

Unergatives, antipassives, and roots in Chuj¹

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The suffix *-w* in Chuj (Mayan) is found in two contexts: (i) attached to transitive roots to form what have been labelled “incorporation antipassives” and (ii) attached to nominal and positional roots to form unergatives. In both contexts, the result is an intransitive verb form with a single, agentive external argument. In this paper I provide a unified analysis of these constructions in which *-w* is a bundled *v+Voice*⁰ head that attaches to a category-neutral root, categorizing the stem as verbal and introducing an external argument; unlike regular transitive *v+Voice*⁰, it does not assign ergative case. This has important implications for the status of antipassives—or at least certain types of constructions which have been described as antipassives. In Chuj, I argue that the incorporation antipassive formed with *-w* does *not* convert a transitive verb into an intransitive verb (as antipassives are frequently described). Instead, both transitive and “antipassive” stems are formed directly from an under-specified root. I contrast stem-forming morphology like *-w* with other apparent valence-altering morphology in Chuj, arguing for a distinction between morphemes which attach directly to bare roots, and morphemes which attach to already-formed stems.

Keywords: roots, unergatives, antipassive, argument structure, Chuj, Mayan

1. INTRODUCTION

This paper investigates the syntax and morphology of the construction known in Mayanist literature as the “incorporation antipassive”, with a particular focus on Chuj. The term “antipassive” dates back to Silverstein 1972, who writes for Chinook:

“I have termed this -ki- form the ANTIPASSIVE construction, playing upon its inverse equivalence to a passive of accusative languages, because the sense is clearly equivalent to a transitive, though the form is intransitive, with the grammatical function of the remaining NP reversed” (Silverstein 1972: 395).

At a descriptive level, the idea is that both passives and antipassives somehow *convert* a transitive verb into an intransitive verb. While a passive removes or demotes the agent to oblique status, the antipassive removes or demotes the patient; see Polinsky, to appear for a recent overview of antipassives. This type of derivation is schematized in (1).

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- (1) (a) PASSIVE:
 [SUBJ_{AGT} V OBJ_{PAT}] → [SUBJ_{PAT} V (OBL_{AG})]
 (b) ANTIPASSIVE:
 [SUBJ_{AGT} V ~~OBJ_{PAT}~~] → [SUBJ_{AG} V (OBL_{PAT})]

In this paper I argue that the antipassive morpheme in Chuj—the suffix *-w*—attaches *not* to a transitive stem, but directly to an underspecified root. Under this proposal, transitive and antipassive stems contain the same amount of derivational complexity.

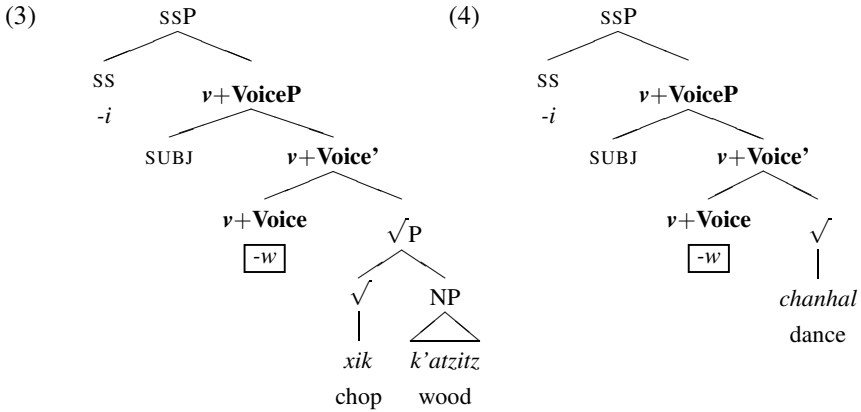
Evidence comes from the different constructions in which the suffix *-w* appears. As shown in (2) *-w* appears not just in incorporation antipassives, as in (2a), but also in unergative constructions, as in (2b).¹ I gloss *-w* ‘AG’ for ‘agentive’ here and below.

- (2) (a) Ix-onh-xik-w-i k’atzitz.
 PFV-B1PL-chop-AG-IV wood
 ‘We cut wood.’
 (b) Tz-chanhal-w-i heb’ winh.
 IPFV-dance-AG-IV 3PL CLF.MASC
 ‘They dance.’ (Buenrostro 2013: 245)

Though the root *xik* ‘chop’ in (2a) is transitive, and the root *chanhal* ‘dance’ in (2b) is nominal, the result in both cases is an intransitive verb stem with a single, agentive, argument. These different but related uses of the suffix *-w* have been noted in Chuj (Buenrostro 2013), as well as for the cognate form in Popti’ (Day 1973, Craig 1979). Each construction is discussed in more detail below.

I provide an analysis of these constructions in which *-w* is the overt realization of a *v*+Voice⁰ head which attaches to a category-neutral root, introducing an external argument but not assigning ergative case. Derivations for (2a) and (2b) are schematized in (3) and (4) below.

¹Abbreviations used in glosses are as follows: A – Set A (ergative, possessive); AG – agentive intransitive; AP – antipassive; APPL – applicative; B – Set B (absolutive); C1 – suffix formed by taking the first consonant of the CVC root; CLF – nominal classifier; DEM – demonstrative; DIR – directional; DIV – derived intransitive verb; DTV – derived transitive verb; IPFV – imperfective; IRR – irrealis; IV – intransitive verb; NML – nominal; PASS – passive; PLUR – pluractional; PFV – perfective; P – plural; PREP – preposition; PROSP – prospective; RN – relational noun; S – singular; STAT – stative suffix; SUF – unidentified suffix; TV – transitive verb. Glosses from other published works on Chuj have been modified in some cases for consistency.

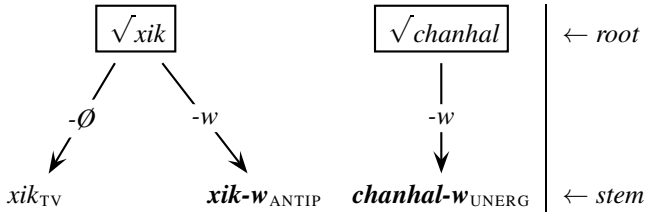


The label “ $v+\text{Voice}^0$ ” reflects the claim—following discussion and diagnostics in Pylkkänen 2002 and Harley, to appear—that in Chuj, properties associated with v^0 (i.e. categorization) and Voice^0 (i.e. the introduction of agents) are combined into a single head. A possibility equally compatible with the proposal below is that there is a null v^0 below the $-w$ Voice^0 head.

I propose that the unified structures for $-w$ are best understood within an analysis in which lexical roots—like *xik* ‘chop’ and *chanhal* ‘dance’—are not completely specified for lexical category (Halle and Marantz 1993, Arad 2003, Borer 2005, Lois and Vapnarsky 2006, Lois 2011). This is a formalization of an intuitive proposal: Mayan roots have the *semantic capacity* to form certain types of stems, but they require more structure before they are able to inflect. This proposal both captures the patterns found in the $-w$ stem forms in Chuj, and also provides further support for the under-specification of roots in Mayan languages (Haviland 1994, Lois and Vapnarsky 2006, Lois 2011). Below I demonstrate that $-w$ belongs to a larger class of verbal stem-forming suffixes in Chuj which have distinct but related functions.

This analysis of $-w$ also has important implications for antipassive constructions. Under the proposal advanced here, the incorporation antipassive formed with $-w$ does *not* convert a transitive verb into an intransitive verb (as antipassives are frequently described, cf. (1b) above). Instead, both transitive and “antipassive” stems are formed directly from an under-specified root, as represented in (5):

(5) PROPOSED DERIVATION OF TRANSITIVE AND ANTIPASSIVE STEMS



Below I contrast stem-forming morphology like *-w* with other “voice” morphology in Chuj, arguing for a distinction between: (i) morphemes which attach directly to bare roots, and serve to *specify* the argument structure properties of the stem (like *-w* in (5)), and (ii) morphemes which attach to already-formed stems, and reflect the absence of an internal (antipassive) or external (passive) argument.

The remainder of this paper is organized as follows. In section 2 I provide background on Chuj roots, root classification, and stem formation, laying the groundwork for the sections that follow. Section 3 investigates incorporation antipassives and unergative stems in more detail, arguing that both have the same basic structure. Section 4 provides further evidence that *-w* attaches directly to roots through an examination of derived transitive stems. In section 5 I present a comparison with other types of “voice” morphology in Chuj. Section 6 summarizes and concludes.

2. ROOTS AND STEMS IN CHUJ

Chuj is a member of the Q’anjob’alan branch of the Mayan language family spoken by approximately 40,000 people in the department of Huehuetenango in Guatemala (Pascual 2007). Data presented here, unless otherwise cited, are from the San Mateo Ixtatán variant. For general Chuj background see also Hopkins 1967, Pascual 2007, Buenrostro 2013.

As in other Mayan languages, roots in Chuj are overwhelmingly CVC in shape (though other forms, especially for nominal and adjectival roots, also exist; see Hopkins 1967: ch. 2). Here we will be concerned primarily with four classes of roots, distinguishable by their formal inflectional and derivational properties: (i) intransitive roots; (ii) transitive roots; (iii) positional roots; and (iv) nominal roots.² Nominal roots may typically appear underived directly in nominal contexts (e.g. in argument position, possessed, following prepositions, with nominal classifiers), and are not discussed in detail here. In the remainder of this section I review some formal diagnostics for distinguishing among the first three categories.

²Mayan languages generally have a small class of adjectival roots (England 2004, Martínez Cruz 2007), and I set these aside here.

It is important to highlight a distinction here at the outset between these four classes of *roots*, and classes of *inflectable stems*. For example, all four types of root have the ability to appear in intransitive stem forms, but they will require different types of morphology in order to do so. We thus draw a distinction, for example, between *intransitive roots* (underspecified roots which behave as a class in terms of morphology needed to form stems), and *intransitive stems* (inflectable verb stems which combine with a single argument). Importantly, the label “intransitive root” is not in conflict with the proposal that roots are uncategorized; these root classes could equally well be labelled “A”, “B”, and “C.” See Haviland 1994 for a detailed discussion of roots and stem formation in Mayan.

2.1. Intransitive roots

Intransitive roots can be distinguished as roots which appear without overt voice or derivational morphology in intransitive stem forms, as in (6):

(6) INTRANSITIVE ROOTS IN INTRANSITIVE STEMS

- (a) Ix-onh-**way**-i.
PFV-B1P-sleep-IV
'We slept.'
- (b) Tz-ach-**k'ey**-i.
IPFV-B2S-ascend-IV
'You go up.'
- (c) Ix-**b'ey** ix ix.
PFV-walk CLF.FEM woman
'The woman walked.'
- (d) Ol-in-**b'ey**-ok.
PROSP-B1S-walk-IRR
'I will walk.'

Intransitive stems are marked by the intransitive “status suffix” *-i* in perfective and imperfective aspects (6a–c), and the irrealis *-ok* in the prospective aspect (6d).³ The status suffix *-i* is dropped when the stem is not phrase final (see Henderson 2012). The single argument of the intransitive stem is cross-referenced with a “Set B” or absolutive morpheme, which cliticizes to the stem-initial aspect marker. As in other Mayan languages, there is no overt third person singular Set B marker, as in (6c).

³Chuj shows split ergativity in the progressive aspect. The progressive involves embedding and special stem forms not directly relevant to the discussion here. See Buenrostro 2004 and Coon and Carolan 2015 on the Chuj progressive.

Other types of roots may also appear in intransitive stem forms, but require the presence of derivational suffixes, to which we return below. The intransitive stem template is shown in (7).

- (7) ASP – SET B - **root** – { DERIV } – **-i** (*intransitive*)

2.2. *Transitive roots*

Transitive roots may appear directly in transitive stem forms, as in (8):

- (8) TRANSITIVE ROOTS IN TRANSITIVE STEMS
- (a) Ix-ach-ko-**chel**-a'.
PFV-B2S-A1P-hug-TV
'We hugged you.'
- (b) Ix-ko-**man**-a'.
PFV-A1P-buy-TV
'We bought it.'
- (c) Tz-in-**jax** ixim ixim.
IPFV-A1S-grind CLF corn
'I grind the corn.'
- (d) Ol-ach-w-**il**-a'.
PROSP-B2S-A1S-see-TV
'I will see you.'

The transitive root appears with the transitive status suffix *-V'* in perfective, imperfective, and prospective aspects.⁴ As above, the transitive status suffix is dropped when the stem is not phrase-final. Transitive stems appear with two person/number-marking morphemes: objects are marked with Set B markers and transitive subjects are cross-referenced with Set A (ergative) morphemes.

In Mayanist literature a division is drawn between "root transitive" stems, like the ones in (8), and "derived transitive" stems. Root transitives are formed directly from transitive roots, while derived transitives are formed from other types of roots and appear with a special status suffix, *-ej*, shown in (9).

- (9) (a) Ix-a-way-m-it-**ej** ix nene.
PFV-A2S-sleep-APPL-SUF-DTV CLF.FEM baby
'You went to sleep with the baby.'
- (b) Tz-ko-tz'ib'-**ej** hu'um.
IPFV-A1P-write-DTV book
'We write books.'

⁴This suffix is *-a'* for roots with non-back vowels [a], [e], and [i], and harmonic with the root vowel for forms with [o] and [u] root vowels.

These derived transitives include both transitives derived by overt morphology, as in (9a), as well as a number of zero-derived forms, often denominals, as with the nominal root *tz'ib'* 'letters, writing'.⁵ Note that the transitive suffix *-V'* does not cooccur with *-ej*, and *-ej* is not dropped phrase-finally.

Root and derived transitive templates are given in (10) and (11).

- (10) ASP – SET B – SET A – **root** – **-V'** (*root transitive*)
 (11) ASP – SET B – SET A – **root** – DERIV – **-ej** (*derived transitive*)

The aspect markers and “status suffixes” seen to this point are summarized in the table in (12):

(12) ASPECT MARKERS AND STATUS SUFFIXES

		IV	TV	DTV	
IPFV	(<i>tz</i>)	<i>-i</i>	<i>-V'</i>	<i>-ej</i>	
PFV	(<i>ix/Ø</i>)	<i>-i</i>	<i>-V'</i>	<i>-ej</i>	
PROSP	(<i>ol</i>)	<i>-ok</i>	<i>-V'</i>	<i>-ej</i>	(<i>irrealis</i>)

The suffixes in (12) are listed together here for ease of reference, but note that they do not form a unified category, and it is not clear that they serve a specific derivational “function”. While *-i* and *-V'* appear only in phrase-final position, *-ej* is never dropped. The intransitive suffix is replaced with *-ok* in irrealis contexts like the prospective *ol*, but the other two suffixes are not.⁶ Furthermore, while both *-i* and *-ej* appear on stem forms which have been derived, *-V'* only appears immediately following transitive roots.

This is in keeping with the description of so-called “status suffixes” in works such as Henderson 2012. As Henderson notes, Mayan status suffixes do not *alter* the transitivity of a stem, but rather “reflect valency information already available from the lexical content of the predicate, or from a combination of lexical information and derivational morphology” (Henderson 2012: 747). While the choice of status suffix depends on properties like transitivity, TAM, and mood, this information is generally also represented elsewhere—for example in the stem-initial TAM marker (cf. Radkevich 2011). Following Coon, Mateo Pedro, and Preminger 2014, and consistent with the order of morphemes on the stem, I locate the status suffix in the head of a projection at the top edge of the verbal maximal projection, above VoiceP. While Coon et al. 2014 label this projection vP, they note that their choice of label does not reflect a claim that the status-suffix head

⁵We will see in section 5 below that transitive roots with added stem morphology—for example, the pluralational suffix—may also appear in derived transitive stem forms.

⁶It is in fact not even clear that *-i* and *-ok* occupy the same position. Vowel hiatus is often resolved by deletion in Mayan, and it would be unsurprising for the sequence [i-ok] to result in deletion of the *-i* suffix.

be associated with properties typically associated with v^0 ; I thus adopt the more neutral label “SSP”.⁷

2.3. Positionals

Finally we turn to positional roots. “Positionals” form a distinct class of roots throughout the Mayan family, distinguishable by their stem-forming morphology as well as their meaning (see e.g. Haviland 1994; Henderson, to appear-a). Semantically they typically make reference to position, shape, aggregation, or surface quality. For related Tsotsil, Haviland (1994: 733) refers to an apparent “preoccupation with space, shape, and configuration.” For Chuj, Hopkins (1967: 76) notes that positional roots may be “distinguished from other form classes by a number of derivational reduplication processes which occur with no other form class.”

Positionals are a class of roots, but there is no special class of positional *stems* (see e.g. England 1983, Haviland 1994). Positional roots in Chuj form stative (aspectless or “non-verbal”) predicates through the addition of the suffix *-an*, as in (13).

(13) POSITIONAL ROOTS IN STATIVE STEMS

- (a) **Chot-an** em nok' k'ok'on.
 crouched-STAT DIR.down CLF frog
 ‘The frog is crouched down/squat.’
- (b) **Linh-an** hach.
 standing-STAT B2S
 ‘You’re standing.’

To form eventive transitive or intransitive predicates, the positional root requires one or more of a number of derivational suffixes—simply glossed ‘SUF’ for now—followed by the appropriate status suffix (*-i* for intransitives or *-ej* for transitives). In other words, positional roots follow the templates for derived intransitive and transitive stems in (7) and (11) above.⁸

(14) POSITIONAL ROOTS IN VERBAL STEMS

- (a) **Ix-in-chot-n-aj-i.**
 PFV-B1S-sit-SUF-SUF-IV
 ‘I sat down.’

⁷A potential correlate is the “Licensing Phrase” (LP) proposed for Bantu in Halpert 2015, which similarly sits just above VoiceP. Another possibility, discussed in Coon 2014 for Ch’ol, is that the status suffix head is associated with an *eventive* interpretation (stative predicates lack status suffixes). I leave this as a topic for future work.

⁸The *-w* suffix in (14c) is formed by suffixing the initial consonant of the CVC positional root; it is not the same as the agentive *-w* discussed here.

root may enter into a variety of different stem forms through the addition of the “derivational” and “status” suffixes seen above. Following Lois and Vapnarsky 2006 and Lois 2011 on Yucatecan languages, I take roots to be underspecified for category and argument structure, and turn to a more in-depth examination of the stem-forming suffixes below.

3. TWO TYPES OF AGENTIVE INTRANSITIVES

In this section we examine what have been identified as two contexts in which the suffix *-w* attaches directly to roots: unergatives (§3.1) and the “incorporation antipassive” (§3.2). I argue that *-w* serves the same function in each: it verbalizes the stem and introduces—but does not assign ergative case to—an external argument. Section 3.3 examines unaccusative roots, the only class of roots to which *-w* may not attach. We turn briefly to a discussion of the intransitive status suffix *-i* in section 3.4.

3.1. *Unergatives*

Many agentive intransitives in Chuj are formed from nominal roots with the suffix *-w*.⁹ Examples of denominal *-w* verbs and their corresponding nominal roots are shown in (17).

(17) UNERGATIVES DERIVED FROM NOMINAL ROOTS

NOMINAL ROOT		VERB STEM	
<i>chanhal</i>	‘dance’	<i>chanhal-w-i</i>	‘dance’
<i>at’is</i>	‘sneeze’	<i>at’is-w-i</i>	‘sneeze’
<i>patan</i>	‘cleared land’	<i>patan-w-i</i>	‘to clear land’
<i>tz’ib’</i>	‘letters, writing’	<i>tz’ib’-w-i</i>	‘write’
<i>karrel</i>	SP ‘run’	<i>karrel-w-i</i>	‘run’
<i>paxeal</i>	SP ‘stroll’	<i>paxeal-w-i</i>	‘stroll’

Note that verbs borrowed from Spanish—for example *karrel* from the Spanish infinitive form *correr*—enter Chuj as nominals, also discussed in Haviland 1994 for Tsotsil and Coon 2013 for Ch’ol.¹⁰

Examples of nominal roots in nominal environments are shown in (18); the corresponding intransitive *-w* stems are in (19).

⁹I take it for granted that these are unergatives for now, returning to this question in §3.3.

¹⁰These borrowed forms suggest that the *-w* process is at least semi-productive, and not restricted to frozen lexical items as suggested for these unergative (non-antipassive) *-w* forms by Buenrostro 2013.

- (18) (a) Ix-w-ab' jun at'is.
 PRFV-A1S-hear one sneeze
 'I heard a sneeze.'
- (b) Ix-in-koch t'a patan.
 PFV-B1S-arrive PREP cleared.land
 'I arrived at the cleared land.'
- (19) (a) Ix-in-at'is-w-i.
 PFV-B1S-sneeze-AG-IV
 'I sneezed.'
- (b) Ol-ach-patan-w-ok.
 PROSP-B2S-clear.land-AG-IRR
 'You will clear land.'

Agentive intransitive forms are also derived from positional roots (§2.3), as in the table in (20).

(20) UNERGATIVES DERIVED FROM POSITIONAL ROOTS

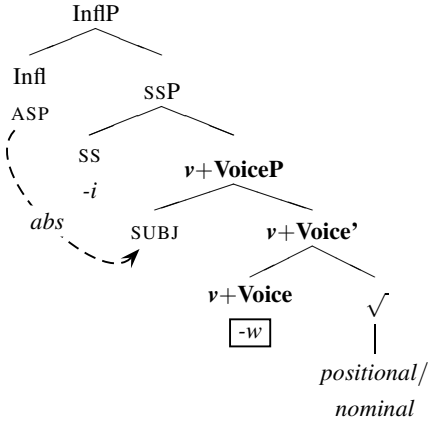
POSITIONAL ROOT		VERB STEM	
<i>chet</i>	'on two legs'	<i>chet-w-i</i>	'jump'
<i>chot</i>	'crouched down'	<i>chot-w-i</i>	'jump (crouched)'
<i>jenh</i>	'wings outstretched'	<i>jenh-w-i</i>	'fly'
<i>kot</i>	'on four legs'	<i>kot-w-i</i>	'crawl'
<i>tel</i>	'lying down'	<i>tel-w-i</i>	'fall'

Recall that positional roots in Chuj may be identified by their ability to form stative predicates with *-an*. Examples of positional roots in stative *-an* stems are given in (21); the same roots in intransitive verb stems with *-w* are shown in (22).

- (21) (a) **Kot-an** em ix unin.
 on.four.legs-STAT down CLF.FEM child
 'The girl is crouched down.'
- (b) **Chet-an chet-an** nok' chej.
 on.two.legs-STAT on.two.legs-STAT CLF horse
 'The horse is reared up on two legs.'
- (22) (a) Tz-**kot-w-i** ix nene.
 IPFV-four.legs-AG-IV CLF.FEM baby
 'The baby crawls.'
- (b) Ix-**chot-w-i** nok' k'ok'on.
 PFV-crouched-AG-IV CLF frog
 'The frog hopped.'

These stems fit the pattern of intransitive stems in Chuj identified in section 2.1 above: they have a single argument, marked with Set B/absolutive (null for third person singular). They also appear with the intransitive status suffix *-i* in the perfective and imperfective aspects, and with the irrealis *-ok* in the prospective. I propose that ROOT-*w-i* stems have the structure in (23), repeated from (4) above.

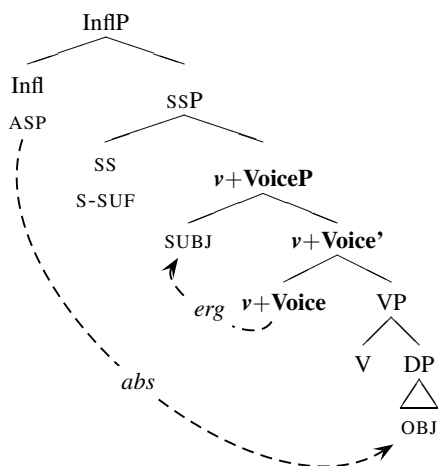
(23) AGENTIVE INTRANSITIVE



Specifically, the suffix *-w* occupies a bundled $v+\text{Voice}^0$ head (Pylkkänen 2002; Harley, to appear), which merges directly with the root, categorizing the stem as verbal and introducing the external argument in its specifier position (along the lines of Kratzer 1996). The “status suffix” occupies the highest head in the verbal projection, labelled SSP. The root undergoes successive head-movement through $v+\text{Voice}^0$ to SS^0 , forming the verb stem. I assume, following Coon, Mateo Pedro, and Preminger 2014 on the Mayan language Q’anjob’al, that absolutive arguments are licensed by finite Infl^0 , which is occupied by the aspectual particle (see Aissen 1992).

The intransitive *-w* stem may be contrasted with the proposed derivation of a full transitive in (24).

(24) TRANSITIVE



The null transitive $v+\text{Voice}^0$ head that introduces the external argument in “underived” transitive constructions like (24) contrasts with the intransitive $-w$ $v+\text{Voice}^0$ head from above in its case assigning properties: transitive $v+\text{Voice}^0$ assigns inherent ergative case to the argument in its specifier, while $-w$ $v+\text{Voice}^0$ does not (see e.g. Woolford 1997, Legate 2008 and works cited there on inherent ergative). The realization of ergative agreement is a result of this relationship (Coon, to appear). In the $-w$ stem above, Infl^0 licenses the external argument; in a transitive construction like (24), Infl^0 licenses the object.¹¹ The proposal here accounts for the fact that both derived and underived intransitives have absolutive subjects.

3.2. Incorporation antipassives

Chuj has been described as having two types of antipassive (e.g. Maxwell 1976, Dayley 1981, and Buenrostro 2013): (i) an absolutive antipassive; and (ii) an incorporation antipassive, $-w$.¹² Here we focus on the latter, returning to the absolutive antipassive in section 5. A transitive~incorporation antipassive pair is shown in (25):

- (25) (a) TRANSITIVE
 Ix-ko-xik te' k'atzitz.
 PFV-A1P-chop CLF wood
 ‘We chopped the wood.’

¹¹I assume that the *Agree* operation between the aspect head and the absolutive argument triggers clitic doubling which results in the Set B markers (Coon et al. 2014); the aspect-absolutive sequence cliticizes to the left of the verb stem. This is not crucial to the discussion here.

¹²Smith-Stark (1978) reconstructs $*(V)w$ as one of the Proto-Mayan antipassive morphemes.

(b) INCORPORATION ANTIPASSIVE

Ix-onh-xik-w-i k'atzitz.
 PFV-B1P-chop-AG-IV wood
 'We chopped wood.' (~ 'We wood-chopped.')

In the transitive in (25a), the subject is marked with the Set A (ergative) prefix and, in the absence of phrasal post-verbal material, we would find the transitive status suffix *-a'* (cf. *Ix-ko-xik-a'* – 'We chopped it'). The object in the transitive in (25a) appears with a nominal classifier, *te'*, the classifier for wood-based elements. As described for other Q'anjob'alan languages (e.g. Craig 1986 for Popti' and Zavala 2000 on Akatek), classifiers appear either preceding nominals in referential contexts (26a) or alone as referential pronouns (26b). I assume they occupy D⁰.

- (26) (a) Ix-chanhal-w-i **ix**.
 PFV-dance-AG-IV CLF.FEM
 'She danced.'
- (b) Ix-chanhal-w-i **ix** unin.
 PFV-dance-AG-IV CLF.FEM child
 'The girl danced.'

While the transitive in (25a) above has two full arguments, the incorporation antipassive in (25b) has only a single person/number-marker on the verb: the Set B *-onh* cross-references the subject. Though an apparent object appears, here *k'atzitz* 'wood', unlike in (25), it does not appear with its classifier.

As others have noted (Maxwell 1976, Dayley 1981, Buenrostro 2013), incorporation antipassive stem forms like the one in (25b) appear with a non-oblique post-nominal "object", but there are restrictions. First, the nominal must be bare and non-referential, and it must appear immediately adjacent to the verb stem. The "object" in an incorporation antipassive may not appear with numerals (27a), demonstratives (27b), or nominal classifiers (27c).

- (27) (a) *Ol-in-man-w-ok **jun** kaxlan.
 PROSP-B1S-buy-AG-IRR one chicken
 intended: 'We will buy one chicken.'
- (b) *Ix-in-chonh-w-i wakax **tik**.
 PFV-B1S-sell-AG-IV cow DEM
 intended: 'We sold this cow.'
- (c) *Ix-onh-jax-w-i **ixim** ixim.
 PFV-B1P-grind-AG-IV CLF corn
 intended: 'We grind the corn.'

The incorporated object may also not be possessed, as shown by the ungrammaticality of the forms in (28).

- (28) (a) *Ix-in-kal-w-i **hin**-kape.
 PFV-B1S-stir-AG-IV A1S-cafe
 intended: ‘I stirred my coffee.’
- (b) *Ix-onh-pay-w-i **ko**-kaxlan.
 PFV-B1P-roast-AG-IV A1P-chicken
 intended: ‘We roasted our chickens.’

As Maxwell (1976) describes, certain pre-nominal adjectives may appear with antipassive objects, as in (29a), but post-nominal adjectives are impossible (29b).¹³

- (29) (a) Ix-in-man-w-i **niwak** kaxlan.
 PFV-B1S-buy-AG-IV fat chicken
 ‘I bought fat chickens.’
- (b) *Ix-in-man-w-i kaxlan **niwak-il**.
 PFV-B1S-buy-AG-IV chicken fat-SUF
 intended: ‘I bought fat chickens.’

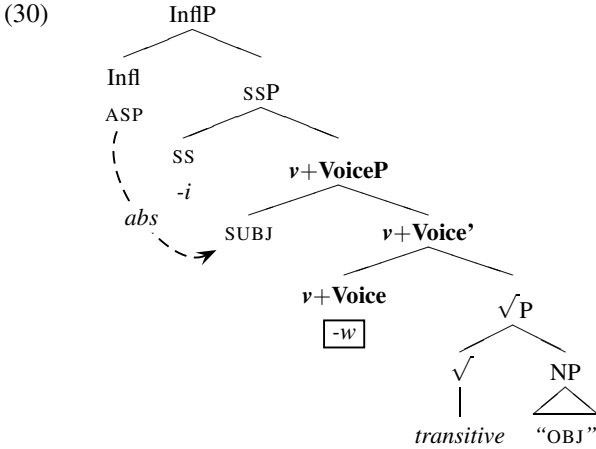
Because only a limited number of adjectives appear in pre-nominal position in Chuj, Maxwell proposes that forms like *niwak kaxlan* ‘fat chicken’ in (29a) are actually compounds. I propose instead that only prenominal modifiers sit below D^0 and that forms like *niwak kaxlan* in (29a) are thus bare *nPs*; either possibility is compatible with the analysis below.¹⁴

Following Maxwell (1976), we may conclude that these are not full nominal arguments. I propose that the pseudo-incorporated objects are bare *nPs*, rather than full *DPs*. In Chuj, *nPs* do not semantically saturate the argument slot of the predicate, but rather serve to *restrict* its interpretation (see Chung and Ladusaw 2004 on the semantic operation RESTRICT). Building on Baker 1988, Massam 2001, and others, I assume further that the bare “incorporated” (non-argument) object does not need to be licensed (i.e. receive abstract case) from Infl^0 , as other transitive objects do (cf. the transitive structure in (24)).

The picture, then, is much the same as for the unergatives in (23) above, except here the transitive root selects a nominal complement. I assume this pseudo-incorporated complement is selected by the verb, a fact which will become relevant below. The $v+\text{Voice}^0$ head *-w* merges the subject in its specifier, but again does not assign ergative case; the single (case-requiring) argument is licensed by Infl^0 , and realized as absolutive.

¹³Maxwell (1976) notes some dialectal variation in the types of modifiers allowed. The data here is from the San Mateo Ixtatán dialect.

¹⁴As discussed in detail in England 2004 and Martínez Cruz 2007, the number of adjectives which may appear directly modifying nouns is relatively small in Mayan.



A question remains about how to derive the correct surface order. While the object must be adjacent to the verb stem, the verb still appears with the suffixes *-w* and *-i*. The puzzle is thus: how can we ensure the object remains adjacent to the verb stem, but *outside* of the suffixal morphology? I suggest here, following the proposal in Clemens 2014 for incorporation structures in Niuean, and Clemens and Coon 2016 for Mayan, that the verb undergoes regular head movement to the position which hosts the status suffix above the subject, as in the unergatives above (see also Armstrong 2015 on Yucatec). The incorporated object is reordered at PF, due to a prosodic requirement that the structurally impoverished (D⁰-less) object be phrased with the verb. Future prosodic work is needed to confirm whether this is tenable for Chuj, but the parallels with Niuean make such an account promising, as well as consistent with the structure for unergatives above.

Finally, note that the incorporated object is represented as a complement to the root (see Harley, to appear for support and discussion). At this stage nothing crucial hinges on this decision, though Buenrostro (2013) notes that some incorporation antipassive constructions receive special meanings, consistent with being merged internal to the first phase (see e.g. Arad 2003). In (31) the combination of *il* ‘see’ and the bare object *ak’wal* ‘night’ results in an idiomatic reading ‘to keep vigil’ (i.e. after someone dies, or is very ill).

- (31) jun ak’wal b’ajtil tz-onh-il-w-i ak’wal
 one night when IPFV-B IP-see-AG-IV night
 ‘a night when we kept vigil’ (Buenrostro 2013: 245)

3.3. Unaccusatives

To this point, we have seen the suffix *-w* appear on three of the four types of roots identified above: nominal, positional, and transitive, shown in (32).

	NOMINAL		POSITIONAL		TRANSITIVE	
	<i>chanhal-w</i>	‘dance’	<i>kot-w</i>	‘crawl’	<i>man-w</i>	‘buy’
(32)	<i>paxeal-w</i>	‘stroll’	<i>tel-w</i>	‘fall’	<i>xik-w</i>	‘chop’
	<i>at’is-w</i>	‘sneeze’	<i>jenh-w</i>	‘fly’	<i>jax-w</i>	‘grind’
	

The fourth type of root discussed in section 2 above was *intransitive* roots. Here we are specifically concerned with what appear to be *unaccusative* intransitives. Though independent unaccusativity diagnostics do not—to my knowledge—exist, Chuj verbs which correspond to unergatives in languages for which there are such diagnostics, are overwhelmingly derived by some sort of suffix or series of suffixes: either the *-w* described here, or one of several other consonantal suffixes (see appendix A). For example, cross-linguistically, unergatives often include manner-of-motion verbs as well as verbs of bodily function (e.g. Perlmutter 1978). In Chuj, such verbs are morphologically complex in form, as the examples in (33) illustrate.

(33) PUTATIVE UNERGATIVES

VERB STEM		ROOT
<i>tz’it-w-i</i>	‘to jump’	<i>tz’it</i> (POS) ‘jumping’
<i>nox-w-i</i>	‘to swim’	<i>nox</i> (TV) ‘swim’
<i>taj-n-i</i>	‘to play’	
<i>mun-laj-i</i>	‘to work’	
<i>tz’oj-b’an-i</i>	‘to cough’	<i>tz’oj</i> (N) ‘cough’
<i>tza-j-i</i>	‘to defecate’	<i>tza</i> (N) ‘excrement’
<i>chul-aj-i</i>	‘to urinate’	<i>chul</i> (N) ‘urine’

While some of the putative unergative stems are transparently derived from other roots, for others the source is less clear. Nonetheless, Chuj verbs which would be expected to pattern with *unaccusatives*—for example verbs of motion—are all of the form CVC. These do not involve additional derivational suffixes, and are impossible with *-w*:

- (34) (a) Ix-b’at winh unin.
 PFV-go CLF child
 ‘The boy left.’
- (b) *Ix-b’at-w-i winh unin.
 PFV-go-AG-IV CLF child
 intended: ‘The boy left.’

Note that under the analysis presented here, the impossibility of *-w* on intransitive (i.e. unaccusative) roots is predicted: *-w* is a v +Voice⁰ head that

attaches to a root and introduces an *external* argument; the internal argument is either absent entirely, or incorporated. Unaccusative intransitive roots, on the other hand, select an *internal* argument. In addition to semantic considerations, these conflicting requirements create a licensing problem. The *-w* Voice⁰ head introduces an external argument but does not assign inherent ergative case. The introduced argument must be licensed by finite Infl⁰, and intransitivity is thus ensured in *-w* forms because Infl⁰ can license only a single argument.

3.4. *The status suffix -i*

Despite the formal similarities noted above, it is important to note one apparent difference between intransitive stems derived in *-w* and intransitive stems formed directly from intransitive roots. Recall from above that transitive and intransitive status suffixes disappear when not phrase-final:

- (35) (a) Ix-ach-way-i.
 PFV-B2S-sleep-IV
 ‘You slept.’
 (b) Ix-way winh unin.
 PFV-sleep CLF.MASC child
 ‘The boy slept.’

However, in *-w* stem forms like those illustrated in (36), the *-i* never disappears; compare (36b) with (35b).

- (36) (a) Ix-ach-chanhal-w-i.
 PFV-B2S-dance-AG-IV
 ‘You danced.’
 (b) Ix-chanhal-w-i winh unin.
 PFV-dance-AG-IV CLF.MASC child
 ‘The child danced.’

It could be for this reason that many authors have treated the sequence *-w-i* as a single morpheme: *-wi*. Nonetheless, stems with *-w* may also appear in other stem forms without *-i*, for example with the irrealis suffix *-ok*, as in (37).¹⁵

- (37) Ol-chanhal-w-ok winh unin.
 PROSP-dance-AG-IRR CLF.MASC child
 ‘The child will dance.’

Following Mateo Pedro (2011) on closely related Q’anjob’al, I propose that this difference can be seen as a phonological restriction: the omission of the final

¹⁵Writing of the cognate form in Popti’, Craig (1979: 145) notes “The compound suffix *-wi* of the incorporative voice is entirely intransitive: *-w* is the same intransitivizing suffix found in the absolutive antipassive, and *-i* is the stem-final vowel of intransitive verbs.”

vowel in the *-w* stems would result in a word-final consonant cluster, impossible in the San Mateo Ixtatán variant of Chuj examined here: **chanhalw*, **jenhw*, **at'isw*, **kotw*, **karrelw*. In support of this, Maxwell (1976) notes that in the San Sebastián Coatán variant, final clusters are possible; as expected, *-i* does drop in these contexts. That the difference between (35) and (36) is a phonological difference is compatible with prosodically-driven analyses of the distribution of final status suffixes, like that in Henderson 2012.

4. DERIVED TRANSITIVES AND LOW ATTACHMENT OF *-w*

In the preceding section we observed that the suffix *-w* attaches to roots whose lexical entries are compatible with a single external argument. Since the *-w* head does not assign ergative case, and only a single absolutive is possible (via licensing by finite Infl⁰), we predict the fact that if an internal argument appears, it must be a bare (caseless, pseudo-incorporated) NP. In this section I provide additional evidence that the *-w* suffix we have seen to this point attaches directly to a root, not to a precategorized stem.

In section 2 we saw two types of transitive stems in Chuj: root transitives, and derived transitives, repeated in (38) and (39).

(38) ASP – SET B – SET A – **root** – *-V'* (*root transitive*)

(39) ASP – SET B – SET A – **root** – DERIV – *-ej* (*derived transitive*)

Recall that root transitives are formed directly from CVC transitive roots, as in (40). Derived transitives either involve overt derivational morphology (40a), or the suffix *-ej* appears directly on certain roots, as in (40b).

(40) ROOT TRANSITIVE
 Tas ix-he-man-**a'**?
 what PFV-A2P-buy-TV
 ‘What did you buy?’

(41) DERIVED TRANSITIVES

(a) Tz-in-t'uy-b'-it-**ej** onh.
 IPFV-A1S-smooth.shiny-SUF-SUF-DTV avocado
 ‘I rub/massage the avocado smooth and shiny.’

(b) Tas ix-he-tz'ib'-**ej**?
 what PFV-A2P-write-DTV
 ‘What did you write?’

Recall from above that the root *tz'ib'* is a nominal root (‘letters, writing’). Given that this root may appear in both nominal and transitive stem forms without overt derivational morphology, a question arises about how the incorporation antipassive would be formed. As shown in (42a), to form an incorporation antipassive *-w* applies directly to the root, and *not* to the *-ej* stem, as shown by

the ungrammaticality of (42b)—this example is ungrammatical regardless of the morpheme order.

- (42) (a) Tz-onh-tz'ib'-w-i hu'um.
 IPFV-B1P-write-AG-IV book
 'We write books.'
- (b) *Tz-onh-tz'ib'-ej-w-i hu'um.
 IPFV-B1P-write-DTV-AG-IV book
 intended: 'We write books.'

This follows the pattern observed above. The root *tz'ib'* is a nominal root and has two options: (i) it combines with *-ej* and forms a transitive verb, as in (40); or (ii) it combines with *-w*, like the nominals in section 3.1, resulting directly in an intransitive stem like (42a). The ungrammaticality of (42b) supports the proposal that *-w* attaches not to *transitive stems*, but directly to roots.

Derived transitives can also be derived from intransitive and transitive roots. The intransitive root *way* 'sleep' can appear in an intransitive stem in (44a), or with the sequence *-m-it* in (44b) to form what I gloss here as an applicative.¹⁶

- (44) (a) Ix-way ix nene.
 PFV-sleep CLF.FEM baby
 'The baby slept.'
- (b) Ix-a-way-m-it-ej ix nene.
 PFV-A2S-sleep-APPL-SUF-DTV CLF.FEM baby
 'You went to sleep with the baby.'

The resulting transitive in (44b) appears with the derived status suffix *-ej*; as expected, this form may not antipassivize with *-w* (again, all morpheme orders are ungrammatical).

- (45) *Ix-ach-way-m-it-w-i nene.
 PFV-B2S-sleep-APPL-SUF-AP-IV baby
 intended: 'You put babies to sleep.'

¹⁶Hopkins (1967: 82) lists *-m* as one of several suffixes which derive "verb stems of undetermined class," and *-it* as a transitive derivational suffix with a causative meaning. The *-m* suffix is not productive, though it may be at least one other intransitive *b'ey* 'walk'.

- (43) (a) Ix-ach-b'ey-i.
 PFV-B2S-walk-ITV
 'You walked.'
- (b) Ix-a-b'ey-m-it-ej Montreal.
 PFV-A2S-walk-APPL-SUF-DTV Montreal
 'You strolled (around) Montreal.'

In both (43) and in (44) above an internal argument is added and I thus gloss *-m* as an applicative.

Even transitive roots can be derived into derived transitive stems. The root *tzil* ‘tear’ in (46a) appears in a root transitive stem form in (46a), and with pluractional morphology in (46b). The pluractional stem requires the derived transitive suffix *-ej*.¹⁷

- (46) (a) Ix-ko-tzil k-hu’um.
 PFV-A1P-tear A1P-paper
 ‘We tore up our papers.’
- (b) Ix-ko-tzil-**ch-it**-ej k-hu’um.
 PFV-A1P-tear-PLUR-SUF-DTV A1P-paper
 ‘We tore and tore up our papers.’

However, while the *-w* suffix may appear directly on the root, as in (47a), it is impossible with pluractional morphology in (47b). It is not possible to form an incorporation antipassive with either an applicative (45) or a pluractional stem (47b) in Chuj.

- (47) (a) Ix-onh-tzil-w-i hu’um.
 PFV-B1P-tear-AG-IV paper
 ‘We tore up papers.’
- (b) *Ix-onh-tzil-**ch-it**-(ej)-w-i hu’um.
 PFV-B1P-tear-PLUR-SUF-(DTV)-AG-IV paper
 intended: ‘We tore up and tore up papers.’

To summarize, *-w* can combine with transitive, positional, and nominal roots. The fact that it combines with transitive roots and returns an intransitive stem makes it tempting to call it an “antipassive”. However, this misses part of the picture: *-w* is incompatible with derived transitives. This is expected under the view in which *-w* combines with an underspecified root and returns an agentive intransitive stem, but difficult to understand if the function of *-w* is to suppress an internal argument.

5. A TYPOLOGY OF VOICE MORPHOLOGY

Building on work in Hopkins 1967, I suggest that the morphemes identified as “voice” morphology in Chuj, for example in Domingo Pascual 2007 and Buenrostro 2013, in fact fall into two classes: (i) suffixes which attach directly to underspecified roots; and (ii) suffixes which attach to stems. The former class includes the *-w* suffix, the focus until now, as well as “impersonal passives” *-x* and *-j*, discussed below. Rather than *altering* the valence of an already-categorized

¹⁷Evidence that the sequence *-ch-it* may be further decomposable into *-ch* and *-it* comes from positional roots, which appear to form pluractionals with *-tz-it*, as well as from the applicatives above. Further work is needed here, and both *-ch* and *-tz* also fall into Hopkins’ “verb stems of undetermined class” category (see footnote 16); see Henderson, to appear-b on pluractionals in Mayan languages.

stem, I argue that these attach lower in the structure: not to a transitive form, but to an underspecified root.

I contrast the behavior of incorporation antipassive and impersonal passive suffixes with absolutive antipassive and (regular) passive morphemes. I argue that the latter two are in fact morphologically complex and include both a root-attaching consonantal morpheme, as well as a morpheme which reflects the *existential binding* of unfilled argument positions: *-aj*.

Buenrostro (2013) investigates several passive and antipassive morphemes (also discussed in Hopkins 1967, Domingo Pascual 2007). I identify some apparent patterns here, focussing on the *form* and *structure* of these constructions; for more on when antipassives are used and their discursive function, see Buenrostro 2013 for Chuj and Polinsky, to appear for a cross-linguistic overview.

Chuj voice morphology is shown in the table in (48):

(48) CHUJ “VOICE” MORPHOLOGY

	Antipassives		Passives		<i>attaches to...</i>
a.	<i>-w</i>	“incorporation AP”	<i>-j/-x</i>	“imp. passive”	roots
b.	<i>-waj</i>	“absolutive AP”	<i>-chaj</i>	“passive”	TV roots
c.	<i>-an</i>	“absolutive AP”	<i>-aj</i>	“passive”	derived trans.

Below I discuss two generalizations that emerge in these forms. First, the morphemes in the first row attach to various categories of roots, while the forms in rows (48b–c) appear to be more selective. Second, I show below that “demoted” arguments may be reintroduced via oblique phrases in absolutive antipassives and passives (rows b–c), but not in the root-attaching forms (row a). I suggest that these properties are interconnected. I present the empirical facts in sections 5.1 and 5.2 and offer an analysis in section 5.3.

5.1. Antipassives

Recall that the “incorporation antipassive” *-w*—the main focus of this paper—attaches to nominal, positional, and transitive roots, resulting in an intransitive stem. Bare non-referential NP “objects” may appear adjacent to the stem, as in (49a). In the incorporation antipassive construction, the patient must be a bare NP (§3.2), and may also not be reintroduced as an oblique, as in (49b) (also discussed in Dayley 1981).

- (49) (a) Ix-in-jax-w-i ixim.
 PFV-B 1S-grind-AG-IV corn
 ‘I ground corn.’
- (b) *Ix-in-jax-w-i t’a ixim.
 PFV-B 1S-grind-AG-IV PREP corn
 intended: ‘I ground corn.’

The incorporation antipassive in (49) contrasts with what has been called the “absolutive antipassive”, shown in (50).

- (50) (a) Tz-tum-**waj** ix s-nun winh chi' t'a hin.
 IPFV-scold-AP CLF.FEM A3S-mother CLF DEM PREP B1S
 'His mother scolds me.' (Buenrostro 2013: 239)
- (b) Ix-mak'-**waj** ix Malin t'a waj Xun.
 PFV-hit-AP CLF.FEM Maria PREP CLF.MASC Juan
 'Maria did some hitting to John.' (Dayley 1981: 36)
- (c) Ix-in-man-**waj**-i.
 PROSP-B1S-buy-AP-IV
 'I shopped.'

Here, the suffix *-waj* attaches to a transitive root—I will argue below that the *-w* in *-waj* is indeed the familiar *-w* from above (see also Hopkins 2012). The resulting stem is intransitive: the subject is marked with Set B morphology and appears with the status suffix *-i* in phrase-final position as in (50c). The patient or theme of the action is either omitted entirely (50c), or expressed as an oblique phrase introduced by the preposition *t'a* (50a–b). Unlike the *-w* discussed above, *-waj* appears only with transitive roots.

Finally, the antipassive suffix *-an* appears on derived transitives with overt (51a) and null (51b) derivational morphology. These have similar properties to the antipassives with *-waj*.¹⁸

- (51) (a) Tz-in-el-k'-**an**-i.
 IPFV-B1S-steal-SUF-AP-IV
 'I steal.'
- (b) Ix-onh-tz'ib'-**an** t'a jun hu'um.
 PFV-B1P-write-AP PREP one paper
 'We wrote on a paper.'

I review a comparable set of passives in the next section, before turning to an analysis.

5.2. *Passives*

We now turn to the Chuj passives listed in table (48) above, repeated in the smaller table in (52).

¹⁸A homophonous suffix also appears in Agent Focus constructions, as well as in embedded transitives (Coon and Carolan 2015); *-Vn* has been reconstructed as the Proto-Mayan Agent Focus marker (Smith-Stark 1978). I set aside possible connections here, but see also Stiebels 2006 for formal similarities between antipassive and Agent Focus forms in other Mayan languages.

(52) CHUJ “PASSIVE” MORPHOLOGY

	Passives	<i>attaches to...</i>
a.	<i>-j/-x</i> “impersonal passive”	roots
b.	<i>-chaj</i> “passive”	TV roots
c.	<i>-aj</i> “passive”	derived trans.

We begin with what might be considered the “basic” passive, *-chaj*. The passive suffix *-chaj* attaches to transitive roots and derives an intransitive stem, as in (53).

- (53) (a) Jun winh unin chi' ix-yam-**chaj**-i.
 one CLF child DEM PFV-catch-PASS-IV
 ‘The child was caught.’ (Buenrostro 2013: 113)
- (b) Niwan ixim wa'il tz-mol-**chaj**-i.
 many CLF tortilla IPFV-gather-PASS-IV
 ‘Many tortillas are gathered.’ (Buenrostro 2013: 202)
- (c) Tz-b'o-**chaj** s-wa'el winh nhulej tik y-uj heb'
 IPFV-make-PASS A3S-food CLF brother DEM A3S-RN.by PL
 ix.
 CLF.FEM
 ‘The brother’s food is made by them.’ (Buenrostro 2013: 202)

In all of these examples, the single argument is the patient or theme, and the agent may be optionally expressed using a relational noun (here *-uj*), as in (53b).¹⁹

Derived transitives form passives with the suffix *-aj*, as in (54) (we return to the familiar form of *-aj*—a subpart of other morphemes—below). As with the *-chaj* passives, the resulting stems are intransitive and the agentive by-phrase may be introduced with a relational noun.

- (54) (a) Ix-el-k'-**aj** santo y-uj waj Xun.
 PFV-steal-SUF-PASS *santo* A3S-RN.by CLF Juan
 ‘The *santo* was stolen by Juan.’ (Buenrostro 2013: 204)
- (b) Ix-in-el-k'-**aj**-i.
 PFV-B1S-steal-SUF-PASS-IV
 ‘I was stolen.’ (Buenrostro 2013: 204)
- (c) Ix-way-m-it-**aj** ix nene.
 PFV-sleep-SUF-CAUS-PASS CLF.FEM baby
 ‘The baby was caused to sleep.’

¹⁹Relational nouns are a common means to introduce oblique arguments in Mayan; the introduced argument triggers Set A marking on the relational noun. The relational noun used to introduce agents (and causers below) is alternately realized as *-uj* or *-u'uj*, depending on whether an overt complement follows.

Finally, Buenrostro (2013) describes *-ji* as an “impersonal passive”, listed by Domingo Pascual (2007: 181) as being in variation with the suffix *-xi*. I assume that these suffixes are morphologically complex, involving the status suffix *-i* (as with *-w-i*, the *-i* may not drop here due to phonological restrictions; §3.4).

Buenrostro finds the impersonal passive attached to transitive roots, like *man* ‘buy’ in (55a). I have found at least one instance of *-x* attached to a positional root *num* in (55b), and of *-j* attached to an adjectival root in (55c).

- (55) (a) S-k’apak-il chi’ tz-man-**j-i**.
 A3S-cloth-NML DEM IPFV-buy-PASS-IV
 ‘It’s his cloth that is bought.’ (Buenrostro 2013: 206)
- (b) Ix-num-**x-i** ko-munlajel.
 IPFV-stop-PASS-IV A1P-work
 ‘Our work stopped.’
- (c) Ix-al-**j-i** ko-chi’ich.
 PFV-heavy-PASS-IV A1P-moon
 ‘The moon grew larger (waxed).’ (Hopkins 2012: 7)

Buenrostro reports that these forms did not occur with agentive *by*-phrases in her corpus of naturally-occurring Chuj (hence the “impersonal passive” label). In elicitation, however, she finds that an oblique phrase is possible, as in (56), but here the introduced argument is interpreted as a *cause*, rather than strictly as an agent. This fact will be important below.²⁰

- (56) Ix-in-b’o-**j-i** h-u’uj.
 PFV-B1S-cure-PASS-IV A2S-RN.by
 ‘I was cured by you.’ (i.e. caused by you, as a result of you) (Buenrostro 2013: 207)

The *-x/-j* “passive” thus shares clear parallels with the agentive *-w*: both attach to more than one type of root, and neither permit the “demoted” argument to be reintroduced with an oblique phrase. While an oblique phrase is possible with the *-x/-j* forms, it is not the agent (cf. the *-chaj* passives above).

5.3. Towards an analysis

The antipassive and passive morphemes from above are repeated in (57), now with some analysis added.

²⁰We take example (56) directly from Buenrostro. Note that the root *b’o* means ‘make’ and ‘cure’; see e.g. (53c) above. For our primary consultant, the *-j* suffix in (56) derives the meaning ‘I was made by you’ (plausible in conversation with a supernatural entity), while the suffix *-x* is needed for the ‘cure’ reading. In both, the interpretation of the relational noun phrase remains the same, namely the introduced argument need not be the agent of the action. At least for this speaker, *-j* appears to be the more productive variant.

(57) CHUJ “VOICE” MORPHOLOGY

	Antipassives		Passives		<i>attaches to...</i>
a.	<i>-w</i>	“incorporation AP”	<i>-j/-x</i>	“imp. passive”	roots
b.	<i>-w-aj</i>	“absolute AP”	<i>-ch-aj</i>	“passive”	TV roots
c.	<i>-C-an</i>	“absolute AP”	<i>-C-aj</i>	“passive”	derived trans.

Specifically, I argue in this section that the *-waj* and *-chaj* forms discussed above, shown in row (b), are morphologically complex: both include a consonantal $v+\text{Voice}^0$ morpheme (*-w* and *-ch*), followed by the suffix *-aj*. Note that the antipassive and passive forms for derived transitives in row (c) are actually of a similar form. They include (by definition) some kind of derivational morphology before the suffix, represented by the “-C”s added here. Recall from the sections above that the derived transitives in row (c) behave similarly to the antipassive and passive forms in row (b) insofar as they allow oblique arguments. I focus on rows (a) and (b) below, setting a full treatment of derived transitives aside for future work (though see appendix A for a list of the suffixes which may occupy the -C position).

We begin with the impersonal passive and incorporation antipassive forms from row (57a). I propose that these are both Voice^0 heads which attach directly to a root. The “impersonal passive” *-j/-x* consists of a v^0 which may be likened to the *BECOME* head from lexical semantics literature (see e.g. Harley 2012 and references cited there), and a Voice^0 which does not introduce an external argument. The impersonal passive in (58a) is schematized in (58b). The root selects an internal argument (the subject); the root then undergoes head-movement up through the Voice^0 head to the head which hosts the status suffix. The subject is licensed by Infl^0 .

(58) IMPERSONAL PASSIVE

- (a) Tz-man-j-i s-k’apak-il.
 IPFV-buy-PASS-IV A3-clothes-NML
 ‘His cloth is bought.’
- (b) $[_{IP} \text{tz} \quad [_{SSP} -i \quad [_{v+\text{Voice}P} \text{-j} \quad [_{VP} \text{man} \quad \text{DP}_{subj}]]]]$
 $[_{IP} \text{Infl}^0 [_{SSP} \text{SS}^0 [_{v+\text{Voice}P} v+\text{Voice}^0 [_{VP} \text{ROOT} \text{DP}_{subj}]]]]$

In this structure, there is no external argument (i.e. no AGENT) at any level of representation, and it is thus unsurprising that an oblique phrase does not receive an agentive interpretation (compare (63)).

The incorporation antipassive—discussed in section 3.2 above—is shown in (59) for comparison. As seen above, the root in the incorporation antipassive combines with a bare NP internal argument. The $v+\text{Voice}^0$ head *-w* merges an external argument but does not assign ergative case; the external argument is instead licensed by Infl^0 . A full DP internal argument is impossible because there would be no head to license it. An oblique phrase crossreferencing the internal argument is similarly impossible because the argument slot has already been

filled by the incorporated object (see (49b)). As before, the root undergoes head movement to v^0 , forming the verb stem.

(59) INCORPORATION ANTIPASSIVE

- (a) Tz-man-w-i ixim ix ix.
 IPFV-buy-AP-IV corn CLF woman
 ‘The woman buys corn.’
- (b) $[IP\ tz\ [_{SSP}\ -i\ [_{v+VoiceP}\ DP_{subj}\ [_{v+Voice'}\ -w\ [_{VP}\ man\ NP\]]]]]$
 $[IP\ Infl^0\ [_{SSP}\ SS^0\ [_{v+VoiceP}\ DP_{subj}\ [_{v+Voice'}\ v+Voice^0\ [_{VP}\ ROOT\ NP\]]]]]$

We now turn to row (57b) from the table above: the absolutive antipassive and the (plain) passive. These both (i) allow the omitted arguments to be reintroduced by oblique phrases, and (ii) attach only to transitive roots. The recurrent appearance of *-aj*—along with the fact that the absolutive antipassive contains *-w*—is noteworthy. Recall that we first encountered *-aj* in section 2.3 above as a suffix which appeared on *derived intransitives*—that is, intransitive stems which contain more than just a CVC root. An example from above is repeated in (60a), where *-aj* is simply glossed ‘SUF’.²¹ In section 5.2 above, we also saw that *-aj* has been described as the passive for derived transitives, as in (60b).

- (60) (a) Ix-in-nup-n-aj-i.
 PFV-B1-marry-SUF-SUF-IV
 ‘I married.’ (i.e. got married)
- (b) Ix-el-k’-aj santo y-uj waj Xun.
 PFV-steal-SUF-PASS santo A3S-RN.by CLF Juan
 ‘The *santo* was stolen by Juan.’ (Buenrostro 2013: 204)

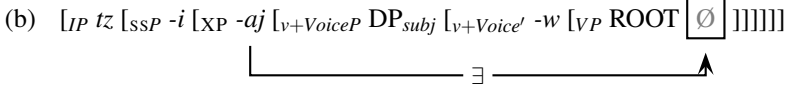
I propose that the passive *-chaj* and the antipassive *-waj* can be decomposed in a similar way: *-chaj* and *-waj*. In all of these “derived intransitive” forms we find the general form: [ROOT-C-*aj-i*]. Indeed, in his catalogue of stem-forming suffixes in Chuj, Hopkins (1967) lists neither a “passive” *-chaj* nor an “antipassive” *-waj*. Rather, *-ch* and *-w* receive their own (broad) entries, while the entry for *-aj* states: “derives intransitive verb stems from verb stems already derived in *-t*, *-ch*, *-k’*, *-m*, *-n*, *-w* and *-l’*” (Hopkins 1967: 88; see also appendix A).

I propose that in all of these contexts, the suffix *-aj* is associated with the *existential binding* of an unsaturated argument position (Diesing 1992, Chierchia 2004). We begin with the absolutive antipassive in (61a), which I propose has the structure in (61b).

²¹Hopkins (1967: 83) lists *-n* as a suffix which “derives verb stems from transitive verb roots, positional roots, and onomatopoeic roots.” Further work is required to determine how productive this suffix is.

(61) ABSOLUTIVE ANTIPASSIVE

- (a) Tz-in-man-w-aj-i.
 IPFV-B1S-buy-AP-DIV-IV
 ‘I buy (things).’

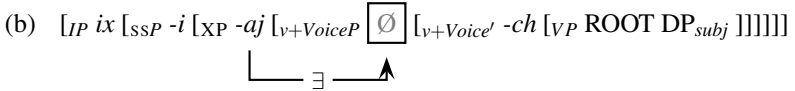


As above, *-w* merges directly with the root and introduces an external argument in its specifier position, not assigning it ergative case. In other words, the *-w* has a consistent function in both incorporation and absolutive antipassives. The difference between the two constructions lies in the nature of the *internal argument*: in the incorporation antipassive an internal argument is selected but—due to its deficient smaller-than-DP size—it is incorporated. Here in the *-waj* antipassive I propose that no argument is syntactically merged at all. This is where *-aj* comes in: it introduces the operation of *existential closure* of the omitted internal argument as part of its lexical entry (represented with ‘∃’ above).

An analogous story can be told for the *-chaj* passive in (62).

(62) PASSIVE

- (a) Ix-man-ch-aj[-i] ixim wa’il.
 PFV-buy-PASS-DIV-IV CLF tortilla
 ‘The tortillas were bought.’



The impersonal passive Voice⁰ head *-j/-x* above contains no representation of an external argument: the *BECOME* head does not semantically specify an agent, and no agent is merged syntactically. I propose, on the other hand, that *-ch* is *semantically* selects an agent, but does not syntactically merge an argument in its specifier position. This might be likened to the *CAUSE* head in lexical semantic literature. Here *-aj* represents the existential binding of the syntactically absent external argument position.

This analysis provides an immediate explanation for the contrast in the interpretations of oblique phrases seen between impersonal and *-chaj* passives, repeated in (63).

- (63) (a) Tz-b’o-**ch-aj** s-wa’el winh nhulej tik **h-u’uj**.
 IPFV-make-PASS-∃ A3S-food CLF brother DEM A2S-RN.by
 ‘The brother’s food is made by you.’
- (b) Ix-in-b’o-**j-i** **h-u’uj**.
 PFV-B1S-cure-SUF-IV A2S-RN.by
 ‘I was cured by you.’ (i.e. caused by you, as a result of you)
 (Buenrostro 2013: 207)

In the more complex *-chaj* passive in (63a), the introduced oblique is interpreted as the agent: this is because it can be semantically associated with the unsaturated agent slot bound by existential closure, as in (62b). The impersonal passive, on the other hand, never projects an agent, and a *CAUSE* reading arises for the oblique.

Analogously in the antipassive forms, an oblique prepositional phrase may adjoin as in the forms in (50) above, accessing the empty argument position in the *-waj* antipassive; the argument position is not empty in the incorporation antipassive forms, explaining the impossibility of an adjoined PP patient. This analysis makes a further correct prediction about the difference between the *-w* and *-waj* antipassive forms: while the internal argument may be omitted entirely in a *-waj* form (64a), this is impossible with incorporation antipassives (64b).

- (64) (a) Ix-in-man-w-aj-i.
 PFV-B I S-buy-AP- \exists -IV
 ‘I shopped.’
- (b) *? Ix-in-man-w-i.
 PFV-B I S-buy-AP-IV
 intended: ‘I shopped.’ / ‘I bought (something).’

The current analysis accounts for the impossibility of any type of omitted object in incorporation antipassive examples like (64b). A semantically bound null object would require the suffix *-aj*, as in (64a); a *pro*-dropped null object would be a full DP and thus ineligible for incorporation.

Finally, the last contrast we sought to explain is the fact that while the morphologically simplex forms in row (57a) above attach to a variety of roots, the *-waj* and *-chaj* forms in (57b) are restricted to transitive roots. Under this analysis there is no problem with the *-w* and *-ch* components of the complex suffixes attaching to different categories of roots. Indeed, under the proposal that the *-w* in *-waj* is the same head as above, it would be surprising if it showed different selectional requirements here. Rather, the difference is in whether or not *-aj* merges: the *-aj* suffix will only merge in the presence of an *unsaturated argument slot*. Crucially, we thus expect to find it only with semantically bivalent—“transitive”—forms.

6. SUMMARY AND CONCLUSIONS

Not all apparent voice morphology fits into a single category. While the description “antipassive” is in keeping with the fact that the suffix *-w* attaches to transitive roots and derives an intransitive stem, this label misses the bigger picture: *-w* attaches to a variety of semantically compatible roots (also nominal, positional, and at least one adjectival root). The resulting stem forms are all agentive intransitives with a single, absolutive-marked external argument.

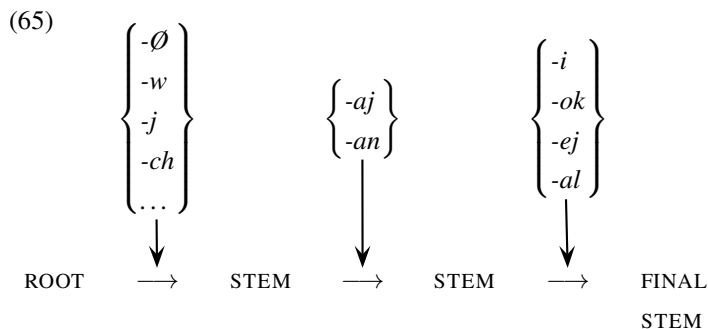
Rather than *altering* the valence of a root, we might then say that *-w specifies* the valence of a root. It does this in two ways: (i) it introduces the external argument (as in Kratzer 1996); (ii) it does not assign inherent ergative case to

the external argument. Since there is only a single licensing mechanism in these clauses (finite Infl^0), the fact that *-w* doesn't assign inherent case guarantees that a full (non-incorporated, case-requiring) internal argument is impossible.

This work fits in line with a larger body of literature which takes roots to be not completely specified for their structural properties—rather, this is determined during the syntactic derivation (see e.g. Halle and Marantz 1993, Arad 2003, Borer 2005, Lois and Vapnarsky 2006, Lois 2011; Harley, to appear, among many others). The ability for the transitive root to appear with an incorporated object lends support to proposals in which roots may combine with arguments (Harley to appear)

We next turned to a comparison with other “voice” morphology in Chuj. An important result from this section was that none of these “valence-reducing” morphemes actually *removes* arguments from the derivation (see Koontz-Garboden 2009 on the “Monotonicity Hypothesis”). Rather, variation was found in the selectional properties of certain heads, as well as variation in whether argument positions were left unsaturated. Chuj was shown to overtly express the existential binding of unsaturated argument slots.

The moral is then that for every “voice” morpheme, work is required to determine whether the morpheme attaches directly to the root, or to an already-derived stem (see Arad 2003 and Lois 2011). We find the picture in (65):



A Chuj root may appear with one of several “valence-specifying” suffixes, including antipassive *-w*, “impersonal passive” *-x/-j* (*BECOME*), or passive *-ch* (*CAUS*) (see also Hopkins 1967 for more, listed in appendix A). If unsaturated argument slots remain, *-aj* or *-an* suffixes appear, demarcating the domain of existential closure. Finally, other suffixes appear last, including certain status suffixes, the irrealis *-ok*, or nominalizing *-al* (see Coon and Carolan 2015 on nominalization in Chuj).

More work is required to understand the range of suffixes in Chuj, including the other voice morphemes identified by Buenrostro (2013), as well as the variety of stem-forming suffixes catalogued in Hopkins 1967. Appendix A provides a fuller summary of some of the other suffixes in the language, along with example sentences.

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A. ROOT CONSONANTS

(66) CVC-C

-C	attaches to	forms	further possibilities
-w	TV, POS, N	intransitive stem (unerg)	-i
-x	TV, POS	intransitive stem (pass)	-i
-j	TV	intransitive stem (pass)	-i
-k'	POS, ADJ	stem	-aj-i
-n	TV, POS	stem	-aj-i, -ax-i
-ch	TV	stem	-it-ej; -aj-i
-m	TV	stem	-it-ej; -aj-i
-l	TV	stem	-it-ej; -aj-i
-tz	IV, POS	stem	-it-ej; -aj-i

- (67) (a) Ix-ach-tel-**w**-i.
PFV-B2S-lying-AG-IV
'You fell.'
- (b) Ix-in-jal-**x**-i.
PFV-B1S-tie-PASS-IV
'I was tied up.' (Domingo Pascual 2007: 181)
- (c) S-k'apak-il chi' tz-man-**j**-i.
A3S-cloth-NML DEM IPFV-buy-SUF-IV
'It's his cloth that one buys.' (Buenrostro 2013: 206)
- (d) Tz-onh-lach'-**k'**-aj-i.
IPFV-B1P-flat-SUF-DIV-IV
'We are flattened out.' (Hopkins 2012: 172)
- (e) Tz-in-nup-**n**-aj-i.
IPFV-B1S-marry-SUF-DIV-I
'I get married.' (Hopkins 2012: 214)
- (f) Ix-in-nhik'-**ch**-it-ej hu'um.
PFV-A1S-tear-PLUR-SUF-DTV paper
'I tore up paper by successively ripping it.' (Hopkins 2012: 220)
- (g) Niwan ixim wa'il tz-mol-**ch**-aj-i.
many CLF tortilla IPFV-gather-PASS-DIV-IV
'Many tortillas are gathered.' (Buenrostro 2013: 202)
- (h) Ix-k'ex-**m**-aj-i.
PFV-change-SUF-DIV-IV
'It's been changed.' (Hopkins 2012: 155)
- (i) S-tz'ey-**l**-aj-i hin-k'ab'.
IPFV-turn.on.side-SUF-DIV-IV A1S-hand
'My hand turns sideways.' (Hopkins 2012: 363)

- (j) Tz-in-mel-**tz**-it-ej.
IPFV-B1S-small.round-PLUR-SUF-DTV
'I turn it around.'

(Hopkins 2012: 197)

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