF-marking in non-$\overline{\text{A}}$-extraction contexts. Example (32a) shows us that this "last-resort" process is overridden by the need to satisfy the Person Licensing Constraint.

In contrast, the approach advocated for here has a straightforward answer to the data in (32). AF verb forms are the result of Vocabulary Insertion rules for verbs with the [AF] feature, rather than any changes to the syntactic processes of agreement themselves. Cases such as (32) simply indicate the use of a different, more specific Vocabulary Insertion rule matching both agreement features, rather than the rules which yield an AF verb form. Here again we see the advantage of dissociating the syntax and morphological realization of AF. Further arguments against these Case-based approaches for Kaqchikel AF are presented in Erlewine (in preparation).

5 Conclusion

In this paper I discussed the patterns which govern the realization of AF morphology in Kaqchikel. While $\overline{\text{A}}$-movement of the subject of a transitive verb is a necessary condition for all cases of AF morphology, we have seen that the conditions which govern AF realization are much more complex. Theories which predict a one-to-one correspondance between $\overline{\text{A}}$-extraction of a subject and AF-marking on a verb cannot be correct for Kaqchikel.

In section 2.3 I showed that AF morphology *spreads* onto verbs in reduced clausal complements of the verb *ajo* "want." I considered some standard options for the type of reduced clausal embedding

involved and showed that a simple one-to-one correspondance between $\overline{\text{A}}$-movement of a subject and AF-marking cannot be maintained for this data. In this case, AF-marking on the embedded verb must be the result of syntactic choices above, motivating downward spreading approach to AF morphology.

In section 2.4 I presented data with adverbs which block the realization of AF morphology in an AF environment. That is, $\overline{\text{A}}$-extraction of the subject can occur without corresponding AF-marking, showing again that the morphological realization of AF is independent of the syntax of AF. Furthermore, the direction of blocking—AF morphology disappears *below* the intervening adverb—supports the idea that AF morphology spreads downward.

I presented a technical proposal for this downward spreading in section 3. AF morphology on verbs is the reflex of an abstract [AF] feature assigned above which then spreads within the clause. This feature spreading can be thought of as an extension of Affix Hopping and has recently been independently motivated for verbal morphology by Bjorkman (to appear,m) and more generally in the work of Matushansky (2008); Pesetsky (ms). In future work, there is a need for a better characterization of the set of adverbs which constitute blockers.

Finally, in section 4 I discussed two recent Case-based approaches to AF. These approaches intend to explicitly tie the morphological realization of AF to its syntax. I showed that the patterns of AF realization with embedded clauses and adverbs are completely unexpected under these approaches, and that they also incur other problems when applied to Kaqchikel.

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