A derivational account of dependent ergative Case: The instrumental voice in Ixil*

Yusuke Imanishi
Kwansei Gakuin University

1 Introduction

In this paper, I will argue that a subset of derived subjects (particularly the unaccusative subject) is allowed to receive ergative Case, contra the widely accepted generalization that derived subjects such as the subject of unaccusatives and passives are not marked with ergative (Marantz 1991)[1]. To illustrate this, I will investigate the interaction between Case alignment and instrumental voice constructions (hereafter IVCs) in Ixil (Mayan) (Dayley 1981; Ayres 1983, 1991). In particular, I will address the unexpected emergence of the ergative in a subcase of IVCs: unergatives and unaccusatives. This occurs when an instrumental phrase is fronted to clause-initial position. I will claim that the fronted instrumental phrase *feeds* the assignment of ergative Case, adopting a recent phase-based analysis of dependent ergative case (Baker 2014, 2015). As will be shown, the ergative found in unaccusatives and unergatives as well as the regular ergative of Ixil can be analyzed as dependent ergative under this analysis.

2 The instrumental voice construction in Ixil

Ixil, a member of the Mamean branch of the Mayan languages, is spoken by about 50,000-69,000 speakers in the Guatemalan Highlands (Elliott 1961; Lengyel 1978; Ayres 1981)[2]. Like other Mayan languages, Ixil is a head-marking ergative language 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. Set A markers cross-reference transitive subjects and possessors: the homophony between ergative and genitive can be found across Mayan languages. Set B markers cross-reference intransitive subjects and transitive objects. Ergative/genitive morphemes have prevocalic and preconsonantal allomorphs. The

*I am indebted to Elaine Elliott and Stephen R. Elliott for their assistance with obtaining the Ixil data. I am also grateful to Edith Aldridge, Jessica Coon, Masaru Honda, David Pesetsky, Norvin Richards, and the audience at the CLS 52 for helpful comments on (earlier versions of) the paper. This paper is an extended version of Imanishi (to appear): this version contains more details about the account developed in §3.1 and §3.2 and a new section (= §3.3). This research has been funded in part by the JSPS Grant-in-Aid for Young Scientists (B) (No.15K16752). Any shortcomings or errors in the data or analysis are my own. *Email: imanishi@alum.mit.edu*

[1] I will use "Case" for abstract Case and "case" for morphological case.

[2] While Ixil has several dialects, two dialects (= the Chajul and Nebaj dialects) will be discussed in the paper. The original data come from the Nebaj dialect. The specification of the dialects will be omitted in the data unless necessary.

absolutive agreement for third person nominals is null (= ø). Like other Mayan languages, the word order of Ixil is predicate-initial in pragmatically neutral contexts, and particularly VS(O). All pronominal arguments in Mayan languages, including subjects, objects and possessors, may be pro-dropped. The complete set of ergative/genitive and absolutive agreement morphemes is given in Table 1.

Table 1: Agreement morphemes in Ixil

Ergative/genitive		Absolutive	Person & number
_ C	_ V		
un-/in-	v-	(')in	1 person singular
a-	a(v)-	(')axh	2 person singular
i-	t-	ø	3 person singular/plural
ku-/qu-	q-	(')o'	1 person plural
e-	et-	(')ex	2 person plural

(based on Lengyel (1978, 1991) and Ayres (1990))

The examples shown in (1) and (2) illustrate the transitive and intransitive sentences of Ixil[3]. The absolutive morpheme follows the ergative morpheme and the verb, while the ergative morpheme always appears in preverbal (= ergative) or prenominal (= genitive) position.

(1) a. kat **in**-/**un**-q'os **axh**.
PRFV ERG1s-hit ABS2s
'I hit you.'

b. kat **a**-q'os **in**.
PRFV ERG2s-hit ABS1s
'You hit me.'

(Ayres 1983: 27)

(2) kat ja' **in** t-a'n iqwil.
PRFV climb ABS1s ERG3-PREP rope
'I climbed with (the) rope.'

(Ayres 1983: 42)

Let us now turn to IVCs found in Ixil. Consider intransitive clauses, first. As shown in (3a) (= the Chajul dialect), an instrumental phrase is normally introduced by an (inflected) preposition (= *t-a'n*): *-a'n* is a functional element called *the relational noun* in Mayan linguistics. Relational nouns inflect for their complement

[3]The following abbreviations will be used: ABS = absolutive agreement morpheme; ASP = nonperfective aspect; DET = determiner; EP = epenthetic vowel; ERG = ergative agreement morpheme; INST = instrumental voice suffix; NOML = nominalizing suffix; PREP = preposition; PRFV = perfective aspect; apostrophe = glottal stop (following vowels), implosive stop (following [b]) or ejectives (following other consonants).

noun just like inflected prepositions found in languages such as Irish and Welsh[4]. I will take these relational nouns to be inflected prepositions, following Ayres (1983, 1991). Ixil allows the fronting of an instrumental phrase, as seen in (3b). When the instrumental phrase appears as a bare form in clause-initial position, the suffix *-b'e* called *the instrumental voice* (Dayley 1981; Ayres 1983, 1991) is attached to the verb (see Ayres 1983 for discussion on dialectal variation regarding the construction). Fronting triggers focus interpretation of the instrumental phrase (Norman 1978). What is remarkable about (3b) is that the (postverbal) absolutive morpheme disappears. The ergative morpheme appears instead in the preverbal position.

(3) a. kat ja' **in** t-a'n iqvil.
PRFV climb ABS1s ERG3-PREP rope
'I climbed with a rope.'

b. iqvil kat **in**-ja'-e-**b'e**.
rope PRFV ERG1s-climb-EP-INST
'With a rope I climbed.'

(Ayres 1991: 159-160)

As will be made clear, *-b'e* is actually not a voice suffix but rather close to an applicative suffix. (Ayres 1983 also acknowledges this and sometimes calls the suffix *an instrumental index*.) For consistency with the literature on Ixil, however, we will continue to use the name of instrumental voice constructions, but avoid using "voice" in discussing the suffix[5].

Note that the instrumental phrase may be fronted, while retaining its preposition, as shown in (4b) (= the Nebaj dialect)[6]. In this case, however, neither *-b'e* nor the verbal form with the ergative morpheme can be used. As the example in (4c) also demonstrates, the preposition cannot appear with the fronted instrumental phrase when *-b'e* is suffixed.

(4) a. kat je' ø chaak t-i' ijvil.
PRFV climb ABS3 they ERG3-PREP rope
'They climbed with a rope.'

b. t-i' ijvil kat je' ø/***i**-je'-e-**b'e** kat chaak.
ERG3-PREP rope PRFV climb ABS3/ERG3-climb-EP-INST Loc they
'With a rope they climbed.'

[4]It appears that different prepositions may be used in IVCs without semantic consequences, as described in Ayres (1991). I will thus ignore the alternation among prepositions in IVCs. I also leave for future research the question of how ergative/genitive Case is assigned inside inflected prepositions (or relational nouns) in Ixil.

[5]The applicative, locative or instrumental suffix *-b'e/-be* is observed in some other Mayan languages such as Tzotzil, K'ichee', Tzutujil, and involves the promotion of an indirect, locative or instrumental argument. Many of these languages restrict suffixation by *-b'e/be* to transitive verbs, unlike in Ixil.

[6]Ayres (1983) observes that when locative phrases appearing with a preposition and some adverbial phrases denoting notions such as time duration, manner and motive occur in clause-initial position, the element *kat* (called *a locative index*), which is homophonous with the perfective aspectual marker, appears in post-verbal position in the Nebaj dialect.

c. (*t-i') ijvil kat **i**-je'-e-**b'e** chaak.
ERG3-PREP rope PRFV ERG3-climb-EP-INST they
'With a rope they climbed.'

In what follows, "a fronted instrumental phrase" will refer to an instrumental phrase that appears clause-initially without a preposition.

While the verb in the above examples is unergative, unaccusative verbs such as *ul* 'come/arrive' and *ooj* 'disappear' exhibit the same range of properties when the instrument is fronted, as seen in (5) (see below for detailed discussion of unaccusatives).

(5) a. kat ul in tu ch'ich'.
PRFV come/arrive ABS1s PREP car
'I came/arrived by car.'

b. ch'ich' kat **v**-ul-e-b'e.
car PRFV ERG1s-come/arrive-EP-INST
'By car I came/arrived.'

Furthermore, as shown by (6) in which the second person instrumental phrase is fronted, the verb still agrees with the first person subject, not the instrumental phrase. As we saw above, the ergative morpheme, instead of the absolutive morpheme, appears in (6).

(6) axh **in**-ja'-e-b'e.
you ERG1s-climb-EP-INST
'I went up with you; I used you to go up.'

(Ayres 1983: 43)

Crucially, the example in (6) demonstrates that the IVC *does not* promote the instrumental phrase to direct object via transitivization of the verb[7]. If the verb in (6) were transitivized, it would bear the overt absolutive morpheme cross-referenced by the second person instrument *axh*.

By contrast, the fronted instrumental phrase does not affect alignment in transitive clauses. In particular, the absolutive morpheme cross-referenced by the direct object is not replaced by the ergative morpheme, unlike in intransitive clauses, as seen in (7): the verb still carries the overt absolutive morpheme (= *in*) cross-referenced by the first person object[8].

[7]The IVC in a subgroup of the Nebaj dialect behaves like a valency-changing operation (see Ayres 1983, 1991 for details). I leave an analysis of this group for future research.

[8]In Ixil, tense/aspectual markers may be omitted when certain adverbs and adverbial phrases including instrumental phrases appear clause-initially (Ayres 1981).

(7) uula a-k'oni-b'e **in**.
sling ERG2s-shoot-INST ABS1s
'With (a) sling you shot me.'

(Ayres 1983: 42)

Example (8) clearly shows that the fronted instrumental phrase does not promote to direct object, thereby suggesting again that the IVC is not a valency-changing operation.

(8) axh la' in-paxi-b'e **ø** u ispeeha.
you ASP ERG1s-break-INST ABS3 DET glass
'With you, I'll break the glass; I'll use you to break the glass.'

(Ayres 1983: 42)

In (8), the fronted second person instrument does not trigger agreement on the verb: non-third person objects would control overt absolutive agreement, whereas absolutive agreement for third person is null (= ø). The verb still agrees with the third person object *u ispeeha* and thus bears a null morpheme.

The contrast between transitives and intransitives thus suggests that a fronted instrumental phrase only affects alignment patterns in intransitives, but not in transitives: the absolutive morpheme in the former disappears, whereas the one in the latter does not. Let us now assume that there is a one-to-one correspondence between absolutive/ergative Case and absolutive/ergative morphemes in Ixil (see also Aissen 1992; Shklovsky 2012 etc.). I also conjecture that Case is morphologically null in Mayan. Given this, we can state the following generalization regarding IVCs in Ixil: ergative Case is assigned to the subject of unergatives and unaccusatives (see §3.3 for discussion on passive subjects in IVCs). This generalization has escaped a theoretical account in the generative literature, although a fairly rich set of data has been documented. The main focus of this paper is to account for the generalization.

One might now argue that the emergence of the ergative in intransitive IVCs has to do with nominalization found in split ergativity. As in many other Mayan languages (e.g., Larsen & Norman 1979; England 1983a,b), Ixil displays aspect-based split ergativity. The accusative pattern arises in non-perfective aspects such as the progressive and involves nominalization of verbs like other Mayan languages (e.g., Larsen & Norman 1979; Bricker 1981; Mateo Pedro 2009; Coon 2010, 2013), whereas the ergative pattern occurs in perfective aspect. Under a nominalization analysis, the ergative in (3b) might then be analyzed as genitive, as can be illustrated by the following literal translation: *With a rope **my** climbing took place*. However, IVCs are not associated with the ergative split just mentioned and hence nominalization, although they still represent an ergative split conditioned by the instrument: it occurs in perfective aspect, as clearly seen in (3b). Moreover, if the verb in (3b) were nominalized, one would need to explain why nominalization occurs in (3b), but not in (3a), despite the fact that the same perfective aspectual marker *kat* is

present in both examples[9]. Thus it seems implausible to reduce the source of the ergative in (3b) to nominalization (and genitive) found in the accusative side of the ergative split.

The Ixil facts serve as important counterexamples to an inherent analysis of ergative Case (Aldridge 2004, 2008; Coon 2013; Legate 2006, 2008, 2012; Woolford 1997, 2006). This analysis argues that *v* assigns inherent ergative Case to the transitive subject and (sometimes) the unergative subject in split-S languages such as Basque and Georgian along with a specific θ-role in the sense of Chomsky (1986). Although a θ-role of the ergative-bearing DP is typically associated with an agent θ-role, the correlation between inherent ergative Case and an agent θ-role is not absolute, as Woolford (1997) and Legate (2012) point out: causer (Tsez), instrument (Basque) or experiencer (Chukchi) subjects can bear ergative case (Legate 2012). Despite the complicating picture of the correlation between ergative Case and a type of θ-role, the consensus is that only the *v* that introduces the external argument may assign inherent ergative Case, regardless of the type of a θ-role it assigns: transitive and unergative *v* (see Legate (2012) for detailed discussion). This conclusion is consistent with the *Ergative Case Generalization* (Marantz 1991): derived subjects such as the subject of unaccusatives and passives are not marked with ergative case. As shown above, however, not only unergative subjects but also unaccusative subjects receive ergative Case in IVCs of Ixil.

It is also important to note that Shipibo (a language of the Panoan family) presents a very similar counterargument against the inherent analysis. Baker (2014, 2015) demonstrates that the subject of unaccusatives as well as unergatives in applicative constructions of Shipibo receives ergative case. Therefore, I take the Ixil and Shipibo facts to suggest that the inherent analysis of ergative Case does not straightforwardly extend to these languages, though I remain agnostic about whether it holds for ergative in other languages.

3 A derivational account of dependent ergative in Ixil

I will argue, adopting a phase-based analysis of ergative (Baker 2014, 2015), that ergative Case in Ixil is dependent Case assigned at the time of Spell-Out when a certain condition is met (see Imanishi (2014) for a different analysis). This type of Case assignment stands in stark contrast to Chomsky's Case-by-agreement model in that Case assignment does not depend on the presence of a particular functional head, but on the presence of another (distinct) DP in the relevant domain.

3.1 A phase-based account of dependent ergative

In the model of dependent case assignment originally proposed by Marantz (1991) (see Yip *et al.* (1987) for its precedent), the assignment of dependent case including ergative and accusative cases *depends* on the presence of a distinct DP. In Marantz's original formulation, if there are two distinct DPs in a clause (= "governed by V+I", to use his original term) and one of them is not assigned lexical case, dependent case is assigned. Under this analysis, the parameterizable directionality of dependent

[9] If the verb in IVCs were nominalized, the nominalizing suffix *-e'*, which only appears in clause-final position, should be attached in situations such as (3b), contrary to fact.

case assignment determines the output of dependent case. If dependent case is assigned "upwards" to the subject of V+I complex, it is realized as ergative. On the other hand, if dependent case is assigned "downwards" to the object of V+I complex, it is accusative.

More recently, the model of dependent case assignment has been updated by Baker & Vinokurova (2010) and Baker (2014, 2015) under the current theory of phase (Chomsky 2001). In particular, Baker (2014, 2015) proposes that dependent case assignment takes place at the *interface* (= Spell-Out) between the syntax and PF, unlike Marantz's original theory in which dependent case assignment happens in the PF component (see Baker (2015) for detailed discussion). Under Baker's system, dependent case is assigned, based on the rules given in (9). I will use DP/NP and IP/TP interchangeably in the following discussion.

(9) a. If NP_x c-commands NP_y at the Spell-Out of TP, value the case feature of NP_x ergative.
b. If NP_x c-commands NP_y at the Spell-Out of TP, value the case feature of NP_y accusative.

(Baker 2014)

In (9), the directionality of dependent case assignment found in Marantz's original formulation is rephrased by the relative position of NPs defined in terms of c-command. Furthermore, the Spell-Out domain of the C head (i.e., TP/IP) is relevant to the assignment of ergative case and accusative case. As Baker suggests, languages differ as to which of the case assignment rules apply: e.g., (9a) holds for ergative languages, whereas (9b) is active in accusative languages (see Baker 2015 for an exhaustive discussion of dependent case assignment rules that hold for various case alignment patterns).

To address the unexpected emergence of the ergative in Ixil as well as its prototypical ergative alignment pattern, I assume that the rule in (9a) holds for Ixil. It is important to note that Baker's theory of dependent case assignment is designed to cover morphological case rather than abstract Case in the sense of Vergnaud (1976/2006) and Chomsky (1981). As should be clear by now, however, Ixil does not show morphological case on nominals. The present analysis can be thus taken as an attempt to expand the rules of dependent case assignment developed for languages with morphological case to head-marking languages characterized by 'rich agreement' such as Ixil. If this succeeds, we can conclude that ergative and absolutive agreement morphemes in Ixil may be perceived as a reflex of ergative and absolutive case. I will continue to use capital-C "Case" for Ixil, and assume the correspondence between abstract "Case" and morphological "case". (Note, though, that morphological case does not always coincide with abstract Case, as discussed by Legate (2008) and Baker (2015).)

I adopt the following assumptions made by Baker (2014, 2015) (most of which are familiar notions of phase theory)[10].

[10]See Baker (2014, 2015) for relevant discussion on the difference between hard/soft phases and strong/weak *v*P phases (Chomsky 2001).

(10) a. C and *v* are phase heads.
b. Their complements (IP, VP) are Spell-Out domains.
c. Spell-Out involves mapping relevant c-command relations onto linear order statements, *case assignments*, and so on.
d. CP is always a "hard phase": its complement is invisible for later operations.
e. *v*P may be a "hard phase" or a "soft phase". If it is soft, the contents of its complement do remain visible in the next stage of derivation, but only new c-command relationships are considered at later Spell-Outs.

(Baker 2014: 355)

With the rule of dependent ergative case assignment at hand, let us consider the derivation of simple transitive sentences in Ixil. I adopt the structure as in (11) for transitive clauses: the subject is generated in Spec-VoiceP (see also Bruening 2013).

(11) $[_{CP}\ [_{IP}$ SUBJ Infl$_{[EPP]}$ $[_{VoiceP}$ t$_{SUBJ}$ Voice $[_{VP}$ V OBJ]]]]

I also assume that Infl, which hosts an aspectual marker, bears an EPP feature: the EPP feature requires that the structurally closest element of *any* category (except a verbal maximal projection (e.g., VoiceP/VP) and any projection that dominates it) move to Spec-IP (see also Holmberg (2000) and Landau (2007) among others)[11]. In normal transitive and intransitive clauses, the subject DP is the closest element and thus moves to Spec-IP to satisfy the EPP feature.

I assume that VoiceP in our analysis corresponds to *v*P in Baker's system and is a soft phase. The transitive subject moves to Spec-IP for EPP reasons and c-commands the object. Since VoiceP is a soft phase, the object in the VP domain remains visible for the next stage of derivation. When C is introduced, its complement (= IP) undergoes Spell-Out. According to the rule of ergative assignment in (9a), the subject receives ergative Case at the Spell-Out of IP[12]. Furthermore, I suggest, building on Baker (2014, 2015), that the object gets unmarked absolutive Case when C triggers Spell-Out of its complement, since it has not been assigned lexical/oblique or dependent Case (see also Marantz (1991) and Levin & Preminger (2015)).

By contrast, ergative Case assignment does not take place in simple intransitive sentences since there is only one nominal. I assume, following Hale & Keyser (1993), that unergative subjects are generated in the same position as transitive subjects (i.e., Spec-VoiceP in our analysis). Regarding unaccusative subjects, I suppose that they are generated as a complement to V. The intransitive subject moves to Spec-IP for EPP reasons as in transitive sentences, and receives unmarked absolutive Case since it would be otherwise Case-less.

[11] Since Ixil does not have an expletive, it excludes the option of satisfying the EPP feature by external merge.

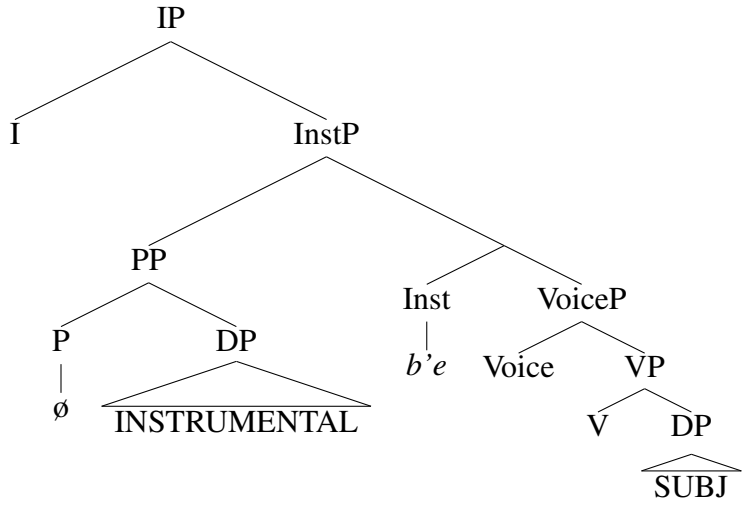
[12] I abstract away from discussion on how to derive the surface word order of grammatical arguments due to space limitation (see Imanishi (2014) for relevant discussion).

3.2 Dependent ergative in IVCs

In what follows, I will demonstrate that the generalization about IVCs in Ixil can receive a natural account from the rule of dependent ergative assignment introduced in the preceding section. In particular, I will show that the unexpected emergence of the ergative in IVCs can be analyzed as dependent ergative under the present analysis.

Recall that in IVCs, the suffix *-b'e* is attached to the verb. To account for IVCs, I make several suggestions about *-b'e*[13]. First, InstP, which is headed by *-b'e*, occurs between IP and VoiceP. Second, the instrumental phrase is contained by a PP, which appears in Spec-InstP — the instrumental phrase is Case-licensed by the P. Third, the PP is headed by a null P, which is licensed by being in a local relationship with *-b'e*. The structure of intransitive IVCs can be illustrated as in (12) (= unaccusatives).

(12)



Let us first discuss the structural position of InstP proposed in (12). Important evidence comes from the interaction of the instrumental suffix with voice morphology[14]. As shown by (13) (= the Nebaj dialect), the instrumental suffix can occur with the antipassive morpheme *-on*, although the sentence is a passive construction as indicated by the demoted external argument (see Imanishi (2014) for discussion on why the passive morpheme is not found in (13))[15].

[13] InstP in our analysis comes close to high applicatives (Pylkkänen 2008), but is not identical to it. High applicatives appear above *v*P but below the external argument appearing in Spec-VoiceP, which dominates *v*P. In contrast, low applicatives occur below *v*P. See Buell (2003) and Kim (2011) for analyses of applicatives merged above the external argument (or agent), and Tsai (2009) for high applicatives appearing in the CP area.

[14] While one might wish to test (variable) binding facts to determine the structural position of a fronted instrument relative to the subject, binding in Ixil does not seem constrained by c-command, but rather by linear order as pointed out by Ayres (1990) (see the reference for details). Thus, binding may not be a reliable diagnostic for structural relation in Ixil, though I leave detailed discussion of binding facts in the language for further research. Similar facts have been discussed for other Mayan languages (Larsen & Norman 1979).

[15] As Ayres (1991) notes, the affix *s-* precedes a certain class of inflected prepositions in the Nebaj dialect. While I abstract away from detailed discussion of its function, I will gloss it as a prepositional affix.

(13) u machit kat tzok'-**on-b'e** ø u tze' (s-v-a'n)
the machete PRFV cut-AP-INST ABS3 the tree PREP-ERG1S-PREP
'with the machete the tree was cut (by me)'

What is crucial about (13) is the morphological ordering on the verb: the verb (= *tzok'*) + the antipassive voice (= *-on*) + the instrumental suffix (= *-b'e*). Following *the Mirror Principle* (Baker 1985) in that morpheme order should mirror syntactic structure and vice versa, I suggest that the morpheme order in (13) supports the structure in (12) in the following way: the verbal phrase first merges with Voice (which is headed by the antipassive morpheme) and subsequently with INST (= the instrumental suffix). The surface morpheme order can be derived via successive-cyclic head-movement of V to INST. The interaction of *-b'e* with the antipassive voice thus suggests that INSTP occurs in a higher position than VoiceP, which accommodates the subject. I take the position to reside in between IP and VoiceP. (Note that while it is argued in Imanishi (2014) that the suffix *-on* found in (13) is actually not an antipassive morpheme, it seems plausible to generate the suffix in Voice head since it is in complementary distribution with a passivizing suffix.)

Regarding the null-headed PP containing the instrument, I build on the proposals about applicatives of Amharic (Baker 2012) and Shipibo (Baker 2014): the applied argument in these languages is argued to be contained by a PP whose head is null. The null-headedness of the PP containing the fronted instrument in Ixil receives empirical support from the fact observed earlier: the overt preposition *cannot* appear in IVCs, as shown in (4c).

Following Baker (2012, 2014), the special property of the null-headed PP is that it cannot move to Spec-IP to satisfy the EPP feature due to a ban on null heads (Landau 2007). Landau (2007) argues, based on crosslinguistic evidence, that the head of an element satisfying the EPP feature must be phonetically realized. Baker (2012, 2014) also suggests that the complement DP cannot move out of the null-headed PP (see also Polinsky (2016) for a similar idea and its application to syntactic ergativity). In addition, I suppose that *-b'e* appears if and only if it licenses the null P.

We are now in a position to explain why ergative Case, not absolutive Case, is assigned to the intransitive subject in IVCs. When Infl is introduced, the EPP feature on Infl must be satisfied. A candidate that would satisfy it is the PP containing the instrumental phrase, according to the structure in (12). However, it cannot move to Spec-IP due to its null head (Landau 2007), as discussed above. Applying the logic of Baker (2014) for Shipibo to Ixil, I suggest that the subject moves past the instrumental phrase to Spec-IP, where it satisfies the EPP feature, as illustrated in (14) (= unaccusatives)[16].

(14) [$_{IP}$ SUBJ$_i$ Infl$_{[EPP]}$ [$_{InstP}$ [$_{PP}$ instrument] Inst [$_{VoiceP}$ Voice [$_{VP}$ V t$_i$]]]]

Crucially, this movement creates a *new* c-command relationship. The theme subject c-commands the instrumental DP inside the PP in (14). Since this config-

[16]This movement arguably does not violate a locality condition such as the Minimal Link Condition (Chomsky 1995) once we assume that the null-headed PP does not count as a closer EPP-satisfier than the subject due to its null head, whereas the overtly-headed PP does (see below for discussion).

uration satisfies the condition for dependent ergative C/case assignment introduced in §3.1, the subject, a c-commander, receives ergative Case when C is introduced and triggers Spell-Out of its complement. The instrumental phrase thus *feeds* the assignment of ergative Case. I conjecture that after the calculation of dependent ergative assignment is completed, the PP containing the instrument moves to Spec-CP to check a [focus] feature, assuming that the left-peripheral position serves as focus position: this captures focus interpretation of the instrument (Norman 1978) and its sentence-initial position. This seems a necessary assumption to capture case-marking phenomena in languages with varieties of A-bar movement such as scrambling and focus/topic movement, as also mentioned by Baker (2014). While (14) is the structure of unaccusatives, the same explanation extends to unergatives: the subject moves from Spec-VoiceP in unergatives.

As for the instrumental phrase appearing clause-initially with the overt preposition as in (4b), I suggest that the instrument appears in the same position as in (14), but the difference is that the instrument is contained and Case-licensed by the *overt* preposition. Crucially, the PP containing the instrumental phrase in (4b) serves as the closest goal that can satisfy the EPP feature on Infl since it is not null-headed, in contrast to IVCs, and thus moves to Spec-IP. In (4b), therefore, the subject does not move past the instrumental phrase, and hence is not assigned ergative Case: the *underapplication* of dependent ergative assignment. The subject then receives unmarked absolutive Case. This captures the ungrammaticality of the ergative form in (4b). The PP further moves to Spec-CP, just as in IVCs.

As for transitive IVCs, the same alignment pattern as in regular transitives are derived. The transitive subject moves to Spec-IP to check an EPP feature and receives dependent ergative Case at the Spell-Out of the IP since it c-commands the instrumental phrase as well as the direct object. The object receives unmarked absolutive Case.

3.3 Passive IVCs

In this section, I will address a particular prediction of the dependent ergative analysis on the basis of IVCs: the *underapplication* of dependent ergative assignment. I have argued, following the analysis of Shipibo by Baker (2014, 2015), that the null-headed PP containing the instrument feeds the assignment of ergative Case in intransitive IVCs. The logic was that the inability of the null-headed PP to satisfy the EPP feature on Infl triggers the movement of the next closest element, namely the intransitive subject, past the instrument, resulting in the assignment of dependent ergative Case to the subject. This analysis predicts that the intransitive subject cannot move past the instrument and thus cannot receive ergative Case in IVCs when there is a *closer* goal which can satisfy the EPP feature on Infl. I will claim that this prediction is borne out in another type of intransitives, namely passives.

I have suggested that the structural position of InstP is supported by the relative order of the suffix *-on* to the instrumental suffix *-b'e*, as repeated in (15) (= the Nebaj dialect). Despite the absence of a passive morpheme, I take (15) as a passive construction, following Bruening (2013) (also Keenan 1985) in that oblique- or non-realization of the external argument defines the passive: the external argument appears as a *by*-phrase or is implicit in (15).

(15) u machit kat tzok'-**on-b'e** ø u tze' (s-v-a'n)
the machete PRFV cut-AP-INST ABS3 the tree PREP-ERG1S-PREP
'with the machete the tree was cut (by me)'

It is important to note that the internal argument (= *u tze'*) receives absolutive Case in (15) — the null absolutive morpheme or lack of the (overt) ergative morpheme suggests that the third person internal argument receives absolutive Case. We have confirmed in §2 that the fronted instrumental phrase does not control verbal agreement.

Given that the fronted instrument feeds the assignment of dependent ergative under the present analysis, we would predict that the internal argument in (15) receives dependent ergative Case, contrary to fact. I argue that a particular property of the passive prevents dependent ergative assignment from applying to passive IVCs, thereby distinguishing it from other intransitives such as unaccusatives discussed in §3.2. The crucial difference between the passive and the unaccusative/unergative is that the former has a demoted external argument (or *by*-phrase) as shown in (15), whereas the latter does not. Following the insights of Collins (2005) that the (demoted) external argument in passive sentences originates in the same position as in active sentences, I suggest that the external argument in the passive counts as a *closer* satisfier of the EPP feature on Infl than the internal argument, as illustrated in (16) (= (15)): EA and IA stand for external argument and internal argument, respectively (*cf.* Bruening 2013).

(16) [$_{IP}$ Infl$_{[EPP]}$ [$_{InstP}$ [$_{PP}$ instrument] Inst [$_{VoiceP}$ **[**$_{PP}$ **EA]** Voice [$_{VP}$ V **IA**]]]]

The null-headed PP containing the instrument cannot move to Spec-IP, as we have assumed. Crucially, unlike the instrument, the external argument is contained by the overtly-headed PP (= *-a'n*) and Case-licensed by the P. Since it has an overt head, the PP containing the external argument in (16) can move to Spec-IP for EPP reasons, according to Landau (2007)[17].Therefore, the presence of the external argument contained by the overtly-headed PP in passives blocks the movement of the internal argument past the instrument, just as the overt PP containing the instrument does (§3.2). This results in the underapplication of dependent ergative assignment in passive IVCs. I then suggest that the internal argument receives unmarked absolutive Case as it would be otherwise Case-less. In contrast, since there is no additional argument such as the demoted external argument that blocks the movement of the subject in unaccusative and unergative IVCs, dependent ergative assignment applies, as discussed in §3.2. The instrument in (16) moves to Spec-CP after the calculation of Case assignment at the Spell-Out of IP is completed, as suggested above.

When a *by*-phrase does not appear in passives, I suggest that the external argument is overtly realized on a voice morpheme (= Voice head) in a manner similar

[17]One of the ways to derive the surface word order in which the demoted external argument appears in right-peripheral position would be to adopt a leftward phrasal movement approach. For example, it could be posited that VoiceP containing the internal argument undergoes phrasal movement to a functional projection above IP but below CP, after the external argument escapes VoiceP, departing in this sense from the smuggling approach to passives (Collins 2005). I leave it for further research how to elaborate on this analysis.

to that proposed by Baker *et al.* (1989) (see also Jaeggli 1986) and checks the EPP feature via head movement to Infl in the sense of Alexiadou & Anagnostopoulou (1998), on the assumption that EPP-checking via head movement in Ixil takes place only when a head realizes the argument (see Landau (2010) for the analysis that (certain) implicit arguments are syntactically active and present, and also Bhatt & Pancheva (2006) for an extensive overview of implicit arguments found in various syntactic contexts)[18]. The external argument thus counts as a closer EPP-satisfier and blocks the movement of the internal argument past the instrument in the same way as described above. I suggest that the external argument in such case is Case-licensed via incorporation (or by being adjacent) to the verb, building on one of the analyses proposed in Baker *et al.* (1989).

4 Conclusion

In this article, I have argued that the apparently unexpected emergence of the ergative in unaccusative and unergative IVCs of Ixil can receive a natural account from a phase-based theory of dependent ergative assignment developed by Baker (2014, 2015). The present analysis calls for reconsideration of part of Marantz's generalization: it has been demonstrated that unaccusative subjects are allowed to receive ergative Case, contra the generalization. At the same time, I have shown that the present analysis correctly derives part of the generalization: passive subjects are not marked with ergative.

References

Aissen, J. 1992. Topic and focus in Mayan. *Language* 68.43–80.

Aldridge, E. *Ergativity and word order in Austronesian languages*. Cornell University dissertation.

Aldridge, E. 2008. Generative approaches to ergativity. *Language and Linguistic Compass: Syntax and Morphology* 2.966–995.

Alexiadou, A., & E. Anagnostopoulou. 1998. Parametrizing word order, V-movement, and EPP-checking. *Natural Language and Linguistic Theory* 16.491–539.

Ayres, G. 1981. On ergativity and aspect in Ixil. *Journal of Mayan Linguistics* 2.128–45.

Ayres, G. 1983. The antipassive "voice" in Ixil. *International Journal of American Linguistics* 49.20–45.

Ayres, G. 1990. Reflexive and reciprocal elements in Ixil. In *Kansas Working Papers in Linguistics*, volume 15, 18–44. The University of Kansas.

Ayres, G. 1991. *La gramática Ixil*. Antigua, Guatemala: CIRMA.

[18]To be precise, Baker *et al.* (1989) argue that the passive morpheme (= *-en*) in English is a clitic serving as the argument originated in Infl and clitic-doubled by a *by*-phrase when the latter appears. Given this, we could alternatively propose for the passive with a *by* phrase in Ixil that the voice morpheme, which is clitic-doubled by the *by* phrase, realizes the external argument and blocks the movement of the internal argument in the same way as suggested here. Baker *et al.* (1989) further propose that the passive morpheme in a certain class of languages such as Lithuanian is based-generated in VP-internal position and undergoes movement to subject position.

Baker, M., K. Johnson, & I. Roberts. 1989. Passive arguments raised. *Linguistic Inquiry* 20.219–251.
Baker, M. C. 1985. The mirror principle and morphosyntactic explanation. *Linguistic Inquiry* 16.373–415.
Baker, M. C. 2012. On the relationship of object agreement and accusative case: Evidence from Amharic. *Linguistic Inquiry* 43.255–274.
Baker, M. C. 2014. On dependent ergative case (in Shipibo) and its derivation by phase. *Linguistic Inquiry* 45.341–379.
Baker, M. C. 2015. *Case: Its principles and its parameters*. Cambridge: Cambridge University Press.
Baker, M. C., & N. Vinokurova. 2010. Two modalities of case assignment: case in Sakha. *Natural Language and Linguistic Theory* 28.593–642.
Bhatt, R., & R. Pancheva. 2006. Implicit arguments. In *The Blackwell Companion to Syntax*, ed. by M. Everaert & H. van Riemsdijk, volume 2, 558–588. Oxford: Blackwell Publishers.
Bricker, V. 1981. The source of the ergative split in Yucatec Maya. In *Journal of Mayan Linguistics*, volume 2, 83–127.
Bruening, B. 2013. By phrases in passives and nominals. *Syntax* 16.1–41.
Buell, L. 2003. Introducing arguments above the agent: the case of Zulu locative applicatives. In *Proceedings of WCCFL 22*, ed. by M. Tsujimura & G. Garding, 109–122. Somerville, MA: Cascadilla Press.
Chomsky, N. 1981. *Lectures on government and binding*. Dordrecht: Foris.
Chomsky, N. 1986. *Knowledge of language*. New York: Praeger Publishers.
Chomsky, N. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
Chomsky, N. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. by M. Kenstowicz, 1–52. Cambridge: MIT Press.
Collins, C. 2005. A smuggling approach to the passive in English. *Syntax* 8.81–120.
Coon, J. *Complementation in Chol (Mayan): A theory of split ergativity*. Cambridge, MA: MIT dissertation.
Coon, J. 2013. *Aspects of split ergativity*. Oxford: Oxford University Press.
Dayley, J. 1981. Voice and ergativity in Mayan languages. *Journal of Mayan Linguistics* 2.3–82.
Elliott, R. 1961. Ixil clause structure. In *Mayan studies I*, ed. by B. Elson, 129–142. Norman, Oklahoma: Summer Institute of Linguistics.
England, N. C. 1983a. Ergativity in Mamean (Mayan) languages. *International Journal of American Linguistics* 49.1–19.
England, N. C. 1983b. *A grammar of Mam, a Mayan language*. Austin, TX: University of Texas Press.
Hale, K., & S. J. Keyser. 1993. On argument strucuture and the lexical expression of syntactic relations. In *The view from building 20*, ed. by K. Hale & S. J. Keyser, 53–110. Cambridge, MA: MIT Press.
Holmberg, A. 2000. Scandinavian stylistic fronting: How any category can become an expletive. *Linguistic Inquiry* 31.445–483.
Imanishi, Y. *Default ergative*. Cambridge, MA: MIT dissertation.
Imanishi, Y. to appear. Derived ergative in Ixil. In *Proceedings of WCCFL 34*. Cascadilla Press.
Jaeggli, O. A. 1986. Passive. *Linguistic Inquiry* 17.587–622.

Keenan, E. 1985. Passive in the world's languages. In *Language typology and syntactic description*, ed. by T. Shopen, volume 1, 243–281. Cambridge: Cambridge University Press.
Kim, K. *External argument introducers*. University of Toronto dissertation.
Landau, I. 2007. EPP extensions. *Linguistic Inquiry* 38.485–523.
Landau, I. 2010. The explicit syntax of implicit arguments. *Linguistic Inquiry* 41.357–388.
Larsen, T. W., & W. M. Norman. 1979. Correlates of ergativity in Mayan grammar. In *Ergativity: Towards a theory of grammatical relations*, ed. by F. Plank, 347–370. London/New York: Academic Press.
Legate, J. A. 2006. Split absolutive. In *Ergativity: Emerging issues*, ed. by A. Johns, D. Massam, & J. Ndayiragije, 143–171. Dordrecht: Springer.
Legate, J. A. 2008. Morphological and abstract case. *Linguistic Inquiry* 39.55–101.
Legate, J. A. 2012. Types of ergativity. *Lingua* 122.181–191.
Lengyel, T. E. 1978. Ergativity, aspect and related perplexities of Ixil-Maya. In *Papers in Mayan linguistics*, ed. by N. C. England, 78–91. University of Missouri.
Lengyel, T. E. 1991. Towards a dialectology of Ixil Maya: Variation across communities and individuals. *International Journal of American Linguistics* 57.330–364.
Levin, T., & O. Preminger. 2015. Case in Sakha: are two modalities really necessary? *Natural Language and Linguistic Theory* 33.231–250.
Marantz, A. 1991. Case and licensing. In *Proceedings of the Eighth Eastern States Conference on Linguistics (ESCOL 8)*, ed. by G. Westphal, B. Ao, & H.-R. Chae, 234–253, Ithaca, NY. CLC Publications.
Mateo Pedro, P. 2009. Nominalization in Q'anjob'al (Maya). In *Kansas Working Papers in Linguistics*, 46–63.
Nichols, J. 1986. Head-marking and dependent-marking grammar. *Language* 62.56–119.
Norman, W. M. 1978. Advancement rules and syntactic change: The loss of instrumental voice in Mayan. In *Proceedings of the 4th Annual Meeting of the Berkeley Linguistics*, 458–476.
Polinsky, M. 2016. *Deconstructing ergativity: Two types of ergative languages and their features*. New York: Oxford University Press.
Pylkkänen, L. 2008. *Introducing arguments*. Cambridge, MA: MIT Press.
Shklovsky, K. *Tseltal clause structure*. Cambridge, MA: MIT dissertation.
Tsai, W.-T. D. 2009. High applicatives are not high enough: A cartographic solution. In *6th Workshop on Formal Syntax and Semantics (FOSS-6)*. Taipei: National Taiwan Normal University.
Vergnaud, J.-R. 1976/2006. Letter to Noam Chomsky and Howard Lasnik. In *Syntax: Critical concepts in linguistics*, ed. by R. Freidin & H. Lasnik, volume 5, 21–34. Routledge.
Woolford, E. 1997. Four-way case systemes: Ergative, nominative, objective and accusative. *Natural Language and Linguistic Theory* 15.181–227.
Woolford, E. 2006. Lexical case, inherent case, and argument structure. *Linguistic Inquiry* 37.111–130.
Yip, M., J. Maling, & R. Jackendoff. 1987. Case in Tiers. *Language* 63.217–250.