POSITIONAL ROOTS AND CASE ABSORPTION[*]

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1 Introduction

In this paper we provide a new analysis of positional roots and their stem-forming morphology in Chol (Mayan). Positional roots form a distinct morphological and semantic class in Mayan languages (cf. England 1983, 2001, Haviland 1994, Vázquez Álvarez 2002). In Chol, positional roots form stems with the suffixes *-li* (in the perfective) and *-tyäl* (in the imperfective). These same morphemes are found on certain transitive roots to form *passives* in the language. Here we decompose these previously unanalyzed suffixes into two parts, for perfectives and imperfectives respectively: ergative Case-absorbing morphemes (*-$\mathbb{V}$l* and *-tyi*), and the morphemes found on regular intransitives (*-i* and *-el*), discussed below.[1] Our analysis of the *-li* and *-tyäl* suffixes as containing absorbers of ergative Case explains the appearance of these morphemes on both passivized transitives and active positionals.

The Chol examples in (1) and (2) exemplify passives and positionals, respectively. For simplicity, we focus initially on stems in the perfective aspect, extending our analysis to cover imperfective forms in §5. Following Mayan literature, we use the theory-neutral labels 'A' ($\sim$ ergative, genitive) and 'B' ($\sim$ absolutive) in glosses, discussed in more detail below.[2]

Authors' names are listed in alphabetical order.

[1]We use the symbol '$\mathbb{V}$' to indicate a vowel that is harmonic with the root vowel.

[2]Unless otherwise noted, the data presented here are from the first author's field-notes. Chol is written in a Spanish-based practical orthography: ` – [ʔ]; *ä* – [ɨ]; *b* – [ɓ]; *ch* – [ʧ]; *j* – [h]; *ñ* – [ɲ]; *ty* – [ṱ]; *x* – [ʃ]; *y* – [j]; *C'* – ejective consonant. Abbreviations in glosses are as follows: 1, 2, 3 = 1st, 2nd, and 3rd person; *A = ergative Case absorber; A = 'set A' $\sim$ ergative, genitive; B = 'set B' $\sim$ absolutive; CAUS = causative; CL = gender/proper name clitic; COP = copula; DET = determiner; IMPF = imperfective; ITV = intransitive verb; NML = nominal suffix; NC = numeral classifier; PERF = perfect; PRFV = perfective; PREP = preposition; SUF = stem suffix; TV = transitive verb.

(1) PASSIVIZED TRANSITIVES

    a. $C_2 \notin$ *fricatives*
      Tyi   me**jk**'-i-yoñ.
      PRFV hug.*A-ITV-B1
      'I was hugged.'

    b. $C_2 \in$ *fricatives*
      Tyi   mos-**li**-yoñ.
      PRFV cover-SUF-B1
      'I was covered.'

(2) POSITIONALS

    a. $C_2 \notin$ *fricatives*
      Tyi   päk-**li**-yoñ.
      PRFV lying.face.down-SUF-B1
      'I lay face-down.'

    b. $C_2 \in$ *fricatives*
      Tyi   ts'ej-**li**-yoñ.
      PRFV lying.on.side-SUF-B1
      'I lay on my side.'

Transitive roots of the form C_1VC_2 (the standard form for Chol roots), in which C_2 is *not* a fricative consonant, form passives by lengthening and aspirating the root vowel—as schematized in (3), and exemplified by (1a), above. We gloss this '*A' to reflect the absence of the set A or ergative argument otherwise required by a transitive root.

(3) LENGTHENING AND ASPIRATION OF ROOT VOWEL
    $C_1VC_2 \Rightarrow C_1V\mathbf{j}C_2$

Fricative-final roots are unable to undergo the operation of *lengthening-and-aspiration*, due to a language-wide ban on adjacent fricatives, and instead appear with the suffix *-li* in the perfective (*-le* for some speakers), as shown in (1b), above. As for positionals, however, the suffix *-li* is found on **all** perfective positional stems, regardless of their final root consonant, as shown in (2) above. Similar facts are seen in imperfective constructions with the suffix *-tyäl*, discussed below.

In addition to taking morphemes which appear to be passivizers, positional roots behave like transitive roots (and unlike intransitive roots) in other respects: they are unable to directly take causative morphology; they form numeral classifiers via the *lengthening-and-aspiration* process given in (3); and they form monovalent stative predicates with a -$\mathbb{V}l$ suffix. We argue, however, that positional roots are in fact not transitive. First, positional roots never appear directly in transitive stem forms. Second, while the passivized transitive forms in (1) may appear with agentive *by*-phrases, *by*-phrases are impossible with the positionals in (2).

We conclude that while transitives assign two thematic roles, the positional root assigns only one. The two questions we address in this paper are therefore the following: (i) Why should non-transitive roots appear with apparently passivizing morphology? and (ii) Why do *all* positionals require the suffixes *-li* (perfective) and *-tyäl* (imperfective), while the appearance of this suffix on passivized transitives is phonologically governed? We being in §2 with an overview of Chol roots and stem formation. In §3 we examine the morphological similarities and differences between transitive and positional roots and stems. Our analysis is presented in §4, and is extended to cover imperfective forms in §5. We conclude in §6.

2   Chol Basics

Chol is a Mayan language spoken in Chiapas, Mexico by approximately 150,000 people. Chol belongs to the Western Tzeltalan branch of the Mayan family, along with Chontal, Chortí, Tzotzil, and Tzeltal (Kaufman and Norman, 1984). For a description of Chol grammar see Vázquez Álvarez (2002).

2.1   Person Marking

Like other Mayan languages, Chol head-marks grammatical relations on the predicate with a set of morphemes traditionally labelled set A (ergative/genitive) and set B (absolutive), shown in (4). Note that third person absolutive is null. We leave this morpheme unglossed in examples to reflect the possibility that the absolutive morphemes are simply pronominal argument clitics (cf. Woolford 1999 for a similar analysis of Jacaltec Mayan). Plural agreement is also attested, though it is omitted here for simplicity.

(4)   CHOL PERSON MARKERS

	Set A (ergative/genitive)	Set B (absolutive)
1st person	*k-*	*-(y)oñ*
2nd person	*a(w)-*	*-(y)ety*
3rd person	*i(y)-*	Ø

In Chol, and Mayan languages generally, we find set A and set B morphology on both nouns and verbs. Set A morphemes in Chol mark transitive subjects as in (5a), unergative subjects as in (5b), and possessors as in (5c):

(5)   SET A MARKERS

    a. Tyi   **k**-mek'-e-yety.
        PRFV A1-hug-TV-B2
        'I hugged you.'

    b. Tyi   **k**-cha`le k'ay.
        PRFV A1-do   song
        'I sang.'

    c. **k**-chich
        A1-older.sister
        'my older sister'

In contrast, set B morphemes mark transitive objects as in (6a), unaccusative subjects as in (6b), and the theme in predicate nominal and predicate adjective constructions, as shown in (6c) and (6d):

(6)   SET B MARKERS

    a. Tyi   i-jats'-ä-**yoñ**.
        PRFV A3-hit-TV-B1
        'He hit me.'

    b. Tyi   wäy-i-**yoñ**.
        PRFV sleep-ITV-B1
        'I slept.'

    c. X-`ixik-**oñ**.
        CL-woman-B1
        'I am a woman.'

   d. Chañ-**oñ**.
      tall-B1
      'I am tall.'

2.2   Roots and Stems

The majority of lexical roots in Chol (and in Mayan languages generally) are CVC in shape.[3]
Roots which appear in verbal stem forms may be divided into three basic classes, based on their
stem-forming morphology: transitives, intransitives, and a third class—positionals—given in (7).[4]

(7)   CHOL ROOTS (Vázquez Álvarez, 2002)

transitive		intransitive		positional	
mek'	'hug'	*majl*	'go'	*buch*	'seated'
k'ux	'eat'	*wäy*	'sleep'	*wa`*	'standing on 2 legs'
jats'	'hit'	*uk'*	'cry'	*koty*	'standing on 4 legs'
kuch	'carry'	*yajl*	'fall'	*xity*	'standing on head'
choñ	'sell'	*tyijp'*	'jump'	*jok'*	'hanging (something large)'
mäñ	'buy'	*lets*	'ascend'	*jich'*	'hanging (something small)'
wuts'	'wash'	*wejl*	'fly'	*ts'ej*	'lying on side'
ch'äx	'boil'	*chäm*	'die'	*päk*	'lying face-down'
mos	'cover'	*och*	'enter'	*xoty*	'in a rigid circular form'
boñ	'paint'	*lok'*	'exit'	*soy*	'in a non-rigid circular form'

   Positional roots, the focus of this paper, constitute a separate class in Mayan languages
(England 1983, 2001, Haviland 1994, Vázquez Álvarez 2002). Semantically, they typically refer to
physical state, shape, configuration, or surface quality. From a morphological perspective, they are
identified based on the different stem forms in which they appear. While positional roots appear in
the verb stems listed in (8), they also (perhaps canonically, as the glosses in (7) suggest) appear in
stative stems as adjectival predicates, discussed below.
   The transitive, intransitive, and positional roots in (7) appear in different stem forms in both
perfective and imperfective clauses, as shown in (8). The -𝕍 found on transitive roots in the
perfective represents a harmonic vowel.[5] Examples of each are shown in (9) and (10):

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[3]Vowel-initial VC roots like *uk'* appear with an initial glottal stop when word-initial: `*uk'el*. This is traditionally
left untranscribed.

[4]The intransitives listed here are unaccusatives; unergative roots are nominal and appear as complements in
transitive light-verb constructions, as in (5b) above. While many roots can be placed in a single class, certain roots
can appear *underived* in more than one stem form. The root *lok'* 'exit', for example, also has an underived transitive
counterpart meaning 'take out'. Similarly, the root *jok'*, 'hang' or 'hanging', can appear underived in either positional
or transitive stem forms (Aulie and Aulie, 1978).

[5]The -𝕍 suffix is identical to the root vowel except in cases where the root vowel is [a] and the final consonant
of the root is a non-fricative consonant, as in the root *jap* 'drink'. In these cases, the vowel suffix is *ä* (= IPA [ɨ]).
Compare for example: *tyaj-a* 'find-𝕍' and *jap-ä* 'drink-𝕍'.

(8)   STEM FORMS

	perfective	imperfective
transitive	A-<u>root</u>-$\mathbb{V}$-B	A-<u>root</u>-B
intransitive	<u>root</u>-**i**-B	A-<u>root</u>-**el**
positional	<u>root</u>-**li**-B	A-<u>root</u>-**tyäl**

(9)   PERFECTIVES

    a. TRANSITIVE
        Tyi   k-<u>mäñ</u>-**ä**   ixim.
        PRFV A1-buy-TV corn
        'I bought corn.'

    b. INTRANSITIVE
        Tyi   <u>lok'</u>-**i**-yoñ.
        PRFV exit-ITV-B1
        'I left.'

    c. POSITIONAL
        Tyi   <u>buch</u>-**li**-yoñ.
        PRFV seated-SUF-B1
        'I sat.'

(10)   IMPERFECTIVES

    a. TRANSITIVE
        Mi   k-<u>mäñ</u> ixim.
        IMPF A1-buy corn
        'I buy corn.'

    b. INTRANSITIVE
        Mi   k-<u>lok'</u>-**el**.
        IMPF A1-exit-SUF
        'I leave.'

    c. POSITIONAL
        Mi   k-<u>buch</u>-**tyäl**.
        IMPF A1-seated-SUF
        'I sit.'

The vocalic suffixes found on the transitive and intransitive roots in (9a–b) appear on all non-stative perfective stem forms and are argued to occupy v^0 (Coon, 2008). We gloss them 'TV' on transitives and 'ITV' on intransitives. The imperfective stems lack these suffixes, and instead bear the suffix *-el* in intransitives (10b), or null in transitives (10a), discussed in more detail in §5. In the sections that follow, we will analyze the morphology that appears on positionals such as those in (9c) and (10c), arguing that the same *-i* and *-el* suffixes found on intransitives in (9b) and (10b) are also part of the positional suffixes *-li* and *-tyäl*, respectively.

3   The Morphology of Positionals and Passives

3.1   Positional Roots and Transitive Roots

Without the addition of derivational morphology, positional roots such as those in (9c) and (10c) above—like the intransitives in (9b) and (10b)—always appear in monovalent stem forms, taking only a single argument. Nonetheless, positional roots pattern with *transitive* roots in many respects. Throughout this section, we will find both transitive roots and positional roots appearing with what appears to be *passivizing* morphology. While this morphology is expected on the transitive roots, which clearly select an external argument, it is unexpected on the apparently monovalent positional roots. After examining the nature of the puzzle in this section, we propose a solution in §4. Again, we focus initially only on the perfective forms, turning to the imperfectives in §5

3.1.1   Stative predicates

The first similarity between transitive roots and positional roots can be seen in the formation of one-place stative predicates. Transitive roots form one-place stative predicates with the suffix *-$\mathbb{V}l$*, as shown in (11). Contra Vázquez Álvarez (2002), we do not analyze *-$\mathbb{V}l$* as a *stativizing*

morpheme. Rather, the stativity of these predicates is connected to the absence of the v^0 suffix which appears on all non-stative predicates, *-i* for intransitives. This will be elaborated on in §3.2.

(11) TRANSITIVE ROOTS IN STATIVE STEMS

    a. Mek'-**el**-oñ.
       hug-*A-B1
       'I am hugged.'

    b. Juch'-**ul** li   ixim.
       grind-*A DET corn
       'This corn is ground.'

Like the *lengthening-and-aspiration* process discussed in the introduction, we gloss the morpheme *-𝕍l* '*A' to reflect the absence of the external (ergative, or Set A-marked) argument subcategorized for by the transitive root. We examine below the functions of these different *A or *ergative Case-absorbing* morphemes (this terminology is explained in §4.3). The resulting stem shows set B agreement with its single argument and behaves in other ways like other stative one-place predicates in the language.

Positional roots also appear in this construction, as shown in (12). We assume that the *-𝕍l* suffix found here is the same as the one found on the transitives in (11) above, and thus continue to gloss it '*A'. Intransitive roots never appear with the suffix *-𝕍l*.

(12) POSITIONAL ROOTS IN STATIVE STEMS

    a. Wa`-**al**-oñ.
       standing.on.2.legs-*A-B1
       'I am standing (on 2 legs).'

    b. Buch-**ul** li   wiñik.
       seated-*A DET man
       'This man is seated.'

3.1.2 Numeral Classifiers

Another parallel between positionals and transitives can be found in the numeral classifier system. Chol numerals obligatorily appear with a classifier, which varies depending on the nature of the object being counted. This can be seen in (13), where the numeral *cha`* 'two' appears with the classifier for round things, *-p'ejl*:

(13) Tyi k-mäñ-ä cha`-**p'ejl**   alaxax.
     PRFV A1-buy-TV two-NC.round orange
     'I bought two oranges.'

The vast majority of numeral classifiers in Chol are of the form *-CVjC*, and many appear to be derived historically from either transitive or positional CVC roots. In (14a), for example, the numeral classifier *-kujch*, used to count loads, has a transitive counterpart *kuch* 'to carry'.

The classifier *-kojty* in (14b) is used to count many animals and appears to be derived from the positional root *koty*, used to describe the position of being on four limbs.[6]

(14) a. NUMERAL CLASSIFIER FORMED FROM TRANSITIVE ROOT
          Tyi   k-mäñ-ä   cha`-**kujch** si`.
          PRFV A1-buy-TV   two-NC.load   wood
          'I bought two loads of wood.'

      b. NUMERAL CLASSIFIER FORMED FROM POSITIONAL ROOT
          Tyi   i-tsäñ-s-ä   ux-**kojty**   wakax.
          PRFV A3-die-CAUS-TV   three-NC.animals cow
          'He killed three cows.'

Intransitive roots, in contrast, form what have been labeled as classifiers with the suffix *-el* (Aulie and Aulie, 1978, Warkentin and Scott, 1980); the lengthening and aspiration process is impossible.[7] This is shown in (15) with the intransitive root *ñum* 'pass', which forms the classifier *ñumel* 'passes, times, instances'. These forms differ further from the classifiers in (14) in that they do not appear with a nominal, but rather they themselves indicate the thing being counted.

(15) NUMERAL CLASSIFIER FORMED FROM INTRANSITIVE ROOT (Aulie and Aulie, 1978:84)
      Ux-ñumel   mi   la-k   tyuk' jiñi kajpe`.
      three-NC.passes IMPF PL-A1   cut   DET coffee
      'We cut the coffee in three passes.'

3.1.3   Causatives

The causative morpheme *-(i)s* appears on certain intransitive roots, such as *wäy* 'sleep', to form a transitive stem, as in (16):

(16) Tyi   k-wäy-**is**-ä   ñeñe`.
      PRFV A1-sleep-CAUS-TV baby
      'I made the baby sleep.'

Neither transitives nor positionals may appear with the causative suffix, as shown by the ungrammatical forms in (17). They use different constructions, which we do not discuss here for reasons of space, but see Gutiérrez Sánchez (2004).

(17) a. * Tyi   k-juch'-**(i)sä**   ixim x-`ixik.
            PRFV A1-grind-CAUS   corn CL-woman
            'I made the woman grind corn.'

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[6] The formation of classifiers from transitive and positional roots is not productive. Furthermore, in many cases meanings have shifted. The positional *koty*, for instance, is used to describe not just four-legged animals, but also crawling babies or crouched people. The classifier, in contrast, is extended to many animals that do not have four legs, for example chickens and fish. We thus do not analyze classifier-formation as an application of the ergative Case-absorbing *lengthening-and-aspiration* process, though the two are likely historically related.

This separation is supported by the fact that fricative-final transitives do *not* form classifiers with the suffix *-$\mathbb{V}l$*, used to form passives from fricative-final transitives. Rather, they retain their CVC form, as in the classifier *-p'is* used to count cupfuls, likely related to the transitive root *p'is* 'to measure'. This point will be important for our analysis in §4.

[7] Notably, many intransitive roots are already of the form CVjC, as seen in (7) above. See §4.4 below.

b. * Tyi   k-buch-**(i)s**-ä   alob.
       PRFV A1-seated-CAUS-TV child
       'I sat the child down.'

3.1.4   Positionals and Detransitivization

We find yet another similarity between transitive and positional roots: both appear with the suffix
-li in certain constructions. All positional roots take the suffix *-li* to form intransitive *eventive*
constructions in the perfective aspect, as shown in (18):

(18)   POSITIONAL ROOTS WITH -LI

   a. Tyi   buch-**li**-yoñ.
       PRFV seated-SUF-B1
       'I sat.'

   b. Tyi   ts'ej-**li**-yoñ.
       PRFV lying.on.side-SUF-B1
       'I lay on my side.'

   This suffix also appears on fricative-final transitive roots to form *passives*. Transitive roots
ending in non-fricative consonants, like *mek'* 'hug', form passives by the *lengthening-and-
aspiration* process ($C_1VC_2 \Rightarrow C_1VjC_2$). For instance: *mek'* 'hug' → *mejk'* 'be hugged'. The
resulting passive form then takes the *-i* suffix found on regular underived intransitive roots to
create perfective stems (cf. (9b) above), as shown in (19a). However, transitive CVC roots in
which the second consonant is a fricative (*s* = [s], *x* = [ʃ], and *j* = [h]) are unable to undergo
lengthening-and-aspiration, due to a language-wide restriction on adjacent fricatives (Coon 2005).
Instead, these roots appear with the suffix *-li* in the perfective, as in (19b). Note that the passive
form in (19b) is formally identical to the positional stems in (18).

(19)   TRANSITIVE ROOTS IN PASSIVE STEMS

   a. $C_2 \notin$ *fricatives*
       Tyi   me**jk'**-i-yoñ.
       PRFV hug.*A-ITV-B1
       'I was hugged.'

   b. $C_2 \in$ *fricatives*
       Tyi   mos-**li**-yoñ.
       PRFV cover-SUF-B1
       'I was covered.'

   To our knowledge, the formal identity between the positionals in (18) and the passive in
(19b) has previously been treated as a case of accidental homophony. Here we provide a
unifying analysis. While previous analyses have analyzed the suffix *-li* (or its variant *-le*) as
monomorphemic (Vázquez Álvarez, 2002, Gutiérrez Sánchez, 2004), we propose that it may be
decomposed into two morphemes: an *ergative Case-absorbing* morpheme, *-$\mathbb{V}l$*, and the suffix
used on intransitive stems in the perfective aspect, *-i*. For the time being, we will concentrate on

identifying the morphemes themselves. An analogous proposal will be made for the imperfective suffix *-tyäl* in §5.

3.2 Decomposing the Suffix *-li*

Recall from §3.1.1 that both positional and transitive roots form monovalent stative stems using the suffix -$\mathbb{V}l$, shown again in (20a) and (20b) respectively. This suffix was glossed *A to reflect the absence of the ergative (external) argument subcategorized for by transitive roots like *mos* in (20a). Given what has been said so far, its appearance on positional roots like *buch* in (20b) remains unexplained.

(20) STATIVE FORMS

    a. TRANSITIVE ROOT
       Mos-**ol**-oñ.
       cover-*A-B1
       'I am covered.'

    b. POSITIONAL ROOT
       Buch-**ul**-ety.
       seated-*A-B2
       'You are seated.'

We propose that the suffix *-li* found both on positional perfectives like those in (18) above, and on passivized fricative-final perfective transitives like (19b) above, should—in both cases—be decomposed into the -$\mathbb{V}l$ (*A) suffix from (20), plus the non-stative *-i* suffix found on regular perfective intransitives, as shown in (21):

(21) EVENTIVE FORMS

    a. TRANSITIVE ROOT
       Tyi   mos-~~ol~~-i-yoñ.
       PRFV cover-*A-ITV-B1
       'I was covered.'

    b. POSITIONAL ROOT
       Tyi   buch-~~ul~~-i-yoñ.
       PRFV seated-*A-ITV-B1
       'I sat.'

Vowel syncope of non-root vowels between two consonants is common in Chol, and is independently attested with the suffix -$\mathbb{V}l$, for example in nominals formed with *-ib*. The suffix *-ib* is found on intransitive roots, and forms an obligatorily possessed nominal, meaning roughly "place where X"—as shown by the forms in (22), from Aulie and Aulie (1978) and Warkentin and Scott (1980).

(22) THE SUFFIX *-ib* ON INTRANSITIVES (Aulie and Aulie, 1978, Warkentin and Scott, 1980)

wäy	'sleep'	*i-wäy-ib*	'his bed'
puts'	'escape, flee'	*i-puts'-ib*	'her refuge'
och	'enter'	*iy-och-ib*	'its entrance'
majl	'go'	*i-majl-ib k'iñ*	'West' (lit.: 'where the sun goes')
pas	'rise' (the sun)	*i-pas-ib k'iñ*	'East' (lit.: 'where the sun rises')

Transitives and positionals, on the other hand, appear with the suffix *-lib*, as shown in (23) (Warkentin and Scott 1980:22).[8]

(23) THE SUFFIX *-lib* ON TRANSITIVES AND POSITIONALS (Warkentin and Scott, 1980)

jok'	'hang'	*i-jok'-lib*	'its hook, place for hanging'
k'äk	'raise'	*i-k'äk-lib*	'base'
buch	'seated'	*i-buch-lib*	'his seat'
ty'uch	'perched atop'	*i-ty'uch-lib*	'its perch'

We propose that the *l* in *-lib* is the same as the *l* in *-li*: both are the suffix -$\mathbb{V}l$ (*A) with the initial vowel deleted. As one would expect, the -$\mathbb{V}l$ (*A) suffix is unnecessary with intransitive roots (which do not subcategorize for an ergative/external argument), and they take only the *-ib* suffix. Compare the intransitive root *wäy* 'sleep' in verbal (perfective) and *-ib* forms in (24) with the positional root *buch* in verbal and *-lib* forms in (25).

(24) INTRANSITIVES

    a. Tyi wäy-**i** wiñik.
        PRFV sleep-ITV man
        'The man slept.'

    b. i-wäy-**ib** wiñik
        A3-sleep-NML man
        'the man's bed'

(25) POSITIONALS

    a. Tyi buch-**l-i** wiñik.
        PRFV seated-*A-ITV man
        'The man sat.'

    b. i-buch-**l-ib** wiñik.
        A3-seated-*A-NML man
        'the man's seat'

An analogous point may be made with the suffix *-em*. This suffix attaches to intransitive roots to form perfects, as in (26a) (Vázquez Álvarez, 2002). Positionals, in contrast, must form perfects with the suffix *-lem*—that is, the passive suffix -$\mathbb{V}l$, plus *-em*.

(26) a. INTRANSITIVE ROOT
        Wäy-**em**-oñ.
        sleep-PERF-A1
        'I've slept.'

    b. POSITIONAL ROOT
        Buch-**l-em**-oñ.
        seated.legs-*A-PERF-B1
        'I've sat.'

To review, we have analyzed the suffix *-li*, which appears on both passivized transitives and positionals, as being composed of the passivizing suffix -$\mathbb{V}l$ and the suffix *-i*, found on regular non-stative intransitives. We saw above that vowel syncope is expected in this context, resulting in the form *-li*. The question remains of *why* an ergative Case-absorbing suffix should appear on positional roots, which, as we will see in the following section, differ from transitive roots in several important aspects.

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[8]The root *jok'* can appear in either positional or transitive stems.

3.3   Positional Roots ≠ Transitive Roots

We saw above that the suffix *-li* appears on positional roots to form active stems, as well as on fricative-final transitive roots to form passives. We also saw, in the beginning of this section, further parallels between transitive and positional roots: both form statives with the suffix -$\mathbb{V}l$, both form numeral classifiers by the *lengthening-and-aspiration* process, and neither can directly take the causative morpheme *-(i)sä*. However, despite the similarities between positional and transitive roots discussed in the preceding section, important differences remain.

First, while transitive roots form transitive stems with the harmonic vowel suffix -$\mathbb{V}$, as in (27a), positionals may not, as shown in (27b).

(27) a. Tyi i-mek'-e-yoñ jiñi x-`ixik.
        PRFV A3-hug-TV-B1 DET CL-woman
        'The woman hugged me.'

    b. * Tyi i-buch-u-yoñ jiñi x-`ixik.
        PRFV A3-seated-TV-B1 DET CL-woman
        'The woman sat me down.'

Furthermore, despite the apparent similarities between the passivized fricative-final transitive and positional stems, passivized transitives may appear with agentive *by*-phrases, while this is impossible with the positionals, as illustrated by the contrast in (28). The appearance of by-phrases with passives in Chol is highly restricted, but is possible when the patient outranks the agent in animacy (Zavala, 2007), as is the case in the examples below.

(28) a. Tyi mos-l-i ñeñe` tyi tsuts.
        PRFV cover-*A-ITV baby PREP blanket
        'The baby was covered by the blanket.'

    b. * Tyi päk-l-i wiñik tyi chajk.
        PRFV lying.face.down-*A-ITV man   PREP lightning
        'The man was laid face-down by the lightning.'

Thus, despite the many similarities between transitive and positional roots discussed in this section, there seems to be one glaring difference: while transitive roots like *mos* 'cover' truly have two thematic roles to assign, positionals do not.

As we have seen, "ergative Case-absorbing" morphemes—which we have glossed '*A'—appear on both positional and transitive roots. Given that positionals do not have a second, external thematic role to assign, the appearance of these morphemes is surprising. The analysis we outline in the remaining sections provides an account for this puzzle.

4   Analysis

4.1   The Nature of Positionals: Eventive and Non-Eventive Predication

As a starting point towards the analysis of the morphology found on positionals, let us consider the nature of positionals themselves. It seems that the closest counterpart to positionals in a language such as English would be frozen "formulaic" PPs or certain APs, as in (29).[9]

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[9]This example was suggested to us by David Pesetsky (p.c.).

(29) a. The car is [out front]$_{PP}$.

  b. The bat is [upside-down]$_{PP}$.

There is an ancillary reason to suspect that such an analogy is valid, on the grounds that Chol has an extremely impoverished prepositional system, amounting to one preposition (namely, *tyi*), and a relatively small set of lexical adjectives (Martínez Cruz, 2007). Positionals can therefore be seen as a surrogate method to achieve the expressive richness that other languages achieve by varying the head of PP or AP.

However, regardless of whether the analogy between positionals and these formulaic PPs and APs is a perfect one, it captures the intuition that positionals—like English PPs or APs—are predicates of individuals, and are not eventive by nature. Contrast this with verb-phrases: within a neo-Davidsonian semantics, which acknowledges the existence of event-variables, verb-phrases are predicates of events. This is formalized below:[10]

(30)

	semantic type	notation for type
positionals / English PPs, APs	predicates of individuals	$\langle e,t \rangle$
verb-phrases	predicates of events	$\langle d,t \rangle$

This difference between positionals and English PPs or APs on the one hand, and verb-phrases on the other hand, has demonstrable linguistic consequences. Consider the contrasts in (31–33):

(31) a. The jar is [$_{VP}$ sitting on the table].

  b. The jar [$_{VP}$ sat on the table].

(32) a. The jar is [$_{PP}$ on the table].

  b. * The jar [$_{PP}$ on the table].

(33) a. The jar is [$_{AP}$ empty].

  b. * The jar [$_{AP}$ empty].

As (31b) demonstrates, there is no obstacle to integrating VPs into a clausal structure (in other words, a structure of event-predication). PPs and APs, on the other hand, cannot be integrated into a clausal structure in the same way, as the ungrammaticality of (32b) and (33b) show. This is plausibly the result of their non-eventive nature—or in more technical terms, their lack of an event argument slot (recall that their semantic type is $\langle e,t \rangle$, a predicate of individuals). To remedy this, the use of a copula is necessary. The copula can be seen, in this context, as an *eventivizer*: it takes a predicate of individuals, and returns a predicate of events:

(34) PUTATIVE SEMANTICS FOR EVENTIVIZER/COPULA

$$\left[\!\left[copula_{\text{(e.g., }is\text{ in (33a))}} \right]\!\right] = \lambda Q_{\langle e,t \rangle}.\lambda x_{e}.\lambda e_{d}.e \text{ is a (minimal) event in which } Q(x)$$

Assuming that a (tensed) clause must be predicated of an event—presumably, supplied by an event-variable introduced at the T^0/TP-level—there is simply no way to use a PP or AP as the

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[10]Even at the level of structure where the verb-phrase has not yet saturated its external argument slot (e.g., at the *v*-bar level), it is not of the same semantic type as a positional or PP—it is a function from individuals to predicates of events (i.e., it is of type $\langle e,\langle d,t \rangle \rangle$).

main clausal predicate without first *eventivizing* it in this way, hence the ungrammaticality of (32b) and (33b).

4.2   Eventivizing Positionals

Given the observations presented above (§4.1), let us pursue the rather plausible assumption that positionals in Chol are no different from their PP counterparts in English—in other words, that they are non-eventive predicates of individuals. It therefore stands to reason that the use of positionals requires some copula-like element, to perform the eventivizing function—on par with the obligatory copula found with PPs in English.

Chol has two copulas—an existential one in (35), and an equative one in (36) (which is phonologically null). In the equative construction in (36), *loktora* 'doctor' serves as the predicate, thematically speaking. However, unlike VPs—but like the PPs and APs discussed above—*loktora* 'doctor' is a predicate of individuals (like other nominals), and is therefore of the semantic type $\langle e,t \rangle$. Thus, in order to serve as the main predicate in a (finite) clause, it requires the copula (on par with PPs and APs, as well as nominals, in English).

(35)   EXISTENTIAL COPULA
    Añ   waj   tyi   mesa.
    COP$_\exists$ tortilla PREP table
    'There are tortillas on the table.'

(36)   EQUATIVE COPULA
    Ø   Loktora jiñi x-`ixik.
    COP$_{EQ}$ doctor   DET CL-woman
    'The woman is a doctor.'

As can be seen in (34), repeated in (37), the semantic process of eventivization has no existential import of its own:

(37)   PUTATIVE SEMANTICS FOR EVENTIVIZER/COPULA
    $[\![copula_{(\text{e.g., } is \text{ in (32a)})}]\!] = \lambda Q_{\langle e,t \rangle}.\lambda x_e.\lambda e_d.e$ is a (minimal) event in which $Q(x)$

It is therefore quite likely that if one of the copulas in (35–36) is used to eventivize the positional predicate, it would be the equative copula (as in (36)).

Consider the consequences of this point, in terms of the morphology that appears in clauses containing a positional predicate (as discussed in section §3). If the main verbal predicate (or more precisely, the main *eventive* predicate) in such clauses is actually the copula, the morphology that one finds in these cases might actually be associated with the copula, rather than with the positional predicate itself.

This provides a straightforward explanation for a puzzling asymmetry between transitives and positionals. While both transitives and positionals form one-place stative predicates using -$\mathbb{V}l$ (as demonstrated in §3.1.1 and §3.2), the parallelism is flawed once we turn to one-place *eventive* predicates. Transitives whose root ends in a non-fricative consonant form passives via the *lengthening-and-aspiration* process ($C_1VC_2 \Rightarrow C_1V\mathbf{j}C_2$). Fricative-final transitives are unable to undergo this process due to a phonological restriction banning adjacent fricatives, and instead form passives using the -$\mathbb{V}l$ morpheme. Positionals, on the other hand, form one-place eventive

predicates using the -$\mathbb{V}l$ morpheme, *regardless* of the nature of their final consonant. The situation is summarized in (38).[11]

(38)

	one-place stative predicate	one-place eventive predicate
transitive $C_2 \notin fric$	-$\mathbb{V}l$	CVjC-i
positional $C_2 \notin fric$	-$\mathbb{V}l$	-$\mathbb{V}l$-i
transitive $C_2 \in fric$	-$\mathbb{V}l$	-$\mathbb{V}l$-i
positional $C_2 \in fric$	-$\mathbb{V}l$	-$\mathbb{V}l$-i

This is not due to some deep incompatibility of positionals with the *lengthening-and-aspiration* process; as shown in §3.1.2, positionals form numeral classifiers using $C_1VC_2 \Rightarrow C_1VjC_2$ (as do transitives)—see (14) above. If there is no inherent incompatibility between positionals and *lengthening-and-aspiration*, what prevents positionals that end in a non-fricative from forming eventive predicates in this way?

The answer to this question is now at our disposal: if, in clauses containing a positional predicate, it is the copula which bears the relevant morphology, its incompatibility with the *lengthening-and-aspiration* process is trivially derived—an element which is phonologically null, like the equative copula in Chol, is obviously unable to undergo *lengthening-and-aspiration*.

An example such as (18a), repeated below in (39), is therefore better represented as in (40):

(39)   PERFECTIVE POSITIONAL
       Tyi   buch-li-yoñ.
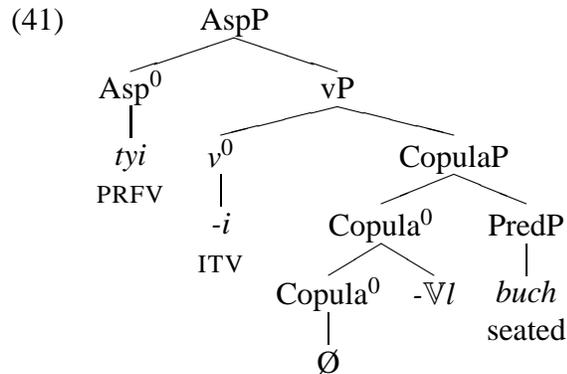   PRFV seated-SUF-B1
       'I sat.'

(40)   PERFECTIVE POSITIONAL — REVISED REPRESENTATION
       Tyi   buch-[Ø-~~ul~~]-i-yoñ.
       PRFV seated-[COP$_{EQ}$-*A]-ITV-B1
       'I sat.'

The structure of an example such as (40) is given below.[12]

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[11]The use of *lengthening-and-aspiration* to form one-place eventive predicates from transitive roots, but of -$\mathbb{V}l$ to form one-place stative predicates from transitive roots, is not explained under our analysis. The *lengthening-and-aspiration* process may reflect historical contact with Yucatecan languages, in which properties of the root vowel such as length and height affect the valence or category of the root (Lois and Vapnarsky, 2003).

[12]The position of *-yoñ* ('B1') is probably determined by separate factors, since it is likely to be a pronominal clitic, and the position of pronominal clitics is cross-linguistically known to be subject to factors other than the Mirror Principle (e.g., second-position clitics in Croatian; Bošković 2001). We do not discuss, in the context of this paper, the precise base-position of the surface-subject, and leave this instead as a question for further research.

(41)

```
                AspP
          ┌──────┴──────┐
        Asp⁰            vP
          │        ┌─────┴──────┐
         tyi      v⁰          CopulaP
        PRFV       │       ┌────┴────┐
                  -i    Copula⁰    PredP
                  ITV   ┌───┴───┐     │
                    Copula⁰  -𝕍l   buch
                        │          seated
                        Ø
```

As can be seen in (41), the order of word-internal morphemes (e.g., within *buch-Ø-𝕍l-i*) is left-headed, and in accordance with the Mirror Principle (Baker, 1985, 1988).

The relevant question thus shifts: it is not why *positionals* would share these morphological characteristics with transitives—but rather, why the *copula* would share these morphological characteristics with transitives. This question will be addressed in the following sub-sections.

Before addressing this question, though, it is important to note that this shift—in and of itself—provides two important explanatory benefits: first, it accounts for the incompatibility of the *lengthening-and-aspiration* process with positional predication, as discussed above; second, there is no longer any need to recast positionals as somehow being "transitive" (a move which would be highly suspect in the first place, as discussed in §3.3). As it now appears, it is the common properties of transitives and the *copula* (rather than properties of positionals, themselves) that must be elucidated.

4.3 Case-Absorption

The theory of morphological Case advanced by Marantz (1991, *et seq.*) takes the morphologically-unmarked Case in a given language (accusative in nominative-accusative languages, absolutive in ergative-absolutive ones) to be universally available, while the other major Case (accusative or ergative) is dependent on the presence of the unmarked one. In other words, the dependent Case (ergative, or 'set A', in Chol) can only appear in clauses in which another noun-phrase is assigned the unmarked Case (absolutive, or 'set B', in Chol). Setting aside issues of null pronominals—which do seem to count for dependent-Case computation—this framework provides a necessary-but-not-sufficient condition for the appearance of dependent Case. In instances where this necessary condition is met, the burden of determining whether dependent Case is actually assigned falls on the thematic component. Ergative Case, for example, is seen as an inherent Case whose assignment is correlated with assignment of agentive thematic roles.

Broadly speaking, this approach falls within a strand of research that seeks to abolish the role of the *Case-Filter* (Chomsky and Lasnik 1977), subsuming it under a combination of the EPP, morphological Case, and the thematic component (as described above). A radically different approach found in the literature is the proposal by Bošković (1997), who argues that the EPP can be subsumed under an inverse version of the *Case-Filter*:

(42) INVERSE CASE-FILTER (following Bošković, 1997)
 A Case-assigner **must** assign Case to some Case-absorbing element (e.g., a noun-phrase)

Recasting Marantz's (1991) system within this *Inverse Case-Filter* approach, **both** Cases—the unmarked Case and the "dependent" Case—would be universally available. In other words, the presence of the unmarked Case would be both a necessary and a sufficient condition for the assignment of the "dependent" Case. Of course, not every clause contains two Case-marked noun-phrases in the first place. Given (42), a Case that is not assigned must be absorbed by a designated lexical Case-absorber. The asymmetry between the unmarked Case (nominative/absolutive) and the "dependent" Case (accusative/ergative) is recast in terms of which of the two Case-markings has appropriate Case-absorbers in the lexicon—accusative (for nominative-accusative languages) or ergative (for ergative-absolutive languages).[13]

Case-absorbers can, in principle, come in two varieties: a lexical item can be lexically specified as being or not being a Case-absorber, or there can be a dedicated Case-absorbing functional morpheme. An example of the former might be English unergative verbs, like *dance* in (43b). The behavior of verbs like *dance* can be understood within this *Inverse Case-Filter* approach by assuming that they are lexically specified as accusative-absorbers.

(43)   a. John$_{\text{NOM}}$ hugged Mary$_{\text{ACC}}$.

      b. John$_{\text{NOM}}$ danced$_{[+\text{ACC-absorber}]}$.

An example of the second strategy—namely, a dedicated Case-absorbing morpheme—might be SE-reflexives in Romance:

(44)   a. Jean$_{\text{NOM}}$ lave   Pierre$_{\text{ACC}}$.   (French)
           Jean   washes Pierre
           'Jean is washing Pierre.'

      b. Jean$_{\text{NOM}}$ se$_{[+\text{ACC-absorber}]}$- lave.
           Jean   SE-   washes
           'Jean is bathing.'

Reinhart and Siloni (2005) show that contrary to previous assumptions about SE-reflexivization, the *se* morpheme is not a bound anaphor taken as an argument of the reflexivized verb—in fact, SE-reflexives reliably fail tests for transitivity. They conclude that *se* is a syntactic reflexivity marker (along the lines of Reinhart and Reuland 1993), one of the functions of which is absorbing the accusative Case that is otherwise assigned to the direct object.

In the same vein, the morpheme -$\mathbb{V}l$, found on transitive and positional roots to form one-place eventive predicates (§3.1.4), stative predicates (§3.1.1), and -*ib* nominals and -*em* perfects (§3.2), can be analyzed as an absorber of ergative Case—rather than valence-changing morphemes that appear due to the unrealized theta-marked external argument of the transitive verb.[14] These two

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[13]This may seem to introduce a new stipulation, needed to explain why we don't find, in a given language, lexical Case-absorbers for the unmarked Case rather than the "dependent" Case; or why we don't find, in a given language Case-absorbers for both the unmarked and the "dependent" Case. However, this stipulation is already present in Marantz's system, in different form: it is needed to explain why the marked Case is dependent on the unmarked Case, and not vice-versa; and why one of the two Case-markings has to be unmarked in the first place.

[14]A question remains about whether copulas in languages of the world are able to assign ergative case. If not, we could postulate that the null morpheme is not a copula, per se, but another type of eventivizer. Here we lose the independent motivation for positing a null morpheme (namely, the fact that Chol can be independently shown to have a null copula), but the analysis remains otherwise the same.

competing analyses of -$\mathbb{V}l$ fare equally well with respect to transitives (unsurprisingly, since for transitives, assignment of ergative Case coincides with the syntactic realization of the external argument). However, the valence-changing approach does not explain the appearance of the -$\mathbb{V}l$ morpheme on copula-containing positional predicates; copulas do not assign two thematic roles and are unable to passivize. As will be shown in §4.4, the Case-absorption approach is able to account for the appearance of these morphemes with positionals.

4.4 Case-Absorption and the Equative Copula

The equative copula shown in (36), and repeated in (45), is able to take two noun-phrases.

(45)   EQUATIVE COPULA
    Ø   Loktora jiñi x-`ixik.
    COP$_{EQ}$ doctor DET CL-woman
    'The woman is a doctor.'

Thus, the copula cannot be lexically specified as an ergative-absorber, in the manner demonstrated for English unergatives in §4.3 (since that would render it unable to enter into the derivation in (45)). Therefore, if the equative copula were to appear in a clause with only one noun-phrase, the ergative Case that it is able to assign would need to be absorbed, in accordance with the *Inverse Case-Filter*, given in (42) and repeated in (46).[15]

(46)   INVERSE CASE-FILTER (following Bošković, 1997)
    A Case-assigner **must** assign Case to some Case-absorbing element (e.g., a noun-phrase)

This is precisely the attested state of affairs: positionals, despite not having an external thematic role (as argued in §3.3), appear along with the same Case-absorbing morphology as transitives: they form statives and perfectives using -$\mathbb{V}l$ (§3.1.1, §3.2). Under the current proposal, the appearance of this morpheme in clauses containing a positional predicate is a result of the need to absorb the ergative-assigning potential of the equative copula (whose appearance with positional predicates was discussed in §4.1–§4.2).

As discussed above, the *lengthening-and-aspiration* process is itself an ergative Case-absorber (on par with -$\mathbb{V}l$);[16] it is simply inapplicable in clauses containing a positional predicate, due to its phonological incompatibility with the phonologically-null equative copula, discussed in §4.2.

In the following section, we extend the analysis to imperfective stems. Just as the suffix *-li* is found on both positionals and fricative-final transitives in the perfective, the suffix *-tyäl* is found on positionals and fricative-final transitives in the imperfective aspect. This suffix too will be decomposed into two morphemes: an ergative Case-absorbing morpheme *-tyi*, used elsewhere in the language to passivize *derived* transitives, and the suffix *-el*, found on all imperfective intransitives (cf. (10b)). Modulo certain independent differences between imperfectives and perfectives, the analysis will be largely the same as that presented for the perfectives here. Readers not interested in Chol details may thus skip to the conclusion without missing the main point of the paper.

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[15]The reason ergative—rather than absolutive—must be the absorbed Case is that only the "dependent" Cases can have Case-absorbers. See fn. 13.

[16]Interestingly, many Chol roots which are invariably intransitive contain a long aspirated vowel (see (7) above), suggesting a diachrony that involves the very same process.

5   Imperfective Stems

The basic stem forms for transitives, intransitive, and positionals in both the perfective and imperfective aspects were given in (8) above and are repeated in (47). Example sentences can be found in (9) and (10) above.

(47)   STEM FORMS

	perfective	imperfective
transitive	A-<u>root</u>-$\mathbb{V}$-B	A-<u>root</u>-B
intransitive	<u>root</u>-**i**-B	A-<u>root</u>-**el**
positional	<u>root</u>-**li**-B	A-<u>root</u>-**tyäl**

Note that in addition to the different stem suffixes found on perfectives and imperfectives, intransitives and positionals behave differently in the perfective and the imperfective with respect to person marking: in monovalent perfective stems the single argument is marked with the set B morpheme; monovalent imperfectives are instead marked with set A.

Following the analysis in Coon (2008), we analyze the imperfective stems in (10) as *possessed nominals*. Recall that in Chol, as in other Mayan languages, the set A morpheme marks both ergative and *genitive*. Our analysis is schematized in (48).

(48)   CHOL IMPERFECTIVES

    a. Mi-Ø$_k$ [$_{NP}$ **i**- [mäñ ixim PRO$_i$] **aj**-**Maria**$_i$]$_k$.
        IMPF-B3   A3- buy   corn   CL-Maria
        'Maria buys corn.' ($\sim$ 'Maria's buying corn happens.')

    b. Mi-Ø$_k$ [$_{NP}$ **i**- [lok'-el   PRO$_i$] **aj**-**Maria**$_i$]$_k$.
        IMPF-B3   A3- exit-SUF   CL-Maria
        'Maria leaves.' ($\sim$ 'Maria's leaving happens.')

    c. Mi-Ø$_k$ [$_{NP}$ **i**- [buch-tyäl   PRO$_i$] **aj**-**Maria**$_i$]$_k$.
        IMPF-B3   A3- seated-SUF   CL-Maria
        'Maria sits.' ($\sim$ 'Maria's sitting happens.')

The true subject of these nominal imperfective stems is not *ajMaria*, but instead is a null PRO. *ajMaria* is a *possessor* of the nominalized verb form. Compare the nominal imperfective stems in (48) with the formally identical possessive phrase in (49):

(49)   **i**-[chich]   **ñeñe`**
     A3-older.sister baby
     'the baby's older sister'

The set A (ergative/genitive) markers in (48) co-index the grammatical possessor which controls the PRO subjects (control indexed with subscript *i*). The syntactic predicate in these constructions is the aspect marker *mi*. Like all other one-place predicates in the language, *mi* shows set B agreement with its sole argument, the possessed NP (agreement indexed with subscript *k*). Third person set B is null.

Evidence for this analysis comes from the behavior of the imperfective stems in other contexts: they appear as arguments of predicates, complements of the preposition *tyi*, possessed, and with

determiners and adjectives. They also appear in constructions with arbitrary PRO subjects, supporting the analysis of PRO subjects illustrated in (48). Furthermore, the imperfective marker, like other one-place predicates, directly takes (non-null) set B morphology in certain constructions, and is able to directly combine with event-denoting DPs such as *ja`al* 'rain' and *ty'añ* 'speech'. Both types of construction are impossible with the perfective marker. Historical and cross-lingusitic evidence also supports this analysis (Larsen and Norman, 1979, Bricker, 1981). We do not review the data here, but see Coon (2008) for a more detailed discussion.

The morphology of imperfective stems supports this analysis as well. Suffixes of the form *-el* (and *-Vl* generally, discussed below) are found on nominals throughout Chol (Warkentin and Scott, 1980) and other Mayan languages (cf. Bricker, 1981). We take the *-el* suffix found on imperfective intransitives to be an overt instance of n^0 and we gloss this suffix 'NML'. We assume that n^0 is null for imperfective transitives. Given the nominal nature of the imperfective forms, the non-stative v^0 suffixes found on perfective stems in (47) (*-i* and *-$\mathbb{V}$*) are correctly predicted to be absent.

5.1 Decomposing *-tyäl*

All positionals appearing in the imperfective take the suffix *-tyäl*, regardless of whether the final consonant of the root is a fricative or not. This is shown by the examples in (50). Recall that the set A morpheme in the examples in (50) co-indexes a possessor, rather than an argument selected for by the root. We enclose the possessed nominal form in square brackets throughout this section.

(50) POSITIONALS

    a. Mi   k-   [buch-**tyäl**].
       IMPF A1- seated-SUF
       'I sit.'

    b. Mi   k-   [ts'ej-**tyäl**].
       IMPF A1- lying.on.side-SUF
       'I lie on my side.'

Just as we found with *-li* in the perfective aspect (§3.1.4), the suffix *-tyäl* appears not only on positionals, but on fricative-final passives as well. Non-fricative-final transitive roots undergo the *lengthening-and-aspiration* process, and then appear with the suffix *-el*, found on underived intransitives (cf. (47) above), as shown in (51a). Fricative-final roots like *mos* 'cover' are unable to undergo *lengthening-and-aspiration* and instead appear with the suffix *-tyäl*, as in (51b).

(51)   a. C$_2$ $\notin$ *fricatives*
       Mi   k-   [me**j**k'-el].
       IMPF A1- hug.*A-NML
       'I am hugged.'

    b. C$_2$ $\in$ *fricatives*
       Mi   k-   [mos-**tyäl**].
       IMPF A1- cover-SUF
       'I am covered.'

Just as the suffix *-li* is decomposable into the *-$\mathbb{V}$l* (*A) morpheme and the suffix *-i* found on all intransitive perfective stems, we propose that the suffix *-tyäl* found on imperfective positionals like

those in (50), as well as on passivized fricative-final imperfective transitives like (51b), should—in both cases—be decomposed into the morpheme *-tyi* (*A), plus the suffix *-el* (NML) found on all intransitive imperfective stems.

5.2   The suffix *-tyi*

The suffix *-tyi* is used to form passives on *derived* transitive stems in Chol: causatives, applicatives, and denominals (Vázquez Álvarez 2002).[17] That is, if the root has any argument structure-altering suffixes, the passive may not be formed via *lengthening-and-aspiration* process or the suffix *-Vl*.

In the examples below, we observe the passivizing suffix *-tyi* on an applicative. In (52a) we find the applicative suffix *-be* on the transitive root *mäñ*, and an indirect object (marked with the set B morpheme) is added. This form must be passivized with the suffix *-tyi*, as in (52c):[18]

(52)   a.   APPLICATIVE
Tyi   i-mäñ-**be**-yoñ   koya`.
PRFV A3-buy-APPL-B1 tomato
'She bought me tomatoes.'

   b.   PASSIVIZED APPLICATIVE
Tyi   mäñ-**beñ**-**tyi**-yoñ koya`.
PRFV buy-APPL-*A-B1 tomato
'Tomatoes were bought for me.'

These examples provide independent evidence for the connection between the suffix *-tyi* and the absence of an ergative (external) argument. Following previous work (Vázquez Álvarez, 2002, Gutiérrez Sánchez, 2004), we analyze *-tyi* as a passivizing morpheme and thus gloss it '*A'.

We propose the structure in (53) for imperfective positional stems and imperfective fricative-final passive stems, such as those from (18) above.

(53)   a.   IMPERFECTIVE POSITIONAL
Mi   k- [buch-tyi-el].
IMPF A1- seated-*A-NML
'I am seated.'

   b.   IMPERFECTIVE FRICATIVE-FINAL PASSIVE
Mi   k- [mos-tyi-el].
IMPF A1- cover-*A-NML
'I am covered.'

Recall from above that the bracketed stems in (53) are possessed nominals; the first person set A (ergative/genitive) morpheme, here *k-*, co-indexes the grammatical possessor. Under this analysis, it is unsurprising to find a morpheme that coincides with the absence of the ergative (external) argument on the transitive root *mos* 'cover' in (53b), since that argument is not syntactically realized.

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[17]Notice that we now have three *tyi* morphemes: the perfective aspect marker, the preposition, and a passive suffix. While a connection between the latter two seems plausible, we have no evidence bearing on whether these morphemes are historically related (but see Law et al. 2006 for a discussion of the origin of the perfective *tyi*).

[18]The final [ñ] added to the applicative in (52b) appears to be part of a regular phonological process.

Vowel hiatus is frequently resolved in Chol via coalescence. To our knowledge, however, the fact that the coalescence of the *i* from *-tyi* and the *e* from *-el* results here in *ä* (IPA [ɨ], a mid, high, unrounded vowel) is not predictable. A further worry concerns the fact that when *-tyi* and *-el* combine in derived transitives in the imperfective, the resulting suffix is *-tyel* rather than *-tyäl*:

(54) Mi   k-   [mel-beñ-**tyel**   waj].
       IMPF A1- make-APPL-*A.NML tortilla
       'Tortillas are made for me.'

We suggest that there are at least two nominalizing suffixes used on imperfective stems: *-el* and *-äl*. This idea receives some support both within Chol and from other languages within the family. As mentioned above, suffixes of the form -𝕍*l* are quite common on nominals in Chol and other Mayan languages, found not only on imperfective (nominal) stems, but also on inalienably possessed nouns with no possessor, on nominals possessed by inanimate possessors, as well on certain abstract nominals (Warkentin and Scott 1980). In many cases, the choice of vowel within the suffix -𝕍*l* appears to be phonologically unpredictable, as shown by the forms in (55):

(55) -𝕍*l* SUFFIXES (Warkentin and Scott, 1980:ch. 4)
       a. chich-**äl**
          older.sister-VL
          'older sister'
       b. iy-ixm-**al**   cholel
          A3-corn-VL field
          'the field's corn'
       c. i-tye`-**el**   otyoty
          A3-wood-VL house
          'the house's wood'
       d. tyaj-**ol**
          ocote-VL
          'place where *ocote* grows'
       e. ja`as-**il**
          banana-VL
          'banana plantation'

Furthermore, the vowel [ä] (Chol's "sixth vowel") has only a marginal status in Chol's phonological system (Warkentin and Brend 1974) and is rarely contrastive with [a]; Chol's close relatives Tzotzil and Tzeltal have only five vowels. The vowel [ä] likely reflects historical contact with nearby Yucatec, which has productive vowel height contrasts (Lois and Vapnarsky 2003). The fact that we find the suffix *-tyäl* on positionals and fricative final CVC transitives, but *-tyel* on derived transitives, may simply be the result of borrowing or historical contact. Based on these facts, and pending further data, we maintain our analysis of *-tyäl* as being composed of *-tyi* and a nominalizer of the form *-Vl*.

5.3 Analysis

The appearance of otherwise passive, or ergative-absorbing morphology on positional roots, which were shown in §3.3 to not select for an external argument, may again be explained here for the imperfective forms by the presence of a null copula. Our representation of a form such as (10c) above, repeated here as (56a), is given in (56b). Recall from the beginning of this section that the single argument is a null PRO, controlled by the possessor which is coindexed by the set A marker. The possessed nominal phrase (*k-buch-työl*) serves as the argument of the one-place predicate *mi*.

(56)   a. IMPERFECTIVE POSITIONAL
            Mi   k-buch-tyäl.
            IMPF A1-seated-SUF
            'I sit.'

        b. IMPERFECTIVE POSITIONAL — REVISED REPRESENTATION
            Mi k_i- [buch-[Ø-ty$i$]-äl PRO_i].
            IMPF A1- seated-[COP_{EQ}-*A]-NML
            'I sit.'

The analysis of imperfective forms thus parallels the analysis of perfective forms given in §4, modulo the independent differences found between perfective and imperfective stem forms in Chol.

To review, we have isolated three Chol morphemes which we have analyzed as absorbers of ergative Case, given in (57):

(57)   ERGATIVE CASE ABSORBERS

        a. *lengthening-and-aspiration*: $C_1VC_2 \Rightarrow C_1VjC_2$

        b. the suffix $-\mathbb{V}l$

        c. the suffix *-tyi*

While we cannot completely predict the distribution of all three morphemes—for example, the use of $-\mathbb{V}l$ rather than *lengthening-and-aspiration* on non-fricative-final transitive roots to form one-place stative predicates (see fn 11 above)—we are left with a clearer picture of positional stem formation. The fact that $C_1VC_2 \Rightarrow C_1VjC_2$ is impossible with fricative-final transitives and with eventive positionals is straightforwardly explained by independent phonological factors, respectively: the language-wide ban on adjacent fricatives, and the inability of such a process to apply to a null morpheme, namely the equative copula.

Turning to imperfective positionals and fricative-final passives presented in this section, we again correctly predict that the ergative Case absorbing morpheme used on forms like (57b) should *not* be $C_1VC_2 \Rightarrow C_1VjC_2$. As in the case of the perfective positionals, the ergative Case absorber in (57b) is absorbing the ergative Case assigning abilities of the null equative copula. Since the copula is null, it cannot undergo *lengthening-and-aspiration*. The fricative-final passives may not undergo this process due to the ban on adjacent fricatives.

We are left to choose between the suffixes $-\mathbb{V}l$ and *-tyi*. One possibility is that the use of *-tyi* on imperfectives and the use of $-\mathbb{V}l$ on perfectives is no more principled than the different flavors of little v^0 in Chol: *-i* for intransitives and $-\mathbb{V}$ for transitives. A second possibility, which we suggest here, is that the use of *-tyi* rather than $-\mathbb{V}l$ in the imperfective is directly connected to

the nominalization of the imperfective stems. Specifically, we suggest that -$\mathbb{V}l$ is the morpheme used when the ergative Case absorber attaches directly to the predicate, whether this be a transitive root or a null copula. The suffix *-tyi*, in contrast, is used when additional morphology intervenes between the predicate and the Case absorber. This intervening morphology may take the form of causative or applicative morphology, as demonstrated in (52), or, in the imperfective positionals and fricative-final passives discussed in this section, a layer of nominalization. If this analysis is correct, the fact that we find *-tyi* as the ergative Case absorber in the imperfective aspect is directly connected to the nominal nature of these forms.

6   Conclusion

To review, compare again the positional and fricative-final passive forms in (58) and (59). Both appear with the suffix *-li* in the perfective, and *-tyäl* in the imperfective. Just as the suffix *-li* can be broken down into the -$\mathbb{V}l$ (*A) plus the event-adding *-i* found on regular perfective intransitives, we propose that the suffix *-tyäl* should be analyzed as *-tyi* (*A) and a nominalizing suffix of the form *-Vl*, such as the *-el* found on regular imperfective intransitives. However, while the ergative Case-absorbing morphemes on the transitives in (59) are absorbing the ergative Case assigned by the transitive root, the same morphemes on the positionals in (58) are absorbing the ergative Case-assigning abilities of the null copula.

(58)   POSITIONALS

    a.   Tyi   buch-Ø-**li**-yoñ.
        PRFV seated-COP-*A.ITV-B1
        'I sat.'

    b.   Mi   k-buch-Ø-**tyäl**.
        IMPF A1-seated-COP-*A.NML
        'I sit.'

(59)   PASSIVES, $C_2 \in$ *fricatives*

    a.   Tyi   mos-**li**-yoñ.
        PRFV cover-*A.ITV-B1
        'I was covered.'

    b.   Mi   k-mos-**tyäl**.
        IMPF A1-cover-*A.NML
        'I am covered.'

In this paper, we have provided an analysis for the morphology found on the positional stems like those in (58)—and in particular, for the puzzle presented by the common stem-forming morphology of positional and transitive roots, in light of the thematic mono-valence of positionals. The analysis draws a parallel between the behavior of positionals and the behavior of non-verbal predicates in languages such as English, in requiring a copula (shown in (58)) in order to be integrated into a clausal predication structure. The proposal crucially relied on recasting Marantz's (1991) view of morphological Case within an *Inverse Case-Filter* approach (Bošković 1997), and follows a similar proposal by Reinhart and Siloni (2005) regarding SE-reflexivization in Romance.

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