Nominalization and Predicate-Fronting: Two Sources of Ergativity*

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1 Introduction

Our goal in this paper is to provide a unified account of ergativity in two languages where the conditions under which we find ergativity initially appear to be very different: Chol (Mayan, Mexico) and Mẽbengokre (Gê, Brazil). In the process, we hope to provide insights into systems of ergativity and accusativity more generally, as well as to make testable typological predictions.

Both Chol and Mẽbengokre display what appear to be aspect-based ergative splits. However, while in Mẽbengokre ergativity is found in verb stems which are formally nominal, ergativity in Chol is found in what can be shown to be truly verbal verb stems. This basic contrast is shown in (1) and (2).[1]

(1) *Mẽbengokre perfects (stems = nominal):*

a. i-**jɛ** a-pumũŋ
1-ERG 2-see.NML
'I've seen you.'

b. i-tẽm
1-go.NML
'I've gone.'

(2) *Chol perfectives (stems = verbal):*

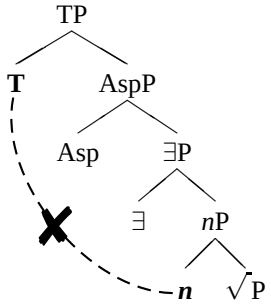
a. Tyi **k**-mek'-e-yety.
PRFV 1ERG-hug-VRBL-2ABS
'I hugged you.'

b. Tyi majl-i-yoñ.
PRFV go-VRBL-1ABS
'I went.'

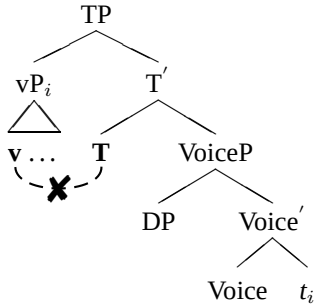
Previous authors have proposed that ergativity in a variety of languages may arise as the result of nominalization: Salanova (2007b) for Mẽbengokre; Alexiadou (2001) for Indo-European process nominals; Johns (1992) for Inuktitut (Inuit). In Chol, however, ergativity cannot be the result of nominalization, since we find ergativity in stems that are *verbal*.

In this paper we propose that despite these differences, the source of ergativity is in fact the same in both languages. Drawing on Salanova (2007b), we propose that in both cases, ergativity is the result of *a separation of the predicate head (v^0 or n^0) from T^0*. In Mẽbengokre this separation arises from nominalization, as in (3). In Chol, the separation is the result of phrasal fronting of the predicate *v*P to Spec,TP, which derives the VOS pattern of the language. This is illustrated in (4).

(3) *Mẽbengokre ergativity as nominalization:*



(4) *Chol ergativity as predicate-fronting:*



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[1]Abbreviations in glosses are as follows: 1, 2, 3 = 1st, 2nd, 3rd persons; A = 'set A' (ERG, GEN); ABS = absolutive; ACC = accusative; AFF = affirmative; APASS = antipassive; B = 'set B' (ABS); CL = gender clitic; DET = determiner; DEM = demonstrative; ERG = ergative; LOC = locative; NEG = negative; NOM = nominative; NML = nominal; POSS = possessive; PL = plural; PREP = preposition; PRFV = perfective aspect; VRBL = verbal.

The analysis presented here provides a unified account not only of ergativity in Chol and Mẽbengokre, but has the potential to be extended to a number of other ergative languages discussed in the literature. First, it offers an explanation for the correlation between ergativity and nominalization, noted above. Second, this proposal offers an explanation for the ergative patterns found in many predicate-fronting languages, including languages in the Mayan, Otomanguean, and Austronesian families. Our account brings these two bodies of work together and makes testable predictions about where we should, and should not, find ergativity.

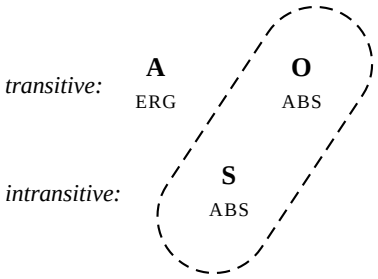
2 (Split) Ergativity and Case

2.1 Ergativity

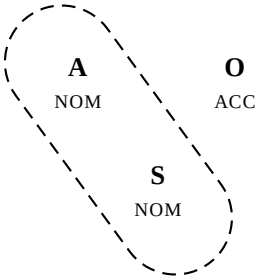
Languages vary in the ways in which they mark their core arguments (whether through case-marking on nominals, or through agreement on the predicate). Different groupings result in various possible "alignment systems", of which *ergative-absolutive* and *nominative-accusative* are by far the most commonly found in the world's languages.[2]

In an ergative-absolutive system, the single argument of an intransitive clause (S) patterns with the object of a transitive clause (O), as in (5). In a nominative-accusative alignment, the subject of an intransitive clause patterns with the subject of a transitive (A), as shown in (6). We will refer to NOMINATIVE and ABSOLUTIVE as *obligatory cases*, since they are present in all clauses in both systems.

(5) *Ergative-absolutive system:*



(6) *Nominative-accusative system:*



More abstractly, we may think of these two different systems in terms of the relative structural height of arguments: an ergative-absolutive system assigns obligatory (ABSOLUTIVE) case to the *lowest* arguments (the transitive object and the intransitive subject), while a nominative-accusative system assigns obligatory (NOMINATIVE) case to the *highest* arguments (transitive and intransitive subjects).

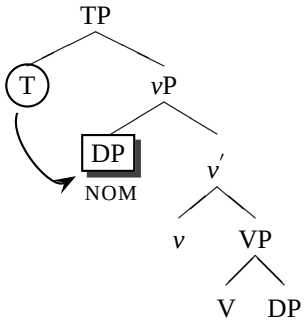
Developing this idea, the *Obligatory Case Parameter* (Bobaljik 1993; Laka 1993, 2000; Rezac to appear) attributes the difference in ergative vs. accusative systems to whether a high head, T^0 or a lower head, v^0 is "active" for obligatory (NOM/ABS) case-assignment:

(7) *Obligatory Case Parameter*:
   a. $T^0{}_{NOM}$ = active $\longrightarrow$ *nominative-accusative system*
   b. $v^0{}_{ABS}$ = active $\longrightarrow$ *ergative-absolutive system*

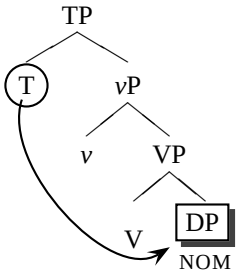
As an illustration, first consider the high head T^0 probing for a DP in the structures in (8) and (9). It will pick out the subject of the transitive clause and the sole argument of the intransitive clause, assigning them both NOMINATIVE case. This is a *nominative-accusative* pattern.

[2]Here we concentrate on morphological ergativity (case and agreement), putting aside the facts associated with syntactic ergativity.

(8) *Transitive*

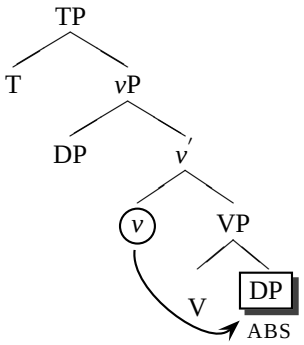


(9) *Intransitive (Unaccusative)*

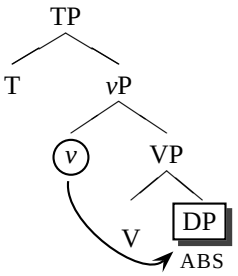


Now consider the lower head v^0 probing into the transitive and intransitive clauses in (10) and (11). It will select the *object* of the transitive clause, and the sole argument of the intransitive clause for obligatory case assignment. This results in an *ergative-absolutive* pattern.[3]

(10) *Transitive*



(11) *Intransitive (Unaccusative)*



The proposal we make in this paper is that in any given construction, the setting of the Obligatory Case Parameter is not arbitrary, but is predictable based on independent facts of the language. Specifically, we propose that when v^0 (or n^0 in predicate nominals) and T^0 are in a *local* relationship, v^0 *activates* T^0 for obligatory (NOM) case assignment, and the result is a nominative-accusative pattern. When v^0 and T^0 are *not* in a local relationship, then v^0 is the active case assigner, and obligatory (ABS) case is assigned to the lower arguments, resulting in an ergative pattern. For now we leave as open question the mechanism which assigns the non-obligatory (also known as *dependent*) cases, that is, ACCUSATIVE and ERGATIVE. As debated in recent literature, they may be assigned *relationally* (cf. Marantz 1991), or *inherently* (cf. Woolford 1997; Legate 2008). We return to the definition of "local" below. Our proposal is schematized in (12).

(12) *Modified Obligatory Case Parameter:*

a. If the heads v^0 and T^0 are in a local relationship, v^0 *activates* T^0 for obligatory (NOMINATIVE) case assignment. ⟶ ***nominative-accusative system***

b. If the heads v^0 and T^0 are *not* in a local relationship, v^0 itself assigns obligatory (ABSOLUTIVE) case. ⟶ ***ergative-absolutive system***

Chol and Mẽbengokre make good test cases for this proposal, as each shows what has been described as *split ergativity*: ergative-absolutive patterning in one part of the grammar, and nominative-accusative patterning in another. As we will see below, the environments in which ergativity is found in each language initially appear to be very different, but both conform to the condition stated above: the predicate head is not in a local relationship with T^0.

[3]Following Rezac (to appear), we assume that if there is no lower DP, as in the case of unergatives, v^0 is allowed to "look up". This will account for languages which assign ABSOLUTIVE to the sole argument of unergative clauses.

2.2 Split Ergativity

According to the typological literature, if a language has an aspect-based ergative split, it associates ergative alignment with perfective aspect (or with the perfect, if it is distinct from perfective), and accusative alignment with imperfective. Both Chol and Mẽbengokre have splits that conform to this generalization. Chol's split opposes perfectives to imperfectives: the perfective clauses in (13) show an ergative-absolutive pattern, while the stems in the imperfectives in (14) show what appears to be a nominative-accusative pattern. Here we use the theory-neutral glosses 'A' and 'B', traditional in Mayan linguistics.

(13) *Chol perfectives (*ERG-ABS*):*

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

b. Tyi majl-i-**yety**.
PRFV go-VRBL-B2
'You went.'

(14) *Chol imperfectives (*NOM-ACC*):*

a. Mi **k**-mek'-**ety**.
IMPF A1-hug-B2
'I hug you.'

b. Mi **k**-majl-el.
IMPF A1-go-NML
'I go.'

In Mẽbengokre, matrix clauses with an ergative pattern receive a *perfect* interpretation, (15), while clauses with accusative alignment, such as (16), are interpreted as either perfective or imperfective.

(15) *Mẽbengokre perfects (*ERG-ABS*):*

a. i-**jɛ** a-pumũŋ
1-ERG 2-see.NML
'I've seen you.'

b. i-tẽm
1-go.NML
'I've gone.'

(16) *Mẽbengokre perfectives (*NOM-ACC*):*

a. **ba** a-pumũ
1NOM 2-see.VRBL
'I saw you.'

b. **ba** tẽ
1NOM go.VRBL
'I went.'

However, while the Chol perfective stems that exhibit ergativity in (13) are formally verbal (discussed in §4), the Mẽbengokre stems that exhibit ergativity in (15) are formally nominal. This will be shown in the following section. The challenge will then be then to explain why we find ergativity (vs. accusativity) where we do in these languages.

3 Ergativity and Nominalization: Mẽbengokre

Mẽbengokre is a Gê language spoken in the states of Mato Grosso and Pará, Brazil by approximately 10,000 people. For reasons of space, we will not discuss the exact aspectual semantics that is behind the ergative split found in Mẽbengokre, introduced above. For this point, we refer the reader to Salanova (2007a). For the purpose of the present discussion, we refer to the ergative-absolutive constructions as having "perfect" aspect, while the nominative-accusative constructions have neutral aspect.

Our contention is that the verbal forms used in the perfect are nominal. Our reasons for believing this are essentially two: (a) they may head expressions that denote individuals or events, without the addition of any extra nominalizing morphology, complementizers, or relative pronouns; (b) the way in which they mark their arguments morphologically is identical to the way in which underived relational nouns do. Specifically, a first, internal, argument is given unmarked (absolutive) case, while an external argument is given an apparently oblique case. The latter point is exemplified in the following comparison between a nominal form of a verb, and an underived relational noun:

(17) a. kutɛ i-mar
3ERG 1-hear.NML
'The one that hears/knows me.'

b. kubɐ i-kra
3LOC 1-son
'The one that is my son.'

The only substantive morphological difference between these two constructions is that the external argument of nominalized verbs is normally marked with a dedicated case ("ERGATIVE"), while the "external argument" of underived nouns may be expressed through one of several locative postpositions. We ascribe this difference to semantic reasons (i.e., the absence of any real thematic external argument in underived nouns), rather than to any morphological peculiarity of either predicate.

The first point, about nominalized verbs heading noun phrases, is more directly relevant to our discussion. The noun phrases alluded to can be of two types: participant-denoting expressions, and event-denoting expressions. We exemplify the former type briefly in (18).

(18) ajɛ kubɛ̃kʌ jadʒʌr (jã)
2ERG clothes wear.NML these
'the clothes that you were wearing'

This expression differs from the sentence 'You wore (some) clothes' simply by the verb form (nominal rather than fully verbal), and the consequent difference in case alignment. A determiner (jã in the sentence above) may be used directly to the right of the nominalized verb form. In the absence of complementizers or any other category that would subordinate a finite verb so as to render the whole expression nominal, we conclude that the verb form itself is nominal.

Turning our attention now to the event-denoting variant of such expressions, we believe that the basic semantics of the verbal forms in question is that of action nominals; this can be seen clearly in embedded contexts such as those in (19) and (20).

(19) ba ʌk kʌr ma
1NOM fowl coo.NML hear
'I heard the bird calling.' (not 'that the bird called'!)

(20) a-dʒu-jarɛ̃ŋ mɛj
2-APASS-say.NML good
'You spoke well.' (not 'it was good that you spoke'!)

In both of these, the nominal form of the verb "names the action", so to speak, and can't stand for a full propositional meaning. This constitutes further evidence of their strictly nominal character.

Given this, it might seem surprising that such verbal forms should appear as the ostensible main predicate in matrix clauses. Remember from the discussion above that we described an aspectually-conditioned ergativity split in main clauses, which as we claimed, was mediated by the nominal or verbal character of the predicate. If, as we established, the words heading ergative clauses are undisputedly nominal, and do not inherently have a propositional meaning, one may ask how they manage to become main clauses.

In fact, this is a question that could be posed for any noun, whether deverbal or underived, as any noun phrase may double as a clause without additional morphology. Consider the following examples:

(21) a. bʌ kam mrɯ
woods in game
i. $\exists x$ animal$(x) \wedge$ in(the woods)(x)
'There is an animal in the woods.'
ii. ιx animal$(x) \wedge$ in(the woods)(x)
'the animal in the woods'

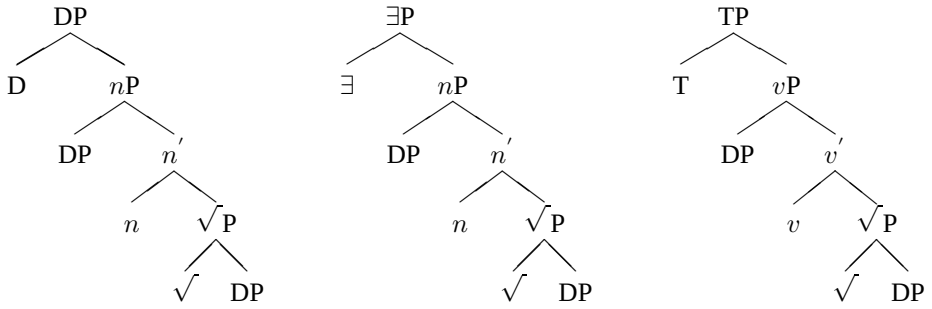
b. kubɛ̃ ɲõ kʌ
barbarian POSS canoe
i. $\exists x$ canoe$(x) \wedge$ to(white man)(x)
'The white man has a canoe.'

ii. ιx canoe$(x) \wedge$ to(white man)(x)
'the white man's canoe'

Let us pause for a moment to consider what is going on here: it is not the case that a particular word is ambiguous between predicating and refering. If this were the case, then nominal sentences would mean "x is game/an animal" or "x is a canoe". Nouns, in fact, are not predicating directly in these constructions, but rather are acting as the nuclear scope of an existential construction. In other words, in nominal clauses, the main predicate is not the nominal predicate (which actually never predicates), but rather a phonologically null existential "copula".

We propose that action nouns in main clauses are interpreted through the same mechanisms as any other noun: they become the "locatum" in an existential construction. The apparently symmetric aspectually-conditioned ergative split consists therefore of two radically different constructions, one truly verbal, represented in (c) below, and the other a nominal construction embedded under an existential element, represented in (b).

(22)



(a) Nominal structure (b) Existential construction (c) Verbal predication

This has an effect on interpretation (no direct link between the event time and the discourse context's topic time), which we don't discuss for reasons of space (but see Salanova 2007a,b). What matters is that the ∃ is the highest predicate in the structure in (22b), intervening between the lexical predicate (n + $\sqrt{}$) and T^0 (not shown). In both (22a) and (22b), the core participants are case-marked in the ergative-absolutive system. Our claim is that this happens because in both of them case assignment takes place in a domain that does not include T^0. That is, the predicate head, in this case n^0, is not in a local relationship with T^0. As per the proposal made above, the lower head n^0 is then responsible for obligatory case assignment, resulting in an ergative-absolutive alignment pattern.

In the verbal construction, on the contrary, v^0 and T^0 *are* in a local relation, which results in both a particular aspectual interpretation (the event is linked directly to a contextually salient topic time), and a particular case alignment: nominative-accusative.

4 Ergativity and Predicate Fronting: Chol

4.1 Chol's Split

Chol is a Mayan languages spoken in Chiapas, Mexico by approximately 150,000 people. As in other Mayan languages, grammatical relations in Chol are marked on the predicate via a set of morphemes, traditionally labeled 'set A' (ERGATIVE, GENITIVE) and 'set B' (ABSOLUTIVE). Importantly for the proposal below, third person set B is null.

While in Mẽbengokre we found an ergative pattern in the nominalized stem forms, in Chol we find the opposite: non-perfective stems are formally nominal and show an accusative pattern perfective stems are not nominal but show an ergative pattern. This contrast, seen in (13) and (14) above, is exemplified by the intransitive forms in (23) and (24).

(23) Tyi [wäy-i]-**yety**.
PRFV sleep-VRBL-B2
'You slept.'

(24) Mi **a**-[wäy-el].
IMPF A1-sleep-NML
'You sleep.'

In addition to the different person markers in (23), we find differences is stem form between perfective and imperfective constructions. In the perfective aspect, the root appears with a vowel suffix found on all eventive verbal stems, which Coon (2008) identifies with v^0. In the imperfective form, however, the root appears with the suffix *-el*. Suffixes of the form *-Vl* are found on nominals throughout Chol and other Mayan languages (Warkentin and Scott 1980; Bricker 1981).

Indeed, imperfective stem forms like *wäyel* appear in the same contexts as nominals; the perfective stems like *wäyi* are impossible here, as shown by the forms in (25). Similar facts can be shown for imperfective vs. perfective *transitive* stems, omitted here for reasons of space (see Coon 2008).

(25) a. *In argument position*:
Muk'-äch iy-äk'eñ-oñ-la [**wäy-el**] jiñi tyikwal.
IMPF-AFF A3-give-B1-PL sleep-NML DET heat
'The heat indeed makes us tired.' (lit.: ∼ 'The heat gives us sleep.') *[wäy-i]

b. *With prepositions*:
Tax majl-i **tyi** [**wäy-el**].
PRFV.already go-VRBL PREP sleep-NML
'She went to sleep already.' *[wäy-i]

c. *Possessed*:
Mach weñ **i**-[**wäy-el**] **ñeñe`**.
NEG good A3-sleep-NML baby
'The baby's sleeping isn't good.' *[wäy-i]

d. *With determiners and adjectives*:
Mach weñ **jiñi kabäl** [**wäy-el**].
NEG good DET a.lot sleep-NML
'A lot of sleeping isn't good.' *[wäy-i]

Based on evidence like this, as well as on the fact that set A marks both ERGATIVE *and* GENITIVE in Mayan languages, Coon (2008) argues that the stems in imperfective constructions are formally possessed nominals. Compare the imperfective constructions in (26) with the possessive phrase in (27):

(26) a. Mi **i**-[ts'äm-el] **ñeñe`**.
IMPF A3-bathe-NML baby
'The baby bathes.'

b. Mi **i**-[wuts' pisil] **x-`ixik**.
IMPF A3-wash clothes CL-woman
'The woman washes clothes.'

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

The true subjects in both imperfective constructions in (26) are null PROs which are controlled by the possessor; the possessor triggers set A agreement. Under this analysis, *x`ixik* 'woman' and *ñeñe`* 'baby' are *not* arguments of either predicate in (26). Evidence for this can be found in constructions with arbitrary PRO. Here we find no possessor, and consequently no set A agreement:

(28) Mach weñ jiñi [**PRO**$_{ARB}$ jats' ts'i`].
NEG good DET hit dog
'Hitting dogs isn't good (in general).'

(29) Mach weñ jiñi [uk'-el **PRO**$_{ARB}$].
NEG good DET cry-NML
'Crying isn't good (in general).'

Recall from §2.1 that a nominative-accusative system picks out the *highest* arguments and treats them in the same way (i.e., assigns them NOMINATIVE case). The relationship of *control* also picks out the highest arguments. In Chol, the illusion of a nominative-accusative system is the result of two factors: 1. The fact that in the forms in (26) the Set A morphemes coindex grammatical *possessors* (*ñeñe`* and *x`ixik*) which *control* the true θ-marked arguments (null PROs); and 2. ERGATIVE and GENITIVE are identical in Mayan languages.

4.2 *Mi* is a Predicate

The stem forms in the imperfective clauses are possessed nominals; yet the forms in (26) are *sentences*, not DPs. The true predicate in constructions like (26) is the imperfective aspect marker *mi*, which shows predicative properties in other environments as well (see Coon 2008 for details). Like all other intransitives in the language, the one-place predicate *mi* takes a set B agreement marker. This is obscured by the fact that the agreed-with possessed nominal is always third person, and third person set B is null in Mayan languages.

The analysis of Chol's split is summarized by the intransitive forms in (30). In both types of clause, the unaccusative *wäy* 'sleep' selects a single internal argument: in the verbal perfective this is the DP *jiñi x`ixik* 'the woman', while in the nominal imperfective it is a null PRO. The nominal stem *wäyel* is *possessed* by *jiñi x`ixik* 'woman', triggering set A (here GENITIVE) agreement; this possessor controls the PRO argument. The string *iwäyel jiñi x`ixik* is a DP argument of the one-place predicate *mi*. Both predicates—the perfective stem *wäyi* and the aspect marker *mi*—show set B agreement with their sole arguments. See Coon 2008 for arguments supporting this proposal.

(30) a. *Perfective:*

Tyi **wäy-i-Ø**$_i$ [$_{DP}$ jiñi x-`ixik]$_i$.
PRFV sleep-VRBL-B3 DET CL-woman
'The woman slept.'

b. *Imperfective:*

Mi-Ø$_i$ [$_{DP}$ i- [wäy-el PRO$_j$] jiñi x-`ixik$_j$]$_i$.
IMPF-B3 A3- sleep-NML DET CL-woman
'The woman sleeps.'
(lit.: 'The woman's sleeping happens.')

The important point to take from this section is that under this analysis, *all* verbs in Chol show an ergative-absolutive pattern. The appearance of accusativity is an illusion, since the DP which triggers set A agreement in imperfectives is *not* an argument of the predicate, but a possessor. In Mẽbengokre, in contrast, we find ergativity in nominal forms.

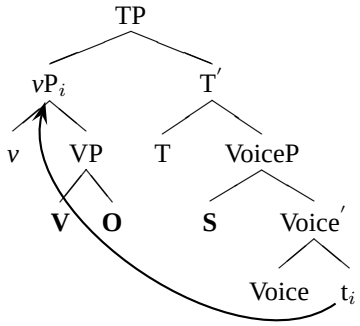
One possibility would be to claim that ergativity in Chol and ergativity in Mẽbengokre have entirely different sources. We argue instead that ergativity in Chol is *also* the result of a separation of the predicate head and T^0, caused not by nominalization, but rather by fronting of the maximal projection containing the predicate.

4.3 Predicate Fronting

A growing body of recent research analyzes verb-initial order in some languages *not* as the result of head-movement of the verb, but of phrasal movement of the entire verb phrase (or remnant verb phrase).[4] In this vein, Coon (to appear) argues that basic VOS order in Chol is the result of fronting of the *v*P to Spec,TP, as in (31). Evidence for this derivation of VOS in Chol is found in the placement of adverbs and PP adjuncts, as well as in restrictions on DP vs. NP objects.

[4]See Pearson (2001, 2007) and Rackowski and Travis (2000) on Malagasy, Massam (2000) on Niuean, Aldridge (2004) on Seediq, and Lee (2000) on Zapotec, among others, for similar proposals for other verb-initial languages.

(31) *Chol VOS*:



Recall from §2.1 that ergativity arises when the relationship between the predicate head and T^0 is severed. While in Mẽbengokre this separation is due to nominalization, in Chol we see evidence for this separation in predicate fronting. In the structure in (31), v^0 and T^0 are not local and thus T^0 is not activated. The lower head v^0 is responsible for obligatory (ABSOLUTIVE) case assignment. Further evidence for the inactivity of T^0 in Chol comes from the fact that there is no grammatical tense marking in the language (Vázquez Álvarez 2002).

In languages which are predicate initial as the result of *phrasal* predicate fronting—*not* V^0-to-T^0 like Celtic and Arabic—the predicate head and T^0 will not be in a local relationship so we expect to see ergativity. A number of predicate initial languages which display ergativity are found in Mayan, Otomanguean, Salish, and Austronesian language families. If this story is correct, the connection between predicate-initiality (as the result of phrasal predicate fronting) and ergativity may not be a coincidence.

5 Conclusion

In this paper we began with a look at two languages with apparently very different aspect-based ergative splits: Mẽbengokre shows an ergative pattern in its nominal (perfect) forms, while Chol shows ergativity in verbal (perfective) forms. Despite these differences, we proposed that the source of ergativity is the same in both languages. Drawing on insights from the Obligatory Case Parameter, we argued that ergativity results from a disconnect between the predicate head and T^0. In Mẽbengokre (and possibly nominals which show an ergative pattern in other languages) ergativity was the result of nominalization. In Chol (and possibly other phrasal predicate-fronting languages) ergativity was the result of movement of *vP* to Spec,TP.

Specifically, when the predicate head and T^0 are in a local relationship, T^0 is active and assigns obligatory case to the first arguments in its search domain: the NOMINATIVE arguments of a nominative-accusative system. When the predicate head and T^0 are *not* local the predicate head is responsible for obligatory case assignment and it assigns ABSOLUTIVE to the first arguments in its search domain, resulting in the ergative-absolutive patterns found in Chol and Mẽbengokre.

While we have independent evidence for a separation of predicate head from tense in the ergative-patterning portions of the grammar in both Mẽbengokre and Chol (Salanova 2007b; Coon to appear), exactly what type of local relationship is required for *activation* of T^0—head-movement, morphological merger, adjacency, containment within the same phase—is a topic for future research and will require more in depth investigation into a variety of languages. Based on nominative-accusative languages like English, which do not overtly move the verb to T^0, we know that overt head-movement is not a necessary condition for an active T^0. In English, however, we do have morphological evidence for *some* type of relationship between the verb and tense. Exactly what this relationship is, we leave open for future research.

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