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Parameterizing split ergativity in Mayan

Yusuke Imanishi

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Abstract The purpose of this paper is to explain the variation of Case alignment in the accusative side of the ergative split of Kaqchikel, Chol and Q'anjob'al (Mayan). In particular, I will address contrastive alignments found in their accusative side. In the accusative side of Kaqchikel, the intransitive subject and the transitive subject alike are cross-referenced by the *absolutive* morpheme (also known as the *set B marker* in Mayan linguistics). On the other hand, the object of a transitive verb is cross-referenced by the *ergative* morpheme (or the *set A marker*). In the accusative side of Chol and Q'anjob'al, by contrast, both the intransitive subject and the transitive subject are cross-referenced by the set A marker, while the set B marker cross-references the transitive object. This contrast is unexpected, given that these languages have a (nearly) identical biclausal structure for their accusative side, as I will claim building on Laka (2006) and Coon (2010a, 2013a): the aspectual predicate forms a biclausal structure with a nominalized clause. I will argue that the contrastive alignments found in Kaqchikel, Chol and Q'anjob'al follow from a parametric difference regarding the nominalization involved in the accusative side of these languages. It will be proposed that the *Restriction on Nominalization* (RON) holds for Kaqchikel, whereas it does not apply to Chol and Q'anjob'al: the nominalized verb must lack a syntactically projected external argument. The RON will be developed, based on a similar observation made for nominalizations in Greek and some Indo-European languages among others (Alexiadou 2001). As will be demonstrated, the presence or absence of the RON and the type of alignment patterns in the accusative side of the ergative split are causally connected.

Keywords split ergativity; nominalization; Case; parameter; comparative syntax

1 Introduction

In this paper, I will address a puzzle about the alignment between Case and grammatical relations in Mayan languages. Mayan languages display a prototypical ergative alignment through head-marking: both the intransitive subject and the transitive object are cross-referenced by the absolutive agreement morpheme, whereas the transitive subject is cross-referenced by the ergative agreement morpheme. As in other ergative languages, many Mayan languages exhibit aspect-based split ergativity: in perfective aspect, they show an ergative alignment, whereas they display an accusative alignment pattern in non-perfective aspect.

I will focus on alignments in the accusative side of the ergative split of Kaqchikel, Chol and Q'anjob'al. As shown by the accusative alignment pattern of Kaqchikel in (1), the intransitive subject and the transitive subject alike are cross-referenced by the *absolutive* morpheme (also known as the *set B marker* in Mayan linguistics) on the progressive

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Kwansei Gakuin University: imanishi@alum.mit.edu

predicate *ajin*.[1] On the other hand, the object of a transitive verb is cross-referenced by the *ergative* morpheme (or the *set A marker*).

Kaqchikel

(1) a. y-**in**-ajin che [***ki***-k'ul-ïk ak'wal-a'].
Ipfv-B1Sg-Prog Prep A3Pl-meet-Nmlz child-Pl
'I am meeting children.'
b. y-**in**-ajin che [atin-ïk].
Ipfv-B1Sg-Prog Prep bathe-Nmlz
'I am bathing.'

In contrast, other ergative split languages within Mayan such as Chol and Q'anjob'al display a very different alignment pattern in their accusative side. The examples from Chol and Q'anjob'al in (2) and (3) show that both the intransitive subject and the transitive subject are cross-referenced by the set A marker, while the set B marker cross-references the transitive object.

Chol

(2) a. Choñkol-ø [**i**-jats'-**oñ**].
Prog-B3Sg A3Sg-hit-B1Sg
'She's hitting me.'
b. Choñkol-ø [**i**-majl-el].
Prog-B3Sg A3Sg-go-Nmlz
'She's going.'

(Coon 2013a, :11)

Q'anjob'al

(3) a. lanan-ø [**hach** **w**-il-on-i].
Prog-B3Sg B2Sg A1Sg-see-Dm-Intr
'I am seeing you'
b. lanan-ø [**ha**-way-i].
Prog-B3Sg A2Sg-sleep-Intr
'You are sleeping.'

(Mateo Pedro 2009)

The Chol/Q'anjob'al-type alignment pattern of the split side has been the subject of several prominent investigations (Larsen and Norman 1979; Larsen 1981; Bricker 1981; Mateo Pedro 2009; Coon 2010a, 2013a,b, etc.). By contrast, the Kaqchikel-type alignment of the split side has received little attention (see England 1983b for relevant discussion). The contrastive alignment patterns in these three languages are summarized as the *alignment puzzle in Mayan*.

The Alignment Puzzle in the Nom-Acc patterns of Mayan

(4) Kaqchikel-type

	S	O
Intransitive	Abs	-
Transitive	Abs	Erg/Gen

(5) Chol/Q'anjob'al-type

	S	O
Intransitive	Erg/Gen	-
Transitive	Erg/Gen	Abs

[1] The following abbreviations will be used, based on the Leipzig glossing rules (some glosses are added): 1 = first person; 2 = second person; 3 = third person; A = set A (ergative/genitive) marker; AF = Agent Focus (morpheme); ANTIP = antipassive morpheme; B = set B (absolutive) marker; CAUS = causative suffix; CL = proper name clitic; DET = determiner; DM = dependent marker; INDF = indefinite article; INTR = intransitive status suffix; IPFV = imperfective aspect; NEG = negation; NMLZ = nominalizing suffix; PASS = passive (morpheme); PL = plural (suffix); PREP = preposition; PROG = progressive aspect; PFV = perfective aspect; RN = relational noun; RTV = root transitive status suffix; SG = singular ; TR = transitive status suffix.

As I will claim building on Laka (2006) and Coon (2010a, 2013a), these languages have a (nearly) identical biclausal structure for their accusative side. In particular, it will be shown that all of the bracketed forms in the above examples are nominalized clauses. The ergative in the examples could then be taken as genitive. Given that ergative is homophonous with genitive across Mayan, the alignment of all subjects with ergative/genitive in Chol/Q'anjob'al receives a natural account, as discussed by Coon (2010a, 2013a). For example, the sentence in (2-b) can be translated as "*Her* going is taking place" if the verb is a nominalized form with the genitive, just like gerunds in English. However, the equation of ergative with genitive alone does not explain the contrastive alignments between Kaqchikel and Chol/Q'anjob'al. In particular, it is not immediately clear why the ergative/genitive is aligned with the transitive object, not with the subject, in Kaqchikel.

The purpose of this paper is to explain the variation of Case alignment in the accusative side of the ergative split of Kaqchikel, Chol and Q'anjob'al. I will argue that the contrastive alignment patterns follow from a parametric difference between Kaqchikel and Chol/Q'anjob'al. To be precise, I will propose that the *Restriction on Nominalization* (RON) holds for Kaqchikel, whereas it does not apply to Chol and Q'anjob'al: the nominalized verb must lack a syntactically projected external argument. The RON is developed, based on a similar observation made for nominalizations in Greek and some Indo-European languages among others (Alexiadou 2001). Under this analysis, the object receives genitive Case in progressive sentences of Kaqchikel because it is the only nominal in the nominalized clause. The subject must appear outside the nominalized clause and receives absolutive Case in the matrix clause. By contrast, subjects receive genitive Case in Chol and Q'anjonb'al since they may appear inside the nominalized clause and are the structurally closest nominal to a genitive Case assigner. The object receives absolutive Case inside the verbal domain contained in the nominalized clause. Therefore, the presence or absence of the RON and the type of alignment patterns in the accusative side of the ergative split are causally connected.

The paper is organized as follows. In §2, I will present an overview of split ergativity and discuss nominalizations found in the accusative side of Kaqchikel, Chol and Q'anjob'al. In §3, I will provide an account of the alignment puzzle. §4 concludes the paper.

2 Split ergativity and nominalization

2.1 Some basics of Mayan

The Mayan languages are a large language family spoken throughout Mesoamerica. The language family consists of about thirty languages. While there is dispute over subgrouping (Campbell and Kaufman 1985), Mayan languages are typically divided into five groups according to Campbell and Kaufman (1985).

In this paper, I will discuss Kaqchikel, Q'anjob'al and Chol. Kaqchikel is a member of the K'ichean branch of Mayan languages, spoken in the central highlands of Guatemala by about half a million people (England 2003; Maxwell and Hill 2006). Unless otherwise noted, the data of Kaqchikel in the paper come from my fieldwork on the Patzún dialect spoken in the Chimaltenango department of Guatemala (see Brown et al. 2006 and García Matzar and Rodríguez Guaján 1997, for example, for detailed grammatical descriptions of (other dialects of) Kaqchikel).

Q'anjob'al belongs to a member of the Q'anjob'alan branch, spoken in the western highlands of Guatemala by about 100,000 speakers (Mateo Toledo 2008). I will cite Q'anjob'al data mostly from Mateo-Toledo's work (Mateo Toledo 2003, 2008) and Mateo-Pedro's work (Mateo Pedro 2009, etc.). Data in these works come from Santa Eulalia in the Huehuetenango department of Guatemala.

Chol, a member of the Cholan branch, is spoken in Chiapas, Mexico by about 150,000 people (Coon 2010a; Vázquez Álvarez 2011). Most of the Chol examples cited in the paper are drawn from Coon's work (Coon 2010a, 2013a), which studies the Tila dialect.

Mayan languages are head-marking ergative languages in the sense of Nichols (1986). Grammatical relations are cross-referenced, with ergative alignment, by agreement morphemes that appear on the predicate. The ergative and absolutive morphemes are called *set A* and *set B* markers, respectively, in Mayan linguistics. As a family trait of Mayan languages, ergative and genitive are homophonous. Set A markers cross-reference transitive subjects and possessors, whereas set B markers cross-reference intransitive subjects and transitive objects. All pronominal arguments in Mayan languages, including subjects, objects and possessors, may be pro-dropped. Mayan languages have prevocalic and preconsonantal allomorphs of ergative (set A) morphemes and some absolutive (set B) morphemes. In what follows, I will use set A markers for ergative and genitive morphemes, and set B markers for absolutive morphemes.

The examples given in (6), (7) and (8) illustrate intransitive and transitive sentences of Kaqchikel, Q'anjob'al and Chol.

(6) KAQCHIKEL

a. yïn x-**e**-**in**-tz'ët rje'.
I PFV-B3PL-A1SG-see they
'I saw them.'

b. rje' x-**e**-wär
they PFV-B3PL-sleep
'They slept.'

(7) Q'ANJOB'AL

a. max-**ach** **w**-il-a'
PFV-B2SG A1SG-see-RTV
'I saw you.'

b. max-**ach** way-i
PFV-B2SG sleep-INTR
'You slept.'

(Mateo Pedro 2009)

(8) CHOL

a. Tyi **a**-k'el-e-**yoñ**
PFV A2SG-watch-TR-B1SG
'You watched me.'

b. Tyi ts'äm-i-**yoñ**
PFV bathe-INTR-B1SG
'I bathed.'

(Coon 2010a, : 48)

The word order of most Mayan languages is predicate-initial in pragmatically neutral contexts (England 1991; Aissen 1992). In declarative clauses, grammatically encoded arguments follow predicates. The basic word order of sentences in Chol is V(O)S, although all six possible word orders of subject, object, and verb are attested in marked contexts such as topic and focus constructions (see Coon 2010a,b for detailed discussion). The pragmatically neutral word order in Q'anjob'al is VS(O) (see Mateo Toledo 2008, Mateo Pedro 2010 and the references cited therein for discussion on other possible word orders in Q'anjob'al). Unlike Chol and Q'anjob'al, the variety of Kaqchikel mainly discussed in this paper (= the Patzún dialect) displays SV(O) order in discourse-neutral sentences.[2] [3] Other dialects of Kaqchikel exhibit V(O)S order in pragmatically neutral clauses (e.g., García Matzar and Rodríguez Guaján 1997; Patal Majtzul 2007, cf. England 1991). Despite the interesting nature of word order variation in Mayan languages, I will not attempt to provide an analysis for it in this paper (see Clemens and Polinsky 2017 for a recent overview of analyses of word order in Mayan and Austronesian languages).

2.2 Overview of split ergativity

As often noted, it is rare that ergative languages are consistently "ergative" throughout grammar (Anderson 1976; Comrie 1978; Moravcsik 1978). Many ergative languages display *split ergativity*. In other words, a language exhibits an ergative-absolutive alignment system in one portion of the grammar, and a nominative-accusative (or "non-ergative") alignment system in another (Silverstein 1976; Comrie 1978; Dixon 1979, 1994; Tsunoda 1981; Salanova 2007; Coon 2013b, etc.).[4] The ergative split is conditioned mainly by four factors as shown in (9).

(9) COMMON TYPES OF SPLIT ERGATIVITY (Dixon 1979, 1994; Tsunoda 1981)

a. Tense, aspect, mood (TAM) splits
b. NP splits (or person splits)
c. Verb splits
d. Clause type splits

[2] As England (1991) writes, "Kaqchikel is the language of the K'ichean branch that is perhaps the most insistent on SVO order today" (England 1991, : 472).

[3] Clemens (2013) finds that verb-initial word order (with rising intonation) in simple sentences is understood as a polar question. Clemens also observes that the Patzún dialect of Kaqchikel allows VOS order as well as SVO order for transitive sentences in embedded contexts.

[4] Conventionally, split ergativity is discussed for morphologically ergative languages rather than syntactically ergative languages, as Coon (2013b) correctly puts. We will follow this convention and focus on morphological (split) ergativity.

Some languages can involve combination of two or three types of the ergative splits in (9). The main focus of this paper is the first type: TAM splits (see Coon 2013b for an overview of each type of split ergativity).

The TAM ergative split system is conditioned by tense, aspect or mood of a sentence. A number of ergative languages around the world display TAM splits. These include Hindi/Kurmanji/Punjabi (Indo-Aryan), Basque, Tongan, Samoan, Georgian (Kartvelian), Warrungu and Adyghe (Caucasian) etc. (Tsunoda 1981, and references cited therein) and many Mayan languages (see below). As Salanova (2007) and Coon (2013b) point out, the splits characterized as TAM splits can be reduced to aspectually conditioned splits. This is largely because the distinction between tense and aspect is blurred in many cases. Moreover, the conclusion reached in Salanova (2007) is suggestive: "in no case known to us are splits based unequivocally on tense (i.e., situating the proposition with respect to utterance time) or mood" (Salanova 2007, 47; see also Coon 2013b for more detailed discussion).

Let us now consider ergative splits in Mayan. As mentioned above, a number of Mayan languages display aspect-based split ergativity (Lengyel 1978; Larsen and Norman 1979; Larsen 1981; Bricker 1981; England 1983b,a; Yasugi 1995; Mateo Pedro 2009, 2011; Coon 2010a, 2013a, among others). A word is in order regarding terms for aspectual oppositions in the languages we discuss. Following Coon (2010a, 2013a) (and slightly departing from Comrie 1976), I will use the opposition between *perfective* and *non-perfective* for the often-used opposition between *perfective* and *imperfective* (Comrie 1976). In other words, non-perfective in our terms corresponds to *imperfective* in Comrie's system. Non-perfective aspect is further divided into *imperfective* and *progressive*. The range of interpretations encompassed by imperfective aspect differs, depending on the language. In Kaqchikel and Q'anjob'al, the imperfective denotes both habitual and progressive meanings (Brown et al. 2006; Mateo Toledo 2008), as shown in Table 1.[5] Both languages also have dedicated progressive markers: *ajin* in Kaqchikel and *lanan* in Q'anjob'al.

Table 1 Aspectual oppositions in Kaqchikel and Q'anjob'al

	Perfective	Non-perfective	
		Imperfective (habitual, progressive)	Progressive
Kaqchikel	*x-*	*y/n-*	*ajin*
Q'anjob'al	*max-*	*ch(i)-*	*lanan*

In contrast, the imperfective in Chol expresses habitual and continuous nonprogressive readings, excluding the progressive (Coon 2010a, 2013a), as illustrated in Table 2 (see the references for discussion of aspectual markers in Chol).

Table 2 Aspectual oppositions in Chol

Perfective	Non-perfective	
	Imperfective (habitual, continuous nonprogressive)	Progressive
tyi/ tsa`	*mi/muk'*	*choñkol*

With this background, one can state the following tendency of split ergativity in Mayan languages and other ergative languages (Dixon 1994; Coon 2013b, etc.): it is likely that the ergative system is observed in the left side of the directionality scale below, while the non-ergative system is on the right side of the scale.

(10) perfective ≫ imperfective ≫ progressive

In perfective aspect, they exhibit an ergative pattern, whereas they display a non-ergative pattern and particularly an accusative pattern in non-perfective aspect (= imperfective aspect and/or progressive aspect). The examples for the accusative side of the ergative split in Kaqchikel, Chol and Q'anjob'al were shown earlier in section 1: (1), (2) and (3).

Although the splits in these languages correlate with the opposition between perfective and non-perfective aspects, there is a difference between Chol and Kaqchikel/Q'anjob'al regarding where aspect-based ergative splits arise (see Law et al. (2006) for diachronic discussion of the aspectual opposition in light of split ergativity in Mayan). Chol sets a cut-off point between the perfective and the imperfective/progressive (= non-pefective) in the scale of (10). In other words, Chol displays an accusative pattern in both the imperfective (i.e., habitual and continuous non-progressive readings) as seen in (11) and the progressive in (2), but remains ergative in the perfective.

[5] The alternation between *y-* and *n-* in Kaqchikel is governed by the presence or absence of an overt set B marker. The imperfective marker *n-* is used when a null set B marker (= ø) appears: i.e., when the morpheme cross-references third person singular. The imperfective marker *y-* is used elsewhere.

NOM-ACC PATTERN IN CHOL (= IMPERFECTIVE)

(11) a. Mi [**i**-k'el-**oñ** jiñi x-ʔixik].
IPFV A3SG-watch-B1SG DET CL-woman
'The woman watches me.'
b. Mi [**i**-ts'ăm-el jiñi x-ʔixik].
IPFV A3SG-bathe-NMLZ DET CL-woman
'The woman bathes.'

(Coon 2010a, :54)

By contrast, Kaqchikel and Q'anjob'al set a cut-off point between the perfective/imperfective and the progressive: the accusative pattern arises when progressive sentences are formed with the aspectual predicates *ajin* (= Kaqchikel) and *lanan* (= Q'anjob'al) and when these predicates appear with a nominalized verb (see also footnote 6 for relevant discussion).

While Kaqchikel and Chol/Q'anjob'al differ in how set A and B markers are aligned with grammatical relations in non-perfective sentences (i.e., the alignment puzzle), all of these languages display a nominative-accusative alignment pattern: all subjects are cross-referenced by the same morpheme, while the transitive object is cross-referenced by a different morpheme. The type of alignments found in the nominative-accusative side of Chol and Q'anjob'al has been the focus of much work on split ergativity, and particularly has been called *extended-ergative* (Dixon 1979, 1994) in the sense that the ergative (or set A marker), which is normally limited to the transitive subject (and the possessor), extends to the intransitive subject (see the references above). In contrast, much less attention has been paid to the Kaqchikel-type alignment in which the ergative is limited to the transitive object. The split becomes obvious in intransitive sentences of Chol and Q'anjob'al, whereas it is visible in transitive sentences of Kaqchikel.

2.3 A biclausal analysis

We observed that many of the ergative splits found in Mayan languages are conditioned by aspect. Kaqchikel, Chol and Q'anjob'al, our targeted languages, fall into this category. I will suggest below that the structure of the nominative-accusative system in these languages is biclausal, as proposed for Chol by Coon (2010a, 2013a), who in turn builds on a biclausal analysis like that of the ergative split in Basque (Laka 2006). As will be argued, therefore, the split found in the Mayan languages discussed in the paper results from structural differences associated with aspect, as suggested by Coon.

Recent studies have suggested that the nominative-accusative (or non-ergative) system of the split most often involves a biclausal structure. Laka (2006) provides such an analysis for Basque, an ergative language. Basque shows a non-ergative alignment pattern in progressive sentences. Example (12) illustrates a canonical ergative sentence of Basque, whereas example (13) is a progressive sentence with a non-ergative alignment.

BASQUE

(12) emakume-a-k ogi-ak ja-n d-it-u.
woman-DET-ERG bread-DET.PL eat-PFV 3ABS-PL-have3ERG
'The woman has eaten (the) breads.'

(Laka 2006, :177)

(13) emakume-a ogi-a ja-te-n ari da.
woman-DET bread-DET eat-NMLZ-LOC engaged is
'The woman is (engaged in) eating the bread.'

(Laka 2006, :174)

Laka (2006) argues that the matrix verb *ari* 'to be engaged' in (13) acts as a main predicate: *ari* takes a locative PP (headed by *-n*) as its complement, which in turn subcategorizes for a nominalized clause. The sentence like (13) is thus taken as forming a biclausal structure.

Developing Laka's analysis of the ergative split in Basque, Coon (2010a, 2013a) proposes that the nominative-accusative system of the ergative split in Chol also contains two clauses. Under her analysis, non-perfective sentences such as (14) consist of a main predicate and a nominalized clause. The bracketed forms below are nominalized clauses. The non-perfective aspectual marker *choñkol*, she claims, takes as its complement a nominalized clause.

(14) a. Choñkol-ø [**i**-jats'-**oñ**].
PROG-B3SG A3SG-hit-B1SG
'She's hitting me.'
b. Choñkol-ø [**i**-majl-el].
PROG-B3SG A3SG-go-NMLZ
'She's going.'

(Coon 2013a, :11)

Coon analyzes the aspectual marker as a one-place predicate (=unaccusative verb) and suggests that it agrees with its complement (i.e., a nominalized verb) and assigns absolutive Case to it. Given that a set B marker for third person singular is null across Mayan, the aspectual marker can be analyzed as bearing a null set B marker (= ø) — a nominalized clause is always third person singular.

All subjects in the nominative-accusative system of the split in Chol as in (14) receive genitive Case because they are structurally *possessors* within nominalized verbs — ergative is homophonous with genitive in Mayan languages. Under Coon's analysis, the split between perfective clauses and non-perfective clauses is simply *structural*, and thus need not call for a special rule to explain the different alignments of grammatical relations in the ergative system and the accusative system. In other words, throughout the grammar of Chol, intransitive subjects and transitive objects are assigned absolutive (= set B), while transitive subjects and possessors receive ergative/possessor (= set A). The structural difference comes about when non-perfective clauses are expressed by the aspectual predicate *choñkol*, which embeds a nominalized form (see below for more details about Chol).

We will adopt the Laka/Coon-style biclausal analysis for the nominative-accusative side of ergative splits in other Mayan languages. The structure we will argue for is given in (15), setting aside a preposition found in the accusative pattern of Kaqchikel for now: *Asp* stands for an aspectual predicate, while NMLZ refers to nominalization (see also Larsen and Norman 1979; Bricker 1981; Larsen 1981; Law et al. 2006; Mateo Pedro 2009, for an precursor of this analysis).

Biclausal structure of non-perfective clauses in Mayan

(15) [Asp ... [$v\text{P}_{NMLZ}$]]

We will thus take it that the split found in the Mayan languages discussed in the paper results simply from structural differences associated with aspect, as suggested by Coon. This raises an important question of why the alignment puzzle arises although Kaqchikel and Chol/Q'anjob'al make use of an (almost) identical biclausal structure for their accusative side. This will be addressed in §3. In the next subsection, I will discuss nominalizations found in the accusative side of Kaqchikel.

2.4 Nominalization: Kaqchikel

In this subsection, I will present arguments for the claim that embedded clauses in the structure of (15) behave on a par with nominals. In particular, I will provide a detailed analysis of Kaqchikel nominalized verbs found in progressive sentences and embedded clauses triggering an ergative split. Although some grammars of Kaqchikel have reported the existence of nominalized forms in the language (e.g., García Matzar 2007), little attention has been paid to the actual nominal properties of these forms from a syntactic point of view. In contrast, Chol and Q'anjob'al have been the subject of recent studies on nominalization and split ergativity: particularly Coon (2010a, 2013a) discuss many pieces of evidence that aspectless clauses found in the nominative-accusative side of Chol and Q'anjob'al are embedded nominalizations (see also Mateo Toledo 2003 and Mateo Pedro 2009 for discussion on Q'anjob'al nominalizations). I will thus follow these studies without further argument in that embedded clauses of Chol and Q'anjob'al as illustrated in (15) are nominalized clauses.

I will demonstrate below that aspectless (= non-finite) clauses found in the nominative-accusative side of the ergative split in Kaqchikel involve nominalized verbs.[6] In particular, nominalized verbs formed with *-ik* and *-oj* as shown below

[6] Although not only non-finite clauses but finite clauses may appear with the progressive marker *ajin* (and the embedding verb *chäp* 'begin'), we will focus on the variant with nominalized non-finite clauses throughout the paper. The finite clause occurring with *ajin* and *chäp* displays a regular ergative alignment, as shown below: the bracketed form is a finite clause.

(i) y-in-ajin [y-e-n-k'ul ak'wal-a].
IPFV-B1SG-PROG IPFV-B3PL-A1SG-meet child-PL
'I am meeting children.'

will be discussed.[7] One of the salient differences between the two nominalizing suffixes is that the set A marker can be prefixed to the nominalized verb formed with *-ïk*, whereas it cannot be attached to the nominalized form with *-oj*.[8] We will discuss more differences between the two forms in §3.3.2.

(16) y-in-ajin che [ki-k'ul-**ïk** ak'wal-a'].
IPFV-B1SG-PROG PREP A3PL-meet-NMLZ child-PL
'I am meeting children.'

(17) röj y-oj-ajin che [choy-**oj** che'].
we IPFV-B1PL-PROG PREP cut-NMLZ tree
'We are cutting trees.'

We will also show that nominalized verbs in the language display verbal properties, suggesting that they are mixed categories of nouns and verbs, whose existence has been pointed out by many authors such as Chomsky (1970), Abney (1987), Grimshaw (1990), Borsley and Kornfilt (2000), Alexiadou (2001), Carnie (2011) among many others for a wide variety of languages.

2.4.1 Nominal properties

Nominalized verbs generally obtain nominal properties. For instance, derived nominals in English such as *destruction* can be preceded by the determiner *the* or the possessive *John's* in parallel with regular nouns like *car*. Turning to Kaqchikel, nominalized verbs formed with *-ïk* and *-oj* exhibit a number of nominal behaviors.

First, they can be preceded by the determiner *ri*, as shown in (18) and (19): the determiner is optional for nominalized verbs and does not appear to yield a semantic difference for them. The determiner *ri* precedes a noun, as shown in (20).

(18) **ri** ru-choy-**ïk** ri che' pa wo'o' ch'uti ramaj k'ayew
DET A3SG-cut-NMLZ DET tree PREP five minute difficult
'The cutting of the tree(s) in five minutes is difficult.'

(19) **ri** choy-**oj** che' pa wo'o' ch'uti ramaj k'ayew
DET cut-NMLZ tree PREP five minute difficult
'The cutting of trees in five minutes is difficult.'

(20) Chekonojel x-e-ki-q'ete-j **ri** ak'wal-a'.
everyone PFV-B3PL-A3PL-hug-TR DET child-PL
'Everyone hugged the children.'

As shown by (21), the determiner cannot precede the finite verb.[9]

(21) *__ri__ x-ø-in-choy che' pa wo'o' ch'uti ramaj.
DET PFV-B3SG-A1SG-cut trees PREP five minute
'(intended) I cut trees in five minutes. '

Second, nominalized verbs can be preceded by modifiers such as numeral quantifiers as seen in (22) and (23), in parallel with the regular noun in (24).

(22) **k'iy** ru-choy-**ïk** che' y-a-r-kosir-saj
lots.of A3SG-cut-NMLZ tree IPFV-B2SG-A3SG-tire-CAUS
'Lots of cutting trees make you tired.'

This further suggests that split ergativity in Kaqchikel results from structural differences associated with aspect. A particular restriction on nominalization that I will propose in §3 only applies to non-finite clauses, as they undergo nominalization. I thank an anonymous reviewer for the clarification.

[7] All transitive verbs can be suffixed by *-ïk*, whereas intransitive verbs only in certain dialects can be nominalized with *-ïk* (Brown et al. 2006): it appears that only a subgroup of intransitive verbs can be suffixed by it even in these dialects. The intransitives that resist *-ïk* appear to be suffixed by *Vn*, though further research is necessary on this (see Imanishi and Mateo Pedro 2013 for relevant discussion). The other nominalizing suffix *-oj* may be suffixed to both transitive and intransitive verbs.

[8] We will observe below that some nominalized forms with *-ïk* does not bear the set A marker.

[9] The use of *ri*, which appears before the finite verb as seen in (25) and (64), is arguably a complementizer or relativizer (see also Brown et al. 2006 and Erlewine 2015).

(23) **k'iy** choy-**oj** che' y-a-r-kosir-saj
lots.of cut-NMLZ tree IPFV-B2SG-A3SG-tire-CAUS
'Lots of cutting trees make you tired.'

(24) **k'iy** che' x-e-tzaq
lots.of tree PFV-B3PL-fall
'Lots of trees fell.'

Other types of modifiers such as adjectives can modify nominalized verbs, as seen in (25): e.g., *peligroso* from Spanish.[10] The same adjective modifies regular nouns as in (26).

(25) ri y-a-tiker n-ø-a-b'än **peligroso** choy-**oj**/(??ru-)choy-**ïk** che' k'ayew.
DET IPFV-B2SG-can IPFV-B3SG-A2SG-do dangerous cut-NMLZ/(A3SG-)cut-NMLZ tree difficult
'That you can do dangerous cutting trees is difficult.'

(26) **peligroso** samaj
dangerous work
'dangerous work'

Third, prepositions can embed nominalized verbs formed with *-ïk* and *-oj*. This is shown by (27) and (28) with *pa* (= an all-purpose preposition). Regular nouns can be embedded under the preposition as in (29).

(27) rja' x-ø-b'e **pa** ru-choy-**ïk** awän.
he PFV-B3SG-go PREP A3SG-cut-NMLZ corn.plant
'He went to cut corn.'

(28) rja' x-ø-b'e **pa** choy-**oj** awän.
he PFV-B3SG-go PREP cut-NMLZ corn.plant
'He went to cut corn.'

(29) x-a-loq'-on **pa** tortilleria.
PFV-B2SG-shop-ANTIP PREP tortilla.store
'You shopped at the/a tortilla store.'

As seen in (30), the preposition cannot embed the finite verb phrase (= *x-ø-in-choy awen*).

(30) *x-i-b'e **pa** x-ø-in-choy awän.
PFV-B1SG-go PREP PFV-B3SG-A1SG-cut corn.plant
'(intended) I went to cut corn.'

Other prepositions which combine with functional elements called *relational nouns* in the Mayan literature can also precede nominalized verbs. Relational nouns behave like inflected prepositions (see García Matzar and Rodríguez Guaján 1997 and Patal Majtzul 2007 for details about relational nouns in Kaqchikel). For instance, the relational noun *-e* is preceded by the preposition *chi*. When *-e* takes a third person singular object as its complement, it bears the set A marker cross-referencing the object, giving rise to *r-e*. When *r-e* combines with *chi*, *chi* + *re* is contracted to *che*. This form results from the deletion of the vowel of *chi* and the initial consonant of *r-e* as part of grammaticalization, according to England (2003). Given that Kaqchikel is a *pro*-drop language, the form in (31) can be taken as involving the dropping of the third-person object pronoun *rje'* '(s)he/it'.

(31) che
to.him/her/it
'to him/her/it'

(England 2003, :737)

Other contracted forms of *chi* occurring with the relational noun *-e*, which inflects for first person singular (= *w-e*) and second person singular (= *aw-e*), are given below.

(32) a. chi + **w**-e → chwe 'to me'
b. chi + **aw**-e → chawe 'to you(sg.)'

(England 2003, :737)

[10] For reasons unknown to me, the nominalized form with *-ïk* is degraded with the set A marker (i.e., *ru-*) in (25).

As we have seen elsewhere, nominalized verbs formed with *-ïk* and *-oj* are embedded by the grammaticalized form of *chi + r-e* in progressive sentences. The relevant examples are repeated below. Since the nominalized clause is always third person singular, the form of the preposition (i.e., *che*) receives a natural account.

(33) a. röj y-oj-ajin **che** [choy-oj che'].
we IPFV-B1PL-PROG PREP cut-NMLZ tree
'We are cutting trees.'
b. röj y-oj-ajin **che** [ru-choy-ïk che'].
we IPFV-B1PL-PROG PREP A3SG-cut-NMLZ tree
'We are cutting tree(s).'

Another piece of evidence for the nominal status of nominalized verbs comes from their compatibility with the occupational prefix *aj-*. The prefix *aj-* is attached to a noun root, denoting the occupational title of the noun. For example, noun roots like *tz'ib'* "letter/writing" and *q'ij* "sun/day" denote a writer and a daykeeper/a Mayan ritual specialist, respectively, when these nouns are prefixed by *aj-*. This is shown below.

(34) **aj**-tz'ib'
AJ-letter/writing
'a writer'

(35) **aj**-q'ij
AJ-sun/day
'a daykeeper or a Mayan ritual specialist'

(Brown et al. 2006, :152)

The nominalized form with *-oj* can also be prefixed by *aj-*, referring to someone who performs the act denoted by the nominalized verb as an occupation, just like the agentive nominalizer *-er* in English (e.g., *tree cutter*). This can be demonstrated by *choy-oj che'* "cutting trees". When this nominalized form is prefixed by *aj*, it denotes someone who cuts trees or a tree-cutter.

(36) **aj**-choy-**oj** che'
AJ-cut-NMLZ tree
'tree-cutter'

The nominalized form with *-oj* refers to a more general occupation in the absence of the object (e.g., *a cutter*), as seen in (37).

(37) la **aj**-choy-**oj** la jab'el n-ø-samaj
that AJ-cut-NMLZ that well IPFV-B3SG-work
'That cutter works well.'

On the other hand, nominalized verbs formed with *-ïk* cannot be combined with *aj*, as shown below.

(38) *__aj__-ru-choy-ïk che'
AJ-A3SG-cut-NMLZ tree
'(intended)tree-cutter'

This might be due to the fact that the nominalized form *choy-ïk* is already prefixed by the set A marker *ru-*. A verbal/nominal stem presumably cannot tolerate double prefixation in Kaqchikel.[11] As we saw earlier, in contrast, nominalized forms with *-oj* cannot bear a set A marker (see §3.3.2 for detailed discussion on this issue). However, I leave open the issue about the incompatibility of *-ïk* nominalization with the occupational prefix *aj-*.

To summarize, we have observed that nominalized verbs formed with *-ïk* and *-oj* display nominal properties because they are (partially) compatible with the following grammatical elements: the determiner, adjectives, prepositions, and the occupational prefix.

[11] The prefix *aj-* is historically a gender marker for masculine, whereas *x-* is for feminine (I thank Jessica Coon for pointing this out to me). Jessica Coon (p.c.) has also informed me that gender markers in Mayan are generally incompatible with set A (= ergative and genitive) markers.

2.4.2 Verbal properties of derived nominals

It has been cross-linguistically observed that some types of nominalized verbs maintain verbal properties alongside nominal properties: i.e., mixed categories of nouns and verbs (Chomsky 1970; Abney 1987; Grimshaw 1990; Borsley and Kornfilt 2000; Alexiadou 2001; Carnie 2011, etc.). One such example includes English gerunds. As shown below, gerunds can cooccur with adverbs, unlike derived nominals (see Abney 1987; Alexiadou 2001; Alexiadou et al. 2007, among many others, for detailed discussion on verbal/nominal properties of English gerunds).

(39) a. Pat disapproved of my *quietly* leaving the room before anyone noticed.
b. The **carefully/careful* restoration of the painting took six months.
(Alexiadou et al. 2007, : 482 *slightly modified*)

As discussed by Fu et al. (2001), certain kinds of deverbal nominalization (or process nominals) in English can combine (marginally) with postnominal adverbs, in contrast to Chomsky (1970) (cf. (39-b)).[12]

(40) a. Kim's explanation of the problem to the tenants *thoroughly* (did not prevent a riot).
b. The occurrence of the accident *suddenly* (disqualified her).
(Fu et al. 2001, : 549)

Derived nominals in Greek can also cooccur with adverbs, as shown in (41).

(41) i katastrofi tis polis *olosheros*
the destruction the city-GEN completely
'the destruction of the city completely'

(Alexiadou 2001, :46)

Given that adverbs are standardly assumed to modify VPs rather than NPs, the compatibility of gerunds in English and derived nominals in English and Greek with adverbs strongly suggests that these nominals maintain verbal properties.

Nominalized verbs in Kaqchikel behave like verbs in several respects, as gerunds in English and (certain types of) derived nominals in English and Greek do. First, manner adverbs like *aninäq* 'quickly' can occur with the nominalized form, as seen in (42) and (43).

(42) ru-pax-ïk ri läq **aninäq** k'ayew
A3SG-break-NMLZ DET plate quickly difficult
'Breaking the plate quickly is difficult.'

(43) Ri choy-oj che' **aninäq** k'ayew
DET cut-NMLZ tree quicky difficult
'Cutting trees quickly is difficult.'

The adverb *aninäq* normally modifies verbs as in (44), but not nouns in (45) and (46).[13]

(44) Ri a Juan **aninäq** x-ø-u-paxij ri läq.
DET CL Juan quickly PFV-B3SG-A3SG-break DET plate
'Juan broke the plate quickly.'

(45) *tzij **aninäq**
word quickly
'(intended)quick word'

(46) *samaj **aninäq**
work quickly
'(intended)quick work'

Furthermore, as already shown above, nominalized verbs can occur with time adverbs, as seen in (47) and (48).

(47) ri choy-oj che' **pa wo'o' ch'uti ramaj** k'ayew
DET cut-NMLZ tree PREP five minute difficult
'Cutting trees in five minutes is difficult.'

[12] I thank David Pesetsky for bringing this work to my attention.

[13] Note that one of my Kaqchikel consultants reported that (45) and (46) sound better than their reverse word order, but are still not good. For the consultant reporting the ungrammaticality of (45) and (46), the opposite holds: their reverse word order sounds better, but is still not good. Importantly, nominalized verbs behave on a par with verbs (but not nouns) in that they perfectly allow adverbs: (42) - (44). I leave a particular analysis of adverbs' position in Kaqchikel nominals including nominalizations for further research.

(48) ri ru-choy-ïk ri che' **pa** **wo'o' ch'uti ramaj** k'ayew
DET A3SG-cut-NMLZ DET tree PREP five minute difficult
'Cutting the tree(s) in five minutes is difficult.'

The compatibility with different kinds of adverbs strongly suggests that nominalized verbs formed with *-ïk* and *-oj* retain some degree of verbal nature.

Furthermore, certain cases of nominalized forms in Kaqchikel manifest voice morphology such as passive and antipassive morphemes. Example (49) shows the nominalized form bearing the passive morpheme (i.e., *-x*) (see §3 for details on these types of nominalization).

(49) röj y-oj-ajin che ki-q'ete-**x**-ïk ri ak'wal-a'.
we IPFV-B1PL-PROG PREP A3P-hug-PASS-NMLZ DET child-PL
'We are hugging the children.'

As shown in (50), the nominalized verb is suffixed by the antipassive morpheme (i.e., *-n*).[14]

(50) x-ø-u-chäp [q'et-e-**n**-ik] r-ichin ri ak'wal
PFV-B3SG-A3SG-begin hug-BV-ANTIP-NMLZ A3SG-RN DET child
'He began to hug the child.'

(García Matzar and Rodríguez Guaján 1997, :457)

To the extent that voice morphology is one of the defining verbal properties and particularly associated with a *v*P or layered VP (Hale and Keyser 1993; Chomsky 1995, etc.) or VoiceP (Kratzer 1996; Baker and Vinokurova 2009; Harley 2013, etc.), this can be taken as additional evidence that nominalized verbs remain verbal to some extent.

Summarizing, I have presented evidence that nominalized verbs formed with *-ïk* and *-oj* display verbal properties as well as nominal behaviors, thereby patterning with English gerunds and (certain types of) derived nominals in English and Greek.[15]

2.4.3 The structure of finite and non-finite clauses

I will propose the structures for both finite clauses and non-finite nominalized clauses of the Mayan languages discussed in the paper. I will also address the question of how Case is assigned in these languages.

Following Coon et al. (2014), I posit the structure for finite transitive clauses of Kaqchikel and other Mayan languages discussed in the paper, as shown in (51), on the assumption that transitive subjects are generated externally to a lexical VP (Hale and Keyser 1993; Chomsky 1995; Kratzer 1996) and specifically in Spec-VoiceP (see Harley 2013 and Legate (2014) among others for motivations for the separation of *v*P and VoiceP).[16] Voice is taken to be the locus of voice morphology such as the active or (anti)passive voice morpheme. Coon et al. (2014) propose that *v* is responsible for indicating (in)transitivity (e.g., the locus of the (anti-)causative alternation) and realized as a *status suffix* in many Mayan languages.[17] For example, verbs in Q'anjob'al appear productively with status suffixes. Crucially, they covary with the transitivity of the verb: *V'(owel)* (= transitive) and *-i* (= intransitive).[18]

[14] In the dialect of Kaqchikel discussed by García Matzar and Rodríguez Guaján (1997), the vowel of the nominalizing suffix is tensed, unlike in the dialect of my consultants.

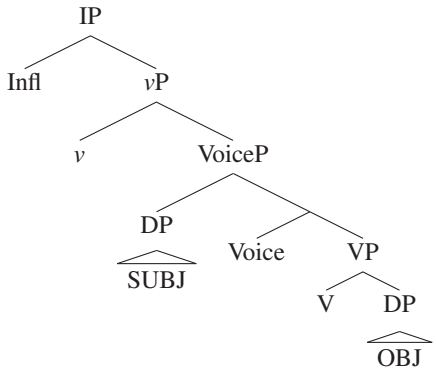
[15] See Imanishi (2014) for certain differences between Kaqchikel and Chol/Q'anjob'al regarding a range of nominal properties of nominalized verbs in these languages.

[16] The exact labels of the projections within a verbal domain are irrelevant – VP, VoiceP and *v*P are all extended projections of a verb in the sense of Grimshaw (1991).

[17] It has been proposed by works such as Harley (2013) and Legate (2014) that VoiceP is higher than *v*P, an inverse of the hierarchical organization in (51). Based on the investigation of status suffixes of Mayan languages, by contrast, Coon et al. (2014) argue that the structure as shown in (51) is needed for these languages.

[18] These status suffixes only appear in phrase-final position (Mateo Toledo 2008).

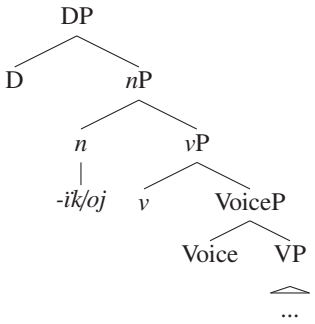
(51)



I assume that unergative subjects are generated in the same position as transitive subjects (i.e., Spec-VoiceP in our analysis) following Hale and Keyser (1993). Regarding unaccusative subjects, I posit that they are generated as a complement to V.

Turning to non-finite clauses of Kaqchikel, I propose the structure as illustrated in (52), based on their nominal and verbal properties observed above — I will also assume the identical structure for nominalized clauses in Chol and Q'anjob'al. I follow one of the syntactic approaches to nominalizations (particularly process nominals) in that nominal functional projections dominate verbal projections containing arguments (Borsley and Kornfilt 2000; Alexiadou 2001; Fu et al. 2001; Coon 2010a, 2013a; Kornfilt and Whitman 2011, *inter alia*). In §3, we will discuss in detail where arguments are generated in sentences involving nominalized verbs.

(52) *The structure for nominalized transitive verbs in Kaqchikel*



In (52), the verb phrase is dominated by an *n*P headed by a nominalizing suffix. The *n*P is further dominated by a DP. I suggest that the nominal properties of nominalized verbs are associated with a DP and/or *n*P layer, while their verbal properties are attributed to the presence of a *v*P and/or a VoiceP.

As shown in (52), the nominalized clause does not contain (finite) IP or TP. This is compatible with the lack of an aspectual marker within a nominalized clause. Furthermore, nominalized verbs cannot occur with negation. Negation in Kaqchikel is usually formed by two particles: *man(a)* and *ta* (which is also used as an irrealis particle) (Brown et al. 2006). The particle *man(a)* precedes a lexical item to be negated (e.g., V, N, Adj, Adv etc.), whereas *ta* follows the negated word as in (53).

(53) **ma(n)** x-ø-in-choy **ta** che'.
NEG PFV-B3SG-A1SG-cut NEG tree
'I did not cut trees.'

As seen in (54) and (55), negation cannot appear inside the nominalized clause. The nominalized verbs formed with *-ik* and *-oj* occur in the subject position in (54) and (55).

(54) *[ri **ma(n)** ru-choy-ïk **ta** che'] k'ayew.
DET NEG A3SG-cut-NMLZ NEG tree difficult
'Not cutting trees is difficult.'

(55) *[ri **ma(n)** choy-oj **ta** che'] k'ayew.
DET NEG cut-NMLZ NEG tree difficult
'Not cutting trees is difficult.'

The ungrammaticality of (54) and (55) follows if we assume with Aissen (1992) that only clauses with an Infl element can host negation (in several Mayan languages). This is consistent with the proposed structure in (52).

The absence of IP or TP within nominalized clauses might be incompatible with the fact that temporal adverbs can occur with nominalized verbs as we observed above. However, the presence of temporal adverbs in nominals does not necessarily imply an IP/TP layer. For instance, a temporal adverb may appear with a simple referential noun as in *yesterday's show*. It would be difficult to posit an IP/TP within such a referential noun. I thus conclude, following Alexiadou (2001), that a temporal adverb may be related to event properties denoted by the nominal, not structural positions encoded by temporal layers (= IP/TP) in nominal structure. We will elaborate on the structure of nominalized verbs in §3.

Before concluding this section, let us develop an account of Case assignment in the languages under discussion. As a first step, I assume that DPs require abstract Case in order to be Case-licensed (Vergnaud 1976/2006): as will be discussed in §3.3.2, other Case-licensing strategies such as (pseudo) noun incorporation may be employed for this purpose. In the discussion that follows, I will suppose (i) that abstract Case is morphologically null in Mayan and (ii) that there is a one-to-one correspondence between the absolutive/ergative/genitive morpheme and absolutive/ergative/genitive Case: the absolutive/ergative/genitive morpheme appears if and only if absolutive/ergative/genitive Case, respectively, is assigned to a DP (see also Aissen 1992; Shklovsky 2012).[19]

Following the view that the locus of absolutive assignment can vary both *across* languages and *within* a given language (Legate 2002, 2008; Aldridge 2004, 2008), I adopt the *Mayan Absolutive Parameter* (Coon et al. 2014).[20] Before introducing Coon et al.'s proposal, it is necessary to mention a particular feature of Mayan verbal morphology. As has been noted by Bricker (1977), Robertson (1980) and Tada (1993), Mayan languages can be divided into two classes, depending on the position of a set B marker (= absolutive morpheme) on the predicate: *high* vs. *low absolutive* languages. In high absolutive languages, the set B marker precedes both the set A marker and the verb. As can be seen from the examples above, Kaqchikel and Q'anjob'al are high absolutive languages. On the other hand, the set B marker in low absolutive languages follows the set A marker and the verb. Chol is such an example.[21] The verbal template of high and low absolutive languages is illustrated as below.

(56) HIGH VS. LOW ABSOLUTIVE LANGUAGES IN MAYAN
a. *High absolutive* languages: Asp-SET B-SET A-V (Q'anjob'al, Kaqchikel etc.)
b. *Low absolutive* languages: Asp-SET A-V-SET B (Chol, Tseltal etc.)

Coon et al. (2014) take the high vs low absolutive dichotomy in Mayan a step further to suggest a parameter for absolutive Case assignment within Mayan.[22] In particular, in high absolutive languages, finite Infl assigns absolutive Case uniformly in intransitive and transitive clauses. By contrast, absolutive Case in low absolutive languages is assigned by finite Infl in intransitive clauses and by Voice in transitive clauses. This is summarized as in (57) (see Legate 2008 for its precursor proposed for other ergative languages; see also footnote 20): in what follows, I will simply write Infl for finite Infl.[23] I will adopt the *Agree*-model (Chomsky 2000, 2001) for structural Case assignment.

[19] I do not attempt to provide an analysis of morphological realization of agreement morphemes, as it will go beyond the scope of the paper. For example, Preminger (2011, 2014) argues that set B markers (= absolutive morphemes) in some Mayan languages such as Kaqchikel, K'ichee' and Tz'utujil (= the Kichean branch) are derived via clitic doubling of the full absolutive DP (see the references for details).

[20] To be precise, Legate (2008) proposes a new view that there is no absolutive Case in the syntax. She argues that absolutive Case is *a morphological default*: a cover term for case that does not have a dedicated morphological form. In one type of languages called *absolutive as a morphological default (ABS = DEF)*, as she proposes, "absolutive" Case is assigned by either T (=nominative) in intransitives or *v* (=accusative) in transitives in the syntax just as in familiar languages like English. In the morphology, however, nominative/accusative Case is realized as the null default in many ergative languages. Legate claims that this conflation of nominative and accusative into the default morphological case is the source of absolutive Case. In the other type of languages called *absolutive as nominative (ABS = NOM)* under Legate's system, "absolutive" Case is the nominative uniformly assigned by T (or a higher functional head), as has been proposed by Murasugi (1992), Bittner and Hale (1996a,b), Ura (2000, 2001) among others.

[21] There is further division when we consider non-verbal predicates. For example, the set B marker in some Mayan languages such as Q'eqchi' (Berinstein 1985; DeChicchis 1989) and Q'anjob'al (Coon et al. 2014) is "high" in verbal predicates, whereas it is "low" in non-verbal predicates such as copular sentences — the set B marker follows the predicative noun.

[22] The main purpose of Coon et al. (2014) is to explain a ban on extraction of the ergative subject in some Mayan languages, based on locality properties of absolutive Case assignment: in order to extract the ergative subject, these languages must employ special verbal morphology called *Agent Focus* morphology as a circumventing strategy.

[23] There is simply a notational difference between (57) and the Mayan Absolutive Parameter (Coon et al. 2011, 2014). Voice in (57) corresponds to *v* in the latter.

(57) THE MAYAN ABSOLUTIVE PARAMETER

	High ABS languages	Low ABS languages
ABSTRANSITIVE	Infl_{finite}	Voice
ABSINTRANSITIVE	Infl_{finite}	Infl_{finite}

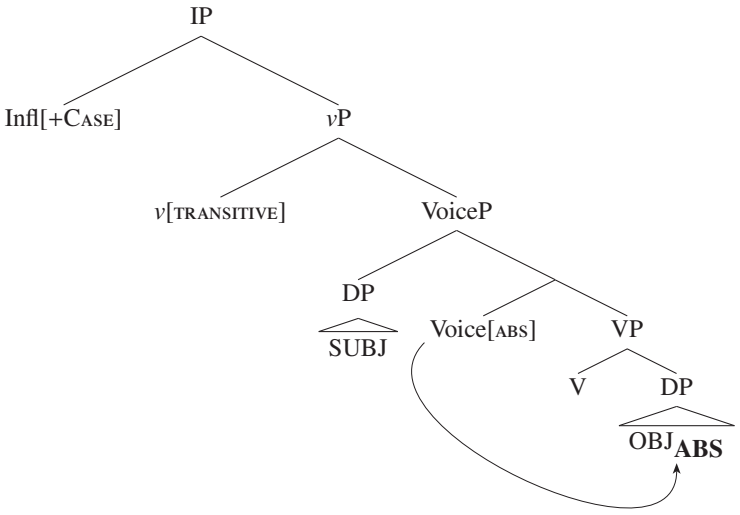
Under (57), the assignment of absolutive Case is *non-uniform* both across languages (i.e., high vs. low absolutive languages) and within languages (i.e, transitive vs. intransitive sentences in low absolutive languages).

In high absolutive languages, absolutive corresponds to *nominative* in accusative languages for both the intransitive subject and the transitive object since it is assigned by Infl. In other words, a transitive *v*P/VoiceP as well as an intransitive *v*P/VoiceP has no ability to assign structural Case, unlike accusative languages such as English.[24] In this sense, a transitive *v* or Voice in high absolutive languages does not reflect Burzio's generalization (Burzio 1986) because it assigns an external θ-role to the subject without assigning (structural) Case to the object (see Bobaljik and Branigan 2006 for a similar discussion on Chukchee).

In low absolutive languages, on the other hand, absolutive can be taken either as *accusative* (assigned by Voice) in transitive clauses or as *nominative* (assigned by Infl) in intransitive clauses. In this respect, low absolutive languages pattern with accusative languages like English to a larger extent than high absolutive languages in that the object receives Case from Voice (or *v* in a more familiar term), while the intransitive subject receives Case from Infl.

One immediate question is why the Case-assigning ability of Infl should vary with the transitivity of a verb in a low absolutive language. I suggest that Infl in transitive sentences of low absolutive languages *does* have the ability to assign Case as in high absolutive languages, but it need not do so because a lower head, namely Voice, assigns Case to the object. For this purpose, I do not assume the Inverse Case Filter (Bošković 2002, etc.), which states that Case assigners must assign their Case. Thus, Infl in transitive sentences is allowed not to assign its Case or allowed to fail to do so in the sense of Preminger (2011, 2014) (see also Legate 2008 for a similar analysis). The derivation of a transitive clause in low absolutive languages is illustrated below. The Case-assigning ability of Infl is notated as [+Case] simply for expository purpose.

(58)



In intransitive clauses of low absolutive languages, there is no Case-assigning Voice just as in accusative languages, and hence Infl assigns absolutive Case to the subject.

Following the insights of Aldridge (2004, 2008), Anand and Nevins (2006), Massam (2006), Woolford (2006), Legate (2008) and Coon (2013a), I suggest that transitive *v*, but not intransitive *v*, assigns inherent ergative Case to the external argument in both high and low absolutive languages. Note that in high absolutive languages Infl assigns absolutive Case to the object, skipping the ergative subject in Spec-VoiceP. I suppose that the transitive subject with inherent ergative Case in these languages does not block Infl from probing and assigning absolutive Case to the object, following McGinnis (2004) in that a DP with inherent Case does not trigger a blocking effect (cf. Legate 2008 and Anand and Nevins 2006 among others).

Regarding genitive Case, I propose that the D head of the nominalized clause as seen in (52), is its assigner (see §3 for details about genitive Case assignment). Under the present analysis, therefore, ergative and genitive, both of which

[24] It has been suggested by previous works such as Bok-Bennema (1991) that the inability of a transitive verb to assign Case is a defining character of ergative languages in opposition to accusative languages. However, a transitive verb in some ergative languages such as low absolutive languages of Mayan assigns Case just as in accusative languages (see also Aldridge 2004, 2008; Legate 2008).

are realized as a set A marker in Mayan, are assigned by different heads but spelled out as the same morpheme (see also Coon 2010a, 2013a for the same analysis made for Chol). I also assume that genitive Case is allowed not to be assigned in certain instances, just as I have assumed for absolutive Case (see above for relevant discussion).

When it comes to the domain of locality, I adopt a relaxed version of phase theory (Chomsky 2001). In particular, I assume that the syntax can examine elements in earlier domains/phases as argued by Fox and Pesetsky (2005) (see also Baker 2014, 2015 for a similar analysis of phase-based dependent case assignment): therefore, I do not adopt the *Phase Impenetrability Condition*, or PIC (Chomsky 2001). The transitive object in high absolutive languages and the unergative subject in high and low absolutive languages can thus receive absolutive Case from Infl, although they are in the Spell-Out domain of the phasal *v*P.[25]

Evidence for the Mayan Absolutive Parameter in (57) comes from the interaction between finiteness and the presence vs. absence of absolutive Case, using a diagnostic first developed by Legate (2002, 2008) for Warlpiri (see also Aldridge 2004, 2008 for discussion of Austronesian languages). If (finite) Infl is the locus of absolutive Case in both intransitive and transitive clauses of high absolutive languages and intransitive clauses of low absolutive languages, the prediction is that absolutive Case disappears in contexts like non-finite clauses where Infl is absent. On the other hand, if Voice assigns absolutive Case in transitive sentences of low absolutive languages, absolutive Case would be expected to remain in non-finite transitive clauses of these languages. We show below that this sharp contrast holds between high and low absolutive languages (see Coon et al. 2014 for the same point).

Kaqchikel, a high absolutive language, confirms the prediction stated above that absolutive Case is absent in non-finite clauses of high absolutive languages. As we observed earlier, non-perfective sentences such as the progressive involve non-finite clauses that undergo nominalization. In the examples below, the bracketed forms are non-finite clauses.

(59) Kaqchikel

a. y-**in**-ajin che [**ki**-k'ul-ïk ak'wal-a'].
Ipfv-B1Sg-Prog Prep A3Pl-meet-Nmlz child-Pl
'I am meeting children.'

b. y-**in**-ajin che [atin-ïk].
Ipfv-B1Sg-Prog Prep bathe-Nmlz
'I am bathing.'

What is crucial to our discussion is that no set B marker appears inside the non-finite clauses in (59-a) (= transitive) and (59-b) (=intransitive), while the set A marker appears in (59-a): we will return to the set A marker in the next section. The absence of set B markers in non-finite clauses of Kaqchikel is consistent with our prediction that absolutive Case disappears altogether when Infl is missing in high absolutive languages.

In contrast, low absolutive languages display a very different distribution of the absolutive in non-finite clauses. If Voice assigns absolutive Case in transitive clauses of low absolutive languages, absolutive Case is expected to remain in non-finite clauses, unlike in high absolutive languages. This is because the absence of Infl does not imply the absence of *v* or Voice. Since Infl is an assigner of absolutive Case in intransitive clauses, absolutive Case should disappear in their non-finite clauses, in parallel to high absolutive languages. Chol, a low absolutive language, confirms this prediction, as shown by the following examples.

(60) Chol

a. Choñkol-ø [i-jats'-**oñ**].
Prog-B3Sg A3Sg-hit-B1Sg
'She's hitting me.'

b. Choñkol-ø [i-majl-el].
Prog-B3Sg A3Sg-go-Nmlz
'She's going.'

(Coon 2013a, : 13)

As discussed above, non-perfective sentences in Chol involve non-finite clauses that are nominalized (Coon 2010a, 2013a). The bracketed expressions are non-finite clauses. In the non-finite clause of the intransitive in (60-b), the set B marker is absent as expected. On the other hand, the non-finite clause of the transitive in (60-a) retains the set B marker. This sharp contrast between (60-a) and (60-b) follows from the Mayan Absolutive Parameter.

[25] In this respect, we depart from Coon et al. (2014): they argue that the object and the intransitive subject in high absolutive languages move to the edge of *v*P from which they receive absolutive Case from Infl. This avoids the trapping of these elements inside the Spell-Out domain of *v*P.

3 Parameterizing split ergativity in Mayan: Explaining the alignment puzzle

3.1 The Restriction on Nominalization (RON)

We have observed that the nominative-accusative side of the ergative split in Kaqchikel, Chol and Q'anjob'al involves a biclausal structure, which consists of an aspectual predicate and a nonfinite clause, as discussed by Coon (2010a, 2013a). The nonfinite clause in these languages undergoes nominalization. The structure of the accusative side of the three languages can thus be illustrated as follows, setting aside the presence of a prepostion (i.e., *che*) in Kaqchikel (see §3.2 for relevant discussion).

(61) [Asp ... [$v\text{P}_{NOMNL}$]]

In this biclausal analysis, the spread of ergative Case to all subjects (i.e., extended ergative) in the accusative alignment of Chol and Q'anjob'al seems to receive a natural account. Since the nonfinite clause is nominalized, the set A marker in the split can be analyzed as *genitive*. For example, the Chol example in (60-a) can be translated as "Her hitting me is taking place". However, consideration of Kaqchikel raises an important question: *why* the alignment puzzle arises between Kaqchikel and Chol/Q'anjob'al, despite the fact that all of these languages involve an embedded nominalized clause in their accusative side. The set A marker is aligned with the transitive object in the nominative-accusative system of Kaqchikel, as shown in (59-a). Therefore, the equation of ergative with genitive alone will not explain the contrastive alignments between Kaqchikel and Chol/Q'anjob'al.

The main purpose of this section is to explain why the alignment puzzle arises although both Kaqchikel and Chol/Q'anjob'al possess a (nearly) identical biclausal structure in their accusative side, as observed in the preceding section. I will argue that the contrastive alignments result from the presence or absence of a particular restriction on the nominalized clause. Under this analysis, all subjects in Chol and Q'anjob'al receive genitive Case because they are the highest DPs within the nominalized clause. In contrast, it is the transitive object in Kaqchikel that receives genitive Case since it is the only nominal within the nominalized clause.

The restriction that I propose is that nominalized verbs in Kaqchikel must lack a syntactically projected external argument. Alexiadou (2001) also makes a similar claim for nominalizations of Greek and various Indo-European languages among others. To be precise, Alexiadou proposes that the type of *v* found in nominalized verbs (and particularly process nominals but not result nominals) generally has an unaccusative structure in which the external argument is absent, although she allows for variation in the number and type of the articulated functional projections contained in DPs in order to capture non-uniform behaviors of nominalizations across languages: under her analysis, *v* combines with a certain type of lexical roots in the sense of Distributed Morphology (e.g., Marantz 1997). For example, the *v*P found in the process nominal of transitive verbs does not contain the external argument (= *tus varvarus*), as seen in the Greek example of (62). The agent of the nominal must be introduced by a preposition (= *apo*). The nominalized form only includes the genitive-marked internal argument (= *tis polis*).[26]

Greek

(62) i katastrofi tis polis **apo** tus varvarus mesa se tris meres
the destruction the city-Gen by the barbarians within three days
'The destruction of the city by the barbarians within three days'

(Alexiadou 2001, : 76)

Developing Alexiadou's analysis, I suggest that nominalized verbs in Kaqchikel are subject to a restriction on the realization of an external argument, stated as the *Restriction on Nominalization* (henceforth RON) in (63).[27] I further propose that the RON is parameterizable, departing in this respect from Alexiadou (2001): Alexiadou argues that an unaccusative structure is necessary for (most) process nominals in the languages she surveys (see §4 for a remark on its exception).[28] The RON holds for Kaqchikel, whereas it does not apply to Chol and Q'anjob'al.

[26] This contrasts with English nominalizations where the agent may be not only introduced as the *by*-phrase but also genitive-marked, whereas the internal argument is introduced by *of*: e.g., *Rome's destruction of the city* and *the destruction of the city by Rome*. The internal argument may also be genitive-marked (= *passive nominals*): *the city's destruction* (see Alexiadou 2001 for relevant discussion). As will be shown in (64), by contrast, the agent of the nominalized verb in Kaqchikel appears as part of the relative clause modifying the nominalized clause. While I am unable to provide an analysis of why this difference arises in this paper, it is worth noting that languages differ as to how the (counterpart of) *by*-phrase appears, depending on the type of nominals, as pointed out by Alexiadou (2001) and the references therein.

[27] Mateo Pedro (2009) argues that nominalization in Q'anjob'al and other Mayan languages requires the intransitivization of a verb, though I will propose a different analysis of Q'anjob'al in §3.1.

[28] Another crucial aspect of Alexiadou's analysis is that many nominative-accusative languages display an ergative pattern in the realm of nominalization in the sense that the subject of transitive nominalizations is distinctly marked (e.g., *by*), whereas the object of transitive nominalizations and the subject of intransitive nominalizations are marked the same way (e.g., *of*). As mentioned in section 2.3, I contend that

(63) The restriction on nominalization (RON)
Nominalized verbs must lack a syntactically projected external argument.

The RON in (63) simply bans the projection of an (underlying) external argument in Spec-VoiceP within a nominalized clause. Related to this, I suggest that the θ-grid of a base of nominalization remains unchanged (see §3.2.2 for discussion on θ-roles, particularly an external θ-role, of the nominalized verb): this position receives support from a similar observation of Polynesian relative clauses (Herd et al. 2011), as will be discussed in §3.2.2.

I propose that the presence of the RON in (63) and its variation stem from a particular property of the nominalizing head (= *n*) in a given language: what type of *v*P it selects for. In Kaqchikel and the languages discussed by Alexiadou (2001), *n* obligatorily selects for the *v*P which does not contain an external argument.[29] In contrast, *n* in Chol and Q'anjob'al does not obligatorily select for such *v*P: it may but need not do so. In this way, it can be argued that the variation regarding the RON in (63) is attributed to a certain feature of the functional head *n* in a language, thereby coming close to the Borer-conjecture that parametric variation is restricted to certain features of functional categories (Borer 1984, see also Fukui 1986 and Chomsky 1995).

There is evidence that nominalizations of Kaqchikel lack an external argument as in Greek. As shown in (64), the nominalization of transitive verbs excludes the external argument (= *Juan*) and only contains the internal argument (= *ri tinamït*). The external argument of the nominalized verb is introduced in the relative clause modifying the nominalized form.[30]

Kaqchikel

(64) ri ru-k'at-ïk ri tinamït [ri x-ø-b'än/x-ø-u-b'än ri a Juan]
Det A3Sg-burn-Nmlz Det city Det Pfv-B3Sg-do/Pfv-B3Sg-A3Sg-do Det Cl Juan
x-ø-xib'i-n.
Pfv-B3Sg-scare-Antip
'The burning of the city that Juan did was scary (= Juan's burning of the city was scary) .'

The example of a nominalization with the external argument appearing as part of the counterpart of a *by*-phrase in Kaqchikel, namely-*oma* 'because-of', is either degraded or ungrammatical, as seen in (65).

(65) ?*ri ru-k'at-ïk ri tinamït r-oma ri a Juan x-ø-xib'i-n.
Det A3Sg-burn-Nmlz Det city A3Sg-because.of Det Cl Juan Pfv-B3Sg-scare-Antip
' (intended) the burning of the city by Juan was scary.'

As shown below, the external argument cannot be introduced inside the nominalized clause, triggering two set A markers (= two genitives), regardless of their order.

(66) *__nu-ki__-k'ul-ïk/__ki-nu__-k'ul-ïk ak'wal-a'
A1Sg-A3Pl-meet-Nmlz/A3Pl-A1Sg-meet-Nmlz child-Pl
'(intended) my meeting children

Furthermore, when there is only one argument inside the nominalized form of transitive verbs as seen in (67), the argument must be interpreted as an internal (or theme/patient) argument, but not an external argument.

Kaqchikel

(67) ru-k'at-ïk ri a Juan x-ø-xib'i-n.
A3Sg-burn-Nmlz Det Cl Juan Pfv-B3Sg-scare-Antip
'Juan's burning was scary.' = 'That Juan was burned was scary.' (*'That Juan burned something was scary.')

These examples are thus consistent with the claim that nominalized clauses in Kaqchikel must lack an external argument.

According to the RON in (63), we would expect that nominalized forms of unergative verbs cannot have an external argument, just as in the case of transitive verbs. This is indeed the case, as shown below.[31]

(at least) the ergative languages discussed in the paper are ergative throughout, and the split arises simply because of structural differences, following Laka (2006) and Coon (2010a, 2013a). I thank an anonymous reviewer for raising this issue.

[29] Given that the external argument appears inside VoiceP, which is structurally lower than *v*P, in our analysis, the selection in question is non-local. I conjecture that *v*, which selects VoiceP, has some form of features that enable *n* to select the right type of VoiceP, although I leave a particular analysis of it for further research. I thank Julie Anne Legate for helpful discussion on this issue.

[30] It is relevant to note that the transitive verb inside the relative clause (= *b'än*) need not carry a set A marker cross-referencing its subject (= *ri a Juan*) in this context, according to one of the consultants. Further work is necessary on this optionality.

[31] In some instances, the unergative verb *atin* 'bathe' may carry a set A marker, which appears to suggest that an external argument appears within the nominalized clause: e.g., ***w****-atin-ïk*. However, I suspect that this use involves a simple noun but not a nominalization; it does not contain argument structure (Grimshaw 1990). In fact, *w-atin-ïk* may be interpreted as 'my shower'. Alternatively, the base of *w-atin-ïk* could

(68) a. *nu-b'iyïn-ïk
A1SG-walk-NMLZ
'(intended) my walking'
b. ?*ru-tzopin-ïk ri xta Maria
A3SG-jump-NMLZ DET CL Maria
'(intended) Maria's jumping

When it comes to unaccusative verbs, by contrast, they can be nominalized with no difficulty in situations such as (69) since it only contains an internal argument, as shown below. As will be discussed in §3.2.2, however, they resist nominalization in progressive sentences, in contrast to transitive and unergative verbs. I will suggest that this is due to the content of a θ-role assigned by the aspectual predicate *ajin* found in progressive sentences

(69) ri ru-tzaq-ïk ri a Juan ütz.
DET A3SG-fall-NMLZ DET CL Juan good
'Juan's falling is good.'

In addition, I suggest that nominalized verbs in Kaqchikel have to be independently intransitivized, presumably because they behave just like passive verbs in the sense that the external argument is present semantically but not syntactically; they need to be intransitive.[32] There are several ways by which transitive verbs become intransitivized. One such way is passivization. I will show below that a subset of nominalized transitive verbs undergo passivization. Furthermore, as will be demonstrated in §3.3, some types of nominalizations in Kaqchikel display different ways of intransitivization such as antipassivization and (pseudo) noun incorporation in addition to conforming to the RON.

In contrast to Kaqchikel, the RON is not active in Chol and Q'anjob'al, because *n* in these languages does not obligatorily select for the type of *v*P which lacks an external argument, as proposed above. There is converging evidence that nominalized clauses of Chol and Q'anjob'al may contain an external argument. As seen in the Chol example of (70), the nominalized clause, which appears in subject position, contains both the external argument (= second person singular) and the internal argument (= first person singular). Note that this is also shown by the the nominalized verb found in progressive sentences of Chol as in (60).

CHOL

(70) Mach uts'aty [**a**-jats'-oñ].
NEG good A2SG-hit-B1SG
'Your hitting me isn't good.'

(Coon 2013a, :141)

Likewise, the nominalized clause of Q'anjob'al appearing in subject position can express an external argument, as shown in (71). The set A marker in (71) (= *h-*) cross-references the external argument of the nominalized verb. The internal argument is null (= ø) since it is third person singular.

Q'ANJOB'AL

(71) [**h**-il-on ø] kawal watx'.
A2SG-see-DM B3SG very good
'Your seeing him/her/it is very good.'

(p.c. Pedro Mateo Pedro)

These examples contrast sharply with the nominalized clause of Kaqchikel, where the external argument is consistently absent.

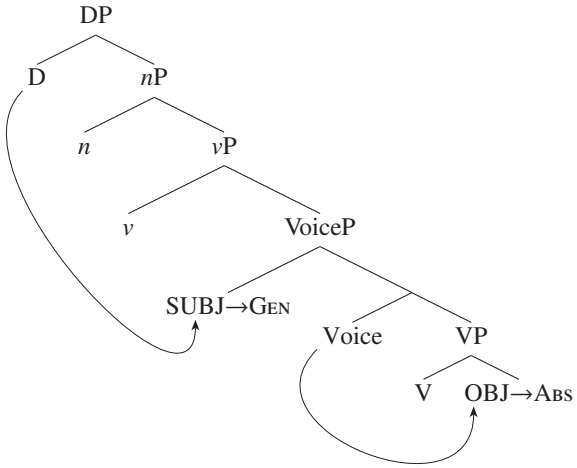
By arguing that the RON is inactive in Chol and Q'anjob'al, we can explain the alignment pattern of the accusative side of these languages. As shown by (60-a) of §2.4.3, in Chol, Voice is an absolutive Case assigner in transitive sentences, whereas Infl assigns absolutive Case in intransitive sentences, according to the *Mayan Absolutive Parameter* (Coon et al. 2014). Following Coon (2010a, 2013a) in that nominalization targets a verbal projection in Chol (just like in Kaqchikel), it can be now argued that the nominalized transitive verb such as the one in (60-a) contains Voice, which

be analyzed as undergoing causativization in the sense of Levin and Rappaport Hovav (1995) and hence acting as a transitive verb just like a transitive use of *bathe* in English. In this case, the set A marker found in *w-atin-ïk* cross-references the internal argument. It could thus be translated as 'bathing me'. I leave it for further research why *atin* behaves differently from other unergative verbs in this respect.

[32] I thank Julie Anne Legate for helpful discussion on this point.

assigns absolutive Case to the object, as illustrated in (72).[33] I assume the same structure for transitive nominalizations as in Kaqchikel, departing from the structure proposed by Coon.[34]

(72)



Turning to the external argument, it can be generated within the nominalized clause because the RON is not active in Chol. The external argument receives a θ-role from the nominalized verb and genitive Case from D; it is the highest DP inside the nominalized clause.[35]

Regarding the aspectual predicate *choñkol* found in progressive sentences such as (60-a) and (60-b), Coon (2010a, 2013a) proposes that it takes a nominalized clause as its complement and assigns absolutive Case to it, as discussed in §2.3.[36] Since a nominalized clause is third person singular, the set B marker is always null as indicated in (60). The derivation for intransitive progressives of Chol such as the one in (60-b) is identical with its transitive counterpart except that there is no absolutive Case assigner within the nominalized clause.

Much the same analysis as in Chol extends to the accusative-side of the ergative split in Q'anjob'al such as the ones shown in (73).

(73) a. lanan-ø [**hach** **w**-il-on-i].
PROG-B3SG B2SG A1SG-see-DM-INTR
'I am seeing you'

b. lanan-ø [**ha**-way-i].
PROG-B3SG A2SG-sleep-INTR
'You are sleeping.'

(Mateo Pedro 2009)

I follow Coon et al. (2014) in that the non-finite clause of Q'anjob'al has an independent absolutive Case assigner, namely the suffix *-on* in (73-a), despite the fact that Q'anjob'al is a high absolutive language: high absolutive languages are argued to lack a structural Case assigner inside the verbal domain. An important fact about the suffix *-on* is that a transitive verb cannot be nominalized and embedded under the aspectual predicate *lanan* without *-on* (see the reference for details).

Summarizing, because of the lack of the RON in Chol and Q'anjob'al, the external argument may be generated inside the nominalized clause and receives genitive Case from the D head of the clause since it is the structurally closest nominal to the D. In addition, the nominalized verb assigns absolutive Case to the internal argument. The aspectual predicates found in the accusative side of these languages assign absolutive Case to the nominalized clause they select

[33] In Coon's analysis, transitive *v*, which is optionally realized by the suffix *e`* in root transitives (when no overt absolutive morphology is present), assigns absolutive Case to the object in a nominalized clause.

[34] Coon posits a layered nominal projection for nominalized verbs in which there is a control relation between the subject and PRO: the subject appears in a high position of the nominal projection (i.e., Spec-PossP) and PRO occupies a Spec-*v*P because *v* requires subject under Coon's analysis. She argues for the highly articulated projection of a nominal domain in order to capture the parallelism between DP and CP in terms of word order (see Coon 2010a, 2013a for details.). While I assume the structure in (72) for consistency with the analysis of Kaqchikel, nothing hinges on this choice.

[35] While the set A marker on nominalized transitives of Chol (and Q'anjob'al) could be analyzed as (inherent) ergative assigned by transitive *v* (see §2.4.3 for details), I propose that set A markers such as the ones in (60) are genitive assigned by the D of the nominalized clause for consistency with the analysis of nominalized intransitives. For this purpose, I posit that *n* selects for transitive *v* with no inherent ergative Case in the case of nominalized transitives.

[36] This analysis can capture the fact that a preposition does not appear in non-perfective clauses of Chol, in contrast to Kaqchikel. As will be argued below, the function of the preposition *chi* found in progressive sentences of Kaqchikel is to Case-license its complement. The absence of a preposition in non-perfective sentences of Chol follows if *choñkol* Case-licenses its complement (= a nominalized clause).

for. This derives the alignment patterns of Chol and Q'anjob'al such as the ones in (60) and (73). In what follows, I will present an account of the accusative side of Kaqchikel, comparing it to Chol and Q'anjob'al (see Coon 2010a, 2013a; Imanishi 2014 for detailed discussion on other types of nominalizations and their alignment patterns in Chol and Q'anjob'al).

3.2 Kaqchikel

3.2.1 Passivization

Our main purpose here is to demonstrate that a subset of nominalized transitive verbs found in the accusative alignment of Kaqchikel as in (74) are passivized. In particular, we will focus on nominalized forms with the suffix *-ïk* in this subsection (see §3.3 for other types of nominalizations in Kaqchikel).

(74) röj y-oj-ajin che ki-q'ete-x-ïk ri ak'wal-a'.
we IPFV-B1PL-PROG PREP A3PL-hug-PASS-NMLZ DET child-PL
'We are hugging the children.'

We will also discuss embedding verbs like *chäp* 'begin', which takes a nominalized clause as their complement, as seen in (75). As will be noted in §3.2.3, sentences formed with *chäp* display an alignment pattern slightly different from the one found with *ajin*: not only the object but also the subject are cross-referenced by the set A marker.

(75) a. röj x-ø-qa-chäp [**ki**-k'ul-ïk rje'].
we PFV-B3SG-A1PL-begin A3PL-meet-NMLZ they
'We began to meet them.'
b. rat x-ø-a-chäp [atin-ïk].
you PFV-B3SG-A2SG-begin bathe-NMLZ
'You began to bathe.'

Transitive verbs in Kaqchikel can be divided roughly into root transitives (i.e., monosyllabic or CVC) and derived transitives (*-j*), like other Mayan languages. Many of root transitives including *k'ul* 'meet' in the above examples do not display passive morphology: there is no change in the verbal form, as shown in (76) and (77). The presence or absence of the set A marker is an indicator of active vs. passive voice of these root transitive verbs. The presence of an agent introduced by *-oma* 'because of' is also a trait of passivization.

(76) a. x-ø-in-**k'ul** oxi' ak'wal-a'.
PFV-B3SG-A1SG-meet three child-PL
'I met three children.'
b. Oxi' ak'wal-a' x-e-**k'ul** r-oma ri Ana.
three child-PL PFV-B3PL-meet A3SG-because.of DET Ana
'Three children were met by Ana.'

(77) a. x-e-qa-**to'**.
PFV-B3PL-A1PL-help
'We helped them.'
b. x-e-**to'**.
PFV-B3PL-help
'They were helped.'

(Brown et al. 2006, :178)

It is thus not immediately clear whether nominalization of these verbs in Kaqchikel involves passivization.

However, an overt trace of passivization can be found in other types of root transitives. Consider root transitives containing a lax vowel. They tense the vowel when they are turned into passive forms, as seen in (78) and (79).

(78) a. röj x-e-qa-**tïk** k'iy k'otz'i'j pa jardin.
we PFV-B3PL-A1PL-plant many flower PREP garden
'We planted many flowers in the garden.'

b. k'iy k'otz'i'j x-e-**tik** pa jardin.
many flower PFV-B3PL-plant.PASS PREP garden
'Many flowers were planted in the garden.'

(79) a. röj n-ø-qa-**tük** sopa pa b'ojoy.
we IPFV-B3SG-A1PL-stir soup PREP pod
'We stir soup in the pod.'
b. sopa x-ø-**tuk** pa b'ojoy.
soup PFV-B3SG-stir.PASS PREP pod
'Soup was stirred in the pod.'

These verbs thus enable us to discern whether passivization is involved in nominalization. When root transitives with a lax vowel are nominalized in progressive sentences formed with *ajin* or in sentences with an embedding verb like *chäp* 'begin', the vowel of these verbs is tensed as seen in (80) and (81).

(80) a. röj x-ø-qa-chäp ru-**tik**-ïk jun k'otz'i'j.
we PFV-B3SG-A1PL-begin A3SG-plant.PASS-NMLZ one flower
'We began to plant one flower.'
b. y-oj-ajin che ru-**tik**-ïk jun k'otz'i'j.
IPFV-B1PL-PROG PREP A3SG-plant.PASS-NMLZ one flower
'We are planting one flower.'

(81) a. rje' x-ø-ki-chäp ru-**tuk**-ïk sopa.
they PFV-B3SG-A3PL-begin A3SG-stir.PASS-NMLZ soup
'They began to stir soup.'
b. rje' y-e-ajin che ru-**tuk**-ïk sopa.
they IPFV-B3PL-PROG PREP A3SG-stir.PASS-NMLZ soup
'They are stirring soup.'

These clearly show that the embedded verbs in (80) and (81) are passivized forms.

Furthermore, derived transitives whose ending is *-j* clearly display passivization. When they are passivized, the final *-j* is replaced by the passivizing suffix *-x* as shown in (82).

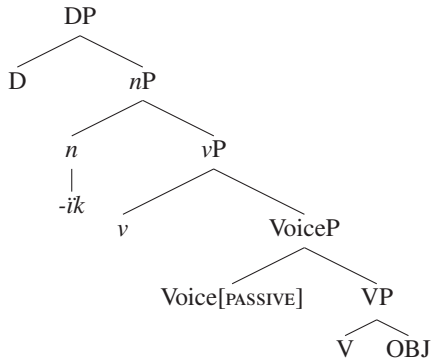
(82) a. röj x-e-qa-q'ete-**j** ri ak'wal-a'.
we PFV-B3PL-A1PL-hug-TR DET child-PL
'We hugged the children.'
b. ri ak'wal-a' x-e-q'ete-**x**.
DET child-PL PFV-B3PL-hug-PASS
'The children were hugged.'

As in the case of root transitives containing a lax vowel, derived transitives can be employed as a diagnostic for whether nominalized verbs involve passivization. Crucially, derived transitives display the passive morpheme *-x* when they are nominalized by *-ik*, as shown in (83).

(83) a. röj x-ø-qa-chäp ki-q'ete-**x**-ïk ri ak'wal-a'.
we PFV-B3SG-A1PL-begin A3PL-hug-PASS-NMLZ DET child-PL
'We began to hug the children.'
b. röj y-oj-ajin che ki-q'ete-**x**-ïk ri ak'wal-a'.
we IPFV-B1PL-PROG PREP A3PL-hug-PASS-NMLZ DET child-PL
'We are hugging the children.'

It now becomes clear that at least a subset of nominalized transitive verbs in Kaqchikel formed with *-ik* undergo passivization. Based on evidence from transitive verbs overtly displaying passivization, I propose that the nominalization of root transitives which do not show any overt passivization like *k'ul* 'meet' also involves passivization. Let us return to the structure for a nominalized transitive verb proposed in §2.4.3. The amended structure is shown in (84).

(84)



In order to derive correct surface morpheme ordering, we assume that a verb undergoes successive-cyclic head movement to *n*: V → Voice → *v* → *n*. Furthermore, the external argument is not projected inside the nominalized clause due to the RON. As I will argue below, the subject of sentences involving embedding predicates such as *ajin* and *chäp* is base-generated as the argument of these predicates. In the following subsections, I will discuss the derivation of progressive sentences and sentences involving the embedding predicate *chäp*.

3.2.2 Derivation of the progressive

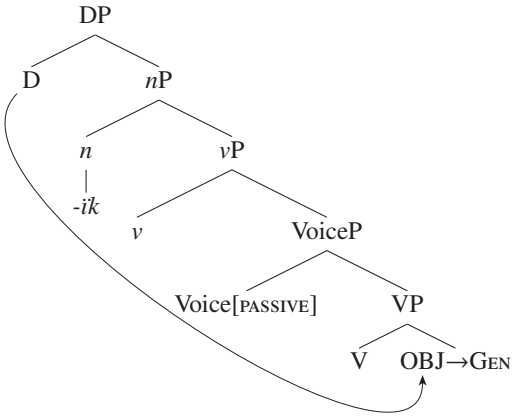
Below I will explicate the derivation of progressive sentences formed with *ajin*. Based on the analysis above that a subset of nominalized transitive verbs formed with *-ïk* are passivized, I will suggest that the object receives genitive Case from the D heading the nominalized clause because it is the only DP within the clause.

Let us first address transitive progressive sentences such as the one in (85).

(85) ri ixöq n-ø-ajin [che ki-k'ul-ïk ak'wal-a'].
DET woman IPFV-B3SG-PROG PREP A3PL-meet-NMLZ child-PL
'The woman is meeting children.'

The derivation inside the nominalized clause is illustrated as in (86).

(86)



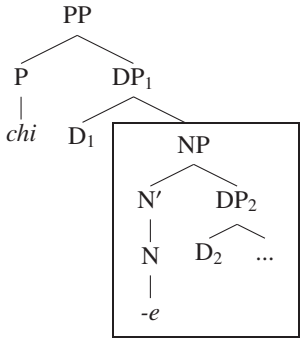
Given that there is no Infl in the nominalized clause and nominalized transitives are passivized, it can be argued that there is no Case assigner for the object. The D head is merged with the *n*P and completes a nominalized clause. The object receives genitive Case from the D head, as shown in (86) — the object is the only DP inside the nominalized clause. The external argument is not projected inside the nominalized clause due to the RON. We will return to discussion of the external argument immediately below.

As noted in §2.4.1, the form *che*, glossed as "preposition" in (85), is decomposed into the preposition *chi* + the relational noun *-e*, which is prefixed by the set A marker *r-* (England 2003). The bracketed constituent in (85) with a non-contracted form of *chi* can be illustrated below.

(87) *The non-contracted form of chi (= the preposition) + -e (= the relational noun) of (85)*
chi + **r**-e + ki-k'ul-ïk ak'wal-a'

I suggest that relational nouns can be analyzed as possessed nouns in that a complement noun occupies the right-specifier of a relational noun just like a possessor, building on a right-specifier analysis of possessors in Mayan (Aissen 1992) (see Coon 2010b for a different analysis). The complement noun of the relational noun *-e* in (85) is the nominalized clause *ki-k'ul-ïk ak'wal-a'* 'meeting children'. The nominalized clause (= DP_2) occupies a right-specifier of the relational noun, as illustrated in (88). The nominalized clause then receives genitive Case from the D head of the relational noun (= DP_1): this gives rise to the set A marker *r-* (= third person singular).[37]

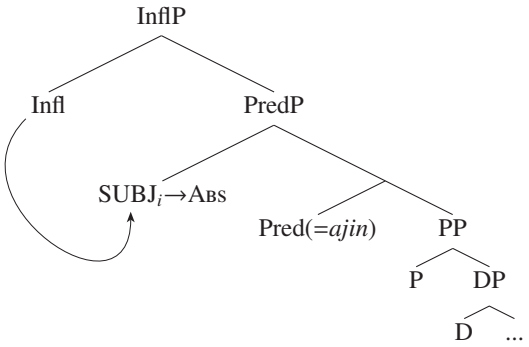
(88)



The relational noun then merges with the preposition *chi*. I propose that *chi* Case-licenses the relational noun, though it does not show any overt markers, assuming that the relational noun requires Case. I conjecture that this licensing is done via (pseudo) noun incorporation under adjacency (see below for more details about (pseudo) noun incorporation). The sequence *chi* + *r-e* is contracted to *che*. For ease of illustration, we will take *che* to be a grammaticalized preposition found with a third person singular complement noun. We place a nominalized clause in the complement position of the preposition.

It was mentioned earlier that the external argument does not originate inside the nominalized clause due to the RON. I suggest that the subject of progressive sentences is base-generated as the argument of *ajin* in the matrix clause. I analyze *ajin* as a one-place (= intransitive) predicate. To be precise, the subject of progressive sentences occupy Spec-PredP, which is headed by *ajin*. According to the Mayan Absolutive Parameter, the matrix Infl assigns absolutive Case to the subject, as illustrated in (89). As a result, we obtain the correct alignment of transitive progressive sentences in the nominative-accusative side of Kaqchikel: i.e., subject = Abs and object = Gen.

(89)



If the subject is generated as the argument of *ajin*, the former should receive a θ-role from the latter: *ajin* acts just as a control predicate. At first blush, the literal meaning of *ajin* (= *realizarse* 'to come true') provided by Macario et al. (1998) seems incompatible with this. One might then analyze the specifier of *ajin* as a non-thematic position just as in raising predicates. However, there is independent evidence that the subject of *ajin* is contentful. For instance, *ajin* can occur with regular nominals as well as nominalized verbs. As seen in (90), the object in the progressive is the nominal *b'ix* 'song'.

(90) y-in-ajin che **jun b'ix**.
Ipfv-B1Sg-Prog Prep Indf song
'I am singing a song. (lit. I'm engaged in a song) '

It is unlikely that the subject in (90) receives a θ-role from the noun *b'ix*. It is more reasonable to analyze *ajin* in (90) as assigning some sort of a θ-role to the subject. The literal interpretation of the sentence in (90) suggests that the subject is

[37] I suspect that the set A marker appears on D_1 after Case assignment and pronounced together with the relational noun perhaps because it is a bound morpheme. However, I leave an analysis of how and where the agreement morpheme is realized in the structure for further research, as it will go beyond the scope of the paper (see Imanishi 2014 for relevant discussion).

agentive.[38] Extending this analysis to progressive sentences such as (85), I propose that *ajin* found in sentences such as (85) and (90) assigns a θ-role associated with the external argument such as an agentive/volitional θ-role (which could be grouped as the Originator/Initiator in the sense of Hale and Keyser 1993).[39]

The question that arises is how the agentive subject is related to the θ-grid of the embedded verb in sentences such as (85). One form of syntactic control cannot be an option: PRO cannot appear in external argument position within the nominalized clause due to the RON.[40] I suggest that one of semantic control such as the one proposed in Herd et al. (2011) holds between the subject in the matrix clause and an external θ-role of the embedded verb (see Chierchia 1984 for a different analysis of semantic control and Wurmbrand 2002 for detailed discussion of syntactic and semantic control in infinitives): I have suggested that the θ-grid of a base verb of nominalization remains unchanged, a position also adopted by Herd et al. (2011) for Polynesian relative clauses to be discussed below.[41] Unlike syntactic control, this type of control involves direct control into the θ-grid of the embedded verb, but not a particular position in the structure (see also Williams 1987 for a somewhat similar proposal). Herd et al. (2011) argue, adopting the insights of Manzini and Roussou (2000), that genitive-marked subjects in relative constructions of Polynesian languages form a semantic control relation with the θ-grid of the verb in the relative clause via the checking of the external θ-role (or θ-feature) of the verb. As Herd et al. (2011) show, these genitive subjects appear outside the relative clause, and hence semantic control takes place across the clause boundary—the verb of the relative clause does not project a subject internally but retains an external θ-role, just as in the case of the nominalized clause in Kaqchikel.[42] As alluded to in Herd et al. (2011), when a controller DP is agentive, this form of semantic control requires an external (or agentive) θ-role in the embedded verb in order to correctly relate the agentive subject in the matrix clause to the event denoted by the embedded verb. While I leave a more detailed discussion of the mechanism of semantic control involved in Kaqchikel for further research, I follow the idea of Herd et al. (2011) and suggest a possible solution to control involved in the accusative side of Kaqchikel: the subject generated as the argument of *ajin* in (85) controls into an (unassigned) external θ-role of the embedded verb so that it can be understood as the agent of the embedded verb.

Turning to intransitive progressive sentences as in (91), the absence of the set A marker on the nominalized verb follows from the present analysis.

(91) y-in-ajin che [atin-ïk].
IPFV-B1SG-PROG PREP bathe-NMLZ
'I am bathing.'

Since a base of nominalization is unergative, there is no DP inside the nominalized clause; the nominalized clause cannot contain an external argument due to the RON. As a consequence, genitive Case is not assigned. The subject is generated in the matrix clause, as illustrated above. It receives absolutive Case from Infl in the matrix clause.

While unergative verbs may be nominalized as in (91), unaccusative verbs seem unable to serve as a base of nominalization in progressive sentences, as seen in (92): recall that they can be nominalized when they appear in subject position as in (69).[43] As shown in (93), the unaccusative verb is not nominalized and instead appears as a finite verb when it is embedded by *ajin* (see footnote 6), or simply appears with the imperfective aspect marker *y/n-*: the finite embedded clause displays a regular ergative alignment pattern. Other unaccusative verbs (e.g., *uk'lun* 'to arrive', *surin* 'to spin/fall' and *jilil* 'to slide') behave on a par with *tzaq*.

[38] A word is in order regarding the thematic structure of aspectual predicates found in the accusative side of Kaqchikel and Chol. The aspectual predicate *choñkol* found in sentences such as (60) does not assign an agentive θ-role to the subject, while its Kaqchikel counterpart *ajin*, which embeds a non-finite nominalized clause and a regular nominal, does: *choñkol* in examples such as (60) arguably assigns a theme θ-role to the nominalized clause. However, one also has to assume that Chol has another class of *choñkol* which has an agentive θ-role. This type of *choñkol* is necessary to explain constructions called *B-Constructions* (Coon 2010a, 2013a). These constructions require an agentive/volitional interpretation of the subject, just as in the Kaqchikel progressive sentences formed with *ajin* and a nominalized clause (see the references for more discussion).

[39] I assume that there is another class of *ajin* in the language which assigns a non-agentive/volitional θ-role to its argument. This type of *ajin* is necessary to capture the meaning of sentences such as (97). I also assume that what type of phrases each class of *ajin* selects for is defined by their subcategorization (see footnote 46 for more discussion).

[40] Here I do not assume a movement analysis of control such as Hornstein (1999).

[41] I thank an anonymous reviewer for suggesting this line of analysis.

[42] The question might arise as to whether the θ-criterion is violated if an external θ-role of the nominalized verb in Kaqchikel as well as of the verb in relative clauses of Polynesian languages is not assigned to any DP. While I cannot provide a definitive answer to this issue at the moment, there may be at least two possibilities. One option would be to adopt a weakened θ-criterion similar to the one proposed by Williams (1987) in which unassigned θ-roles are tolerated. Alternatively, one would allow semantic control to pass the external θ-role of the embedded verb to its controller (= the matrix subject) in one way or another. In this case, too, we would need some form of a relaxed θ-criterion, which permits a single DP to bear more than one θ-roles. This form of the θ-criterion has been deemed necessary by works such as Manzini and Roussou (2000) (see also Chomsky 1986).

[43] Unlike in Kaqchikel, unaccusative verbs in Chol may be nominalized and display the same alignment pattern as unergative verbs in non-perfective sentences (Coon 2010a, 2013a). This could be captured by assuming that the type of semantic control proposed for the accusative side of Kaqchikel is not at work in non-perfective sentences of Chol (see below for relevant discussion).

(92) *ri a Juan n-ø-ajin che (ru-)tzaq-ïk.
DET CL Juan IPFV-B3SG-PROG PREP (A3SG-)fall-NMLZ
'(intended) Juan is falling.'

(93) a. ri a Juan n-ø-ajin n-ø-tzaq.
DET CL Juan IPFV-B3SG-PROG IPFV-B3SG-fall
'Juan is falling.'
b. ri a Juan n-ø-tzaq.
DET CL Juan IPFV-B3SG-fall
'Juan is falling.'

Passive verbs such as *chaq'irsex* 'be dried' also resist nominalization as shown in (94) and appear with the imperfective aspect marker *y/n-*, forming a simple clause, as seen in (95): recall that a base of passive nominalizations discussed in §3.2.1 is a transitive verb, not a passive verb. In other words, the thematic object of the passive cannot be the thematic object of the progressive involving a nominalized verb.[44] The passive verb even resists being embedded by *ajin*. (I leave this difference for future inquiry.)

(94) *ri wäy y-e-ajin che (ru/ki)-chaq'irse-x-ïk.
DET tortilla IPFV-B3PL-PROG PREP A3SG/A3PL-dry-PASS-NMLZ
'(intended) The tortillas are being cooked (by being dried). '

(95) ri wäy y-e-chaq'irse-x.
DET tortilla IPFV-B3PL-dry-PASS
'The tortillas are being cooked (by being dried).'

I argue that the observed contrast between unergative and unaccusative/passive verbs arises because of a semantic control relation involved in progressive sentences. Semantic control fails to relate the agentive subject in the matrix clause (headed by *ajin*) to an external θ-role in the nominalized clause in the case of unacccusative/passive verbs: an external θ-role is either absent or suppressed in unaccusative and passive verbs.[45]

As pointed out to me by Jessica Coon (p.c.), English displays a similar restriction in *engage in* constructions. The unaccusative verb resists nominalization by *-ing* (= gerunds) when it is preceded by *engage in*. As seen in (96), the unaccusative (and the passive) are degraded with *engage*, though these forms are still understandable. The verb *engage* requires a more volitional or agentive interpretation, just as *ajin* found in progressive sentences of Kaqchikel does. Coon (2010a, 2013a) also observes that a similar fact holds for the *B-constructions* in Chol mentioned above. I leave a particular analysis of the *engage in* construction for further research.

(96) a. ?I was engaged in falling.
b. ?I was engaged in being attacked.

(Coon 2010a, : 104)

Before closing this section, let us briefly discuss effects of abstract Case found with the preposition *chi*. It was suggested above that *chi* Case-licenses its complement noun (= the relational noun *r-e*). Evidence for this comes from its interaction with *ajin*. In the progressive sentences we have addressed, there are two DPs which need to be Case-licensed (besides the nominalized clause and the object DP in the case of transitive sentences): the subject and the relational noun (i.e., *r-e*) of the contracted form *che*. As shown above, the subject is generated in Spec-PredP headed by *ajin*. The subject then receives absolutive Case from Infl since it is the goal DP closest to Infl, as illustrated in (89). Since the aspectual predicate *ajin* is a one-place predicate, the subject saturates it. There is no other Case-licenser for the relational noun *r-e*. The presence of the preposition *chi* thus follows if it is required to Case-license the relational noun, as argued above.

If *ajin* is intransitive and the function of *chi* is to Case-license its complement noun, we predict that no preposition appears when there is only one DP in the sentence. In this situation, Infl can assign absolutive Case to the sole DP. This prediction is borne out in impersonal constructions such as the one below.

[44] I am grateful to Julie Anne Legate for helpful discussion.

[45] When *ajin* embeds a finite clause as in (93-a), I assume that semantic control is not involved. Given that the finite verb *n-ø-tzaq* in (93-a) agrees in person and number with the subject unlike in nominalized intransitive clauses such as (91), I suggest that *pro* appears in the embedded clause and receives a theme θ-role from *tzaq* (see footnote 6 for the example with overt agreement): this seems a reasonable option since Mayan languages are *pro*-drop languages. In (93-a), *pro* is simply co-referential with the overt subject that independently receives a θ-role in the matrix clause.

(97) n-ø-ajin jun nimaq'ij.
IPFV-B3SG-PROG INDF celebration/festival
'A festival is taking place.'

(Macario et al. 1998, *glosses and translation mine*)

In (97), *ajin* takes only one nominal argument (i.e., *nimaq'ij* 'celebration'). Importantly, there is no preposition in the sentence. This can be taken as suggesting that the sole argument *nimaq'ij* receives absolutive Case from Infl since there is no competing DP. Example (97) thus supports the view that the preposition *chi* is required for Case reasons.[46]

To summarize, it has been shown that the object of a transitive verb in the progressive receives genitive Case from the D head of the nominalized clause because it is the only DP inside the clause. Under the present analysis, what is cross-referenced by the set A marker in the nominalized clause of both Kaqchikel and Chol/Q'anjob'al is the possessor of a DP. The only difference between these languages is that the possessor can be an external argument in Cho/Q'anjob'al but not in Kaqchikel. This difference results from the presence or absence of the RON, as has been argued. I will use 'object' to refer to the possessor in the nominalized clause of Kaqchikel solely for the purpose of presentation. On the other hand, the subject of progressive sentences is base-generated in Spec-PredP headed by *ajin* and receives absolutive Case from Infl in the matrix clause.

3.2.3 Derivation of begin-sentences

As shown in (98), the embedding verb *chäp* takes a nominalized verb as its complement.

(98) a. röj x-ø-**qa**-chäp [**ki**-k'ul-ïk rje'].
we PFV-B3SG-A1PL-begin A3PL-meet-NMLZ they
'We began to meet them.'
b. rat x-ø-**a**-chäp [atin-ïk]
you PFV-B3SG-A2SG-begin bathe-NMLZ
'You began to bathe.'

The alignment found in *begin*-sentences is slightly different from the one found in progressive sentences. Not only the object of a nominalized verb but also the subject are marked with the set A marker. The object of *chäp*, namely a nominalized clause, is marked with the set B marker.

Adopting the analysis made above, the derivation inside a nominalized clause proceeds the same way as in the case of the progressive with *ajin*. The object of a transitive verb in (98-a) receives genitive Case from the D head of the nominalized clause. The subject of *begin*-sentences is not projected inside the nominalized clause due to the RON, but appears as the argument of *chäp* in the matrix clause, as proposed for progressive sentences.

The difference between *ajin* and *chäp* is that the former is intransitive, whereas the latter is transitive. The subject of *begin*-sentences receives inherent ergative Case from transitive *v*, as proposed in §2.4.3.

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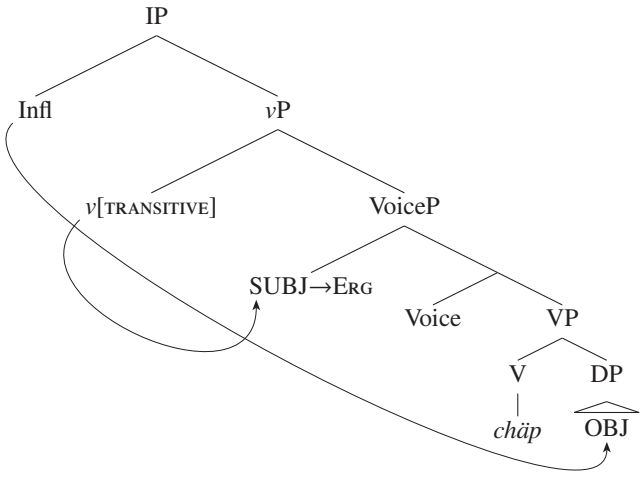
[46] As I suggested in footnote 39, the type of *ajin* found in (97) assigns a non-agentive/volitional θ-role to its argument. As pointed out by Julie Anne Legate, the present analysis would predict that this type of *ajin* can occur with nominalized unaccusatives unlike in examples such as (92) and (94). Given that this type of *ajin* does not take an agentive argument, it will not require an agentive θ-role inside the nominalization. A preliminary investigation suggests that the unaccusative example as shown below is degraded, though it is not completely ungrammatical.

(ii) ?*n-ø-ajin ru-surin-ïk ri pelota.
IPFV-B3SG-PROG A3SG-fall/spin-NMLZ DET ball
'(intended) The ball is spinning/falling.'

I posit that the variant of *ajin* with a non-agentive/volitional θ-role can only select for a simple noun, but not a nominalized verb, whereas the one with an agentive/volitional θ-role can select for both types of nouns. However, this issue deserves further investigation. Related to this, the alignment pattern found in example (ii) resembles the one found in the accusative side of Chol and Q'anjob'al. According to Law et al. (2006), while two alignment types of the accusative side involving nominalization (= the Kaqchikel-type and the Chol/Q'anjob'al-type) do not coexist in many Mayan languages, they do in several languages as part of language change (see also Robertson 1980): Poqomchi is one of these languages. The Kaqchikel-type alignment where nominalization and a preposition are found is an archaic pattern, which was extant in Common Mayan (Robertson 1980; Law et al. 2006). As Law et al. suggest, by contrast, the Chol/Q'anjob'al-type alignment innovated in that it lost the preposition and the marking of the subject on the aspectual predicate (= *raising* in their term).

(99)



Infl assigns absolutive Case to the object of *chäp*, namely the nominalized clause. Since the nominalized clause is third person singular, the set B marker is null. The same analysis extends to the intransitive sentence in (98-b) except in that no genitive Case assignment takes place within the nominalized clause. This is because there is no DP in the nominalized clause.

3.3 Other types of nominalizations in Kaqchikel

In what follows, we will address different types of nominalizations in Kaqchikel and demonstrate that they are consistent with the present analysis that nominalizations in Kaqchikel must be intransitive. In particular, we will analyze nominalizations involving antipassivization and (pseudo) noun incorporation.

3.3.1 Antipassivization

The nominalized verb in (100) is formed with *-ik* just as in the case of nominalizations examined in the preceding section.[47] However, the nominalized verb does not bear a set A marker cross-referencing the object (= *ri ak'wal* 'the child').

(100) x-ø-u-chäp [q'et-e-**n**-ik] r-ichin ri ak'wal
PFV-B3SG-A3SG-begin hug-BV-ANTIP-NMLZ A3SG-RN DET child
'He began to hug the child.'

(García Matzar and Rodríguez Guaján 1997, :457)

Crucially, the nominalized verb carries the antipassive morpheme *-n* in addition to the nominalizing suffix. I have suggested that nominalized verbs in Kaqchikel must be independently intransitivized as well as lack their external argument (= the RON).[48] As the example in (100) shows, some types of nominalizations in Kaqchikel involve antipassivization.

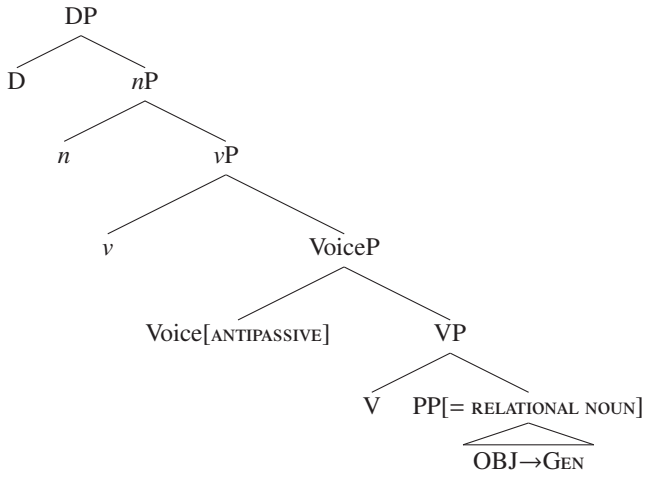
In antipassive constructions, the transitive verb is detransitivized as in passives. Unlike in passivization, however, the internal argument, but not the external argument, undergoes demotion in antipassivization. Cross-linguistically, the object/patient is either demoted to an oblique or suppressed in antipassive constructions (see Polinsky 2011 for an overview of antipassives in a wide range of languages). The object in (100) is introduced by the relational noun *-ichin*. Assuming that the relational noun behaves just as an inflected preposition, the object is demoted to an oblique argument.

Unlike in passivization, the object in (100) receives genitive Case from the relational noun *-ichin*: *ichin* thus bears the set A marker *r-*, which cross-references the object *ri ak'wal* 'the child' (see §3.2.2 for details about the derivation inside the relational noun). The derivation within the nominalized clause is illustrated in (101).

[47] My Kaqchikel consultants do not accept nominalized patterns as in (100). This is presumably because of dialectal differences.

[48] The present analysis would predict that the external argument cannot appear inside the nominalized verb in (100) due to the RON: the example with a set A marker cross-referencing the external argument on the nominalized verb should be ungrammatical. However, as pointed out above, nominalizations with the antipassive morpheme are not available in the dialect of Kaqchikel examined in the paper. Thus, investigation of the prediction must await further research on other dialects of Kaqchikel. I thank Julie Anne Legate for pointing this out.

(101)



The external argument is not generated within the nominalized clause due to the RON. The subject of sentences such as (100) is base-generated in the external argument position of *chäp*, as discussed in the preceding subsection. Given that the object in (100) occurs inside the relational noun, the nominalized verb lacks both its internal argument and its external argument. As a result, there is no DP within the nominalized clause. Therefore, genitive Case is not assigned inside the nominalized clause; the nominalized verb does not bear a set A marker.

To summarize, the type of nominalization we examined above involves antipassivization. To the extent that antipassivization is a subclass of intransitivization, examples such as the one in (100) are consistent with the present analysis that nominalized verbs in Kaqchikel must be intransitive. Combined with the RON, nominalizations involving antipassivization lack both the external argument and the internal argument.

3.3.2 (Pseudo) noun incorporation

It will be argued below that another type of nominalizations in Kaqchikel lends further support to the present analysis that nominalized verbs must be intransitive. The nominalization we will examine below exhibits a special Case-licensing attested in many (ergative) languages: (*pseudo*) *noun incorporation*, another intransitivizing strategy.

Recall that nominalized clauses formed with *-oj* can appear with the aspectual marker *ajin* and the embedding verb *chäp*, as shown in (102) and (103) (see §2.4.1 for evidence for nominal properties of the *-oj* nominalization). The *-oj* nominalization corresponds to the phenomenon called *incorporating antipassive* (Dayley 1981).[49]

(102) röj y-oj-ajin che [choy-**oj** che'].
we IPFV-B1PL-PROG PREP cut-NMLZ tree
'We are cutting trees.'

(103) x-ø-qa-chäp (ri) [choy-**oj** che'].
PFV-B3SG-A1PL-begin DET cut-NMLZ tree
'We began to cut tree(s).'

Crucially, nominalized verbs formed with *-oj* cannot carry a set A marker even when it is followed by the object, unlike nominalized verbs formed with *-ïk* (particularly passive nominalizations discussed in §3.2.1). The addition of the set A marker results in ungrammaticality, as seen in (104): neither singular nor plural agreement is possible.[50]

(104) *x-ø-qa-chäp **ru/ki**-choy-oj che'.
PFV-B3SG-A1PL-begin A3SG/A3PL-cut-NMLZ tree
'We began to cut tree(s).'

The *-oj* nominalization appearing with the object is not productive, while a form without the object is more productive and used as an infinitival form of a verb. The nominalized form with *-oj* expresses a habitual interpretation, as shown in (105).

[49] A similar type of nominalization can be found in other Mayan languages such as Tz'utujil (Dayley 1985), K'ichee' (Larsen 1988; Can Pixabaj 2009) and Chol (Coon 2010a, 2013a).

[50] In Kaqchikel, number agreement and especially plural agreement may be optional for inanimate nouns; plural agreement appears to be sometimes optional for some animate nouns as well in Kaqchikel (see England 2011 for optional plural agreement in some Eastern Mayan languages).

(105) a. choy-oj che'
cut-NMLZ tree
'tree-cutting'
b. ch'äj-oj läq
wash-NMLZ dish
'dish-washing'
c. b'an-oj wäy
make-NMLZ tortilla
'tortilla-making'
d. tik-oj awän
grow/plant-NMLZ corn
'corn-growing'

As indicated by the translations of the examples in (105), these nominalized forms function like incorporated (or compounding) words in English.

Although García Matzar and Rodríguez Guaján (1997) and García Matzar (2007) assert that nominalized verbs suffixed by *-oj* remain 'transitive', no evidence is provided for the transitivity of these verbs. Unlike in the type of nominalization observed in the preceding section, furthermore, the nominalized form with *-oj* does not display any valency-changing suffixes such as an antipassive morpheme. We cannot thus reduce the absence of a set A marker to an extra Case-assigning element like a relational noun found in antipassive nominalizations.

I argue that the *-oj* nominalization involves (pseudo) noun incorporation of the object. The object in this type of nominalization is (pseudo-)incorporated into the verb in the sense of Baker (1988) and Massam (2001). Following these authors, I adopt the view that a nominal does not require structural Case-licensing when it is (pseudo-)incorporated into the verb: the process of (pseudo) incorporation Case-licenses the object. We abstract away from discussion on the specific analysis of (pseudo) noun incorporation.

If the objects in (102) and (103) are incorporated into the nominalized verbs, the absence of the set A marker follows from the present analysis. The object in this type of nominalization does not need genitive Case from the D head of the nominalized clause. Given that the verb-noun unit derived via incorporation functions as an intransitive predicate in various languages (Mithun 1984; Massam 2001, 2009, etc.), the nominalization formed with *-oj* is consistent with the analysis that nominalized verbs in Kaqchikel must be intransitive.[51] The subject of sentences involving the *-oj* nominalization is then base-generated as the argument of *ajin* or *chäp* due to the RON, as has been suggested in the preceding sections. As a result, there is no DP which requires structural Case inside the nominalized clause.

Notice that the verb and the incorporated object are separate phonological words in Kaqchikel, unlike in typical instances of incorporation: the object is morphophonologically incorporated to the verb in incorporating languages such as Mohawk (Baker 1988) and Mapudungun (Baker 2009), as seen in the Mapudungun example of (106). Baker (1988) argues that this is derived via head movement of N to V.

(106) Ñi chao kintu-waka-le-y.
my father seek-cow-PROG-IND.3sS
'My father is looking for the cows.'

(Baker 2009, 153)

I suggest that (pseudo) noun incorporation in Kaqchikel can be analyzed just as a case of *composition by juxtaposition* (Mithun 1984) (see Massam 2001 for a similar analysis of pseudo noun incorporation in Niuean).[52] According to Mithun (1984), this type of incorporation has the following property: "The V and N remain separate words phonologically; but as in all compounding, the N loses its syntactic status as an argument of the sentence" (Mithun 1984, :849). That is, the object in the *oj* nominalization of Kaqchikel is (pseudo-)incorporated into the verb under adjacency (see Coon 2013a for similar discussion of incorporating antipassives in Chol).

Evidence for the (pseudo) noun incorporation analysis of the *oj* nominalization comes from a set of restrictions on the object. It has been observed in several languages with a productive use of incorporation that only a bare or non-specific noun can be (pseudo-)incorporated (Massam 2001, etc.). As it turns out, the same observation holds for the *oj* nominalization in Kaqchikel (see Dayley 1981 and Coon 2010a, 2013a for similar observations about incorporating antipassive in other Mayan languages). Notice that the objects in (102) and (103) are both bare and non-specific.

[51] For instance, Massam (2001, 2009) observes that the transitive subject in sentences involving pseudo noun incorporation of the object in Niuean (= an ergative language) bears the absolutive marker, but not the ergative marker, just as in intransitive sentences.

[52] One of the peculiar properties of pseudo noun incorporation in Niuean is that the incorporated material can be phrasal: e.g., nouns may be modified by adjectives (Massam 2001). In contrast, regular incorporated nouns in other languages may not be phrasal but must be a head (Baker 1988, 2009).

As shown in (107), the object preceded by the determiner *ri* (hence non-bare) cannot occur inside the nominalized clause formed with *-oj*.

(107) *x-ø-qa-chäp ri choy-oj **ri** che'.
PFV-B3SG-A1PL-begin DET cut-NMLZ DET tree
'(intended)We began to cut the tree(s).'

Other non-bare objects such as the ones modified by quantifiers or numerals cannot appear. This is seen in (108) and (109). Example (108) may also be ruled out because it is specific.

(108) *x-ø-qa-chäp ri choy-oj **nojel** ri che'.
PFV-B3SG-A1PL-begin DET cut-NMLZ all DET tree
'(intended)We began to cut all of the tree(s).'

(109) *x-ø-qa-chäp ri choy-oj **oxi'** che'.
PFV-B3SG-A1PL-begin DET cut-NMLZ three tree
'(intended)We began to cut three tree(s).'

The objects modified by the demonstrative and the adjective are impossible, as seen in (110) and (111).

(110) *x-ø-qa-chäp ri choy-oj **re** che' **re**.
PFV-B3SG-A1PL-begin DET cut-NMLZ this tree this
'(intended)We began to cut this tree.'

(111) *x-ø-qa-chäp ri choy-oj **taq** che'.
PFV-B3SG-A1PL-begin DET cut-NMLZ little tree
'(intended)We began to cut little tree(s).'

As shown in (112), the possessed object cannot occur.

(112) *x-ø-qa-chäp ri choy-oj **a**-che'.
PFV-B3SG-A1PL-begin DET cut-NMLZ A2SG-tree
'(intended)We began to cut your tree(s).'

These non-bare objects can occur with nominalized verbs formed with *-ïk*.

Furthermore, the object cannot be *wh*-extracted out of the nominalized verb formed with *-oj*, as can be seen in (113).

(113) *Achike$_i$ x-ø-a-chäp (ri) choy-oj t$_i$?
what PFV-B3SG-A2SG-begin DET cut-NMLZ
'(intended)What did you begin to cut?'

This follows from the (pseudo) noun incorporation analysis of the *oj* nominalization. As stated by Mithun (1984) above, the object and the verb behave like compounding in composition by juxtaposition that I have argued is a case of (pseudo) noun incorporation in Kaqchikel. If the *oj* nominalization constitutes a compounding form via (pseudo) noun incorporation, we expect that no element can be extracted out of it; extraction may not apply to compounding words.

In contrast, a nominalized verb formed with *-ïk* allows *wh*-extraction as shown in (114).

(114) Achike$_i$ x-ø-a-chäp ru-ch'ey-ïk t$_i$?
what PFV-B3SG-A2SG-begin A3SG-hit-NMLZ
'What did you begin to hit?'

To the extent that this type of nominalization does not involve (pseudo) noun incorporation, nothing blocks extraction of the object in (114).

We have shown that the *oj* nominalization involves (pseudo) noun incorporation in the sense of Baker (1988) and Massam (2001): the object of a nominalized verb formed with *-oj* is Case-licensed by the verb under adjacency. Combined with the RON, the nominalized clause does not contain any DP which requires genitive Case from D. Therefore, genitive Case is not assigned, and hence the set A marker does not appear on the nominalized verb.

4 Conclusion

I have addressed the alignment puzzle found in the accusative side of the ergative split in Kaqchikel and Chol/Q'anjob'al. Regarding Kaqchikel, the alignment below particularly concerns the accusative side involving the nominalization formed with *-ik* discussed in §3.2.

THE ALIGNMENT PUZZLE IN THE NOM-ACC PATTERNS OF MAYAN

(115) KAQCHIKEL-TYPE

	S	O
Intransitive	ABS	-
Transitive	ABS	ERG/GEN

(116) CHOL/Q'ANJOB'AL-TYPE

	S	O
Intransitive	ERG/GEN	-
Transitive	ERG/GEN	ABS

This contrast is unexpected, given that these languages have a (nearly) identical biclausal structure for their accusative side.

I have proposed that these contrastive alignments follow from a parametric difference between Kaqchikel and Chol/Q'anjob'al, developing a particular account of nominalization in Indo-European languages as well as other languages (Alexiadou 2001): whether the RON holds for these languages. It has been suggested that this parametric difference arises from a certain feature of the nominalizing head *n* in a given language. In other words, *n* found in Kaqchikel obligatorily selects for the type of *v*P which does not contain an external argument, whereas the one in Chol and Q'anjob'al does not obligatorily select for such *v*P. Crucially, the difference regarding the RON and the type of alignment patterns found in the accusative side of these languages are *causally connected*. This is summarized as below: S=intransitive subject, A=transitive subject, O=direct object (Dixon 1979, 1994).

(117) SUMMARY OF A NOM-ACC ALIGNMENT

	RON	Alignment patterns
Kaqchikel	+	S/A=ABS, O=ERG/GEN
Chol/Q'anjob'al	-	S/A=ERG/GEN, O=ABS

Due to the RON, the external argument may not be generated inside the nominalized clause in Kaqchikel. Furthermore, the nominalized verb must be intransitive, a property which I have suggested is presumably derivable from the RON. In progressives of Kaqchikel, the subject is base-generated as the argument of *ajin* in the matrix clause and receives absolutive Case from the matrix Infl. The object receives genitive Case from the D head of the nominalized clause because it is the only DP which requires Case inside the clause and because there is no Case assigner within the verbal domain of a nominalized clause. Alongside passive nominalizations, I have analyzed other types of nominalizations employing different intransitivizing strategies such as antipassivization and (pseudo) noun incorporation. It has been shown that these nominalizations are consistent with the analysis that nominalized verbs in Kaqchikel must be intransitive. I have demonstrated that in these cases, genitive Case is not assigned to the object because it is independently Case-licensed.

By contrast, the RON does not hold for Chol and Q'anjob'al. As a result, the subject in the accusative side of these languages may be generated inside the nominalized clause and receives genitive Case from D since it is the DP closest to the Case assigner. Another consequence is that the transitive object receives absolutive Case from Voice (or *-on* in the case of Q'anjob'al) inside the nominalized clause because nominalization does not require intransitivization in these languages.

Finally, a word is in order regarding the implication for other languages. To the extent that the RON is causally related to the type of *v* found in nominalized clauses, one of the generalizations worth pursuing based on the present analysis is that the RON does not hold for a given language if (and only if) there is a structural Case assigner, be it Voice as in Chol or a special assigner as in Q'anjob'al, within the verbal domain of its nominalized clause. Indeed, as demonstrated in Imanishi (2014), this generalization receives empirical support from other Mayan languages. Outside Mayan, furthermore, English arguably represents the generalization. For instance, English gerunds can be analyzed as containing a structural Case assigner within their verbal domain since the object is marked with accusative: e.g., *your hitting me*. This suggests that English is not subject to the RON. Under our analysis, *n* does not obligatorily select for

the *v*P which lacks an external argument in English. In fact, Alexiadou (2001) suggests, adopting the analysis of Portner (1992), that *v* found in English gerunds is transitive and contains the external argument (= PRO), unlike *v* in process nominals such as the *destruction*-type nominal: she argues that *v* found in the latter type of nominals is unaccusative. While the survey of more familiar languages in terms of the RON is necessary, I leave it for further investigation (see Alexiadou 2001 for relevant discussion on the variation regarding the structure of nominalizations across languages).[53]

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