

Ergativity and agreement splits at the syntax/phonology interface

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0. Introduction

Many authors have struggled to capture the relationship between the various phenomena to which the label “ergativity” is applied. Languages can conflate transitive objects with intransitive subjects, to the exclusion of transitive subjects, at several different levels: syntactic structure, morphological case marking, and verbal agreement systems (Dixon 1979, 1994). While some of these patterns may partially overlap in a single language, the overlap is never complete—no language seems to be 100 percent ergative, by any definition (Dixon 1977, 1994). The diversity of these patterns both within and across languages has challenged efforts to define ergativity in a way that is both informative and restrictive. I argue against the assumption that all ergative patterns share some underlying syntactic commonality, based on evidence that, in verbal agreements systems, ergativity or split ergativity may originate at the syntax-phonology interface, rather than the assignment of Case in the syntax.

This paper advocates for a position first adopted by Woolford (1999), that there are two distinct types of ergative agreement. One type is parasitic on Case, typically involving agreement only with Nominative (a.k.a. “Absolutive”) arguments, as in Hindi. A second type occurs in languages with no ergative case morphology on nominals, and crucially does not depend on the assignment of Ergative Case in the syntax (Woolford 1999). I argue that the second type is just one of many examples of phonology and morphology “intrusively” affecting the choice between syntactically distinct agreement markers.

In support of the distinction between ergative agreement systems that are based on Case and those based on morphological competition, I present evidence from Texistepec Popoluca, a Zoquean language of Veracruz, Mexico. In Texistepec Popoluca the use of a historically “absolutive” clitic paradigm over a historically “ergative” affixal agreement paradigm is blocked by the introduction of another unrelated clitic. This indicates that, synchronically, the mechanism responsible for cross-referencing the arguments by either agreement or clitics is sensitive to the linear ordering of clitics and affixes before the verb.¹

Woolford (1999, 2001) demonstrates that the typology implicit in recent alignment-based approaches to morphology in Optimality Theory predicts the

¹ Here I will use “clitic” to denote any syntactically or prosodically dependent grammatical particle. I will draw a three-way distinction between “clitic”, “affix” and “prosodically free word”. I believe the analysis here does not depend crucially on any of the various more fine-grained notions of what exactly it means to be a clitic.

existence of languages that have ergative agreement systems without Ergative Case. I show that this typology already includes patterns like those found in Texistepec Popoluca. I further provide historical evidence that an independent sound change triggered the morpho-phonological change responsible for the current “split” in the agreement system. This split is due to the different morpho-phonology of the clitic and affixal agreement paradigms.

Formal theories differ widely in terms of the where syntax ends and phonology begins, and what processes in between, if any, involve a uniquely morphological level of structure. I will demonstrate below that a multi-stratal model of morphology with disjunctive rule-ordering is equipped account for the quirks of the Texistepec Popoluca agreement system—after syntax. However, I argue that there are two advantages to an alignment-based OT treatment of these data, instead. First, it posits fewer discrete levels of structure, making it more parsimonious. And second, even a system as complex as Texistepec Popoluca is already implicit in the typology predicted by independently motivated constraints, making it less arbitrary. This language makes for a particularly informative example because an unusually large set of factors influence the distribution of a fairly small set of cross-referencing morphemes.

In Section 1, I discuss evidence that agreement systems which show an “ergative” distribution of markers are an independent phenomenon from syntactic Ergative Case assignment. In Section 2, I discuss the interaction and interface of syntactic and morpho-phonological structure, as it pertains to agreement splits. In Section 3, I outline the Texistepec Popoluca agreement system and the challenges it poses for a modularly syntactic treatment of ergative agreement. Section 4 addresses the theoretical tools necessary to generate ergative agreement and agreement splits in the morphology, showing that various approaches to morphology already provide these tools. Section 5 provides an Optimality Theoretic treatment of the complete Texistepec Popoluca agreement system. Section 6 discusses some converging evidence in favor of the treatment offered here. Section 7 addresses some potential objections to my approach, and Section 8 concludes.

1. The dissociation of Ergative Case and ergative agreement systems

Certain ergative verbal agreement patterns are hard to explain under the assumption they are due to Ergative Case assignment in the syntax. Against this assumption, I present evidence that Ergative agreement and Ergative Case can exist independently of one another. In this section, I expound the dissociation between these two patterns, and dispatch with the assumption that all ergativity has the underlying commonality of Ergative Case.

1.1. The typological mis-match of Ergative Case and agreement

There are two attested ergative agreement patterns, out of three logical possibilities. We find systems in many Native American and Pacific languages

with cross-referencing verbal morphology for both “ergative” and “absolutive” arguments. We also find languages like Hindi where only arguments with Nominative Case control agreement—agreement is with intransitive subjects, and with Nominative objects in clauses that have Ergative or Dative subjects. But there is a typological gap, where no language seems to have agreement only with Ergative DPs (transitive subjects) (Woolford 1999 and references). For those who would attribute ergative agreement and ergative Case marking to the same grammatical mechanism, this gap is problematic, since the most common type of nominal Ergative Case system has overt Ergative marking and zero marking for Nominative/Absolutive (Dixon, 1994). The asymmetry depicted in Table 1 is difficult to explain under the assumption that ergative agreement and Ergative Case are the same, or even that they are fundamentally related phenomena.

Table 1

	<u>CASE</u>	<u>AGREEMENT</u>
ERG only	Chukchi	*
ERG & ABS	?	Mayan
ABS only	*	Hindi

If the two patterns are underlying the same, how could it be that the most common pattern of nominal Ergative Case corresponds to an unattested pattern of ergative verbal agreement?

1.2. Within-language mismatches

Further evidence for the dissociation of case and agreement is that many languages with Ergative-Absolutive nominal case marking also have Nominative-Accusative (subject-object) agreement systems (see Woolford 1999 and references).

(1) Walmatjari: **ERG-ABS** Case, Su-Obj agreement (Hudson, 1978)

- a. parl - tjara - \emptyset pa -lu - pinja njanja marnin - warnti - rlu
 boy -DU -ABS INDIC - SuPl - ObjDu saw woman- PL -ERG
 ‘The women saw the two boys.’
- b. marnin - warnti - \emptyset pa -lu wurna yani
 woman- PL -ABS INDIC - SuPl walkabout went
 ‘The women went for a walk.’

Since Ergative Case does not entail ergative agreement, there is little explanatory benefit in attributing ergative agreement to covert Ergative Case. Examples like (1) show that covert Ergative Case in the syntax is not sufficient to explain ergative agreement, and the discussion below will show that it is not necessary either.

2. Promiscuous paradigms and agreement splits

By definition, agreement morphology expresses syntactic features or a combination of them. Most work on agreement systems therefore focuses on which syntactic categories control agreement, what processes mediate the relationship between agreement morphology and the controller, or what specific features are agreed with.

Considered in conjunction with the fundamental assumption that syntactic processes precede morphology and phonology serially (Chomsky 1995; Zwicky and Pullum 1986; Halle and Marantz 1993), this framework seems to predict that the choice between two paradigms of agreement morphology should be influenced only by the distribution of agreement features, and not by morphological or phonological content. In particular I will present evidence that the choice between two agreement paradigms is sometimes sensitive to the morphological or phonological environment in which the agreement is spelled-out. To accommodate these data, we must either abandon the strict assumption of seriality between syntax and morphology, or permit morphological constraints on the expression of syntactic features. I will advocate for the latter position.

2.1. Spanish definite articles

One area of problematic data for the strictly syntactic view of agreement morphology is the selection of definite articles in Spanish. Spanish feminine nouns beginning with stressed *á* take the masculine definite article *el*, thus avoiding hiatus between the feminine article *la* and the noun's initial *á*. For example, with feminine *águ*a 'water', the masculine article is selected: *el águ*a, not **la águ*a. Either the phonology directly effects a change in the syntactic feature, deleting the [+FEM] feature, or the phonology must somehow occasionally trump morphosyntax in paradigm selection. The former option is highly problematic because it supposes a serial and reverse-serial syntax-phonology interface. The latter option would simply mean the phonology is empowered to be unfaithful to the [+FEM] feature, which requires evaluating morpho-phonological markedness and syntactic faithfulness in parallel.

As with most other unusual morphological patterns, it is tempting to try to explain these Spanish data as a historical accident. Indeed, *la* is the historical reflex of an article *illa*, and it is quite natural that *la* was kept before unstressed vowels and consonants, while the *il* became *el* before stressed vowels. But synchronically, this explanation means that the feminine article has two allomorphs, *la* and *el*. On what grounds then do we suppose that the learner chooses to associate the *el* of *el águ*a with the completely distinct feminine article and not with the identical masculine article? While there are several documented cases of phonologically-conditioned fully suppletive allomorphy (Carstairs 1988), it is highly suspect to use the term 'allomorphy' for an alternation between two distinct members of the same paradigm. This makes the allomorphy analysis of

the Spanish data quite tenuous.²

2.2. Person agreement and negation in Yimas

In addition to the phonologically-conditioned agreement alternation in Spanish above, there are a wide variety of agreement alternations that are at least sometimes conditioned on a morphological environment. In Yimas, a clearly non-allomorphic “split” between two forms of person agreement is conditioned by a linear morphological environment, rather than a syntactic criterion. Woolford (2001:19) notes that in Yimas (Papuan), the presence of a negative clitic before the verb blocks the usual agreement clitic, causing the alternation in (2)³.

- | | |
|---|---|
| (2) a. <u>ama</u> +wa-t
1CL+go-PERF
'I went.' | b. <u>ta+ka</u> -wa-t
NegCl+1AgrSu-go-PERF
'I didn't go.' |
|---|---|

2.3. Subject and object agreement in Lavukaleve

Similarly, in Lavukaleve (Papuan), canonical subject and object agreement appears on all verbs except those bearing the prefix *e-*, which occupies the usual subject agreement slot.⁴ Verbs in *e-* use the “object” agreement paradigm to agree with their subjects as seen in (3) from Terrill (2003).

- | | |
|---|---|
| (3) a. meo <u>vo-e</u> -tegi -ge
<i>tuna</i> 3PIObj- SBD- feed -ANT
'...when the bonito started feeding...' | b. vau <u>a</u> -igu-ge
<i>out</i> 1SgSu-go-ANT
'...when I went out...' |
|---|---|

There is no compelling syntactic explanation for this split. The subject in (3a) cannot have Accusative Case by means of ECM, because this pattern can occur with any verb in the matrix clause. The problem with treating this as an “ergative split” (in which the “subject” agreement is actually “ergative”) is that the only intransitive subjects that trigger “absolute” agreement are third person subjects in adverbial clauses, while all others trigger “ergative” agreement. A better option is to attribute the pattern to a morphological alternation like the

² The question of which definite article the *el* before stressed vowels is an allomorph of could only truly be resolved by psycholinguistic investigation, since, theoretical concerns aside, the language data are consistent with either hypothesis.

³ For a more complete investigation of Yimas clitics, see Phillips (1993).

⁴ According to Terrill (2003: 424-5), this prefix appears on intransitive verbs in adverbial clauses. I borrow her gloss of “SBD” for this mysterious prefix.

Spanish and Yimas examples above. Under this approach, we need only acknowledge that the paradigms are “promiscuous” (i.e. not inviolably linked to one specific combination of features), and that paradigm choice can be influenced independently of the syntax by the linear morphological or phonological environment. A more formal treatment is developed in Section 8.1.

2.4. Person agreement in Chimalapa Zoque

In San Miguel Chimalapa Zoque, the 1st and 3rd persons show an “ergative” pattern of pre-verbal cross-referencing clitics. In contrast, the 2nd person has clitic from the “ergative” paradigm for all subjects, including intransitive subjects. Cross-referencing of the transitive object can only be indicated by a free pronoun (Table 2) or subjct/object portmanteau (not shown).

Table 2: San Miguel Chimalapa Zoque Pre-verbal Inflection (Johnson, 2000)

	Transitive subj. (A)	Intransitive subj. (S)	Transitive Obj (O)
1st Pers	$(\text{?}\partial)n$ (left-leaning clitic)	$d\partial$ (right-leaning clitic)	$d\partial$ (right-leaning clitic)
2nd Pers	$(\text{?}\partial)m$ (left-leaning clitic)	$(\text{?}\partial)m$ (left-leaning clitic)	$mi\check{s}$ (free pronoun)
3rd Pers	$(\text{?}\partial)y$ (left-leaning clitic)	\emptyset	\emptyset

Do we want to contrive a syntax in which the clauses with 2nd person subjects are Nominative-Accusative, while clauses with 1st person subjects are Ergative-Absolutive? There are a number of problems with this. In terms of morphology, it is suspicious to treat $\text{?}\partial m$ as completely unrelated to $\text{?}\partial y$ and $\text{?}\partial n$, despite their obvious morphological and phonological similarities. While, such an analysis is possible, it prohibits any further generalizations or abstractions about these forms, which is descriptive and uninformative.

But for the syntax, such an approach would be disastrous. Considering the current view that Ergative is a lexical/inherent Case (Bittner and Hale, 1996; Bobaljik, 1993) a syntactic constraint of some sort would have to prohibit the assignment of this Ergative Case to 1st and 3rd person intransitive subjects, but allow this assignment to 2nd person intransitive subjects. But this would really mean that *every verb*, transitive or intransitive in Chimalapa Zoque assigns Ergative Case to its subject, except where blocked by this dubious constraint.

An easier alternative is that the non-uniform distribution of the members of the $\text{?}\partial n/\text{?}\partial m/\text{?}\partial y$ paradigm is due to the non-uniform set of other clitics with which they compete. On this analysis, the fact that subjects of intransitive clauses are cross-referenced by 1st person $d\partial$ but 2nd person $\text{?}\partial m$, respectively, derives from the lack of a 2nd person competitor homologous to 1st person $d\partial$. Whatever constraint or rule favors right-leaning $d\partial$ for intransitive subjects would also favor

a right-leaning second person clitic if one existed. Absent this option, the grammar opts for the next best spellout the input features, which is ʔəm .⁵ A rough sketch of this competition is presented in Table 3, and a more formal treatment is explored in Section 8.2.

Table 3

Input	$\text{φ} \Rightarrow \text{Cl+}$ ^{☺☺☺}	$\text{φ} \Rightarrow +\text{ʔə}_-$ ^{☺☺}	$\text{φ} \Rightarrow \text{Pronoun}$ [☺]
1 st Subj	$də \checkmark$	$*\text{ʔən}$	$*də\checkmark$
2 nd Subj	*NOT AVAILABLE	$\text{ʔəm} \checkmark$	$*mi\checkmark$

The features, φ , associated with the Nominative argument of an intransitive clause are optimally spelled-out as a proclitic. (Whether this is due to serial disjunctive rules or ranked constraints is irrelevant.) In the absence of a form that perfectly matches the features, as with the 2nd person, the next best match is a left-leaning clitic from the $+\text{ʔə}_-$ paradigm. This is, in turn, better than using a free pronoun to show agreement.

What the data in this section show is that it is not just plausible but necessary that agreement alternations between two featurally distinct forms be able to result from competition in the morphology.

3. Person agreement in Texistepec Popoluca

A similar but more complex morphologically conditioned agreement split is found in Texistepec Popoluca (Reilly 2002, to appear). In this language, preverbal inflections come from two paradigms, an “ergative” and an “absolutive.” There are also two forms that correspond to argument structures including one each of 1st and 2nd person, which will not significantly factor into the discussion here.⁶

⁵ A continued concern in the application of Optimality Theory to syntactic and morphological problems is the principle Richness of the Base, which is an axiom of the theory. While it is obvious that the membership of the lexicon cannot be reduced to an epiphenomenon of the constraint ranking in the way that phoneme inventories have been, there are ways in OT to account for the fact that certain combinations of morphemes do not have a corresponding morpheme in the lexicon, without compromising Richness of the Base. See, e.g., Beek and Bouma (2004).

⁶ Although it is obvious that historically, $/k^N-/$ and $/k^N_j-/$ are composed of 1st and 2nd person markers from Sets A and B, a decomposed synchronic analysis is more difficult than one would expect. Consider a verb with a 2nd person subject and 1st person object:

$$1\text{stB } /k-/ + 2\text{ndA } /nj/ = /knj-/$$

So far, so good. Now let us consider the other pair, 1st Subject, 2nd Object:

$$2\text{ndB } /kj/ + 1\text{stB } /n-/ = /kjn-/ \quad (\text{cf. } 1 \rightarrow 2 /k^N-/)$$

It is clear why the forms did not remain $/knj-/$ and $/kjn-/$. They contain identical sets of phonological material, which means that they would be rendered identical, and therefore ambiguous, by the phonology (see Section 6.3.). While there is a simple sonority-based explanation for why the $1 \rightarrow 2$ form $/kjn-/$ mutated and lost its $/j/$, this change is not part of the

Table 4

	Set A ‘ergative’	Set B ‘absolutive’	Subject→Object portmanteaux	
1 excl.	/ ^N -/	/k/	1→2	/k ^N -/
1 incl.	/ta ^N -/	/tɛ/	2→1	/k ^N j-/
2	/ ^N j-/	/kj/		
3	/j/	∅		

3.1. The agreement split

The Set A “ergative” paradigm is extended to intransitive subjects in the imperfective aspect only, as seen in (4) and (5) below. This pattern is unattested in languages with overt case on DPs—in fact, it is the reverse of a typological universal noted by Dixon (1994:99) that ergativity is associated with perfectivity.⁸

- (4) a. ʔu^wẽh b. maʔ kweh c. kwe:hp
 ʔu+ ^N-weh maʔ # k+weh k+weh-p
 IMPV+1A-howl PERF # 1B+howl 1B+howl-FUT
 ‘I am howling.’ ‘I howled.’ ‘I will howl.’

- (5) a. ʔuʔjũk b. maʔ kjʔuk c. kjʔukp
 ʔu+ ^Nj-ʔuk maʔ # kj+ʔuk kj+ʔuk-p
 IMPV+2A-drink PERF # 2B+drink 2B+drink-FUT
 ‘You are drinking.’ ‘You drank.’ ‘You will drink.’

The Perfective aspect is marked by a prosodically free word (4,5b) and the aspectual category referred to here mnemonically as “future” (FUT) appears as a suffix (4,5c).⁹ These two aspect markers do not interact morpho-phonologically

regular synchronic phonology, since the inflectional /n-/ has become a non-segmental nasal feature. For example sequence with /kj^N-/ are possible synchronically, such as 1→2 /k^N-/ + /jakaʔ/ ‘kill’ = [kʔjãkaʔ] ‘I kill you.’

For these reasons, I will treat the 1→2 and 2→1 forms as distinct portmanteaux.

⁷ Inclusive forms aside, it is tempting to decompose this table further, since all forms are combinations of the elements /j/, /k/, and /^N/.

/ ^N / = {1st,2nd}A	/j/=2nd
/k/= {1st,2nd}B	/j/=3rdA

On the one hand, this makes for a more concise paradigm, while on the other hand it introduces additional abstraction that would only distract from expository clarity here. Since, the /j/ shared between Sets A and B does not factor into the current discussion, I will leave these forms undecomposed throughout this paper. The evidence on this matter does suggest that /j/ is affixal, while /k/ is clitic, which strongly favors a decomposition account.

⁸ See Anderson (1977) and Dixon (1977) for discussion of this association.

⁹ The distribution of this future and irrealis category is complementary to the Perfective and Imperfective, an interesting pattern, which I believe does not bear on the present topic.

with the left edge of the verb root, the position where Set A and B person agreement appears. In contrast, the Imperfective clitic (4,5a) occupies the same morphological position that the Set B “absolutive” proclitic usually fills. (The issue of what exact morphological positions exist adjacent to the verb is complex and will be discussed in depth in Section 6).

Accounting for this pattern in terms of Ergative Case assignment in the syntax would be problematic. It would require either that Ergative Case be assigned to the subjects of intransitive verbs only in the Imperfective aspect, which violates the above typological universal, or it would require a pattern of syntactic case assignment that was “clairvoyantly” sensitive to morphological structure.

Fortunately, many morphological theories can already generate such a pattern in the morphological structure, independently of the syntax. This is the sort of analysis that will be explored in Section 4 below.

But preserving theoretical generalizations is not the only motivation for dealing with this problem outside of the syntax. In the next section I will present some data from Texistepec Popoluca that, theoretical issues aside, give us cause to doubt that the “ergative” Set A prefixes actually have anything to do with Ergative Case.

3.2. Syntactic evidence that Set A is unrelated to Ergative Case

The most compelling form of evidence that the “ergative” or “Set A” paradigm is not related to Ergative Case is that these prefixes are used in several positions to agree with unequivocally non-ergative arguments. These include possessor agreement on the possessum (3.2.1.), agreement on verbal secondary predicates with the subject of the main verb (3.2.2.), and agreement on adverbs with the subject of the verb (3.2.3.) In each of these cases, it is possible for Set A to agree with these arguments even when they are separately agreed with using a Set B “absolutive” marker elsewhere in the same clause.

3.2.1. Possessor agreement

Possessed nouns bear a Set A prefix that agrees with the possessor.¹⁰

- (6) a. kamo?
‘cornfield’
- b. ṅamo?
^N-kamo?
1A-cornfield
‘my cornfield’

¹⁰ This same is found across Mixe-Zoque and Mayan languages, not just in Texistepec Popoluca.

The prefix occurs on the head noun of the possessed NP, not at the left edge of the NP (i.e. not on an adjective or other material that precedes the noun). In fact, the best diagnostic to distinguish between adjective-noun compounds like (7a-b) and modified nouns like (8a-b) is where the Set A agreement attaches.

- | | | | | |
|-----|----|--|----|---|
| (7) | a. | tsaʔ.paʔts.bok
tsaʔpaʔts-bok
<i>red-corn</i>
'red corn (species)' | b. | ndzaʔ.paʔts.bok
^N -tsaʔpaʔts-bok
1A-red-corn
'my red corn' |
|-----|----|--|----|---|

The noun in (7) is an adjective-noun compound, the name of a specific species of red-colored corn. When the Set A prefix for the 1st person possessor is added, in (7b), the prefix attaches at the left edge of the entire compound. However, (8b) is not a compound, so the prefix attaches to the head noun *totaj*, and not the adjective *tsaʔpaʔts*.

- | | | | | |
|-----|----|---|----|--|
| (8) | a. | tsaʔ.paʔts to.taj
tsaʔpaʔts # totaj
<i>red # paper</i>
'red paper' | b. | tsaʔ.paʔts ndo.taj
tsaʔpaʔts # ^N -totaj
<i>red # 1A-paper</i>
'my red paper' |
|-----|----|---|----|--|

These data demonstrate that Set A is not exclusively devoted to agreement with covert Ergative Case. Of course, it is not especially surprising for a single agreement marker to have two functions. Still, it should be noted that here the Set A prefix attaches specifically to head nouns, rather than being a phrasal clitic form of agreement. As we will see in the sections below, marking nouns for possession is just one of a strange mix of places where Set A appears.

3.2.2. Agreement in verbal secondary predicates

Verbal secondary predicates, partially inflected verbs that precede the main verb in Texistepec Popoluca, do not show agreement with both arguments in the way that main verbs do. In (9c), the secondary predicate 'punching' agrees only with the subject using Set A, while the main verb 'kill' agrees with both the subject and object.

- (9) a.¹¹ ?u gndzih.ndzih.de?
 ?u+ k^Nj-tʃih-tʃih-de?
 IMP+2/1-punch-RED-PPL
 ‘You’re punching me.’
- b. ?u gɲja.ga?
 ?u+ k^Nj-jaka?
 IMP+ 2/1-kill
 ‘You’re killing me.’
- c. ?u ndzih.ndzih.de? gɲja.ga?
 ?u+ ^Nj-tʃih-ndzih-de? k^Nj-jaka?
 IMP+2A-punch-RED-PPL 2/1-kill
 ‘You’re killing me punching.’
- d. * ?u gndzih.ndzih.de? gɲja.ga?
 ?u+ k^Nj-tʃih-tʃih-de? k^Nj-jaka?
 IMP+2/1-punch-RED-PPL 2/1-kill
 Intended reading: ‘You’re killing me punching.’

Notice in (9c) that the agreement on the secondary predicate ‘punching’ is not the portmanteau agreement marker k^Nj- , which indicates a 2nd person subject and 1st person object. This is shown as ungrammatical in (9d). Instead, only Set A agreement, 2nd person $^Nj-$ appears in (9c), agreeing only with the subject of the secondary predicate. Even where the object fails to produce agreement on the secondary predicate, the subject is able to, but only using Set A. These data suggest that, at least for verbal secondary predicates, Set A agreement has a special status. While a complete analysis of the pattern in (9) is beyond the scope of this paper, these data contribute to the list of specific syntactic positions that can be occupied by Set A prefixes only.

3.2.3. Adverbial subject agreement

Texistepec Popoluca has a class of adverbs that agree with the subject of the verbs they modify, and this agreement always uses Set A. Even when the agreement on the verb cross-referencing this same subject uses Set B, the agreement on the adverb uses Set A, as in (10-12).

¹¹ As discussed below, verbs with cumbersome consonant clusters introduced by k^N -initial inflections show a great deal of phonological variation, but what is crucial here is that both the k and the N are present in some capacity.

- (10) $\widehat{\text{n}}\text{du?mu?kt}\widehat{\text{f}}\text{ε ma? kho?ks } \widehat{\text{n}}\text{gamo:}$
 $\text{N-tu?mu?k+t}\widehat{\text{f}}\text{ε ma? k+ho?ks } \text{N-kamo?-o?o}$
1A-alone+only PERF **1B+clear** 1A-cornfield-LOC
 ‘I cleared land all alone in my cornfield.’
- (11) $\text{bwe:nuga? map}\widehat{\text{f}}\text{ε?+ta wi: xke}\widehat{\text{f}}\text{o?j+ta}$
 $\text{bwe:nu-ka? } \text{N-bap-}\widehat{\text{f}}\text{i?+ta wi: k-ke}\widehat{\text{f}}\text{-o?j+ta}$
well+EXLM **1A-bare-ass+PL** MOD **1B+fuck-ANTIP+PL**
 ‘Well now, we can fuck bare-ass naked(ly).’

The example in (12) contains both adverbial and possessor Set A agreement with the subject, while the verb bears a Set B clitic that agrees with this same subject.

- (12) $\text{tamumbe tamappak tew}\widehat{\text{t}}\widehat{\text{f}} \text{ tanafugu}$
 $\text{ta}^{\text{N}}\text{-bumbe } \text{ta}^{\text{N}}\text{-bap-pak } \text{tε+w}\widehat{\text{t}}\widehat{\text{f}} \text{ ta}^{\text{N}}\text{-das-juku}$
1inA-altogether 1inA-bare-foot **1inB+walk** *1inA-town-LOC*
 ‘We all walked together barefoot up in our town.’

In (12) the inflection hosted on the verb for the subject of ‘walk’ is from Set B, while there are two instances of adverbial agreement from Set A.

The evidence presented here in Section 3.2.3 is probably the most problematic for a treatment of this agreement system in terms of Ergative Case. If there were covert Ergative Case assignment in this language, the adverbial agreement system would have to be insensitive to it, and always pick out only the subject. This is to say, the agreement relation between the adverb and the subject of the verb would be based not on Case features, as it would be for verbal agreement, but on a structural subject position.

To summarize this section, the main result is that Set A is not limited to Ergative Case agreement. The data here show that it must also be able to agree with (at least) Genitive and Nominative DPs. While the simplest patterns of verbal inflection may seem to reflect covert Ergativity in the Case, a deeper look exposes a much more complicated pattern of data that the Ergative Case analysis does little to explain.

4. Generating ergative agreement and splits in the morphology

Most theories of morphology posit some level of morphological or phonological structure, which is responsible for the selection of phonological material to express morpho-syntactic features, and/or for the linear arrangement of morphemes (e.g. Distributed Morphology: Halle and Marantz 1993; A-Morphous Morphology: Anderson 1992; OT Lexical Functional Grammar: Bresnan 2001; and alignment-based OT morphology: McCarthy and Prince 1993; Grimshaw

2001; Legendre 1998a,b). These approaches all claim that spell-out of morphosyntactic features as either affixes or clitics is the result of competition, governed by violable constraints or disjunctive rules that dictate where, how and if features will be expressed.

4.1. Clitics and agreement in competition

Woolford (1999) uses such a competition-based approach to analyze the “ergativity” of the agreement system in Jacaltec Mayan (Tables 5,6) (Craig 1977).

Table 5

	Subject Agr prefix	Clitic/default
1	<i>w-</i>	<i>-hin</i>
2	<i>haw-</i>	<i>-hach</i>
3	<i>y-</i>	<i>-∅</i>

Table 6

	<u>Subject</u>	<u>Object</u>
Intrans:	Clitic	
Trans:	SubjAgr	Clitic

Table 6 depicts the distribution of these paradigms in terms of which types of arguments they cross-reference. The examples in (13) demonstrate this “ergative” distribution of clitics and prefixes.

- (13) a. ch-ach toyi
 ch-hach toyi
 ASPECT-2CL *go*
 ‘You go.’
- b. ch-ach w-ila
 ch-hach w-ila
 ASPECT-2CL 1SAGR-*see*
 ‘I see you.’ (Craig 1977:90)

In Woolford’s analysis, the clitic paradigm is the default inflection. However for transitive clauses, where the single clitic cannot express all the morphosyntactic features, an otherwise absent subject agreement prefix emerges. For Jacaltec, this means using the clitic paradigm for transitive objects and intransitive subjects, and the subject agreement prefix for transitive subjects only—an “ergative” pattern of agreement that is crucially not dependent on Ergative Case.

While several approaches could simply stipulate that a particular language works in this way, Woolford (1999, 2001) observes that a small set of constraints proposed in unrelated work on morphology in Optimality Theory predict languages like Jacaltec. Work by Anderson (1996), Legendre (1998a,b), and Grimshaw (2001) on clitic placement and Bresnan’s (2001) treatment of pronominal synthesis predicts a typology including “ergative” agreement patterns generated in the morphology. I will employ the markedness constraints in (14) and the faithfulness constraint in (15) (Bresnan 2001; Woolford 2001).

- (14) a. ***affix** ‘Economize / preferentially avoid affixes.’
 b. ***clitic** ‘Economize / preferentially avoid clitics.’
- (15) **MAX_φ** ‘Faithfully agree with the features of the input DPs.’

When markedness outranks faithfulness, morphosyntactic features are not expressed. The ranking $\{*\text{affix}, *\text{clitic}\} \gg \text{MAX}_\phi$ prohibits agreement. But when the markedness constraints are ranked below MAX_ϕ , agreement appears. In this case, the relative ranking of $*\text{affix}$ and $*\text{clitic}$ will determine how the features are expressed. Whichever form is more marked fails to appear, as shown in (16-19).

(16) Ranking for **only affixal agreement**

Input: Subj	MAX_ϕ	$*\text{clitic}$	$*\text{affix}$
a. Agr_{Subj}			*
b. Cl_{Subj}		*!	
c. \emptyset	*!		*

(17) Ranking for **only affixal agreement**

Input: Subj & Obj	MAX_ϕ	$*\text{clitic}$	$*\text{affix}$
a. $\text{Agr}_{Subj}; \text{Agr}_{Obj}$			**
b. $Cl_{Subj}; Cl_{Obj}$		*!*	*
c. $Cl_{Obj}; \text{Agr}_{Subj}$		*!	*
d. $\text{Agr}_{Subj}; \emptyset$	*!		*

Since $*\text{clitic}$ is higher ranked, clitics will not appear, only affixes.

(18) Ranking for **only clitics**

Input: Subj	MAX_ϕ	$*\text{affix}$	$*\text{clitic}$
a. Agr_{Subj}		*!	
b. Cl_{Subj}			*
c. \emptyset	*!		

(19) Ranking for **only clitics**

Input: Subj & Obj	MAX_ϕ	$*\text{affix}$	$*\text{clitic}$
a. $\text{Agr}_{Subj}; \text{Agr}_{Obj}$		*!*	
b. $Cl_{Subj}; Cl_{Obj}$			**
c. $Cl_{Obj}; \text{Agr}_{Subj}$		*!	*
d. $Cl_{Subj}; \emptyset$	*!		*

Here, the ranking is reversed, and only clitics appear, no affixes.

But a morphological ergative agreement pattern relies on a mixed distribution of clitics and affixes, but for both clitics and affixes to appear, some higher ranked constraint must sometimes compel the more marked form. For this purpose we introduce into the ranking from (16-19) a feature-verb alignment constraint (McCarthy & Prince, 1993; Legendre 1998a, 2000; Grimshaw 2001; Woolford, 1999, 2001).

- (20) $\Phi_{[V^0]}$ Align(Φ , Right, V^0 , Left)
 ‘A set of features Φ aligns with the left edge of the verb.’

Featural alignment constraints are necessary in all these other OT analyses of clitic placement to describe second-position strict ordering effects. Here, the ranking of $\Phi_{[V^0]} \gg \text{MAX}_{\text{PERS}} \gg *clitic$ produces a one-clitic limit, because both clitics cannot simultaneously align with the verb stem.

- (21) Ranking that enforces a **one-clitic limit**

Input: Subj & Obj	$\Phi_{[V^0]}$	MAX_{Φ}	*clitic
a. $Cl + Cl + V^0$	*!		**
b. $\text{☞} Cl + V^0$		*	*
c. $\emptyset + V^0$		**!	

We can now combine the results of tableaux (16-19) and (21). Affixes will be required in order to satisfy MAX_{Φ} in transitive clauses only, where it is not possible for the less marked clitics to cross-reference both arguments. The alignment constraint $\text{NOM}_{[V^{\text{stem}}]}$ in (22) ensures that the agreement morpheme containing the Nominative feature will be expressed as an affix, leaving object agreement to be expressed as a default clitic.

- (22) $\text{NOM}_{[V^{\text{stem}}]}$ Align ([+NOMINATIVE], Right, V^{stem} , Left)
 ‘The feature [+NOM] aligns at left of the verb stem.’¹²

For evidence in support of such a constraint, we can look cross-linguistically at which arguments tend to control affixal agreement, as opposed to clitics or no agreement. Overwhelmingly it is Nominative arguments, whether subjects or objects, whose agreement features are spelled-out by means of affixation on the verb (Woolford 1999 and references).¹³

If we include $\text{NOM}_{[V^{\text{stem}}]}$ in the rankings from (16-19) and (21), we find a constraint ranking to yield a simple ergative agreement system, like the Jacalteco system in Table 5 above: $\Phi_{[V^0]} \gg \text{MAX}_{\Phi} \gg *affix \gg *clitic \gg \text{NOM}_{[V^{\text{stem}}]}$.

¹² This is another featural alignment constraint. It achieves the same purpose as Woolford’s (2001) ‘AgrS’ constraint, but without the reliance on syntactic structure, per se.

¹³ Woolford (1999) finds that while many languages have agreement only with subjects, no language has exclusively object agreement. And among those languages with both subject and object cross-referencing, none has only clitics for subjects and only affixal agreement for objects. However, the inverse is a quite common pattern. For example, many Romance languages have subject agreement and object clitics.

(23) Ranking for **clitics and affixes in an “ergative” pattern**

Input: NOM	$\Phi_{[V^0]}$	MAX_{ϕ}	*affix	*clitic	$NOM_{[V^{stem}]}$
a. <i>Agr_{NOM}</i>			*!		
b. <i>Cl_{NOM}</i>				*	

(24) Ranking for **clitics and affixes in an “ergative” pattern**

Input: NOM & ACC	$\Phi_{[V^0]}$	MAX_{ϕ}	*affix	*clitic	$NOM_{[V^{stem}]}$
a. <i>Cl_{NOM} + Cl_{ACC}+V</i>	*!				
b. <i>Cl_{ACC} + Agr_{NOM}+V</i>			*	*	
c. <i>Cl_{NOM}+ Agr_{ACC}+V</i>			*	*	*!

An alignment-based approach thus yields an “ergative” pattern of agreement that does not require covert Ergative Case, and does not require any enrichment to the theory. Instead, it exploits an independently-supported Generalized Alignment schema (McCarty and Prince, 1993). A bold prediction of this approach is that where “ergativity” is based on one clitic blocking another, other clitics unrelated to the cross-referencing system could cause the same blocking effect, inducing affixal agreement for intransitive subjects. I will argue that this is what happens in Texistepec Popoluca and several other languages with morphologically split ergative agreement systems.

4.2. Ergative agreement without Ergative Case in other frameworks

An advantage to Woolford’s Optimality Theoretic alignment approach is that it derives ergative agreement systems from independently attested constraints by means of implicit typology. But this is not to say that it would be impossible to produce the very same pattern without ergative syntax in a rule-based formalism like Distributed Morphology (Halle and Marantz 1993). In a DM version of Woolford’s approach, the rules would, in principle, be arbitrary, rather than directly predicted by other work on similar phenomena. Still, the grammatical mechanisms would be quite straightforward and I believe, uncontroversial. I will demonstrate this for the case of Jacalteco.

(25) Vocabulary Insertion rules for the Jacalteco agreement system

Block I. a. [1] ↔ /-hin/	Block II. a. [1] ↔ /w-/
b. [2] ↔ /-hach/	b. [2] ↔ /haw-/
c. [3] ↔ -∅	c. [3] ↔ /-y/
	d. ↔ ∅

These Vocabulary Insertion rules are insensitive to Case, and can just as easily insert their Vocabulary items for [+NOM] morphemes as [+ACC]. Much of the work of the grammar is done by the ordering of the rules, rather than the rules themselves. The critical ordering here is that Block I always occurs first, and then,

if more features are left to spell out, they are spelled out by a Block II Vocabulary item.

All the input needs in order to produce the right Vocabulary Item in the right place is that the syntax put the features in the right spot. As presented here, only one thing is missing. Presumably, all [+NOMINATIVE] DP's end up in the same position, whether or not there is also a [+ACCUSATIVE] DP in the clause. What is needed, then, in this treatment is a rule that inverts the positions of [+NOM] and [+ACC] morphemes. This rule is an example of Local Dislocation (Embick and Noyer 2001, 2004).

(26) [+ACC] must precede a pre-verbal [+NOM]

Now suppose the linearization of the syntactic form gives us a string with the following features:

(27)

[ASPECT]	[+2] [-PI] [+NOM]	[+1] [-PI] [+ACC]	VERB \sqrt{ila} 'see'
----------	-------------------------	-------------------------	-------------------------

Applying the Local Dislocation in (26) to this structure, we get:

(28)

[ASPECT]	[+1] [-PI] [+ACC]	[+2] [-PI] [+NOM]	VERB \sqrt{ila} 'see'
----------	-------------------------	-------------------------	-------------------------

This now serves as the input to the Vocabulary Insertion rules from above.

(29) Vocabulary Insertion: 'You see me'

[ASP]	[+1] [-PI]	[+2] [-PI]	VERB \sqrt{ila} 'see'	
↓	Block I ↓	Block II ↓	↓	
/ch/	/-hin/	/haw-/	/ila/	→ <i>chin hawila</i> 'You see me' (ASP-1ABS 2ERG-see)

In a clause that has no Accusative DP, the local dislocation cannot apply, and vocabulary insertion proceeds as usual.

(30) Vocabulary Insertion: ‘You went’

(ASPECT)	[+2]	VERB \sqrt{toyi} ‘go’	
	[-Pl]		
↓	Block I. ↓	↓	
/xc/	/-hach/	/toyi/	→ <i>xchach toyi</i> ‘You went’ (ASP-2ABS <i>go</i>)

The glosses presented below each surface form correspond to the more conventional Case-based treatment that has been shown unnecessary. The fact that Block I enclitics have an ‘absolutive’ distribution is due to the arrangement of the morphemes prior to Vocabulary Insertion, not due to their Case.

None of the analysis offered thus far has relied crucially on the OT formalism in terms of being able to generate the right data. The advantage to the OT approach is simply that the existence of systems like Jacaltec is already predicted by the implicit typology of other well-attested constraints. In contrast, the DM approach treats this pattern as being arbitrary, because the typology of DM grammars is infinite, and there is no requirement that the formalism make predictions about the set of occurring patterns and non-occurring ones.

For example, the constraints used in the present OT analysis generate the morphological patterns found in the languages described, and they also counter-predict the existence of a language with, say, cross-referencing exclusively by affixal object agreement and subject clitics. The principle of factorial typology, unique to this framework, holds OT grammars to a higher standard. Even an analysis that generates the right pattern can be proven wrong because it makes the wrong prediction about the typology.

I do not argue here that DM or OT is better suited to generate the patterns under investigation, because they can both do the job well. My preference for the OT approach is based on meta-theoretical concerns. Given a set of positive data from languages and two theories that can both generate all the data, we should prefer the theory in which the description of the positive data patterns automatically implies the non-existence of at least some of the negative data. Distributed Morphology is more powerful than is necessary and fails to counter-predict many impossible patterns.

5. Textistepec Popoluca agreement: A morphologically split system

We have used the Jacaltec Mayan data above as a “simple ergative” agreement system, allowing us to develop a formula for generating such patterns at the level of morphology in both DM and OT. However, the true advantage of this Case-free approach to ergative agreement is the way it accommodates more complex agreement systems. In particular, as discussed above, the OT version of the framework implicitly predicts the existence of languages with agreement splits

generated in the morphology. The complex agreement system of Texistepec Popoluca has such a morphologically-conditioned split, as well as several other unusual properties that make it an excellent testing ground for the approach developed thus far.

In this section, I will introduce one-by-one the major patterns found in the Texistepec Popoluca agreement system. I will then show for each pattern that the interaction of independently motivated constraints can explain the pattern, and that the necessary constraints can be integrated into the existing constraint ranking.

5.1. Ergativity and inverse

The cross-referencing of core arguments in Texistepec Popoluca employs a paradigm of affixes (Set A) and a paradigm of clitics (Set B).¹⁴ In Table 6, the cells with Set A prefixes are un-shaded, and cells with Set B clitics are shaded.

Table 6: Cross-referencing morphology for all possible argument structures

Subj→Obj (any asp't)	Subj→Obj (any asp't)	Subj (imperf.)	Subj (perf.,fut)
1→3 1st-A / ^N -/	3→1 1st-B /k+/ <i>(shaded)</i>	1 1st-A / ^N -/	1 1st-B /k+/ <i>(shaded)</i>
2→3 2nd-A /j ^N -/	3→2 2nd-B /kj+/ <i>(shaded)</i>	2 2nd-A /j ^N -/	2 2nd-B /kj+/ <i>(shaded)</i>
3→3 3rd-A /j-/ <i>(shaded)</i>		3 3rd-A /j-/ <i>(shaded)</i>	3 Ø- <i>(shaded)</i>
1→2 /k+ ^N -/; 2→1 /kj+ ^N -/ = portmanteau			

The first pattern to be noted about the distribution of forms in Table 6 is that the agreement shows an ergative pattern, as illustrated by (31).

- (31) a. maʔ kwej
 maʔ k+wej
 PERF 1B+howl
 ‘I howled.’
- b. maʔ wej
 maʔ Ø+wej
 PERF 3B+howl
 ‘He howled.’
- c. maʔ wẽjaʔ
 maʔ Ø^N-wej-aʔ
 PERF 3B-1A-howl-APPL
 ‘I howled to him.’

Second, cross-referencing for 1st and 2nd persons always aligns with the verb stem, often at the expense of any third person argument in the clause. This is known as “inverse alignment” (Klaiman 1993). In Texistepec Popoluca, inverse clauses like (32b) lack subject agreement. This pattern is discussed in greater detail in Section 5.2.

- (32) a. maʔ ʔãʔm
 maʔ Ø^N-ʔaʔm
 PERF 3B-1A-see
 ‘I saw him/her/it.’
- b. maʔ kʔaʔm
 maʔ k+ʔaʔm
 PERF 1B+see
 ‘She/he/it saw me.’

¹⁴ Section 6 will discuss historical, morphological and phonological evidence in support of this distinction.

Third, there is a split in ergativity between those clauses with the imperfective clitic ?u+ and those without it, as mentioned in Section 3 above. Since we have various theoretical and typological reasons to doubt that the split involves an interaction of Case and aspect, we will develop an analysis here in which it is the morphological properties, not syntactic properties of the imperfective clitic ?u+ that are responsible for the split. Here, (33a) uses a Paradigm A prefix to cross-reference the subject, which we will attribute to positional competition from the imperfective clitic.

(33) a. $\text{?u}\tilde{\text{w}}\tilde{\text{e}}\text{j}$	b. $\text{ma? kw}\tilde{\text{e}}\text{j}$	c. $\text{kw}\tilde{\text{e}}\text{:jp}$
?u+	$\text{N-w}\tilde{\text{e}}\text{j}$	$\text{k+w}\tilde{\text{e}}\text{j-p}$
IMPFV+ 1A - <i>howl</i>	PERF # 1B + <i>howl</i>	1B + <i>howl</i> -FUT
'I am howling.'	'I howled.'	'I will howl.'

5.2. Explaining inverse alignment

The morphology of this language treats 1st and 2nd person arguments differently in terms of alignment. The most familiar type of inverse pattern in the literature is the sort found in many Algonquian (Rhodes 1976; Dahlstrom 1991) and Tanoan (Klaiman 1993) languages. In these languages, differences in saliency, animacy or topicality often supersede syntactic relations in the selection of a morphological “subject.” These sorts of patterns are typically referred to as “inverse voice” (Gildea, 1994). In Texistepec Popoluca there is an effect of relative saliency in determining the agreement pattern, although the distinction is at a different point on the saliency hierarchy. 1st and 2nd person arguments are treated distinctly from 3rd person arguments in terms of the alignment of the corresponding agreement. This pattern is referred to as “inverse alignment” (Klaiman 1993; Gildea 1994).

Using the approach to agreement outlined in Section 4, I will address the “inverse alignment” phenomenon found in (32) above. The alignment of 1st and 2nd person features always with the stem is enforced by an alignment constraint as in (34).

(34)	1&2 _[V-Stem]	Align(1st&2nd Person, Left, Verb Stem, Right)
------	------------------------------------	---

Replacing MAX_Φ , I now distinguish between $\text{MAX}_{1\&2}$ and $\text{MAX}_{3\text{RD}}$, because 3rd person arguments that cannot be aligned are not expressed, as in (32b) above.¹⁵

¹⁵ Featural alignment constraints are quite well motivated in the literature on clitic placement in OT (Legendre 1998b, 2000; Woolford 2001; Grimshaw 2001). The specific constraints $\mathbf{1}_{[V\text{-Stem}]}$ and $\mathbf{2}_{[V\text{-Stem}]}$ are convincingly shown to be at work in Haya, where the ordering of clitics is always 1st before 2nd, whichever of the two is subject or object (Woolford 2001). In general, Optimality Theory provides an elegant means to formalize alternations that are sensitive to differential saliency, animacy, topicality, definiteness, specificity, etc. (Aissen 2001).

(35) **MAX_{1&2}** Express 1st and 2nd person features.

The ranking shown in (36) and (37) produces a pattern of agreement that is both ergative and inverse in the distribution of forms.

(36) Ranking for **inverse alignment**

Input: 1st NOM; 3rdACC	MAX _{1&2}	1&2 _[V-Stem]	$\Phi_{[V^0]}$	NOM _[V^{stem}]	MAX _{3RD}	*aff	*cl
a. $1Agr_{NOM} + 3Agr_{ACC}$		*!		*		**	
b. $3Cl_{ACC} + \emptyset$	*!			*	*	*	*
c. $3Cl_{ACC} + 1Agr_{NOM}$						*	*
d. $1Cl_{NOM} + \emptyset$					*!		*

(37) Ranking for **inverse alignment**

Input: 3rd NOM; 1stACC	MAX _{1&2}	1&2 _[V-Stem]	$\Phi_{[V^0]}$	NOM _[V^{stem}]	MAX _{3RD}	*aff	*cl
a. $3Agr_{NOM} + 1Agr_{ACC}$				*!		**	
b. $3Cl_{NOM} + 1Cl_{ACC}$			*!				**
c. $1Cl_{ACC} + 3Agr_{NOM}$		*!				*	*
d. $3Cl_{NOM} + \emptyset$	*!						
e. $1Cl_{ACC} + \emptyset$					*		*

Candidate (36c) is optimal because it satisfies all the alignment constraints, while still remaining faithful to all the features in the input. No candidate can achieve this in (37). Both (d) and (e) satisfy all the alignment constraints, but in exchange they must be unfaithful to one of the arguments. The highly-ranked MAX_{1&2} ensures that (e) is optimal, because it remains faithful to the 1st person argument at the expense of the 3rd person one.

5.2. Explaining split ergativity

The second problem, the “split” in ergativity, is captured even more easily under this approach. We simply decompose the constraint on clitic alignment, $\Phi_{[V^0]}$, allowing differential alignment for the imperfective and person clitics. Woolford (1999) uses such a division between person features and negation features to account for the Yimas alternation in (2) above. Section 6 below discusses morpho-phonological evidence for the constraint **Impfv_[V⁰]** in Texistepec Popoluca.

(38) **Impfv_[V⁰]**, **Pers_[V⁰]** Align (Φ , Right, V⁰, Left)

The final ranking in (39) and (40) incorporates this split into the system. Because Impfv_[V⁰] dominates *affix, a violation of the imperfective alignment is avoided by the use of an affix rather than a person clitic to cross-reference the intransitive subject in (39). In (40), where there is no imperfective clitic in the

way, cross-referencing by person clitic proceeds as usual. The constraint $\text{Impfv}_{[V^0]}$ is vacuously satisfied.

(39) Ranking for **split ergativity**

Input:3rd NOM; Impf	MAX _{1&2}	1&2 [VStem]	Pers [V ⁰]	NOM _[V^{stem}]	MAX _{3RD}	Impf _[V⁰]	*aff	*cl
a. $\text{Impf}+3\text{Agr}_{\text{NOM}}$							*	
b. $\text{Impf}+3\text{Cl}_{\text{NOM}}$						*!		*
c. $3\text{Cl}_{\text{NOM}}+\text{Impfv}$			*!					
d. $\text{Impfv} + \emptyset$					*!			*

(40) Ranking for **split ergativity**

Input:3rd NOM; Perf	MAX _{1&2}	1&2 [VStem]	Pers [V ⁰]	NOM _[V^{stem}]	MAX _{3RD}	Impf _[V⁰]	*aff	*cl
a. $\text{Perf}+3\text{Agr}_{\text{NOM}}$							*!	
b. $\text{Perf}+3\text{Cl}_{\text{NOM}}$								*
c. $3\text{Cl}_{\text{NOM}}+\text{Perf}$			*!					
d. $\text{Perf} + \emptyset$					*!			*

The approach presented here to account for the Texistepec data relies on alignment constraints on morpho-syntactic features in the morphology in order to generate a split ergative pattern. This is coupled with differential faithfulness for 1st and 2nd person morphemes relative to 3rd person, and another featural alignment constraint, which account for the inverse pattern. These constraints apply in parallel and serve as the interface between the syntax and phonology.

This approach explains a problematic agreement system without complicating the syntax. The selection among clitic, affix and zero, and the linear alignment of these elements alone produces the complex agreement pattern.

6. Independent morpho-phonological evidence

In this section I discuss historical and synchronic evidence, as well as evidence from inter-speaker variation, to support the assumption in Section 4 that Set A is a paradigm of affixes and Set B markers are clitics.

6.1. Diachronic evidence that Set B is a paradigm of clitics

There is converging diachronic evidence that the Texistepec Popoluca ergative split is due to morphological alignment rather than Case in the syntax. I will explain how a small phonological change triggered a morphological change, which is now responsible for the split discussed in Section 5.2.

Table 7 show Sets A and B for Proto-Zoquean (*PZ) Sierra Popoluca (SP) and Texistepec Popoluca (TP) (Wichmann 1995; Kaufman 1963).

Table 7: Zoquean Set A and B paradigms

Set A	*PZ	SP	TP	Set B	*PZ	SP	TP
1st-excl.	<i>na-</i>	<i>an-</i>	<i>N-</i>	1st- excl.	<i>?i-</i>	<i>a-</i>	<i>k-</i>
2nd	<i>min-</i>	<i>in-</i>	<i>j^N-</i>	2nd	<i>mi-</i>	<i>mi-</i>	<i>kj-</i>
3rd	<i>ij-</i>	<i>i-</i>	<i>j-</i>	3rd	$\emptyset-$	$\emptyset-$	$\emptyset-$

Texistepec Popoluca's Set B markers (in the shaded column) reflect a complete innovation. This innovation, I argue, is responsible for the synchronic split in the imperfective. In other Zoquean languages, there is no split.

The *k* in TP's Set B forms is the reflex of the final segment of the adverbial particle **ma?ak* in *PZ meaning 'earlier today' (Wichmann 1996, 2003).¹⁶ This innovation resulted from the adoption of **ma?ak* as the perfective aspect marker. Presumably, **ma?ak* became the perfective marker after the loss of the *PZ perfective suffix **-wi*, which was in turn due to a sweeping sound change in TP, in which all short vowels in final position were deleted. The left half of this adverb remains as the current pre-verbal perfective marker *ma?*, as shown in Table 8.

Table 8: Zoquean perfective aspect markers (Kaufman, 1963; Wichmann, 1996)

*Proto-Zoquean	Chimalapa Zoque	Sierra Popoluca	Texistepec
<i>-wi</i>	<i>-wi</i>	<i>-u</i>	<i>ma? #</i>

6.2. Synchronic Morpho-phonology of Perfective *ma?*

Synchronically, the perfective *ma?* is a free word, not an affix or clitic, and the *k* of Set B is a very recently grammaticized clitic. Good evidence for this comes from the fact that *ma?* behaves like a full prosodic word with respect to hosting clitics. Adverbial second-position clitics like *+na?* 'currently' (41a-c), *+?u?m* 'reportedly (evidential)' (41d), and *+tʃε* 'only/just' (41e) frequently appear between *ma?* and *V⁰*. An example using a different free prosodic word, the negative *?εndʒε:*, is seen in (41a). The same clitic adverb, hosted on *ma?* is seen in (41b-e). But these second-position clitics cannot appear between *?u+* and *V⁰* (41c). While *ma?* can serve as a host for a second-position clitic, *?u+* cannot (41f). This is, I argue, because *?u+* is a clitic that aligns at the left edge of *V⁰*.

¹⁶ Reilly, Kaufman and Bereznak (in preparation) find an additional cognate in Texistepec Popoluca as well, an adverb *ba?ak* 'moments ago.'

(41)

- a. $\text{ʔu } \text{ʔjo:ŋwiʔj } \text{porke } \text{ʔɛnd}^{\text{d}^{\text{e}}}\text{:naʔ } \text{wjoʔkkaʔjja } \text{hepeʔ } \text{kɑ:cheʔ}$
 $\text{ʔu+j-ʔo:ŋ-wiʔj } \text{porke } \text{ʔɛnd}^{\text{d}^{\text{e}}}\text{:naʔ } \text{j-woʔk-kaʔj-ja } \text{hepeʔ } \text{kɑ:ʔcheʔ}$
 IMPF+3A-*strewn*-DEPO *because* NEG+**currently** 3A-*gather*-INTEN-PL *that trash*
 “The trash is strewn about because they’re not gathering it all up yet.”
- b. $\text{dik } \text{naʔ } \text{ʔãʔm } \text{dokto:r } \text{huʔpuʔ } \text{tsoj } \text{ktʃɛ:p } \text{parake}$
 $\text{dik } \text{+naʔ } \text{ }^{\text{N}}\text{-ʔaʔm } \text{dokto:r } \text{huʔpuʔ } \text{tsoj } \text{k+tʃiʔ-p } \text{parake}$
go.AUX+currently 1A-*see doctor where medicine* 1B-*give-FUT so.that*
- $\text{wi:ja:p } \text{n}^{\text{d}}\text{ukpak}$
 $\text{wi:ʔjaʔ-p } \text{n-dukpak}$
improve-FUT 1A-*back*
- “I’m on my way to the doctor, where he’ll give me medicine so my back gets better.”
- c. $\text{maʔnaʔ } \text{weʔk}$
 $\text{maʔ } \text{+naʔ } \text{ } \emptyset\text{-wiʔk}$
 PERF +**currently** 3B-*eat*
 “He has just finished eating this moment.”
- d. $\text{maʔm } \text{ʔukdeʔ}$
 $\text{maʔ+ʔuʔm } \text{ } \emptyset\text{-ʔuk-deʔ}$
 PERF+EVD 3B-*drink-PPL*
 “Word is he’s drunk.”
- e. $\text{maʔtʃɛ } \text{boŋ}$
 $\text{maʔ+tʃɛ } \text{ } \emptyset\text{-boŋ}$
 PERF+**only** 3B-*sleep*
 “He just slept.”
- f. $\text{ʔu+ } \text{*}\{\text{naʔ/ʔuʔm/tʃɛ}\} \text{ weʔk}$
 IMPFV +**CL** 3B-*eat*
 Intended readings: “He is *(currently/reportedly/just) eating.”

There are two possible explanations of the ungrammaticality of adverbial second position clitics in (41f). The first is that *ʔu* cannot host clitics because it is itself clitic, distinguishing it from *maʔ*. The second is that the forms in (41f) violate the alignment constraint **Impfv**_{TV}⁰. Either of these possibilities supports my case that

Imperfective *?u* is a clitic with a uniquely specified position.

6.3. Synchronic morpho-phonology of Sets A and B

Other Zoquean languages show a very parallel paradigmatic alternation between the two Sets in their shared pre-verbal ‘slot’. But given the unique diachrony discussed in 6.1., it is no surprise that the Texistepec Popoluca Set B markers show very different morpho-phonological alignment than the Set A markers. This is illustrated by the Texistepec Popoluca 1st person Set A and B forms in Table 9.

	<i>?o?ks</i> ‘scrape’	<i>ba?ks</i> ‘beat’	<i>hak</i> ‘cut’	<i>sos</i> ‘cook’	<i>nim</i> ‘say’
1stB	<i>k?o?ks</i>	<i>kba?ks</i>	<i>khak</i>	<i>ksos</i>	<i>kdim</i>
1stA	<i>?o?ks</i>	<i>ma?ks</i>	<i>hãk</i>	<i>zos</i>	<i>nim</i>

Two TP Set A affixes contain a nasal that never realizes segmentally. This feature systematically nasalizes or voices the onset and/or peak of the verb stem. Due to the innovation of *k* described above, the Set B counterpart to this nasal feature is a segmental *k*, which has no direct phonological effect on the stem.

6.4. Reduplication and the morpho-phonology of Set A prefixes

Cross-linguistically, when roots undergo both prefixation and reduplication, it is often possible for the replication process to be “overapplied” to some phonological piece of the prefix, which then appears on the reduplicant. This can be due to prosodic constraints that are satisfied by borrowing the extra material to make a more well-formed prosodic word, as in Axininca Campa (McCarthy and Prince, 1995). In Tagalog, a similar pattern emerges, only it is limited idiosyncratically to particular roots (Zuraw 2000).¹⁷

In each case, these authors take “overapplication” in reduplication as an evidence of a close phonological and prosodic relationship between root and prefix. It should not be surprising, then, that in Texistepec Popoluca, Set A is typically subject to “overapplication”, while this never occurs with Set B.¹⁸ Set A inflection is “over-applied” to the reduplicant in (42a), but is not possible with Set B as in (42b). The pair in (43a-b) illustrates the same.

- (42) a. *?u bi?m.bi?m.ho?j ?ε.lε:na?.?a:p*
?u+j-bi?m-(j-)bi?m-ho?j ?εlε:na?-?a:p
 IMP+3A-hop-(3A-)RED-AMB *Elena*-FEM
 ‘Elena goes hopping around.’

¹⁷ To be more precise, the set of roots that undergo this process is not “idiosyncratic” but “semi-predictable,” as Zuraw investigates in great detail.

¹⁸ It is, in fact, sometimes possible for the /j/ of 2nd person Set B /kj/ to be “overapplied”, even though the /k/ never is. This could be viewed as evidence in favor of the decomposed analysis of Sets A and B discussed in f.n. 7 above.

- b. ma? kbi?m.bi?m.ho?j
 ma? kj-bi?m-(***kj-**)bi?m-ho?j
 PERF 2A-*hop*-(2A-)RED-AMB
 ‘You hopped all around.’
- (43) a. ?u hĵāk.hĵāk.po?
 ?u+^Nj-hak-(^N**j-**)hak-po?
 IMP+2A-*cut*-(2A-)RED-*burst*
 ‘You’re cutting right through it.’
- b. ma? khjak.hak.po?
 ma? khjak-(***kj-**)hak-po?
 PERF 2B- *cut*-(2B-)RED-*burst*
 ‘You cut right through it.’

Set A prefixes, fused with the verb root, are subject to phonological processes like reduplication whose domain is the prosodic word (McCarthy and Prince 1995). In contrast, material from Set B clitics, which are non-prosodic units, is excluded from reduplicative “overapplication”.

6.5. Inter-speaker variation in Set B morpho-phonology

Further evidence for the distinct morpho-phonological status of Sets A and B comes from the way that speakers repair consonant clusters that are introduced by Set A and B morphology. The morpho-phonemic rules for Set A are many, and they are rigid and fixed across all speakers, but for Set B, younger speakers tend to make a few repairs, though the repairs are inconsistent across speakers and only affect the cluster /kk/. Typically, older speakers will pronounce this as [kk] or [kək], while some younger speakers repair the first /k/ to [xk], as shown in (44).

(44)

Underlying Form		IHT (age 83)	CRT (age 66)
a. /k ^N -ki?t/	‘I grind you’	[kngi?t]	[gngi?t]
b. /kj-kī?t/	‘you grind it’	[kki?t]	[xki?t]
c. /k-d ⁱ εp/	‘I sow it’	[kd ⁱ εp]	[kd ⁱ εp]
d. /k ^N -tĵik/	‘I touch you’	[kndĵik]	[kndĵik]

These data support Wichmann’s historical analysis that the *k* of Set B is a very recent innovation. They suggest that speakers are still trying to resolve the phonological disaster that was introduced by the adoption of this new clitic

paradigm. The fact that the phonology has not yet found a stable treatment of the Set B clitics matches well with the fact that the morphology also makes some unusual maneuvers in order to accommodate them

6.6. Summary of morpho-phonological data

The wide variety of data presented in this section provides language-internal evidence, confirming that Set B is a paradigm of clitics and Set A is a paradigm of subject agreement prefixes. Naturally, Sets A and B do not occupy the same ‘slot’, because historically the source of Set B is a separate adverb off to the left of the verb, while Set A is a prefix. Set B is clearly limited to the domain of verbal inflection, and Set A agrees with subjects and possessors in many different positions. These data make a Case-based analysis of these paradigms extremely problematic, while they directly follow from an alignment-based morphological approach.

7. A contrasting approach to the Texistepec Popoluca data

There is another treatment of these data that probably corresponds better to the intuitions of most Mixe-Zoqueanists. In this section, I will discuss this approach, and why it is not feasible given several unique facts about this language.

7.1. Mixe-Zoquean “ergative shift” on dependent verbs

Mixe-Zoquean languages vary in terms of the degree to which they have special morphology for verbs in subordinate clauses. Many of these languages have ergative (Set A) agreement on all verbs in dependent clauses and on verbs that follow auxiliaries.

In Sierra Popoluca (SP), Texistepec’s nearest relative, intransitive verbs that follow auxiliaries always have Set A agreement, rather than the typical Set B for independent verbs (Elson 1960).

- | | | | | | |
|---------|----|---|----|----|--|
| (46) SP | a. | mij-um in-wiʔk-oʔj
<i>come.AUX-PERF 2A-eat-ANTIP</i>
‘You came to eat.’ | SP | b. | mi-wiʔk-oʔj-um
<i>2B-eat-ANTIP-PERF</i>
‘You ate.’ |
| (47) SP | a. | nik i-ʔaʔm-oʔj-jah
<i>go.AUX 3A-see-ANTIP-3PL</i>
‘They went to watch.’ | SP | b. | (Ø)-ʔaʔm-oʔj-jah
<i>3B-see-ANTIP-3PL</i>
‘They watched.’ |

This also occurs with intransitive verbs in imbedded clauses, as in (48) and (49). The intransitive verbs ‘come’ and ‘fish’ would take Set B morphology in a main clause, but here they take Set A, the same as subjects of transitive independent clauses.

- (48) SP **i**-mij-pa-m i-paʔt tum ʔuʃpij
 3A-come-IMPFV-now.CL 3A-find one alligator
 ‘While coming along, he found an alligator.’
- (49) SP ...hemik **an**-tiʔba-pa-m
 when **1A**-hit-IMPFV-now.CL
 ‘...while I was fishing.’

An even more complex dependence-based split is found in Olutec (Mixean).¹⁹ Zavala (2000) reports three agreement paradigms A, B and C, such that “Set B functions as absolutive in independent clauses, Set C functions as ergative in dependent clauses, and Set A functions as ergative in independent clauses and absolutive in dependent clauses.” This pattern is presented schematically in (Table 10).

Table 10: Distribution of Olutec Agreement Paradigms

	Transitive Subj	Intransitive Subj	Object
Independent	A	B	B
Dependent	C	A	A

Given the fact that these sorts of ergative splits are present in the family, readers familiar with other Mixe-Zoquean languages may wonder if the use of Set A to agree with intransitive subjects in the imperfective aspect in Texistepec Popoluca is because verbs in the imperfective aspect are actually in a lower clause, perhaps with the aspect marker itself serving as the head of the matrix clause. If this were the case, an astute Mixe-Zoqueanist might expect the rest of Texistepec Popoluca to see the same sort of “ergative shift” that is found in Sierra Popoluca.

As it turns out, there is no shift in the agreement marking for verbs following auxiliaries or in dependent clauses. While certain types of auxiliaries require the intransitive verbs that follow them to carry a suffix *-iʔ* or *-εʔ*, they never affect the agreement morphology. Contrast (50) and (51) from Texistepec Popoluca (TP) with (46) and (47) from Sierra Popoluca above.

- (50) TP **ji:** maʔ meɲ kʔjuk-ɔʔj-εʔ
 jiʔi maʔ meɲ kʔj+ʔuk-ɔʔj-εʔ
 here PERF *come.AUX* 2B+*drink*-ANTIP-SUB
 ‘You came here to drink.’

¹⁹ The town of Oluta is located adjacent to Texistepec. The Olutec language is sometimes referred to as “Oluta Popoluca”, but the name is deceiving since their relationship is actually fairly distant within the Mixe-Zoquean family.

- (51) TP maʔ dik ʔaʔmɔːja
 maʔ dik Ø-ʔaʔm-oʔj-εʔ-ja
 PERF *go.AUX* **3B+see**-ANTIP-SUB-3PL
 ‘They went to watch.’

There is a completely different mechanism to mark dependence from auxiliaries in this language, compared to related languages.

There is also no shift to Set A marking of intransitive subjects in obviously subordinate clauses, shown in (52-53). But here, there is no marking of dependency by any other morphological means either.

- (52) TP dʔeŋ.dʔeŋ.dεʔ ʃiʔ hεs maʔ baŋ.t̄suŋ
 dʔeŋ-dʔeŋ-dεʔ j-ʃiʔ hεs maʔ Ø-baŋ.t̄suŋ
 jiggle-RED-PPL *3A-butt when* PERF **3B-stand.up-be.on.feet**
 ‘Her butt jiggled when she stood up.’

- (53) TP hεm put bjum.bε pa tε.wεʔkp
 hεm Ø-put j-bumbe pa tε+wiʔk+p
 there *3B-exit* *3A-altogether in_order_to* *1inB+eat+FUT*
 ‘There they leave so we can eat.’

The lack of “ergative shift” in any of the spots where it typically occurs in other related languages makes a treatment of the agreement split as a result of syntactic subordination unlikely.

7.3. History of ʔu+

To illuminate the issue of whether the Texistepec Popoluca agreement split is really just “ergative shift,” it would be useful to know the historical source of the Imperfective clitic, which I claim triggers the split. If, for example, it were historically an auxiliary, this would strongly favor an “ergative shift” analysis.

While the etymology of Imperfective ʔu+ is uncertain, all possible hypotheses disfavor that analysis. Wichmann (1995, 2003) classifies it as a cognate of the Proto-Zoque negative imperative marker ʔu. This ʔu is still found serving the negative imperative function in several modern languages, such as Chimalapa Zoque (CZ) (Johnson, 2000:97)

- (54) CZ ʔum ʔukkə
 ʔu +ʔəm ʔuk-wə
 NIMV *2A drink-NIMV*
 ‘Don’t drink it.’

While the phonological correspondence with Texistepec *?u* is perfect, it is quite uncertain how a negative imperative particle could have made the long diachronic journey, reversing its polarity along the way, to become an Imperfective aspect clitic.

Another possible source for *?u*, perhaps somewhat more plausible, is the Texistepec Popoluca adverb *?upa* ‘now’. Evidence for this comes from the fact that, forced to produce a grammatical version of the ungrammatical item in (41f) above (repeated here as (55a)), speakers will typically produce the form in (55b), which seems to be marginally acceptable, although I am unsure exactly why.

- (55) a. * *?u+ na? wε?k*
 IMPFV +*currently* 3B-*eat*
 Intended readings: “He is currently eating.”
- b. % *?up+na? wε?k*
 IMPFV+[p]+*currently* 3B-*eat*
 “He is currently eating.”

Whether *?u* is historically a negative imperative marker or adverb is irrelevant—neither of these sources supports the “ergative shift” analysis of the Texistepec Popoluca agreement split. On such an analysis, the Proto-Zoque negative imperative or adverb *?u* would have become an auxiliary at some point in its history, and entered into the set of auxiliaries whose complements show exclusively ergative agreement for subjects.²⁰ Then, on this account, all other triggers of “ergative shift” (auxiliaries and embedding) would have to have become inactive, leaving only the newly re-analyzed auxiliary *?u*. Finally, the loss of the Proto Zoque Imperfective suffix **-pa* to reanalysis caused *?u* to be promoted to the status of Imperfective aspect marker (Wichmann 2003).²¹ It would be a complete coincidence that these processes (*?u* becoming auxiliary, all other auxiliaries ceasing to trigger shift, and *?u* being grammaticized as a clitic) co-occurred and yielded the current system in which only imperfective aspect clauses have Ergative Case with intransitive verbs.²²

²⁰ Negative imperatives do not trigger “ergative shift” in any of the Mixe-Zoquean languages (Terrence Kaufman, p.c.).

²¹ Imperfective aspect does not trigger “ergative shift” in any of the other Mixe-Zoquean languages (Terrence Kaufman, p.c.).

²² Typological work by DeLancey (1981) suggests that this system is not entirely bizarre as a syntactic configuration. According to DeLancey, there is a principled explanation to why the Imperfective aspect might correlate with ergative agreement on intransitive subjects. DeLancey seeks to explain split ergativity in terms of a mismatch in “attention flow” between the order of

8. Lavukaleve and Chimalapa Zoque revisited

Having developed a comprehensive approach to morphologically conditioned agreement splits in Optimality Theory, and having demonstrated its effectiveness for Texistepec Popoluca, let us now briefly revisit two other agreement splits discussed in Section 2.

8.1. Lavukaleve accusative agreement for subjects

Recall the data from (3) above, repeated here as (56). Verbs bearing the prefix *e-* use the accusative agreement paradigm to agree with their subjects.

- (56) a. meo yo-e-tegi -ge
 tuna 3PObj- **SBD**- *feed* -ANT
 ‘...when the bonito started feeding...’
- b. vau a-igu-ge
 out 1SgSu-*go*-ANT
 ‘...when I went out...’

Suppose there is an alignment constraint requiring [+NOM] agreement to align with the verb stem, and a faithfulness constraint that ensures the phonetic realization of the [+NOM] feature:

- (57) [NOM]_[V-Stem] Align ([NOM], Right, V-stem, Left)
 IDENT_Φ Faithfully realize all agreement features of a DP

As for [NOM]_[V-Stem], this application of the generalized alignment template is well-motivated, since it is true of the vast majority of Lavukaleve clauses, specifically all those without the infrequent prefix *e-*.

Obviously, there is some morphological or phonological reason why *e-* always appears adjacent to the verb. We will represent this by another alignment constraint, one which is undominated for purposes of the present problem.

arguments in the clause and the natural “attention flow” involved in the event. Typologically, zero case marking (i.e. usually Nominative), and verbal agreement are associated with the argument that serves as the natural attentional starting point for the event. For the Texistepec data, the split would be attributable to intransitive subjects being naturally associated with the starting point of the event the imperfective aspect, and with the endpoint of the event in the perfective aspect.

But DeLancey’s notions of naturalness do far less than the data in Section 6 towards a explaining how the system came to be the way that it is, and they say nothing of the formal machinery of the grammar. Still, his claim actually matches the Texistepec data fairly well, and there is no doubt that DeLancey’s observation is true as a typological trend. Indeed, if DeLancey’s analysis is correct, the naturalness and communicative convenience of the well-aligned attention flow could be a major reason why this hard-to-contrive configuration has persisted in Texistepec Popoluca, rather than undergo an immediate diachronic repair.

(58) e -_[V-Stem]

The interaction of these constraints yields the Lavukaleve agreement split. The Tableau in (59) corresponds to the example in (56a).

(59)

{[3],[pl],[nom], e -, V}	e - _[V-Stem]	[NOM] _[V-Stem]	IDENT _ϕ
a. \hookrightarrow 3PLACC- e -V			*
b. 3PLNOM- e -V		*!	
c. e -3PLACC-V	*!		*
d. e -3PLNOM-V	*!		

In candidate (b), the [NOM] feature fails to align with the verb. In candidates (c) and (d), the e - fails to align with the verb. The winning candidate (a) vacuously satisfies [NOM]_[V-Stem] since it has no [NOM] feature to align, using accusative agreement instead. The tradeoff is that (a) is unfaithful to the features of the argument.

8.2. Chimalapa Zoque 2nd person subjects

While the Lavukaleve split, like the Texistepec Popoluca split, was due to interference between two morphemes attempting to align in the same spot, Chimalapa Zoque has a split due to a sort of “negative interference” from a gap in the vocabulary. The 1st person free pronoun $dəʃ$ has a clitic counterpart $də+$ which cliticizes to the left edge of the verb and is used to cross-reference intransitive subjects and transitive objects. However, the 2nd person free pronoun $miʃ$ lacks a clitic counterpart, so no other 2nd person form competes with $ʔəm$. Table 11 shows the agreement system, repeated from Section 2.

Table 11: San Miguel Chimalapa Zoque Pre-verbal Inflection (Johnson, 2000)

	Transitive subj. (A)	Intransitive subj. (S)	Transitive Obj (O)
1st Pers	$(ʔə)n$ (left-leaning clitic)	$də$ (right-leaning clitic)	$də$ (right-leaning clitic)
2nd Pers	$(ʔə)m$ (left-leaning clitic)	$(ʔə)m$ (left-leaning clitic)	$miʃ$ (free pronoun)
3rd Pers	$(ʔə)y$ (left-leaning clitic)	\emptyset	\emptyset

Suppose the ergativity is due to the same sort of phenomenon as Texistepec or Jacaltepec Mayan—there is a default paradigm, and another paradigm which is invoked only when forced to by an alignment failure. The small difference here is that instead of the default being set by a ranking $*af \gg *cl$, all agreement is done by clitics and free pronouns.

So what is responsible for there being a default and marked form of agreement? Recall the generalized preverbal clitic alignment constraint in (60), repeated from above.

(60) $\Phi_{[V^0]}$ Align(Φ , Right, V^0 , Left)

This constraint is violated by forms with the left-leaning clitics in the $\text{?}\partial\text{--}$ paradigm, because they cliticize to the left in the morpho-phonology, despite their syntactic adjacency to the verb on their right. Observe in (61) that while the clitic ?en is serially adjacent to the verb on its right, it is prosodically dependent on the word on its left. This violates the constraint $\Phi_{[V^0]}$, which is a morphological constraint.

(61) **den** muštampa ke hehepa
 dey **?en** muš-tam-pa ke \emptyset -heh-pa
now 1ERG *know*-1/2PL-IMPV *that* 3B-*live*-IMPV

The Tableau in (62) shows what this constraint does for the 1st person in an intransitive clause.

(62)

Input: 1st[NOM]	*pronoun	MAX $_{\Phi}$	$\Phi_{[V^0]}$	*cl
a. + $\text{?}\partial n$ V			*!	
b. $\text{d}\partial$ + V				*
c. $\text{d}\partial\check{s}$ V	*!		*	
d. \emptyset - V		*!		

Candidate (a) with a left-leaning clitic and candidate (c) with a free pronoun do not satisfy the featural alignment constraint $\Phi_{[V^0]}$. Candidate (c) also fatally violates the constraint ***pronoun**, which penalizes the use of a full pronoun to express agreement.

The tableau in (62) shows the same constraints evaluating a 2nd person input. Here, the left-leaning clitic (a) wins out, despite its $\Phi_{[V^0]}$ violation, because no non-violator is available.

(62)

Input: 2[NOM]	*pronoun	MAX $_{\Phi}$	$\Phi_{[V^0]}$	*cl
a. $\text{+?}\partial m$ V			*	*
b. $\text{mi}\check{s}$ V	*!		*	
c. \emptyset - V		*!		

A hypothetical 2nd person clitic form like **mi+*, the non-existent homolog of *də+*, would have won this evaluation, but due to some other dominant force in the grammar, **mi+* is not in the vocabulary.

In Chimalapa Zoque an idiosyncratic gap in the vocabulary interacts with a distinction between two kinds of clitics. Both types of clitics are in the same position serially, just before V^0 . But one type cliticizes to the left becoming prosodically dependent on whatever word precedes the verb, while the other cliticizes to the right, becoming prosodically dependent on the verb itself, which obeys the alignment constraint Φ_{IV}^0 . The result of this interaction is a split for 2nd person intransitive subjects only. Like the patterns in Texistepec Popoluca, Yimas and Lavukaleve discussed above, this is not a bizarre syntactic arrangement but an accident of morphology.

9. Conclusions and Implications

I have argued that the mechanisms responsible for the ergative, inverse and split characteristics of many agreement systems are independent of Case assignment in the syntax, and that they are morphological in nature. I have joined Woolford (1999, 2001) in advocating for a distinction between agreement alternations that are based on Case, and those that are based on morphological alignment, supplying new data from Texistepec Popoluca and several other languages. In particular, I have tried to highlight the commonality between this sort of agreement pattern and other paradigm alternations that are morphological rather than syntactic in nature.

For the typology of ergativity, this result makes an important contribution. The term “ergative” refers to any language that conflates intransitive subjects with transitive objects at any level of analysis. Considering the vast typological differences between ergative agreement patterns and ergative nominal Case patterns, it should be a welcome addition to the theory that ergative and split ergative patterns be generable without Ergative Case. Crucial to this possibility is that constraints favoring faithfulness to morphosyntactic features must compete with morphological constraints.

Features from a hierarchically organized syntax must be linearized and assigned a complex but qualitatively different morphological and prosodic structure. Paradigm alternations are often conditioned by the morphological or prosodic environment, and such factors are also involved in the placement of clitics. Conveniently, grammatical descriptions couched in Optimality Theory automatically imply a specific typology, so the analysis here follows quite directly from prior approaches to paradigm alternations and clitic placement.

In general, the explanation of complex and split agreement systems in terms of promiscuous paradigms and morphological alignment is appealing because it affords a much simpler syntax. The cost in terms of morphological machinery is relatively little, since paradigm selection and alignment are things the grammar must already do anyway.

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Appendix: Abbreviations Used

2/1	2nd person subject and 1st person object
1/2	1st person subject and 2nd person object
1in	1st person plural inclusive
1	1st person
2	2nd person
3	3rd person
A	Set A
ACC	Accusative
AMB	Ambulative
ANTIP	Antipassive
B	Set B
EVD	Evidential
EXLM	Exclamation / emphasis
FEM	Feminine
IMPFV	Imperfective
MOD	Modal adverb
NOM	Nominative
PERF	Perfective
PPL	Progressive Participle
RED	Reduplication
SBD	Subordinate adverbial clause prefix
SUB	Subordinate verbal suffix

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