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Ergativity and Agreement in Jacaltec

by

André G. Isaak

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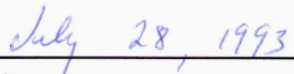
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ABSTRACT

In this thesis, I present an analysis of Jacaltec within Government-Binding Theory. I argue against Chomsky's (1992) Minimalist account of ergativity, showing that his analysis fails to capture a number of facts about Jacaltec. It predicts the incorrect affix order, suggesting the basic phrase structure which it employs is inappropriate; it fails to account for an accusative subset of Jacaltec; and, it faces a number of methodological problems due to its reliance on non-overt movement and the insertion of lexical items which are already inflected at D-Structure. I propose an alternative account in which the absolutive argument is structurally superior to the ergative argument at S-Structure, in which all movement is overtly realised, and in which inflection is carried out entirely within the syntax. To account for the accusative subset of Jacaltec, I propose a model of lexical representation in which all Cases are represented on the verb.

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LIST OF ABBREVIATIONS AND SYMBOLS

A, AP	adjective, adjective phrase
<i>An</i>	<i>n</i> th person absolutive agreement
A	subject of a transitive verb
Abs	absolutive Case
Acc	accusative Case
Acc, AccP	ACCUSATIVE AGREEMENT, ACCUSATIVE AGREEMENT phrase
ACC _F	accusative with respect to <i>F</i>
Adv, AdvP	adverb, adverb phrase
ag	agent role
Aor	aorist tense marker
Apas	antipassive marker
Asp	aspectual marker
Aug	stem augment
Aux	auxiliary verb
C, CP	COMPLEMENTISER, COMPLEMENTISER phrase
Cl	clitic
Comp	complement
d	dual
<i>Dn</i>	<i>n</i> th person dative agreement
Dat	dative Case
Det	determiner
<i>En</i>	<i>n</i> th person ergative agreement
Erg	ergative Case
ERG _F	ergative with respect to <i>F</i>
f	feminine
Fin	finite
Gen	genitive Case
go	goal role
I, IP	INFLECTION, INFLECTION phrase
Imp	imperfective aspect
Incho	inchoative marker
Intr	intransitive marker
m	masculine
Mod	modal
<i>np</i>	<i>n</i> th person
N, NP	noun, noun phrase
Nom	nominative Case
Num	grammatical number
<i>On</i>	<i>n</i> th person accusative (object) agreement
p	plural
P, PP	preposition, preposition phrase
P	object of a transitive verb
Pass	passive marker
Perf	perfective aspect
Pl	plural
Pres	<i>either</i> present tense <i>or</i> nonpast

Pst	past tense
pt	patient role
Refl	reflexive
Rel	relativiser, relative clause marker
s	singular
<i>Sn</i>	<i>n</i> th person nominative (subject) agreement
S	subject of an intransitive verb
Sg	singular
Spec	specifier
suff	suffix whose exact meaning is either unclear or irrelevant to the example
Tns	tense
Tr	transitive marker
V, VP	verb, verb phrase
V _I	intransitive verb
V _T	transitive verb

Chapter One

INTRODUCTION

1.0 General Introduction

In this thesis, I present an account of the agreement patterns found in Jacaltec within a recent version of the Government and Binding framework. Jacaltec is a Mayan language spoken by approximately 15 000 people in the Huehuetenango region of Guatemala. My data are drawn primarily from the grammars of Christopher Day (1973) and Colette G. Craig (1977).

Jacaltec, like the majority of Mayan languages, is an agglutinative VSO language which exhibits ergativity in its agreement system. Jacaltec verbs agree with both their subjects and their objects. A single set of morphemes is used to mark agreement between an intransitive verb and its subject or a transitive verb and its object, while a second set of morphemes is used to mark agreement between a transitive verb and its subject, as illustrated in (1).

- (1) a. xc-(h)on_i-wayi *pro_i*
 Pst-A1_i-sleep *we_i*
 “We slept.”¹
- b. xc-Ø_i-wayi *naj_i*
 Pst-A3_i-sleep *he_i*
 “He slept.”

¹ All Jacaltec data are cited in standard Jacaltec orthography, which is described in the appendix. Because different sources have adopted different notational conventions, I have standardised glosses throughout this thesis. Changes to glosses will only be indicated where they may be contentious. All Jacaltec data are given in underlying phonological representation, ignoring a number of morphonological changes which occur at morpheme boundaries. Because overt case markers do not appear in Jacaltec, all pronouns are glossed with nominative pronouns, regardless of the function which they might perform. Data from languages other than Jacaltec are cited in whatever form the source material used.

- c. xc-hoñi-sj-mak' naj_j pro_i
 Pst-A1_i-E3_j-hit he_j we_i
 "He hit us." (Day 1973: 34f)

Here we see that the absolutive marker *hoñi-* is used to mark first person plural arguments. It appears with both intransitive subjects (1a) and transitive objects (1c). Third person arguments are marked with *s-*, but only when they occur as transitive subjects (1c). Intransitive third person subjects receive null agreement (1b). The functions of these agreement markers, therefore, cannot be expressed solely in terms of subjects and objects, but must also refer to transitivity.

Chomsky (1992) offers a theory of Case and agreement within the Government-Binding framework. This theory was primarily concerned with accusative languages based on data from English and French, but Chomsky gives some tentative suggestions for applying his theory to ergative languages, suggesting that there is an underlying unity between the syntax of accusative and ergative languages.

The goal of this thesis is to test the applicability of this theory to Jacaltec. While ergative languages such as Jacaltec are less common than the more familiar accusative languages, in which subjects of both intransitive and transitive verbs pattern similarly, they are found in most major language phyla, and with sufficient frequency that ergativity cannot be dismissed as an unstable situation arising in only a handful of languages. Thus, any theory of grammar which purports to be universal must also describe these languages within the same theoretical limits defined for accusative languages.

Ergative languages pose a number of empirical problems for Chomsky's (1992) analysis. In Jacaltec, two major difficulties are found. First, the order of affixes predicted by Chomsky's theory does not conform to the Jacaltec verbal complex, in which the ergative agreement morpheme is closer to the verb stem than the absolutive marker. Secondly, Jacaltec exhibits an ergative split which cannot be motivated within Chomsky's theory as it stands. These difficulties are also found in other Mayan languages, and in unrelated languages such as Inuktitut (Johns 1992).

The majority of Jacaltec sentences follow the agreement pattern described in (1). However, a subset of embedded clauses follow an accusative agreement pattern. The ergative agreement markers are used for all subjects, including transitive subjects, in

embedded clauses which lack tense markers, traditionally referred to as “aspectless embedded clauses”.

- (2) a. *sab ichi* [cu- *munlayi pro*]
 early start [E1p- work we]
 “We started to work early.” (Craig 1977: 111)
- b. *x-Ø-tzala naj* [haw-ul *pro y-atut*]
 Pst-A3-rejoice he [E2-come you to-house]
 “He is happy (that) you came to his house.”
- c. *x-Ø-y-il ix* [hin-ha-mak-ni *pro pro*]
 Pst-A3-E3-see she [A1-E2-hit-suff you I]
 “She saw you hit me.” (Craig 1977: 237)

In these three examples, it can be seen that in embedded clauses which lack the tense markers *x-* or *ch-*, the ergative agreement marker is used for intransitive (2a and 2b) as well as transitive (2c) subjects. This phenomenon cannot be accounted for within Chomsky’s analysis without abandoning a number of his more central assumptions.

I show that these and other difficulties may be overcome within a framework similar to that put forward by Chomsky. In order to accomplish this, I propose two major modifications to Chomsky’s theory. First, following Murasugi (1992), I argue that the position occupied by transitive subjects in Jacaltec is structurally inferior to the position occupied by either intransitive subjects or objects. However, I depart from Murasugi in assuming that movement to these positions is an overt phenomenon. This allows us to describe more accurately the affix order which is found in Jacaltec.

I also develop a theory of lexical representation and Case assignment which allows us to account for Jacaltec’s accusative subset. I argue that the ability to assign Case is a lexical property of verbs, and that the functional categories AGREEMENT and TENSE, which Chomsky makes use of in his theory of Case assignment, serve only a mediating role.

Before discussing the details of my analysis, however, I present an overview of Government-Binding Theory for the remainder of this chapter, followed by a discussion of

ergativity in natural language and a review of select accounts of ergative phenomena in Chapter Two.

1.1 GB Theory and the Minimalist Programme

1.1.0 Introduction

The theoretical framework which I will be adopting in this thesis is the Minimalist Theory outlined in Chomsky (1992). This theory is an outgrowth of the Government-Binding framework (Chomsky 1981, 1986a), which is outlined below. The following sketch is of an historical nature, and many of the principles which are discussed are modified significantly in the Minimalist framework. However, understanding them in their earlier form will aid in understanding the motivations behind the Minimalist Theory.

Sections 1.1.1 through 1.1.4 discuss the essential aspects of GB theory as it existed prior to the Minimalist Framework. §1.1.1 provides a general overview of GB Theory. §1.1.2 discusses principles relevant to D-Structure, including X'-Theory, the Projection Principle, and θ -Theory. §1.1.3 discusses principles which hold at S-Structure, including Case and Binding Theory. Finally, §1.1.4 describes the theory of movement.

Section 1.2 describes innovations within the GB model of phrase structure which were instrumental to the development of Minimalism. Pollock (1989) and Chomsky (1991) both develop models of phrase structure which rely more heavily on functional categories above VP than did previous models. Pollock's model is discussed in §1.2.1, followed by a discussion of Chomsky's model in §1.2.2.

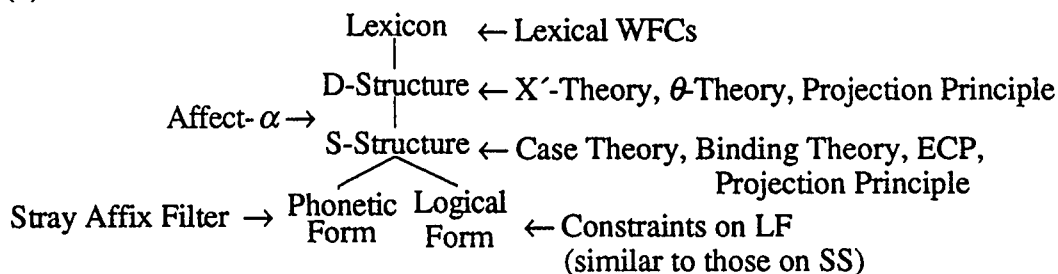
Finally, §1.3 describes the Minimalist Framework proper, which will be used extensively throughout the remainder of this thesis. Because this theory is still in its infancy, some of the new principles employed are not yet fully developed, but a reasonably complete theory of Case and agreement exists. Because the major concern of this thesis is Case and agreement within ergative systems, most of the discussion of Minimalism will centre on these aspects of the theory.

1.1.1 The Overall Organisation of the Theory

GB theory divides the grammar into a number of distinct subsystems which interact with one another. Each subsystem is subject to its own set of constraints, and a derivation

must satisfy the appropriate constraints at each level in order for its output to be grammatical. The subsystems are organised as follows.

(3)



The lexicon contains all information which is idiosyncratic in nature. Individual words and affixes are stored in the lexicon, along with information on their syntactic, phonological, and semantic behaviour.

D-Structure (DS) is the level at which lexical entries are inserted into the syntax, and the level at which thematic relationships are interpreted.

Logical Form (LF) is the level at which logico-semantic relationships such as scope of quantification are interpreted. This system will not be considered in any great detail in this thesis. However, it is crucial to a number of alternate analyses which will be considered herein.

Phonetic Form (PF) is the level at which sentences receive phonological realisation. Again, this level will not play a major role in this thesis.

S-Structure (SS) forms the interface between D-Structure, LF, and PF. While S-Structure is subject to a number of constraints of its own, it is primarily an intermediate step in the mapping of D-Structure onto LF and the mapping of D-Structure onto PF. The mapping between these levels is accomplished by the generalised transformation Affect- α , which moves or deletes elements in the tree.

GB assumes these levels of representation to be present in all natural languages. Many of the principles which govern them are also assumed to be universal. Those which are not are generally subject to cross-linguistic parameterisation only within narrow and well-defined limits. The remainder of this chapter will be concerned primarily with principles rather than parameters, i.e. those aspects of the theory which are universal.

1.1.2 Constraints on D-Structure

D-Structure is the level at which lexical elements are inserted into the syntax. This insertion, however, must obey a number of principles if the resulting structure is to be well-formed. The three principles which I will consider here are (i) X' -Theory, (ii) the Projection Principle, and (iii) θ -Theory.

1.1.2.1 X' -Theory

It is assumed that syntactic structure conforms to a regular model known as the X' -Schema. According to X' -Theory all major lexical categories (V, N, A, P) and all functional categories (TENSE, AGREEMENT, etc.) uniformly project phrasal categories in accordance with the following scheme.

- (4) a. $XP \rightarrow X', \text{Spec}$
- b. $X' \rightarrow X, YP$

The hierarchical relationships captured by this schema are held to be universal, but the linear arrangement of elements is subject to parametric variation. Specifiers (Spec) and complements are not restricted to any category, but must be maximal projections.

1.1.2.2 The Projection Principle

While X' -Theory is always observed, individual lexical items impose restrictions which must also be observed. For example, transitive verbs such as *steal* require NP objects. Intransitive verbs, on the other hand, do not subcategorise for objects, and are ungrammatical if they appear with objects. Phrase structure is thus projected from individual lexical items. These lexical properties must be observed not only at D-Structure, but at all subsequent levels of the grammar. This is captured in the Projection Principle.

(5) **The Projection Principle:**

Lexical properties must be represented categorially at each level of grammatical representation (Chomsky 1986a).

Note that the Projection Principle is concerned primarily with the generation of complements, which must be subcategorised by a lexical item. In general, specifiers may be freely generated.²

1.1.2.3 θ -Theory

Not only must the syntactic properties of lexical elements be satisfied at D-Structure, but their thematic properties must be satisfied as well. Major lexical elements may possess θ -grids which describe the arguments which they obligatorily take. θ -roles must be discharged at D-Structure, and each argument NP must be associated with one and only one thematic role. Together, these principles form the θ -Criterion.

(6) **The θ -Criterion:**

Each term of LF that requires a θ -role (each *argument*) is assigned a θ -role uniquely, and each θ -role determined by the lexical properties of a head is uniquely assigned to an argument (adapted from Chomsky 1982).

θ -roles are taken from a finite inventory which includes agent (ag), patient (pt), goal (go), etc. It is assumed that θ -roles associated with a verb are assigned to specific structural positions.

- (7) a. if V has a patient role, assign pt to (NP, V')³.
 b. if V has an agent role, assign ag to (NP, IP).

The assumption that θ -roles are assigned under specific structural relationships is stated more strongly by Baker (1986), who argues that θ -roles are isomorphic with structural positions. This view forms the Uniformity of θ -Assignment Hypothesis, which is stated below.

² Some theories, however, assume that specifiers of functional categories may only be generated under certain circumstances (e.g. Fukui 1986).

³ The notation (X, Y) is used to indicate X immediately dominated by Y.

(8) **The Uniformity of θ -Assignment Hypothesis (UTAH):**

Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-Structure (Baker 1986: 46).

Related to the UTAH is the Unaccusative Hypothesis (Perlmutter and Postal 1984). According to the UTAH, unaccusative verbs must assign their patient role in the same manner that transitive verbs assign their patient role, that is, to the object position.

- (9) a. Achilles killed the tortoise.
b. The tortoise died.

The thematic relationship between *the tortoise* and the verbs in (9a) and (9b) is identical, despite the fact that *the tortoise* is the surface object in (9a) and the surface subject in (9b). The UTAH requires that verbs such as *die* subcategorise objects to which they assign a patient role. Objects of unaccusative verbs such as *die* then raise to subject position. This is motivated in part by Case theory, which is discussed in the following section.

1.1.3 Constraints on S-Structure

While S-Structure is primarily viewed as an interface level, it is subject to a number of well-formedness constraints. These constraints are usually responsible for movement, as outlined in §1.2.4. The constraints which we will be concerned with here are Case Theory and Binding Theory.

1.1.3.1 Case Theory

It is assumed that all overt NPs must bear Case at S-Structure. In languages such as English where Case is not overtly realised (except on pronouns), it is assumed that abstract Case relations still exist. Case is assigned structurally by [-N] categories (V and P), and by tensed INFL (inflection).

- (10) a. INFL_[+Tns] assigns nominative Case to (NP, IP).
 b. V_T (transitive verb) assigns accusative Case to (NP, V')⁴.
 c. P assigns accusative Case to (NP, P').

If an NP which is phonetically realised does not stand in an appropriate structural relationship to a Case assigner at S-Structure, the derivation will fail. This is captured by the Case Filter.

- (11) **Case Filter:**
 *NP | NP has phonetic content and NP lacks Case (adapted from Chomsky 1986a).

1.1.3.2 Binding Theory

Binding Theory is concerned with the interpretation of pronoun-antecedent relationships, and consists of three principles which hold at S-Structure (adapted from Baker 1988: 42).⁵

- (12) **Binding Principles:**
 A. Anaphors must be bound in their governing category.
 B. Pronouns must not be bound in their governing category.
 C. R-expressions must be not be bound.

Here, *anaphor* refers to reciprocal and reflexive pronouns, *pronoun* refers to all other pronouns, and *R-expression* refers to referential elements such as full NPs. To understand these principles properly, some additional definitions are required, which are given below.

- (13) **Binding:**
 α binds β iff α m-commands β and α and β are referentially coindexed.

⁴ This is an oversimplification. However, I will be describing revisions to Case theory in subsequent sections which will supersede the principles in (10).

⁵ There is some debate over the correct place of Binding Theory in GB. Belletti and Rizzi (1988; 1991) argue that Binding Theory might also be relevant at D-Structure. However, the most common view is that Binding Theory is a SS phenomenon, which is the position which I will adopt here.

(14) **M-Command:**

A category α m-commands a category β if every X^{\max} dominating α also dominates β .

(15) **Governing Category (GC):**

The GC of a category α governed by category β is the smallest CFC which contains α , β , and a subject distinct from α .

What constitutes a subject with respect to (15) is a matter of some controversy, but I will assume that the specifier of either NP or INFL constitutes a subject. This will be revised in subsequent sections of this thesis.

(16) **Complete Functional Complex (CFC):**

An X^{\max} α containing an N or V β possessing a θ -grid forms a CFC iff all θ -roles associated with β are discharged within α .

Within the Minimalist Framework, the notion of government is abandoned. For this reason, I give a highly simplified definition of this concept below.

(17) **Government:** α governs β iff

- i) α m-commands β ,
- ii) α is a major lexical category (V, N, A, P), and
- iii) there is no category γ such that γ is a potential governor for β (i.e. γ meets requirements i and ii), and γ intervenes between α and β .

1.1.4 Mapping D-Structure onto S-Structure

The constraints on S-Structure outlined in §1.2.3 are not always met at D-Structure. Therefore, a transformational component is necessary to map well-formed D-Structures onto well-formed S-Structures. However, because transformations are an extremely powerful theoretical device, constraints must be imposed on the transformational component. Affect- α , which embodies the transformational component, and the constraints which it obeys are outlined in this section.

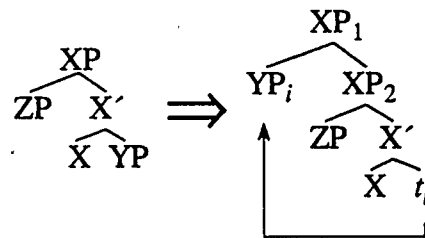
1.1.4.1 *Affect- α*

Only a single mapping rule is employed in GB, the rule of Affect- α which states, essentially, “move or delete any element.” Obviously, such a rule is too powerful as stated, and must only be used in a principled way. Deletion will not be considered in this section as it is a relatively rare operation. Movement is generally divided into three categories: substitution, adjunction, and X^0 -movement (which is properly an instance of adjunction).

Substitution involves moving an X^{\max} into another (empty) X^{\max} position. This position is invariably a specifier position as the generation of empty complement positions violates the Projection Principle. The Projection Principle also dictates that positions created at D-Structure must exist at all subsequent levels. Thus, a moved element will always leave a phonetically null reflex or “trace” in its original position. An element along with all of its associated traces (if any) constitute a chain.

Adjunction involves the creation of a new position adjoined to an already existing position. Again, an adjoined element must leave a trace in its original position. A typical adjunction structure is illustrated below.

(18)



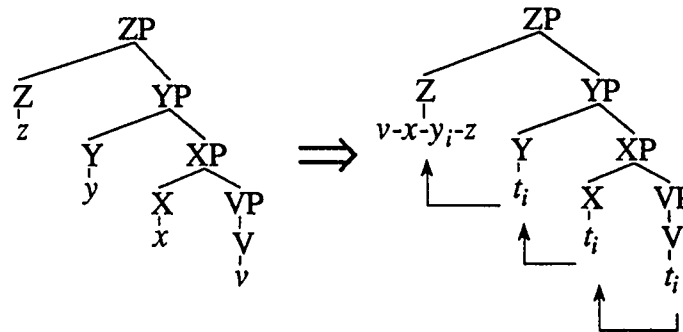
X^0 -movement is a special instance of adjunction involving heads rather than maximal projections. In many versions of GB theory (Baker 1988; Lieber 1992), affixes are treated as heads within the syntax. Affixation, then, is viewed as a syntactic operation rather than a part of a separate morphological component. This is embodied in the Mirror Principle.

(19) **The Mirror Principle:**

Morphological structure reflects syntactic derivation (Baker 1985).

Consider the following sequence X° -movement applications.

(20)



In (20), V raises through a number of head positions. It raises first to X, then to Y, and finally to Z. This sequence of movement determines the internal structure of Z following the derivation. This structure is indicated below.

(21) [Z [Y [X [v v] -x] -y] -z].

In (21), x , y , and z are shown as suffixes, though prefixation is of course possible. However, the order in which affixes appear must always be consistent with the internal structure of the word. This will prove a valuable diagnostic tool for determining the order of functional projections in later sections.

Movement accounts of affixation rely on the following constraint to motivate X° -movement. Additional motivations will be discussed in subsequent sections.

(22) **Stray Affix Filter:**

*X | X is a lexical item whose morphological subcategorisation frame is not satisfied at S-Structure (Baker 1985).

1.1.4.2 The Empty Category Principle

One important constraint on movement is the Empty Category Principle. This is a condition governing the distribution of traces left by movement. The ECP is stated in (23).

(23) The Empty Category Principle (ECP):

A trace must be properly governed,

where proper government is defined in (24), below.

(24) Proper Government:

A category α properly governs β iff α governs β and either

- (i) α θ -marks β , or
- (ii) α is the antecedent of β .

X^0 -Movement is more restricted than can be accounted for by the ECP alone. An additional constraint is required.

(25) The Head Movement Constraint:

An X^0 may only move into the Y^0 which properly governs it. (Travis 1984).⁶

The landing site of X^0 -movement, therefore, will always be the head of the YP immediately dominating XP.

1.1.4.3 Bounding Theory

The ECP is often sufficient to rule out unwanted instances of Affect- α . However, there are also constraints on how far an element which is θ -marked may move. Certain categories may be “barriers” to certain types of movement. In general, movement may only cross a single barrier. Therefore, movement across multiple barriers is not permitted unless a suitable landing site exists between each barrier. One definition of a barrier is as follows.

⁶ It is possible that the Head Movement Constraint reduces to a special instance of the ECP if one adopts a framework in which only maximal projections receive θ -roles. In this case, part (i) of the definition of proper government would never apply to heads.

(26) **Barriers:**

Let δ be the smallest maximal projection containing α . Then γ is a barrier between α and β iff γ is an X^{\max} which contains β but not α , and either

- (i) γ is not a θ -marked category and γ is not IP or VP, or
- (ii) The head of γ is distinct from the head of δ and selects an XP equal to or containing β . (adapted from Baker 1988: 56).

Bounding theory will not play a major role in this thesis. However, it is important to note that an element may not move across too many XPs in a single step.

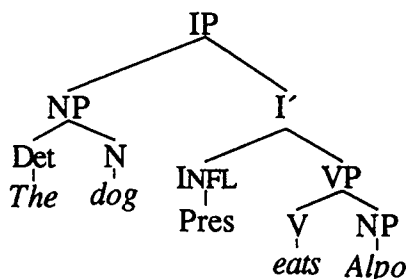
1.2 The Evolution of IP

1.2.0 Introduction

Earlier work within the theory of Government and Binding employed a model of phrase structure such as the one below.

(27) a. The dog eats Alpo.

b



Recent work, however, suggests that the functional category INFL cannot be viewed as a simple, atomic element, but actually consists of a number of separate functional categories, each projecting its own phrasal category and specifier position. I will consider two different views of supravverbal phrase structure here, both of which were instrumental to the development of the Minimalist Framework described in §1.3.

Pollock (1989) first proposes the theory of an “articulated IP”, where TENSE (T) and AGREEMENT (Agr), two aspects of verbal inflection, are given their own projections. Pollock also assigns the NEGATION (Neg) its own phrasal projection.

Chomsky (1991; 1992) later adopts and refines many aspects of Pollock's theory. In Chomsky (1991), he argues that Pollock's agreement phrase should actually be treated as two separate categories, corresponding to SUBJECT AGREEMENT (Agr_S) and OBJECT AGREEMENT (Agr_O). The phrase structure proposed by Chomsky is crucial to his refinements to Case theory which are described in §1.3, and which will be adopted as a starting point for the analyses offered in this thesis.

1.2.1 Pollock's Articulated IP

Pollock's (1989) theory is primarily concerned with accounting for certain differences between English and French syntax, drawing on proposals made by Emonds (1978) and the theory of movement outlined in Chomsky (1986b). The following sentences illustrate some key differences between English and French.

- (28) a. *John likes not Mary.
 b. Jean n'aime pas Marie.
 V Neg
- (29) a. *John kisses often Mary.
 b. Jean embrasse souvent Marie.
 V Adv

Emonds (1978) accounts for these differences by assuming that French possesses a rule of V to INFL raising to ensure that verbal inflection is properly supported, whereas English accomplishes this through INFL to V lowering.⁷ Thus, if we assume that that adverbs such as *often/souvent* appear within the projection of V, then example (29b) and its English counterpart have the following structures.

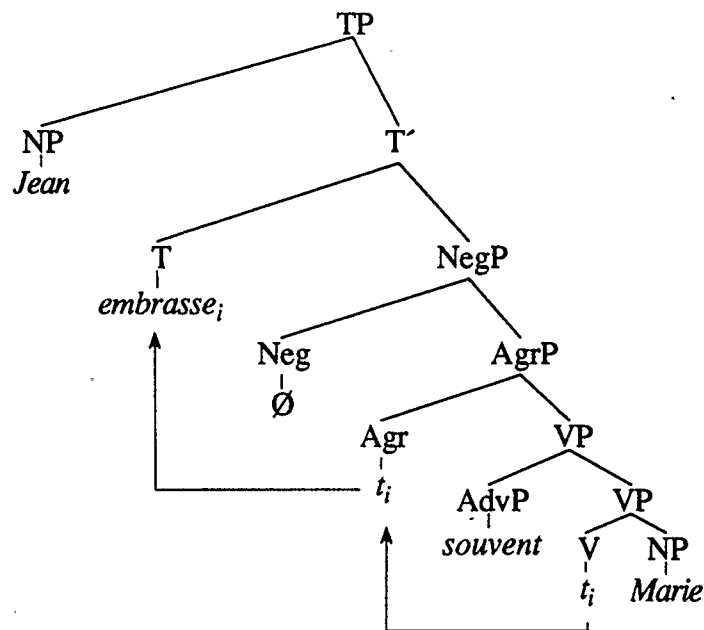
- (30) a. Jean [INFL [v embrasse_i] INFL] [vp souvent *t_i* Marie].
 b. John [INFL *t_i*] [vp often [v kisses [INFL INFL_i]] Mary].

⁷ Emond's work predates the ECP, which rules out lowering rules. Despite the problems which lowering rules pose for the theory, this explanation persisted even after the ECP, though it has always been recognised as problematic.

Pollock attempts to motivate these two different types of movement in terms of a single parameter affecting the nature of inflectional categories. French verbal inflection, which is relatively rich, is transparent with respect to government and θ -Theory, whereas English verbal inflection, which is relatively impoverished, is opaque with respect to these same theories.⁸

The basic phrase structure which he proposes is as follows, corresponding to the sentence in (30a).

(31)



Pollock argues that the barriers model of movement (Chomsky 1986b) and the Head Movement Constraint require that a landing site exist between VP and NegP. Pollock argues that the AGREEMENT phrase satisfies this need. In his model, the verb moves first to the head of AGREEMENT, where it merges with its agreement morphology, and then proceeds to the head of TENSE, where it merges with its tense morphology.

The first step in this verb movement results in the following configuration of elements.

(32) $NP_1 [Agr [V V_i] Agr] [VP \dots t_i (NP_2)]$.

⁸ The terms *strong* and *weak* inflection are also used in lieu of transparent and opaque.

Both of the NP arguments shown in (31) are required to receive θ -roles in order to satisfy the θ -criterion. Pollock argues that this can only take place if the verb can transmit its θ -grid to its trace through the intervening category AGREEMENT. This is possible in languages like French, where verbal inflection is transparent, but it is ruled out in English, where Agr is opaque to the transmission of θ -roles.

If, however, agreement is instead lowered into the VP, the following configuration results instead.

$$(33) \quad \text{NP}_1 [\text{Agr } t_i] [\text{VP} [\text{V} \dots \text{V} [\text{Agr } \text{Agr}_i]] (\text{NP}_2)].$$

Here, the agreement morpheme is embedded within V rather than *vice versa*. Therefore, it no longer intervenes between the verbs and its arguments, and thus can play no role in the transmission of θ -roles.

1.2.2 Chomsky's Economy of Derivation and Representation

Chomsky (1991) adopts most aspects of Pollock's theory. However, he argues that Pollock's model of phrase structure predicts the incorrect ordering of tense and agreement morphemes in natural language. Consider the following Latin examples.

- (34) a. ambul-ā-bā-s
 walk-Suff-Pst/Imp-S2s
 "You walked."
- b. ambul-ā-ba-t
 walk-Pst/Imp-S3s
 "She/he walked."

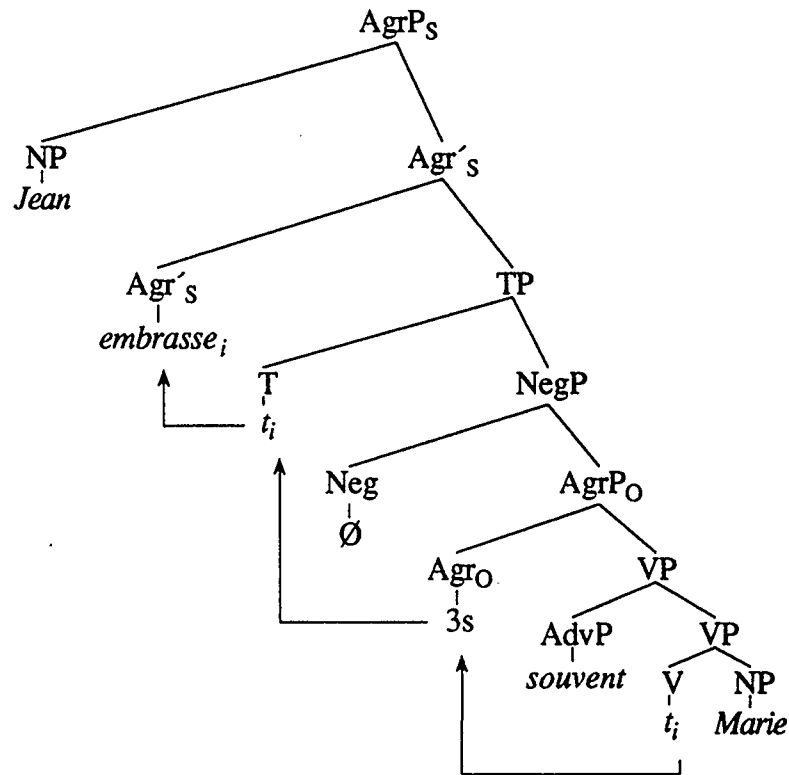
In many Latin verb paradigms, tense and agreement are represented by phonologically distinct morphemes. However, the agreement morpheme is generally the outermost morpheme in the verbal complex. Pollock's (1989) theory predicts verbal structures of the form

(35) $[T [Agr [v V] Agr] T]$.

However, forms such as **ambulāsbā* 'You walked.' do not occur in Latin.

Nonetheless, Pollock's analysis requires a projection between NegP and VP, and the final landing site of the V+Agr complex clearly dominates NegP. Chomsky (1991) proposes that subject agreement and object agreement should be treated as two separate categories, the projection of Agr_S (SUBJECT AGREEMENT) dominating NegP, and the projection of Agr_O (OBJECT AGREEMENT) dominated by NegP. Example (31), might then be revised as follows.

(36)



The structure in (36) predicts a verbal complex with the form

(37) $[Agr_S [T [Agr_O [v V] Agr_O] T] Agr_S]$

which correctly predicts the order of the agreement and tense morphemes in Latin. Agr_O is able to serve as a landing site for V, thus preserving Pollock's analyses, but Agr_S still surfaces as the outermost morpheme at S-Structure.

1.3 The Minimalist Programme

1.3.0 Introduction

Chomsky (1992) proposes a number of major revisions to GB Theory. The "Minimalist Programme" which he develops is described in this section, and will be the framework which I adopt for the remainder of my analyses. The Minimalist Programme adopts a phrase structure similar to that proposed in Chomsky (1991), which was described in the preceding section. However, the functions of the two AGREEMENT phrases are extended to include "Case assignment", and the principles which motivate grammatical operations are revised considerably.

Within Chomsky's new framework, all relations which are taken to be grammatically relevant must be strictly local in nature. Furthermore, the only local relationships which exist within this framework are the relationship which holds between a head and its complement, and the relationship which holds between a head and its specifier, though Chomsky restricts most of his discussion to Spec-head relations. For example, Case relations are taken to exist between an agreement element (Agr_S or Agr_O) and a noun phrase occupying its specifier position.

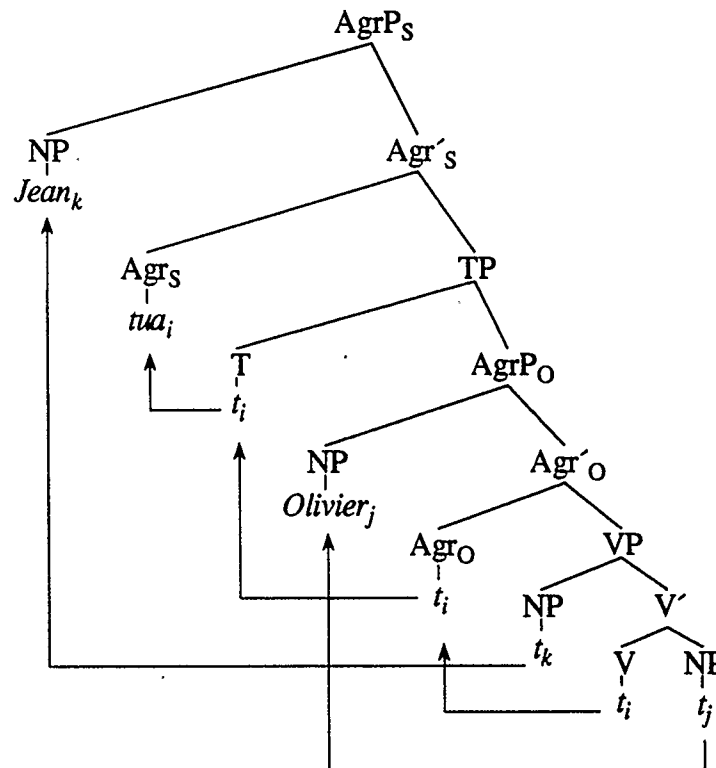
Chomsky also adopts the position that all arguments, including subjects, must be generated within the projection of the verb. Empirical support for this position is presented in Abney (1986), Fukui (1986), Fukui and Speas (1986), and Koopman and Sportiche (1990). I will not review any of their arguments here, but will mention that this position is in keeping with Chomsky's theoretical assumption that relations should be local to the projection of the category which creates those relations. Because the verb is responsible for θ -assignment, all θ -roles must be assigned within the projection of V at D-Structure. Previous analyses which allow V to compositionally assign a θ -role to the specifier of the (now defunct) IP are ruled out.

Arguments generated within VP are required to move in order to satisfy the Case Filter. Because the specifiers of agreement phrases are the only viable case positions in this

theory, arguments of the verb must appear in these positions at S-Structure. This is illustrated in the following example, omitting NegP for simplicity of exposition.

- (38) a. Jean tua Olivier
 "John killed Oliver."

b.



In this analysis, V is required to move out of VP. In previous analyses, this was motivated by the Stray Affix Filter. In the minimalist framework, a slightly different motivation exists which is discussed in §1.3.1. In order to ensure proper tense and agreement morphology, V must move first into Agr_O (via X^o-movement) in order to satisfy object agreement (which is not realised in French). The V+Agr_O complex must then move through TENSE, and into Agr_s to satisfy tense and morphologically realised subject agreement requirements.

Neither argument occupies a Case position at D-Structure. Thus, both must also move. In (38), *Olivier* moves into the specifier of Agr_O where it receives accusative Case, and

Jean moves into the specifier of *Agr_S* where it receives nominative Case. Within this framework, *Agr_O* assigns accusative Case, and *Agr_S* assigns nominative Case. *V* and *T*_[+Fin] are still viewed as playing a role in this process, transmitting their Cases to *Agr_O* and *Agr_S* via *X⁰*-movement, respectively, but it is the AGREEMENT phrases which actually mediate these Case relations.

1.3.1 Feature Checking

In previous versions of GB theory, it was assumed that Case was assigned to NPs by either *V* or a functional head such as *INFL* or *T*. In the current theory, however, it is assumed that all lexical items are inserted into D-Structure fully inflected. NPs bear Case morphology and abstract Case at D-Structure, and verbs are inserted with tense and agreement morphology already intact. Case and agreement, however, still play a role in motivating movement.

It is assumed that phonological subsystem (PF) only recognises phonological features as legitimate objects. Abstract grammatical features such as [*3s*] and [*Nom*] (not to be confused with phonologically real affixes) are not viable PF objects, and thus must be eliminated in order to ensure valid PF derivations. Chomsky (1992) utilises a mechanism of “feature checking” to accommodate this need.

(39) Feature Checking:

If the features on a head match the features on its specifier, then the features are eliminated.

Three basic types of features are recognised. *K*-features, which correspond to abstract Case, ϕ -features, which correspond to the features to which agreement is sensitive (these may include person, number, gender, etc., depending on the language in question), and tense features, which correspond to the tense values [\pm Pst]. Not all elements possess all types of features. The features associated with different types of categories are as follows.

- (40)
- | | |
|------------------------|--|
| a. NP: | K-features, ϕ -features |
| b. Transitive Verbs: | K-features, ϕ -features, Tense features |
| c. Intransitive Verbs: | ϕ -features, Tense features |
| d. TENSE: | K-features, Tense features |
| e. AGREEMENT: | no features |

The ϕ -features carried by V correspond to the morphological agreement marker(s) associated with it. The ϕ -features associated with NPs correspond to the morphological agreement marker which an NP would normally trigger on the verb. The purpose of ϕ -feature checking, then, is to assure that the verb and its NP arguments match. In the event of a mismatch, the features will not be checked, and the derivation will fail as features will remain at PF.

The K-feature carried by T corresponds to nominative Case, and the K-feature associated with transitive verbs (V_T) corresponds to accusative Case. K-features on NPs correspond to the morphological marking on the NP in languages which mark Case overtly. Again, if an NP carries the wrong K-features (and hence the wrong morphology), the derivation will fail at PF.

In this framework, the sole function of the AGREEMENT phrases is to provide a locus at which feature-checking can occur. V raises to Agr_O , and the object raises to the specifier of Agr_O . The features of the object are thus satisfied within Agr_O .

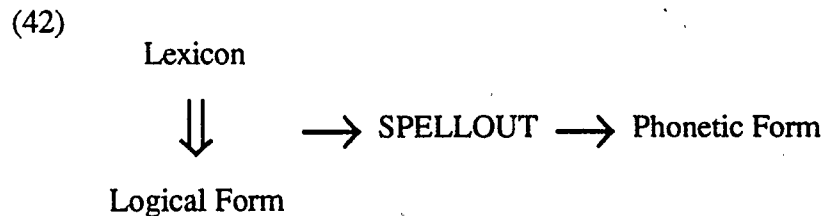
Tense must raise to Agr_S in order to supply K-features to match those of the subject, which raises to the specifier of Agr_S . Finally, the verb is required to move to Agr_S in order to satisfy its tense features against those on TENSE. This last operation apparently violates Chomsky's mechanism insofar as a Spec-head relationship is not involved. However, two adjoined heads still stand in a local relationship to one another.

1.3.2 [\pm Strong], SPELLOUT, and Procrastinate

In order to explain the differences between English and French noted in the section on Pollock's analysis, Chomsky employs Pollock's division of features into weak features and strong features (corresponding to Pollock's opaque and transparent features, respectively). Unlike Pollock, however, he argues that the fundamental difference between these two types of features lies not in their opacity to θ -role transmission, but in their visibility at the level of PF.

- (41) a. STRONG FEATURES: visible to PF operations (French)
 b. WEAK FEATURES: invisible to PF operations (English)

While all features must eventually be checked within the Minimalist framework, weak features will not cause a derivation to fail if they remain at PF. Thus, it is possible to check these features at the LF. The following model replaces the basic structure of the theory outlined in §1.1.1.



All derivations proceed from the lexicon to Logical Form. However, derivations may differ in terms of where the operation referred to as SPELLOUT occurs. This operation essentially involves the phonological realisation of the derivation. Chomsky argues that by assuming that all elements are inserted fully inflected, we no longer need to posit lowering rules for English (which have always been problematic). Instead, we can assume that English derivations involve V-raising in the same way that French derivations do. However, because English features are weak, SPELLOUT may occur prior to V-raising, leaving English verbs *in situ*.

This operation is not available, however, in French, as V-raising is required for the feature checking mechanism to work. Because French features are visible to PF, it is imperative that checking occur prior to SPELLOUT, thereby requiring overt V-raising.

- (43) a. *John believed not the story.
 b. *Klingons hate intensely Romulans.

In order to account for the inadmissibility of English sentences where overt raising has occurred, such as those in (43), Chomsky suggests the following principle.

(44) **Procrastinate:**

LF operations are less costly than overt operations. Any operation which may be performed at LF must be performed at LF.

These principles, then, combine to suggest an underlying similarity between verb-raising languages, and languages formerly described as “verb-lowering”. Chomsky also suggests that accusative and ergative languages can be accounted for using similar principles. This claim will be investigated in Chapters Two and Three.

1.4 Organisation of the Thesis

The organisation of this thesis is as follows. Chapter Two provides an overview of ergativity in natural languages, and describes select accounts of ergativity. Ergativity is illustrated through a number of concrete examples, both in the morphology and the syntax. The proposals of Hale (1970), Marantz (1984), and Johns (1992) are discussed. In addition, the account of ergativity which Chomsky (1992) employs in the Minimalist Framework is introduced. This is the theory which I will be arguing against in subsequent chapters.

Chapter Three describes the Jacaltec agreement system in more detail, and argues that the account of ergativity offered by Chomsky is inadequate, at least as far as Jacaltec is concerned. A new model of phrase structure is proposed which more accurately predicts the order of words and affixes, and a similar proposal of Murasugi’s (1992) is discussed. I outline a number of methodological assumptions which will constrain the type of theory developed in Chapter Four.

Chapter Four proposes a number of major revisions to the Minimalist Framework, particularly where the feature-checking mechanism is concerned. I develop a new model of features for Jacaltec and illustrate this model through a number of complete derivations. I also provide additional evidence for the phrase structure discussed in Chapter Three.

Finally, Chapter Five discusses the broader ramifications of the theory which I have presented herein, and discusses a number of questions which remain open.

Chapter Two

ERGATIVITY IN NATURAL LANGUAGE

2.0 Introduction

In this Chapter, I provide an introduction to the phenomenon of ergativity as it occurs in natural language. In §2.1, I provide a general description of the phenomenon, followed by a number of concrete examples in §2.2.

In §2.3, I introduce notation which I will be using to describe more accurately ergative systems, and I discuss some theoretical questions concerning subjecthood and objecthood which ergative systems raise.

I review a number of explanations for ergativity which have been offered in §2.4. §2.4.1 describes a diachronic account of ergativity which attempts to link it to passivisation. §2.4.2 discusses Marantz' (1984) theory of thematic ergativity, and §2.4.3 describes an account of ergativity which Johns (1992) offers for Inuktitut.

Finally, in §2.4.4 I discuss Chomsky's (1992) account of ergativity within the Minimalist Framework outlined in Chapter One. This is the view which I will be arguing against in Chapter Three.

2.1 The Ergative-Accusative Distinction

Ergativity is characterised by a close affinity between the subject of an intransitive verb and the object of a transitive verb.⁹ These two NPs form a class which exhibits similar behaviour with respect to certain syntactic or morphological phenomena. This class excludes the subject of transitive verbs, which triggers special morphological or syntactic behaviour not found in other NPs. This system differs from the more common accusative

⁹ At this point, I will define the *subject* as the argument in the position typically occupied by the agent of an active, underived transitive verb, and the *object* as the argument in the position typically occupied by the patient of an active, underived transitive verb. By *underived* I mean a form in which no special (non-obligatory) morphological marking is present, corresponding roughly to Keenan's (1985) notion of *basic*. I will consider more explicit structural accounts of these positions at various places throughout this thesis.

system in which subjects of both transitive and intransitive verbs form a class which excludes the object.

The contrast between the ergative and accusative systems is best illustrated in tabular form. (1a) represents an accusative Case marking pattern and (1b) represents an ergative Case marking pattern. The letters **A**(gent), **P**(atient), and **S**(ubject), shown in parentheses, will be used throughout this paper to refer to specific argument positions in either of these systems.¹⁰

(1) a. The Accusative Case Marking System

	<i>Transitive</i>	<i>Intransitive</i>
Subject	(A) Nominative	(S) Nominative
Object	(P) Accusative	— n/a —

b. The Ergative Case Marking System

	<i>Transitive</i>	<i>Intransitive</i>
Subject	(A) Ergative	(S) Absolutive
Object	(P) Absolutive	— n/a —

In languages with accusative Case marking, the object is “singled out” and marked with the accusative Case, while subjects receive nominative Case. In languages with an ergative Case marking system, it is the subject of the transitive verb which is singled out. It is marked with ergative Case whereas other arguments receive absolutive Case.

While ergativity derives its name from the Case marking system in (1b), it should be understood that languages may exhibit ergativity with respect to other features of the grammar as well. The categories nominative (Nom), accusative (Acc), absolutive (Abs), and Ergative (Erg), therefore, should be construed not only as morphological Case

¹⁰ These abbreviations are adopted from Comrie (1978). Dixon (1979) uses **A**(gent), **O**(bject), and **S**(ubject) to represent these same positions, respectively. Both systems have been adopted in the literature by various individuals, but I prefer the former for atheoretical reasons. Throughout this thesis, these abbreviations are set in **bold** to avoid confusion with other abbreviations.

markers, but also as abstract functions of arguments over the set $\{A, P, S\}$, which can be applied to any linguistic phenomenon to which they afford some measure of descriptive power. Thus, these classes may also be described as in (2).

- (2) a. $\text{Nom}_x \mid x \in \{A, S\}$ ¹¹
 b. $\text{Acc}_x \mid x \in \{P\}$
 c. $\text{Abs}_x \mid x \in \{P, S\}$
 d. $\text{Erg}_x \mid x \in \{A\}$

This alternative formulation is significant in that it illustrates the applicability of these terms to phenomena which do not involve morphological marking. It also illustrates the fact that the functions *Nom*, *Acc*, *Abs*, and *Erg* are independent of specific grammatical systems. For example, the ergative function is still meaningful when applied to purely accusative phenomena, although there would be little motivation for doing so. Some examples of common ergative phenomena are described in the following section.

2.2 Some Ergative Phenomena

Traditionally, a distinction has been made between morphological and syntactic ergativity. A morphologically ergative language uses specific morphological markers to distinguish between $\{P, S\}$ and $\{A\}$. A syntactically ergative language does not necessarily make use of morphological markers to distinguish between these classes, but there do exist grammatical (syntactic) processes which are sensitive to either $\{P, S\}$ or $\{A\}$. In current work within the GB framework, the distinction between morphological and syntactic processes is not clearly made, as similar principles are used to explain both types of phenomena (e.g. Baker 1988, Lieber 1992). However, I will retain this distinction for the sake of this exposition.

¹¹ The notation $f_x \mid x \in S$ should be read " $f(x)$ is true where x is an element of S ". Other permutations are, of course, possible. The "antiergative function" might be posited, where $\text{AErg}_x \mid x \in \{S\}$. Comrie (1978) notes that tripartite systems where the $\{A\}$, $\{P\}$, and $\{S\}$ classes are contrasted are found as subsets of the grammars of languages like Dyirbal (Australian) and Motu (Austronesian), but it does not appear that any language follows this pattern entirely. The remaining proper subset of $\{A, P, S\}$, $\{A, P\}$ is not known to be grammatically relevant. Baker's (1988) Principle of PF-Interpretation might be invoked to explain this gap, as the assignment of agent and patient roles could not be recovered from phonetic form.

2.2.1 Morphological Ergativity

As stated earlier, the term *ergativity* is derived from the ergative Case marker, and Case is a common way for ergativity to manifest itself. Consider, for example, Yup'ik, an Eskimo-Aleut language.

- (3) a. pam-aq mayu-llru-u-q
 Pam-Abs climb-Pst-Intr-3s
 "Pam climbed up."
- b. tom-am doris-aq cinga-llru-a
 Tom-Erg¹² Doris-Abs kiss-Pst-3s/3s
 "Tom kissed Doris." (Payne 1980: 141)

Here, we see that the subject of the intransitive verb in (3a) bears the absolutive marker *-aq*. In the transitive sentence in (3b), however, the subject receives the ergative marker *-am*, whereas the object receives *-aq*. Thus, *-am* marks elements of {A} and *-aq* marks elements of {P, S}.

Ergativity may also be manifested in a language's verbal agreement system, as is true of the Mayan languages. Jacaltec is typical in this respect, as illustrated in (4).

- (4) a. x-Ø_i-cañalwi naj_i
 Pst-A3_i-dance he_i
 "He danced."
- b. xc-ach_i-toyi pro_i
 Pst-A2_i-go you_i
 "You went."

¹² The term *relative* is often used in the description of Eskimo-Aleut languages in place of the term *ergative*.

- c. $x-\emptyset_i$ -aw_j-il pro_j ix_i
 Pst-A3_i-E2_j-see you_j she_i.
 "You saw her." (Craig 1977: 102f)

Jacalteco verbs agree with both their subjects and their objects. The agreement marker which the subject triggers, however, depends on whether it stands in an ergative (A) or an absolutive (S) relationship to the verb. The second person agreement marker is *-aw* for transitive subjects and *-ach* for intransitive subjects. The same agreement marker (phonologically null in the third person) is used for both objects (P) and intransitive subjects (S). Thus, Jacalteco agreement distinguishes between {A} and {P, S}.

Many languages exhibit ergativity in both their Case marking and agreement systems. One such language is Basque (isolate), as illustrated in (5) below.

- (5) a. harri-ak_i gogorr-ak d_i-ira
 stone-Abs/p_i hard-Abs/p A3p_i-are
 "Stones are hard."
- b. ikasle-ek_j harri-ak_i bota z_i-ituz-ten_j
 student-Erg/p_j stone-Abs/s_i threw A3s_i-Aux-E3p_j
 "The students threw stones (*sic*)." (Ortiz de Urbina 1989: 6)

Here, we see that the subject of the transitive verb in (5b) bears the ergative marker *-ek*, while *harri* 'stone' bears the absolutive marker *-ak* in both examples, even though it is the subject in (5a) and the object in (5b). Moreover, only the transitive subject triggers the ergative agreement marker *-ten*. *Harri* triggers the absolutive marker *d-* ~ *z-* in both instances. Thus, both agreement and Case marking distinguish between {A} and {P, S}.

As a general rule, languages which possess both overt Case and overt agreement markers will follow either an ergative system or an accusative system with respect to both Case and agreement. Thus, despite the fact that Jacalteco lacks overt Case markers, it is parsimonious to assume that its abstract Case marking system follows an ergative pattern as well.

2.2.2 Syntactic Ergativity

Other aspects of grammar may be sensitive to the distinction between {A} and {P, S} besides inflectional marking, though they are significantly less common. In Dyirbal (Australian), only absolutive elements may be relativised.

- (6) a. $\eta\text{uma-}\eta\text{gu}$ $\text{yabu-}\emptyset_i$ [CP $\text{dun}\eta\text{ara-}\eta\text{u-}\emptyset_i$] $\text{bur}\bar{\text{a}}\text{-n}$
 father-Erg mother-Abs_i [CP cry-Rel-Abs_i] see-Pst
 “Father saw mother, who was crying.”
- b. $\eta\text{uma-}\eta\text{gu}_i$ [CP $\text{dun}\eta\text{ara-}\eta\text{u-ru}_i$] $\text{yabu-}\emptyset$ $\text{bur}\bar{\text{a}}\text{-n}$
 father-Erg_i [CP cry-Rel-Erg_i] mother-Abs see-Pst
 “Father, who was crying, saw mother.”
- c. $\eta\text{uma-}\emptyset_i$ [CP $\text{yabu-}\eta\text{gu}$ $\text{bur}\bar{\text{a}}\text{-}\eta\text{u-}\emptyset_i$] $\text{dun}\eta\text{ara-n}^{\text{yu}}$
 father-Abs_i [CP mother-Erg see-Rel-Abs_i] cry-Pst
 “Father, who was seen by mother, was crying.” (Dixon 1979: 127f)

(6) illustrates that an NP in all three argument positions (P, A, and S, respectively) may contain a relative clause. However, the relativised element is always either P (6c) or S (6a and b), but never A.

In many ergative languages there exists a process called antipassivisation, a detransitivising process which is similar in some respects to passivisation in accusative languages (Heath 1976; Davies 1984). However, while passivisation produces intransitives from transitives by demoting the agent, antipassivisation demotes the patient. This may be expressed using the notation of earlier transformational grammars as follows.

- (7) Antipassivisation (word order irrelevant)

$$V_T - \text{NP}_{\text{ag}} + \text{Erg} - \text{NP}_{\text{pt}} + \text{Abs}$$


$$V_I + \text{A}_{\text{pas}} - \text{NP}_{\text{ag}} + \text{Abs} - (\text{P} - \text{NP}_{\text{pt}})$$

In Dyirbal, it turns out that the only way in which one can relativise the agent of a transitive verb is to first antipassivise the verb, effectively converting the agent from an A-argument to an S-argument. This is illustrated in (8). Note that in Dyirbal the dative case is used to mark the demoted patient of an antipassive construction.

- (8) a. * η uma- \emptyset_i [CP yabu- \emptyset bura- η u- \emptyset_i /ru $_i$] dungara-n y u
 father-Abs $_i$ [CP mother-Abs see-Rel-Abs $_i$ /Erg $_i$] cry-Pst
 “Father, who saw mother, was crying.”¹³
- b. η uma- \emptyset_i [CP bural- η a- η u- \emptyset_i yabu-gu] dungara-n y u
 father-Abs $_i$ [CP see-Aspas-Rel-Abs $_i$ mother-Dat] cry-Pst
 “Father, who saw mother, was crying.” (Dixon 1979)

In (8a), antipassivisation has not applied, and the result is not grammatical. The relativised agent in (8b), however, is perfectly acceptable as it is not an element of {A}.

Syntactic ergativity of this type is, however, relatively uncommon. Many languages whose morphologies are best described as ergative follow an accusative pattern with respect to syntactic processes. Only a small handful of “deep” ergative languages have been suggested to exist. These include Warlpiri (Australian) and Nass-Gitskan (Tsimshian), which exhibit ergativity over a wide range of syntactic as well as morphological phenomena.

2.2.3 Split Ergativity

In the preceding section, we have described languages as having ergative or accusative patterns with respect to certain morphological or syntactic phenomena. However, this is somewhat misleading insofar as many languages have both ergative and absolutive subsets with respect to a single aspect of the grammar. In general, the choice of the ergative or accusative system is dependent upon some other aspect of the grammar. Tense and aspect are common triggers for ergative/accusative splits. Hindi (Indo-European) is one such

¹³ The ungrammaticality of this example is inferred from Dixon’s discussion of Dyirbal relativisation. It is not explicitly cited by him.

example. In Hindi, both Case and agreement normally follow an accusative pattern. However, when a sentence is in the perfective aspect, an ergative distribution occurs instead.

- (9) a. raam_i roTii khaataa_i thaa_i
 Ram/m_i bread/f eat/Imp/m_i Aux/Pst/m_i
 “Ram (habitually) ate bread.”
- b. raam-ne roTii_i khaayii_i thii_i
 Ram/m-Erg bread/f_i eat/Perf/f_i Aux/Pst/f_i
 “Ram had eaten bread.”
- c. siitaa(*-ne)_i aayii_i
 Sita/f(*-Erg)_i came/f_i
 “Sita came.” (Mahajan 1990: 72f)

In the imperfect sentence in (9a), there is no overt Case marking, and the verb agrees in gender with the subject. The perfective in (9b), on the other hand, has overt ergative marking on the subject, and the verb agrees with the object. Mahajan does not indicate the aspect of the intransitive in (9c), although the verb form appears to resemble the perfective form.¹⁴ In the intransitive clause, we see that the ergative marker *-ne* is excluded, and agreement is with the subject. This suggests that in perfective sentences, agreement is with an element in {P, S}, whereas in imperfectives it is with an element in {A, S}. The Case marker *-ne* is sensitive to elements in {A} in perfectives, is not found at all in imperfectives.

2.3 Ergative Languages, Subjects, and Objects

The preceding sections by no means exhaust the range of ergative phenomena found in natural language. They do, however, raise two important points.

¹⁴ This point is moot, at any rate, since even if the intransitive is construed as imperfective, it is still consistent with the analysis offered.

First, throughout the literature, references are found to “ergative languages” and “accusative languages”. We have seen, however, that the grammars of languages may be sensitive to both the ergative-absolutive distinction and the nominative-accusative distinction. The Hindi examples in (10) demonstrate that a single aspect of a grammar may be sensitive to both of these distinctions, and similar phenomena may be found in numerous other languages. Few languages, if any, are either strictly ergative or strictly accusative.

Thus, the terms ‘ergative’ and ‘accusative’ are best reserved for describing specific grammatical processes rather than languages. We may refer to ‘the ergative subset of language L ’ but should avoid reference to ‘the ergative language L ’. For the sake of clarity, I will describe the language L as ERG_F or ACC_F where F is some aspect of the grammar of L . Where splits arise, a subset may be further restricted. Hindi, for example, might be described as $ERG_{Case/Agr} / [+Perf]$, or ergative with respect to Case and agreement in the perfective subset of the language. Apart from being more explicit, this notation also reduces the risk of unwarranted assumptions being made.

Secondly, the ergative phenomena which we have discussed raise serious problems for the notions of ‘subject’ and ‘object’. In ACC_{Case} and ACC_{Agr} systems such as English, it is possible to describe Case and agreement in terms of subjects and objects, as $\{A, S\}$ and $\{P\}$ behave as two unified classes. Thus, we are able to conflate A and S into a single entity and refer only to subjects and objects. The existence, however, of languages with both ACC_F and ERG_F subsystems demonstrates that A, P, and S are three grammatically distinct classes of arguments which may be referred to within a single language, and that it may be impossible to form a straightforward mapping from $\{A, P, S\}$ onto $\{\text{Subject}, \text{Object}\}$.

If we assume that subjecthood and objecthood are determined purely by structural relations, as is often done, then we are forced to adopt one of the following two conclusions.

- (10) The notions of ‘subject’ and ‘object’ do not have universal structural definitions which can be applied equally to all languages.

- (11) The notions of 'subject' and 'object' have been misapplied in previous descriptions of ergative phenomena. There exists an isomorphic mapping between {Erg, Abs} and {Subject, Object}.

Alternately, we may abandon our previous assumption and conclude that

- (12) Subjecthood and objecthood are not determined purely by structural relations, but make reference to lexical properties of the verb (in particular, transitivity).

These alternatives will be investigated in Chapters Four and Five.

2.4 Some Accounts of Ergative Phenomena

In this section, I outline a number of attempts which have been made to account for ergativity while still preserving the universality of the notions "subject" and "object". In §2.4.1, I discuss Hale's (1970) suggestion that a link exists between ergativity and passivisation. Marantz (1984) adopts a position similar to (12), suggesting that ergative phenomena result from differences in thematic organisation between languages. This is discussed in §2.4.2. I also discuss a proposal by Johns (1992) in §2.4.3, which accounts for ergativity in Inuktitut using a fairly language-specific model of phrase structure. This suggests a position similar to (11). Finally, I discuss Chomsky's (1992) attempt to account for ergativity within the Minimalist framework in §2.4.4.

2.4.1 Ergativity and Passivisation

Hale (1970) raises an interesting possibility for the analysis of ergativity, noting that arguments in any language in which passivisation was an *obligatory* rule would appear to follow an ergative distribution. Consider the following sentences in English:

- (13) a. John ate.
b. John ate the apple.
c. The apple was eaten by John.

The agent in (13a) resembles the patient in (13c) insofar as both are preverbal and trigger agreement on the verb. Were (13b) to fall out of use, the agent *John* in (13c) would become unique as the only type of argument which fails to agree with the verb, and it is the only argument marked with the preposition *by*. We might then be tempted to reanalyse (13a) and (13c) as follows.

- (14) a. John-Ø ate
 John-Abs eat.Pst
- b. The apple-Ø was eat-en by-John
 Det apple-Abs Aux eat-Tr Erg-John

Hale rejects this as a synchronic explanation for ergativity, but suggests that ergativity may develop in a manner similar to this. In fact, among the Australian languages, there are examples of ergative markers which are cognate with passive agent markers in nominative-accusative Australian languages. There are also many ergative languages which mark verbs for transitivity.

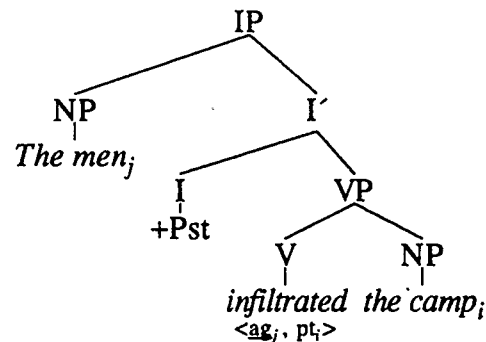
However, enough problems exist for this analysis to render it somewhat implausible. First, there are many ergative languages which have passive constructions (e.g. Basque, Jacaltec). Multiple passivisation would violate many tenets of GB theory, notably the Projection Principle and the ECP. Many ergative languages lack passivisation, but these languages tend to have antipassive structures. Because agents are marked with absolutive case in antipassives, this would pose similar problems if we assume that agents in transitive structures are actually adjoined phrases rather than true arguments. Therefore, I will not consider this as a possible explanation for ergativity in Jacaltec.

2.4.2 Thematic ("Deep") Ergativity

An alternative account of ergative phenomena is put forth by Marantz (1984), who claims that ergativity reflects a difference in the organisation of θ -grids rather than a difference in the syntactic or morphological principles which govern a language. Under this view, ERG_F and ACC_F languages are identical except that the agent and patient roles are reversed in the θ -grids of transitive verbs. This proposal is particularly attractive in the case of "deep ergative" languages where both syntactic and morphological phenomena

follow ergative patterns. English, with its nominative-accusative structure, is contrasted with the Australian language Woiwurrung below within this framework (examples from Blake 1991: 66f).¹⁵

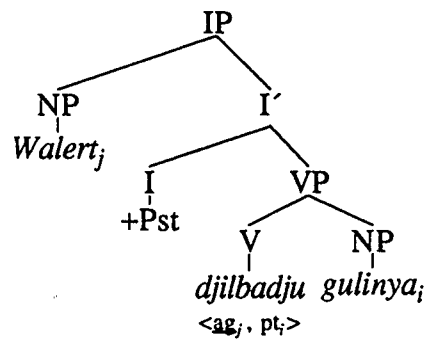
- (15) a. The men infiltrated the camp.
b.



- (16) a. guliny-a djilbadju walert-Ø
man -Erg kill/Pst/3s possum-Abs
"A man killed a possum."

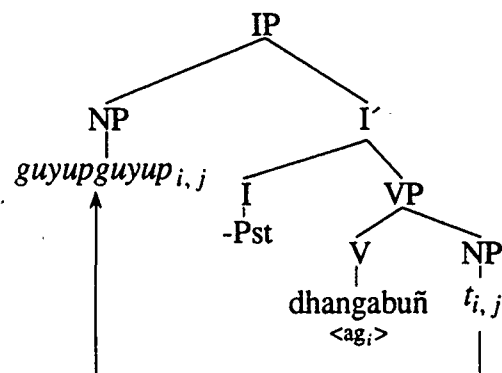
¹⁵ Like most Australian languages, Woiwurrung has free word order. I have altered the word order in these trees for easier comparison with the English phrase marker. Under the analysis offered here, the word order cited would pose the same problems faced by VSO languages within GB theory.

b.



- (17) a. guyupguyup-Ø dhangabuñ
bird-Abs eat/Pres/3s
"The bird eats."

b.



In (16), the patient is generated as the highest argument of the verb unlike in (15) where the agent is generated higher in the tree. The intransitive structure in (17) is analogous to an unaccusative verb in English (though the term unergativity is, strictly speaking, more descriptive). Under this analysis, ergative "subjects" are actually objects, and absolutive "objects" are actually subjects. Similarly, ergative case is equated with accusative case, and absolutive case is equated with nominative case.

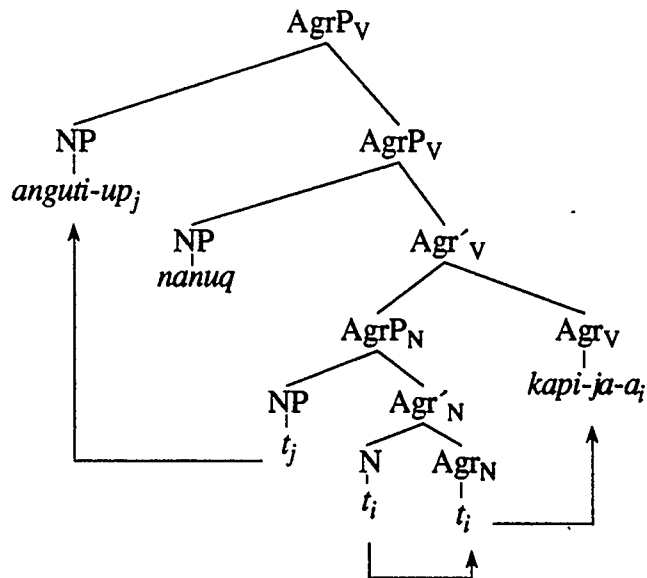
While this analysis may seem *prima facie* attractive, it violates the UTAH, and for this reason, it is often rejected, even in languages where there is evidence that the patient is acting as a subject.¹⁶ As we shall see, in Chapters Three and Four, there is evidence suggesting that the ergative argument in Jacalteco is actually lower in the tree than the absolutive argument. The advent of the VP-internal subject hypothesis, however, will allow us to account for these facts in a model which resembles this model superficially, but which does not violate the UTAH.

2.4.3 Derived Ergativity

Johns (1992) proposes a different analysis of ergativity for Inuktitut. Johns notes the prevalence of languages in which the ergative marker and genitive marker are homophonous, and argues that ergative constructions are nominal in nature. She assigns the following structure to transitive clauses in Inuktitut.

- (18) a. anguti-up nanuq-Ø kapi-ja-a
 man-Erg polar bear-Abs stab-Pass-3s/3s
 "The man stabbed the polar bear." (Johns 1992).

b.



¹⁶ Marantz' work predates the UTAH.

Note that (18) is the “basic” form of Inuktitut transitive constructions, despite the presence of the passive marker. Johns argues that transitive Inuktitut “verbs” are actually nouns. Above this, there exists a NOMINAL AGREEMENT phrase (AgrP_N), which takes a single, absolutive argument. A VERBAL AGREEMENT phrase (AgrP_V) also exists, which would take either a possessor or agent argument, either of which would be marked with the ergative Case. According to this view, then, transitive clauses in Inuktitut are actually possessed nominals.

Despite superficial similarities between Inuktitut and Jacaltec, such as homophony between the ergative and genitive markers, I will not adopt this analysis for Jacaltec. Johns’ view assumes a number of functional AGREEMENT phrases above nominal elements which are not required in the analysis which I will offer, and I feel that it would be unparsimonious to expand upon the inventory of functional categories which I employ unless it is absolutely necessary to do so. This does not, however, invalidate Johns’ arguments that such categories are useful in describing Inuktitut.

2.4.4 *A Minimalist Account of Ergativity: The AAH*

In his account of the Minimalist Framework, Chomsky (1992) argues that the two AGREEMENT phrases, Agr_O and Agr_S, discussed in §1.3.2 are universal categories. In transitive structures, both AGREEMENT phrases are required to satisfy Case and agreement requirements. In intransitive clauses, however, only a single AGREEMENT phrase is required to perform this function. Chomsky argues, therefore, that languages might differ in terms of which AGREEMENT phrase is “active” in intransitives. In ACC_{Case} languages such as English, Agr_O is not available for Case checking in intransitives, and the argument of either an unergative or unaccusative verb is checked for nominative Case in the specifier of Agr_S. Accusative Case is not an option. This is supported by the following French data.

- (19) a. Jean a fondu le glaçon.
 John Aux melt the ice.
 “John melted the ice.”

- b. Il l'a fondu.
 3s/Nom 3s/Cl/Acc/Aux melt.
 "He melted it."

- (20) a. le glaçon a fondu.
 "The ice melted."

- b. il a fondu.
 3s/Nom
 "It melted."

- c. *l'a fondu.
 3s/Cl/Acc

The ungrammaticality of (20c) supports the view that either the Agr_O position is not present or it is unavailable for Case checking in intransitive sentences. In ERG_{Case} languages, Chomsky suggests that it is the Agr_S position which is unavailable for Case checking in intransitives. Under this view, ergative Case and nominative Case are essentially equivalent, as are absolutive and accusative Case. However, the nominative-marked position is only available in transitive constructions. ERG_{Case} , then, reflects a difference in functional projections rather than a difference in the way in which Case or θ -roles are assigned.

While this analysis, which I shall refer to as the *Active AGREEMENT Hypothesis* (AAH), seems promising, it faces a number of serious problems, both empirical and theory-internal. Some of the more significant difficulties for the Minimalist account will be discussed in Chapter Three, in which I offer an alternate account of ergativity in Jacalteco.

Chapter Three

AGREEMENT AND PHRASE STRUCTURE IN JACALTEC

3.0 Introduction

In this Chapter, I provide a more detailed description of the Jacaltec agreement system, and attempt to account for it within a framework based upon Chomsky's Minimalist Theory. I will not, however, adopt the same explanation for ergative phenomena which Chomsky (1992) proposes, as his Active AGREEMENT Hypothesis (AAH) faces a number of empirical and theoretical difficulties, both for Jacaltec and for other ergative languages. I propose a different model of phrase structure which avoids many of these problems.

In §3.1, I describe the Jacaltec agreement system in detail. The functions of the two sets of agreement morphemes are described, with special reference to the ergative set as it serves a wider range of functions. In §3.2 I discuss split-ergativity as it is manifested in Jacaltec.

In §3.3 I argue that the AAH is inadequate as an account of ergative phenomena. While some Mayan data are discussed, I also describe problems which other ergative languages pose for this analysis, problems which suggest that a single, unified analysis of ergativity may not exist. I also discuss a number of theory-internal inconsistencies which rule out the AAH.

In §3.4, I evaluate the applicability of the Minimalist Framework to Jacaltec. I argue that some aspects of Minimalism developed with English and French in mind are not appropriate to Jacaltec. I also investigate a slightly different theory of ergativity put forth by Murasugi (1992) within the Minimalist Framework. Finally, to account for agreement in Jacaltec, I propose a new model of phrase structure. I do not, however, argue that this model is appropriate for all ergative languages.

3.1 The Jacaltec Agreement System

As mentioned in Chapter One, Jacaltec is a Mayan language whose syntax is characterised by a fairly extensive system of agreement. Both the subject and the object agree with the verb in most contexts. In addition, prepositions agree with their objects,

possessed NPs agree with their possessors, and many adjectives and nouns will agree with another NP when they are being used as stative predicates.

Despite this widespread use of agreement, only two sets of agreement morphemes are found in the language. Class A agreement morphemes fulfill a wide variety of functions, including marking agreement between a verb and an A-argument. Class B agreement morphemes are used primarily to mark agreement between a verb and a S- or P-argument. For this reason I will adopt Craig's (1977) convention of glossing these two classes of morphemes as *E(rgative)* and *A(bsolute)*, respectively, rather than the more traditional A and B. The two classes of morphemes are illustrated in example (1) below.

- (1) a. ch- oñ- wa -yi *pro*
 Pres- A1p- sleep -Aug we
 "We sleep."
- b. ch- oñ- s- col naj *pro*
 Pres- A1p- E3- help he we
 "He helps us." (Craig 1977: 107-108)
- c. ch- Ø- ok' naj
 Pres- A3- cry he
 "He cries." (Day 1973: 34)

The morpheme *oñ-* is the first person plural absolutive agreement marker. Its absolutive function becomes clear when we compare (1a) and (1b) where it is used to mark agreement with the subject of an intransitive verb and the object of a transitive, respectively.

The morpheme *s-* is the third person ergative agreement marker. Its ergative function can be seen in (1b) where it marks agreement with the subject of a transitive verb. In (1c) the third person (null) absolutive marker is found instead.

As is often the case in languages which possess rich agreement systems, Jacaltec is a *pro*-drop language, as evidenced in (1a) where the subject is not overtly realised. Jacaltec also allows objects to have a zero realisation as in (1b). As a general rule, only third person pronouns are realised in non-emphatic contexts in this language.

Example (1a) also illustrates Jacaltec's "stem-augment" morpheme. The exact function of this morpheme remains unclear. However, it provides a useful diagnostic tool in that the form of the stem augment morpheme is distinct for transitive and intransitive stems. Intransitive verb stems, such as *wa* 'sleep', take the stem augment morpheme *-i*, often realised with an epenthetic glide following vowels. Transitive stems, on the other hand, take a variety of stem augment morphemes including *-a*, *-e*, and *-o*, but rarely *-i* (Craig 1977).

- (2) a. ch- Ø- hin- mak' -a *pro*
 Pres- A3- E1- hit -Aug I
 "I hit something."
- b. ch- Ø- s- mak' naj
 Pres- A3- E3- hit he
 "He hit something."

In (2a) we see that the transitive verb *mak'* 'hit' takes the stem augment *-a* rather than *-i*. In (2b), however, this morpheme is absent. In general, the stem augment morpheme is lost unless the verb is the final element in the sentence. Because of Jacaltec's VSO nature, this morpheme is restricted to verbs taking only null first and second person pronominal arguments, verbs taking certain classes of third person arguments which have no overt pronouns,¹⁷ and verbs whose arguments have been topicalised. It may be the case that these stem augment morphemes serve some other function besides indicating transitivity, but that function remains unknown.

3.1.1 The Absolutive Set

The absolutive markers in Jacaltec are used almost exclusively to mark the subjects of intransitive verbs and the objects of transitive verbs, as discussed above. The absolutive markers are as follows, with epenthetic [h] occurring only following vowels:

¹⁷ The word *naj*, which I have been glossing as 'he' is not a true pronoun, but a noun classifier, a type of determiner which marks NPs for one of a fairly large number of grammatical genders. *Naj* simply indicates male and human, and functions as a pronoun in certain contexts. Other genders, however, have phonetically null classifiers.

(3)		Sg.	Pl.
	1p	(h)in-	(h)oñ-
	2p	(h)ach-	(h)ex-
	3p	Ø	Ø

One use of the absolutive markers is worth mentioning. Stative predicates always use the absolutive marker to show agreement with their subjects. This is not surprising as these predicates are typically intransitive, but they deviate from most other intransitive verbs in two significant ways.

First, in many instances the agreement morpheme will follow the predicate rather than appearing as a prefix. In this respect, the agreement marker behaves almost as if it were a pronoun.

- (4) a. meba hin pro
 poor A2 you
 “you are poor.”
- b. meba Ø heb naj
 poor A3 Pl he
 “They are poor.”

Secondly, stative predicates are often semantically closer to adjectives or nouns than they are to verbs. Moreover, they obligatorily lack the past or nonpast markers *ch-* and *x-* which matrix verbs require. If they were true verbs, we would expect them to behave as aspectless clauses which take ergative rather than absolutive subject markers. They do not, however. Thus, we must assume either that these verbs are implicitly aspectual, or that they are not true verbs at all. I will opt for the latter and assume that statives are [+N] predicates.

3.1.2 The Ergative Set

The ergative markers in Jacalteco fulfill a much wider range of functions than do the absolutive markers. As discussed above, they are used to mark agreement with the

subjects of transitive verbs. In addition, the ergative markers are used to mark agreement between a possessed NP and its possessor, and between a preposition and its object. The ergative markers are as follows:

(5)	<u>Class I</u>		<u>Class II</u>	
	Sg.	Pl.	Sg.	Pl.
	1p	w-	j-	(h)in- co-/cu-
	2p	(h)aw-	(h)ey-	(h)a- (h)e-
	3p	y-	y-	s- s-

Class I markers are used prevocally; class II markers are used before consonants. Again, epenthetic [h] is found postvocally. The exact phonological relationship between the two classes of markers remains unclear, particularly for first person markers. However, there is nothing to suggest that the choice of markers is motivated by anything other than phonological constraints, so we will not be concerned with the differences between the two sets here.

3.1.2.1 Possessive Constructions

In possessive constructions in Jacaltec, the possessed NP exhibits agreement with its possessor. This agreement takes the form of an ergative marker on the possessed NP, as illustrated below.

- (6) a. hin- xañiab *pro*
 E1- sandals I
 “my sandals” (Craig 1977:110)
- b. s- melyu naj
 E3- money he
 “his money” (Craig 1977: 198)

Note that first and second person pronouns are dropped in non-emphatic contexts whereas third person pronouns remain, much as is the case for verbal arguments.

When possessive constructions appear as verbal arguments, the possessed NP will bear an ergative marker with the ϕ -features of its possessor, while the verb will bear either an ergative or absolutive marker with the ϕ -features of the possessed NP, depending upon its function.

- (7) a. x- Ø- cam hin- cheh *pro*
 Pst- A3- die E1- horse I
 “my horse died.” (Day 1973: 68)
- b. x- Ø- s- watx’e s-c’ahol naj y-atut naj
 Pst- A3- E3- make E3-son he E3-house he
 “His_i son made his_j house.” (Craig 1977: 168)¹⁸

The ergative marker is retained in the above examples regardless of which marker appears on the verb. These examples also reinforce the notion of Jacaltec as a strongly head-initial language. In NPs, the head noun is always the first element of the phrase.

3.1.2.2 Prepositional Objects

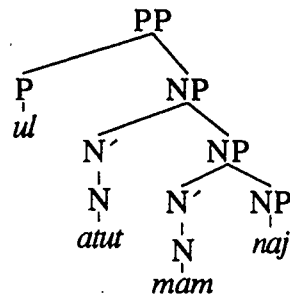
Prepositions also bear an ergative marker with the ϕ -features of their object, as illustrated below.

- (8) a. ch- ach- colwa y-iñ naj
 Pres- A2- help E3-to him
 “You give a hand to him” (Craig 1977: 116)
- b. y-ul y-atut s-mam naj
 E3-in E3-house E3-father his
 “in his father’s house.” (Craig 1977: 180)

¹⁸ Craig cites this example without the past tense affix *x-*. I will assume that this affix is present at SS, but is deleted at PF to avoid a sibilant cluster.

In (8b), we also see how a structure containing multiple ergative relationships, in this case possessors and prepositional objects, orders its elements. As expected, a head precedes the heads of phrases contained within its projection. Thus, the deep structure of (8b) might be something like (9) (ignoring for the moment the agreement markers themselves).

(9)



3.1.2.3 Reflexive Verbs

A final use of the ergative marker is to denote agreement between a reflexive and its antecedent.¹⁹

- (10) a. x- Ø- w- il hin-ba
 Pst- A3- E1- see E1-Refl
 "I saw myself."

- b. x- Ø- a- mak ha-ba
 Pst- A3- E2- hit E2-Refl
 "You hit yourself."

In these examples, the reflexive morpheme *ba* agrees with the subject. However, the verb agrees with the reflexive complex in the third person.

¹⁹ More likely than not, this is simply an example of the possessive usage of the ergative marker. However, both Craig (1977) and Day (1973) treat it separately, so I will mention it here.

3.2 Aspectless Embedded Clauses

While Jacaltec agreement normally follows an ergative pattern, a subset of the language follows an accusative agreement pattern. A number of verbs select clausal complements which obligatorily lack the tense/aspect markers *x(c)-* or *ch-*, which most Jacaltec clauses require. In these aspectless embedded clauses²⁰, all subjects, including intransitive subjects, agree with the verb using the ergative marker. In these clauses, the ergative marker thus functions as a nominative marker, and the absolutive as an accusative marker. The ergative marker continues to be used for its numerous other functions.

Examples of aspectless embedded clauses are given below in (11) and (12).

- (11) a. *x-Ø-w-ilwe pro* [hach- hin- col-ni *pro pro*]
 Pst-A3-E1-try I [A2- E1- help-suff I you]
 "I tried to help you." (Craig 1977:124)

- b. *x-Ø-y-il naj* [hin- ha- mak-ni *pro pro*]
 Pst-A3-E3-see he [A1- E2- hit-suff you me]
 "He saw you hit me." (Craig 1977:111)

- c. *lañan* [hin- ha- mak'-ni-an *pro pro*]
 Cont [A1- E2- hit-suff-suff you me]
 "You're hitting me." (Day 1973:35)

- (12) a. *xc-ach-w-iptze* [ha-munla-yi *pro*]
 Pst-A2-E1-force [E2-work-Aug you]
 "I forced you to work." (Craig 1977:312)

- b. *w-ohtaj* [hin-cheml-i *pro*]
 E1-know [E1-work-Aug I]
 "I know how to work" (Craig 1977:312)

²⁰ I reanalyse "aspect" markers as tense markers in Jacaltec, but I continue to refer to untensed embedded clauses as "aspectless", as this is the term traditionally used.

- c. *lañan* [s-way naj]
 Cont. [E3-sleep he]
 “He is sleeping.” (Day 1973: 34)

The examples in (11) illustrate transitive embedded clauses, and the examples in (12) illustrate intransitive embedded clauses.

In the transitive structures in (11), the agreement markers follow a pattern consistent with the ergative pattern we have seen in matrix clauses. Ergative markers denote subject agreement, and absolutive markers denote object agreement. However, no aspectual prefixes are found on the verbs in the embedded clauses. Instead, however, the suffix *-n(i)* is found, the function of which is somewhat mysterious, though it is glossed as a future tense marker by Craig. In (c) we also find an additional suffix *-an*, again with no transparent function. It is also worth noting that the matrix verbs agree with their subjects in the ergative, rather than the absolutive. Craig (1977) infers the existence of a null third person absolutive marker to explain this ergative marking. Presumably, these matrix verbs agree with their clausal complements using the default third person. Because, however, the third person morpheme is never overtly realised, it is difficult to verify. I will, however, assume her analysis.

In the intransitive constructions in (12), the verb agrees with its subject in the ergative, suggesting that it is serving a nominative function in these examples. Jacaltec, then, exhibits some degree of split-ergativity, where an accusative subset is found in aspectless embedded clauses. No unusual suffixation occurs in these examples, but the agreement system in the matrix clauses is somewhat unclear. In (12b), Craig glosses the main verb with an ergative marker, but no absolutive marker. Again, however, it is possible that there is a null third person absolutive marker in this example. In (12a), however, an overt second person marker is found, suggesting that ‘you’ is an argument of both the embedded and matrix clause. This makes it unlikely that matrix clauses must *obligatorily* agree with embedded clauses in the third person as triple-agreement is not found in Jacaltec.

The examples in (11c) and (12c) illustrate the continuative element *lañan*. This word appears to be a verb which takes no arguments other than an aspectless embedded clause, either transitive or intransitive. No overt agreement markers show up on this element, but it is possible that it “agrees” in the third person with either its clausal complement, or with a null expletive element. Because of the non-overt nature of the third person absolutive

marker, it is impossible to determine this with certainty. I will assume, however, that this word follows a pattern similar to the English *seem* insofar as its only argument is a clause.²¹

The preceding sections illustrate the salient aspects of the Jacaltec agreement system. A successful account of these data must accurately describe Jacaltec's word order and morphological structure. In addition, it must provide an agreement mechanism which allows us to account for the similarity between S- and P-arguments in tensed clauses. Finally, it must be able to motivate the accusative system which is found in aspectless embedded clauses. In the section which follows, I will consider how these data can be accounted for within the Minimalist Framework.

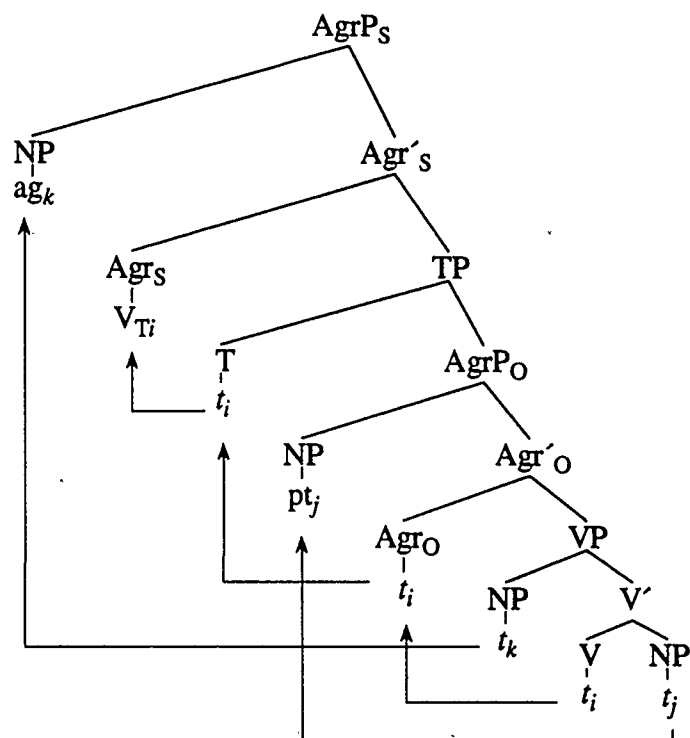
3.3 A Critique of the Minimalist Account of Ergativity

In section 2.4 above, I described a number of possible accounts of ergative systems. In this section, however, I will be concerned only with Chomsky's (1992) AAH. The proposals which I discussed of Hale (1970) and Marantz (1984) are both sufficiently old that their weaknesses are generally acknowledged, and Johns' (1992) proposal relies on idiosyncratic lexical properties of Inuktitut verbs which makes it unlikely as a universal account of ergativity. The AAH, on the other hand, purports to be universal, and is recent enough that no detailed criticisms of it have been offered (to my knowledge).

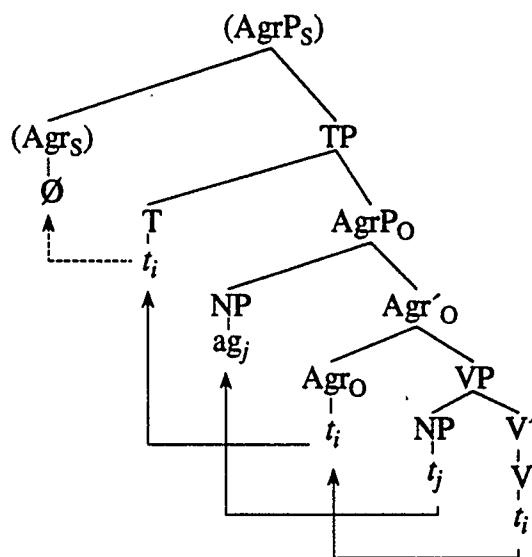
Chomsky's (1992) analysis of ergativity, discussed in §2.4.4, assumes that the differences between ergative and accusative phenomena can be reduced to a single parameter. In accusative languages, AgrP_S is "active" in intransitive clauses. In ergative languages, on the other hand, AgrP_O is "active". Under this analysis, transitive and intransitive clauses in ergative languages have the following structures.

²¹ Both Day (1973) and Craig (1977) also adopt this analysis, and cite various pieces of evidence to support the view that this is a main verb rather than an auxiliary or stative predicate. I will not review their evidence here, but adopt their analysis.

(13) a. Transitive Clause



b Intransitive Clause



The structure in (13a) is essentially that of a transitive clause in an accusative language. The differences between ergative languages and accusative languages are entirely in intransitive clauses such as (13b). Here, Agr_S is shown in parentheses to indicate that it is “inactive”. Because Agr_S is inactive, the agent of an intransitive is required to move to the specifier of AgrP_O, rather than AgrP_S. In effect, then, the “subjects” of intransitives are actually in object position. Because of the confusion which this might create, I will abandon Chomsky’s terms Agr_S and Agr_O, and will instead use the terms Nom (NOMINATIVE AGREEMENT) and Acc (ACCUSATIVE AGREEMENT) when dealing with accusative languages, and Erg (ERGATIVE AGREEMENT) and Abs (ABSOLUTIVE AGREEMENT) when dealing with ergative languages. This change in terminology is not intended to imply that these functional categories are related to Case-assignment. I retain Chomsky’s general view that they are agreement phrases, and adopt a new notation only to avoid confusion when dealing with ergative phenomena.

3.3.1 *Empirical Difficulties*

A number of predictions can be made based on this model. First, because AGREEMENT phrases are responsible for both agreement and Case checking, we would expect that ERG_{Case} and ERG_{Agr} systems should always cooccur.

Secondly, if “activeness” is the source of differences between ERG_F and ACC_F systems, then we would expect that in split-ergative systems the upper AGREEMENT phrase is active in intransitives in one subset of the grammar, and the lower AGREEMENT phrase is active in another subset. Given a language which is split-ergative with respect to some phenomenon which receives overt morphological realisation, such as agreement or Case, we would then expect that the ergative markers found in the ergative subset of the language should be homophonous with the nominative markers in the accusative subset. Similarly, accusative and absolutive markers should be homophonous.

Thirdly, the organisation of functional projections in the model above makes a number of predictions. In both ergative and accusative systems, the subject should be the most structurally prominent argument. In morphologically ergative systems, we would therefore expect this to be reflected in the order of verbal affixes. Affixes triggered in ErgP should be outside affixes triggered by AbsP, just as nominative agreement affixes are normally outside accusative agreement affixes. Finally, in ergative systems which are not verb-

marginal, we would expect differences in word order between transitive and intransitive clauses, with A-subjects and S-subjects occupying different linear positions.

In the sections which follow, each of these predictions will be investigated, and I will show that the AAH, as stated, is not consistently supported by data from natural languages. Nor, however, are its predictions consistently inaccurate, suggesting that languages exhibiting ergative phenomena may differ in a number of other ways.

3.3.1.1 *Mixed Ergative Systems*

Within the Minimalist Framework, the same mechanism is responsible for both verbal agreement and case marking. This predicts that any language (or subset of a language) which is ergative with respect to Case should also be ergative with respect to agreement. In many instances, this prediction is borne out empirically, and in other instances, the Mayan languages, for example, it is empirically unverifiable as both features do not receive morphological realisation. Basque is one language which exhibits both ERG_{Case} and ERG_{Agr} properties, as demonstrated below.

- (14) a. *ni-Ø etorri n-aiz*
 I-Abs arrive A1s-Aux
 ‘‘I arrived.’’
- b. *ni-k Jon-i liburu-a-Ø ema-n d-ieza-io-ke-t-Ø*
 I-Erg John-Dat book-Det-Abs give-Asp A3s-Aux-D3s-Mod-E1s-Tns
 ‘‘I can give the book to John.’’ (Cheng and Demirdash 1991: 126)²²

Here, the first person agreement morpheme is realised preverbally in (14a) and postverbally in (14b), and the first person subject *ni* takes the ergative marker *-k* only in the transitive clause. This suggests that both case assignment and agreement follow an ergative pattern.

There are, however, languages which do not share this behaviour. In a number of languages, case-marking follows an ergative pattern, while agreement follows a

²² This morphological breakdown is my own.

nominative-accusative pattern.²³ One such language is Warlpiri (Australian), which poses a serious problem for the AAH. This is illustrated below.

- (15) a. ngalu-Ø ka-rna mata-jarri-mi
 I-Abs Aux-S1s tire-Incho-Pres
 “I am getting tired.”
- b. ngajulu-rlu ka-rna-palungu maliki-jarra-Ø nya-nyi
 I-Erg Aux-S1s-O3d dog-Dual-Abs see-Pres
 “I see the two dogs.” (Ortiz de Urbina 1989: 3)

Here, Case (which is only marked on pronouns) follows an ergative pattern, but the same agreement morpheme, *-rna*, is used for first person subject agreement regardless of whether the clause is transitive or intransitive. Thus, it would be difficult to achieve any structural account of Warlpiri in which agreement and case were mediated by the same structural position unless it can be shown that other functional categories may interact with Agr to affect either its Case assigning or agreement properties (but not both).

Even more interesting is Chukchee, a Palaeosiberian language, which displays ergative case-marking, and a mixed nominative-absolutive agreement system.

- (16) a. turi -Ø wiri-tək.
 you-Abs descend-A2p
 “You descended.”
- b. gəm-nan gət-Ø tə-lʔu-gət.
 I-Erg you-Abs S1s-see-A2s
 “I saw you (sg.).”

²³ Comrie (1978) claims that this pattern is fairly common. He notes, however, that the opposite situation, nominative-accusative case-marking and ergative verb agreement, is “rare or nonexistent”. In my own experience, however, the majority of languages which display this behaviour belong to the Pama-Nyungan family of Australian languages.

- c. ɜrgə-nan turi-Ø ne-lʔu-tək.
 they-Erg you-Abs S3s-see-A2p
 ‘‘They saw you.’’
- d. gəm-Ø tə-wiri-gʔek.
 I-Abs S1s-descend-A1s
 ‘‘I descended.’’ (Comrie 1979: 224)

In (16d), we see that an intransitive verb in Chukchee can be marked (optionally, *cf.* 16a) with both nominative and absolutive agreement. This suggests that Chomsky’s proposal that only a single AGREEMENT phrase is active in intransitive constructions does not hold universally. Moreover, both of these sets of data suggest that the link between Case and agreement assumed within the Minimalist Framework is not a necessary one.

3.3.1.2 Case-Form Identities in Split-Ergative Systems

The AAH suggests that ergative Case is, from a purely structural point of view, identical to nominative Case insofar as they are both assigned to the specifier of the uppermost AGREEMENT phrase. Similarly, the absolutive Case is identical to accusative Case. Differences between ERG_{Case} and ACC_{Case} systems reflect differences in the final landing sites of arguments in intransitive clauses, rather than differences in the nature of available Cases or the manner of their assignment.

In some split-ergative systems, the ergative or accusative trigger does not affect the phonological form of Case or agreement morphemes. In such cases, it is possible to establish an identity between forms in the ergative system and forms in the accusative system.

It turns out that the identity of ergative and nominative forms can be demonstrated in some languages, but that in other languages the ergative appears to be related to the accusative. In Chol, a Mayan language, the ergative agreement marker appears to be related to the nominative marker. Agreement normally follows an ergative pattern. However, the present tense marker *mi-* triggers an ACC_{Agr} pattern. This is illustrated in (17) and (18).

- (17) a. *ca-čəmiy-on*
 Pst-die-A1s
 “I died.”
- b. *ca-čəmiy-et*
 Pst-die-A2s
 “You died.”
- c. *ca-h-k’eley-et*
 Pst-E1s-see-A2s
 “I saw you.”
- (18) a. *mi-k-čəmel*
 Pres-S1s-die
 “I am dying.”
- b. *mi-a-čəmel*
 Pres S2s-die
 “You are dying.”
- c. *mi-h-k’el-et*
 Pres S1s-see-O2s
 “I see you.” (Comrie 1978: 352f)

The prefixes *k-*, *a-*, and *h-* function as ergative markers in past tense clauses and nominative markers in present tensed clauses. The suffixes *-on* and *-et* serve as absolutive markers in past tensed clauses and as accusative markers in present tensed clauses. Thus, Chol appears to behave in accordance with predictions made by the AAH.

A different situation, however, is found in some Kartvelian languages. In Georgian, the aorist tense triggers ergative case marking. Other tenses show a nominative-accusative distribution. This is illustrated in (19) and (20).

- (19) a. student-i midis
 student-Nom go/Pres
 “The student goes.”
- b. student-i çeril-s çers
 student-Nom letter-Acc write/Pres
 “The student writes the letter.”
- (20) a. student-i mivida
 student-Abs go/Aor
 “The student went.”
- b. student-ma çeril-i dəcera
 student-Erg letter-Abs write/Aor
 “The student wrote a letter.” (Comrie 1978: 351f)

The suffix *-i* serves as the nominative marker in (19), but as the absolutive rather than the ergative marker in (20). The ergative morpheme *-ma* does not appear to be related to the accusative marker *-s*. This suggests that at least three different mechanisms exist for satisfying Case in Georgian: one to account for nominative and absolutive Case, one to account for accusative Case, and one to account for ergative Case.

While many languages do not provide the possibility for determining whether the ergative relates to the nominative or the accusative because they exhibit only one Case marking pattern, there is additional evidence suggesting the latter pattern is very common. There is a strong correlation between the nominative case and null-morphological marking. Zero marking appears to be more common for absolutive NPs than for ergative NPs (Marantz 1984), suggesting that the absolutive and nominative may be assigned in a similar fashion in many natural languages.

3.3.1.3 Affix-Ordering in Ergative Systems

The order of functional projections which Chomsky adopts predicts the following verbal structure in ERG_{Agr} systems.

- (21) [Erg [T [Abs [V V] -Abs] -T] -Erg]

Unfortunately, this prediction is not borne out empirically in many ergative languages. Consider the following Mayan examples.

- (22) **Jacaltec**

ch-hex-w-ilan *pro* *pro*
 Pres-A2p-E1-see I you
 “I see you” (Day 1973: 36)

- (23) **Tzotzil**

l-i-s-mah
 Asp-A1-E3-hit
 “He hit me.” (Aissen 1983: 276)

- (24) **Quiche**

x-at-r-il le achi
 Asp-A2-E3-see the man
 “The man saw you.” (Davies and Sam-Colop 1990: 524)

- (25) **Mam**

ma tz-n-tzeeq’a-ya²⁴
 Pst A3-E1-hit-suff
 “I hit it.” (England 1983: 58)

In all of these examples, the verbal complex takes the form given in (26), contrary to what is seen in (21).

- (26) [T T/Asp-[Abs Abs-[Erg Erg-[v V]]]],

²⁴ This example is cited in an underlying form based on England’s discussion of Mam morphonology. The actual (surface) form would be *mantzeeq’aya*.

The fact that T is the outermost category is not particularly problematic, as Laka (1990) argues that the position of TP tends to vary from language to language. However, the order of the absolutive and ergative markers directly contradicts Chomsky's (1992) analysis. The order seen in (26) together with the Mirror Principle would suggest that AbsP is actually superior to ErgP, similar to the analyses of Marantz (1984) and Johns (1992).

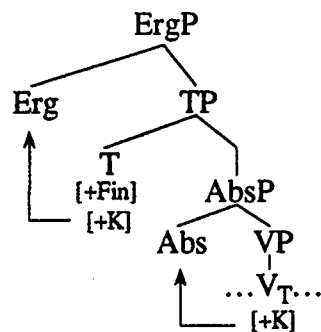
3.3.2 Theory-Internal Difficulties

In addition to the empirical difficulties outlined above, it is also difficult to motivate the AAH within the Minimalist Framework. The notion of "activeness" is not clearly defined by Chomsky, but a reasonable interpretation would be that the activeness of an AGREEMENT phrase relates to its ability to inherit K-features from different functional heads.

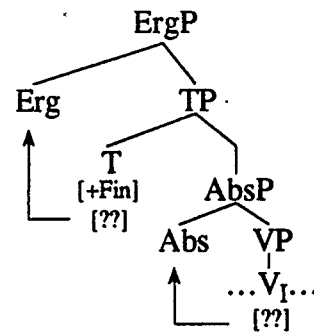
In accusative systems, it is assumed that NomP inherits its Case-checking abilities from TENSE. $T_{[+Fin]}$ possesses K-features which are transferred to Nom via X^0 -movement. Similarly, AccP inherits its Case-checking abilities from V_T , which is required to move into Acc. In intransitive constructions, Acc will remain inactive because V_I lacks K-features.

We cannot, however, offer a similar explanation for activeness where ergative systems are concerned without violating the locality constraints imposed by the Minimalist Framework.

(27) a. Transitive Structure



b. Intransitive Structure



The transitive structure in (27a) may be accounted for in the same manner that accusative transitives are accounted for. However, the intransitive in (27b) poses serious problems if

one is to assume that Abs remains active while Erg is inactive. If we associate the required Case with $T_{[+Fin]}$, then that Case cannot be transferred down to AbsP without invoking lowering. Alternatively, if we associate the Case with V_I , then T must be sensitive to lexical properties of V, which does not stand in a local relationship to it. Otherwise, we would expect $T_{[+Fin]}$ to retain its K-features in intransitive constructions.

A second problem arises when we attempt to account for split ergative systems such as that found in Jacaltec. Many ergative splits are triggered by tense/aspect. It is logical, then, to assume that some tense morphemes possess Case-checking abilities whereas others do not. When T is instantiated with K-features, we would expect an accusative system. When T is not instantiated with K-features, we would expect an ergative system. This, however, would require V_I to possess K-features in some instances and not others, depending on the contents of T. Again, locality is violated, and no explanation is offered in Chomsky's (1992) description of the Minimalist Framework.

3.3.3 Commentary

Together, the empirical difficulties outlined in §3.3.1 suggest strongly that different structural accounts of Case and agreement may be required to accurately describe different ergative systems (and, possibly, different accusative systems as well). While Case and agreement appear to act as a single phenomenon in many languages, this is not universally true, as illustrated in (15).

The split-ergative phenomena in (17) through (20) suggest that different accounts of split-ergativity may be necessary. In some languages, we may have to explain why intransitive constructions behave differently in two subsets of the grammar. In other languages, we may have to explain why transitive constructions behave differently in two subsets of the grammar.

Differences in affix order raise a similar point. Different structural accounts of Case and agreement may be required for different languages. All of these points suggest that accounting for ergativity in terms of a single parameter may not be possible. We may be able to account for a *specific* ergative or accusative subsystem in terms of a single difference, but a universal explanation of this kind is probably unavailable.

The theoretical problems which I outline in §3.3.2 illustrate the need for a better understanding of the lexical representation of abstract features such as Case. The representation of such features may not be universal, in which case different types of

ergativity might result, in part, from differences in the lexical representation of grammatical features.

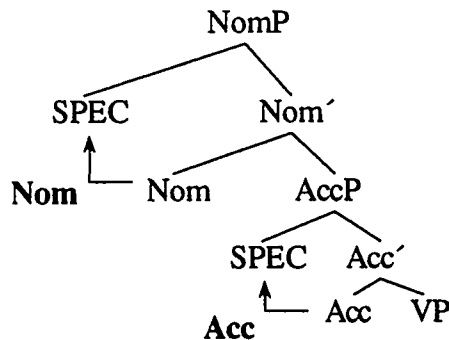
In the following section, I propose a model of phrase structure in Jacaltec. The goal of this model will be primarily to account for the word-order and morphological structure of simple Jacaltec sentences. It will also serve as a starting point for the theory of lexical representations which I develop in Chapter Four. Because of the points raised above, however, I do not intend this model to be taken as a universal account of ergative phrase structure.

3.4 Jacaltec and Minimalism

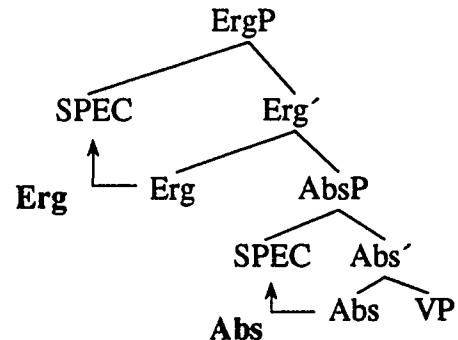
3.4.0 Introduction

The preceding discussion raises two important problems for Chomsky's (1992) analysis. First, he argues that ergative agreement is a relationship between the higher AGREEMENT phrase (ErgP) and its specifier, and that absolutive agreement is a relationship between the lower AGREEMENT phrase (AbsP) and its specifier, as illustrated in (28).

(28) a. Accusative Languages



b. Ergative Languages



In this framework, the ergative agreement is treated as equivalent to the nominative agreement in accusative languages insofar as the higher agreement phrase is responsible for it. This would predict that the ergative agreement marker should be the outermost agreement marker. This, however, is clearly not the case in Jacaltec, where the ergative marker is always adjacent to the verb.

Secondly, Chomsky argues that the difference between ergative and accusative languages lies in which agreement phrase is “active” in intransitive constructions. In ergative languages, the higher agreement phrase is only available in transitive constructions, and the lower agreement phrase is used for intransitive subjects. In accusative languages, on the other hand, the higher agreement phrase is available in both transitive and intransitive clauses. This analysis, however, fails to account for the relationship between the “activeness” of an agreement phrase and tense/aspect. That aspectless embedded clauses follow an accusative agreement pattern in Jacaltec suggests that such a relationship must exist, and until it is made explicit, we will be unable to account for the split found in Jacaltec’s agreement system.

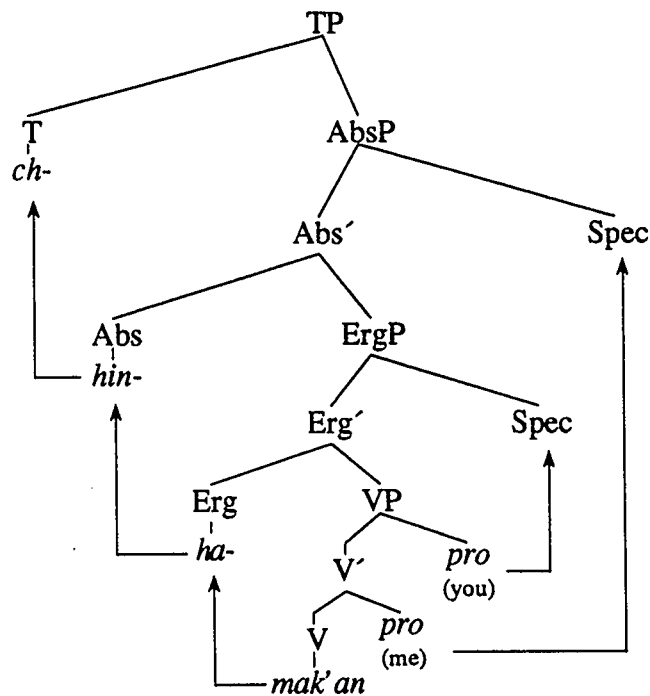
3.4.1 Jacaltec Phrase Structure

If we assume, following Chomsky (1991, 1992) and Baker (1985) that morphological structure reflects syntactic structure, the order of affixes found in Jacaltec verbal complexes such as those in (29) suggests the phrase structure in (30).

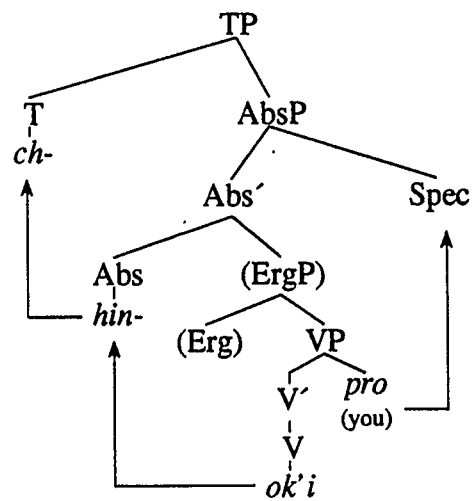
- (29) a. ch-hin-ha-mak'an *pro pro*
 Pst-A1-E2-hit you me
 “You hit me.”
- b. ch-hin-ok'i *pro*
 Pst-A1-cry I
 “I cry.” (Day 1973: 34-35)

Here we see that tense/aspect is the outermost affix, followed by the absolutive marker, with the ergative marker the innermost affix, suggesting that absolutive agreement occurs higher in the tree than ergative agreement.

(30) a.



b.



In (30a), the subject raises to the specifier of the *lower* agreement phrase, ErgP, in order to satisfy Case requirements. The object raises to the specifier of the higher agreement phrase, AbsP, for the same reasons. The verb raises through Erg, Abs, and finally to T. This results in the verbal structure indicated in (31a), with all affixes in the

correct position. In (30b), the subject raises to the specifier of the higher agreement phrase and the verb raises to T, resulting in the verbal structure in (31b)

- (31) a. [T ch-[Abs hin-[Erg ha-[v mak'an]]]]
 b. [T ch-[Abs hin-[Erg [v ok'i]]]]

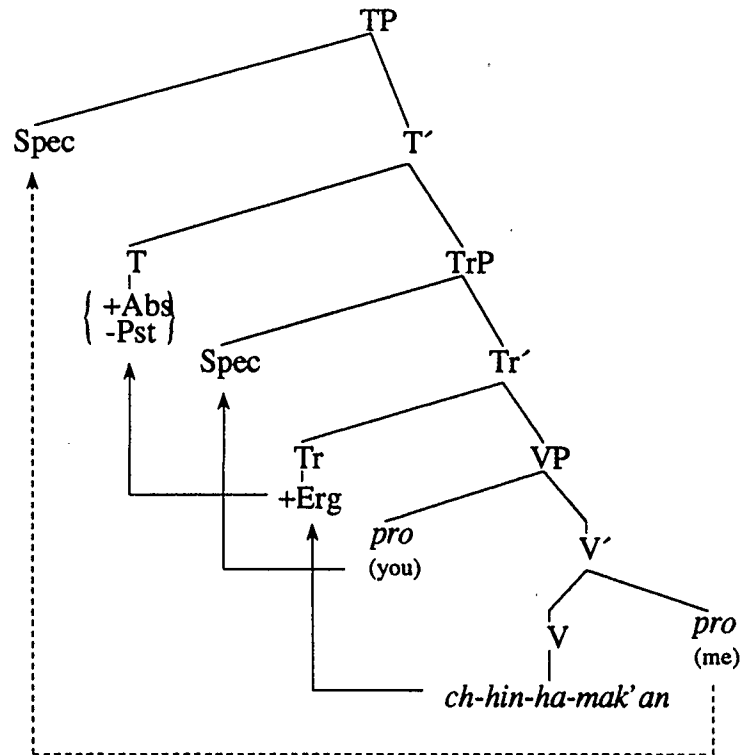
Putting aside aspectless embedded clauses for the moment, it is assumed that the specifier of AbsP is always available for Case and agreement. The specifier of ErgP, on the other hand, is only available for transitive verbs. This resembles Chomsky's (1992) analysis of *accusative* languages insofar as the higher agreement phrase is always active, whereas the activeness of the lower agreement phrase is correlated with transitivity. The major difference between Jacaltec and accusative languages is the landing site of the verbal arguments in transitive rather than in intransitive clauses.

This analysis violates the common GB assumption that agents are structurally more prominent (i.e. higher up in the tree) than patients. However, this assumption has been challenged in a number of analyses of ergative languages. Marantz' (1984) analysis, mentioned earlier in §2.4.2, suggests that ergativity results from a reversal of thematic prominence at D-Structure, which, in terms of the current theory, would imply that the agent role is assigned by the verb to its complement, while the patient role is assigned to its specifier. Under this view, the superiority of the patient would extend beyond S-Structure to D-Structure. For this reason, Marantz' analysis is rejected by many as it violates the UTAH. In the analysis given above, on the other hand, patient superiority is a surface phenomenon which does not pose any problems for the UTAH.

3.4.2 Murasugi's Minimalist Analysis

A similar proposal has been made for Inuktitut, also a predominantly ergative language, by Murasugi (1992). Murasugi's proposal diverges from mine in a number of respects, but shares the assumption that absolutive agreement is satisfied in a more structurally prominent position than is ergative agreement. She also applies her analysis to Jacaltec, and would argue for the following structure in lieu of (30a).

(32)



Murasugi assumes that absolutive agreement is satisfied in the specifier of TENSE, and that ergative agreement is satisfied in the specifier of TRANSITIVITY (Tr). Her choice of category labels suggests a serious theoretical divergence from Chomsky's view on AGREEMENT phrases, but for the purposes of this discussion I will assume them to be notational variants only. Of greater significance is her account of VSO word order in Jacaltec.

She assumes that Jacaltec's branching structure is similar to that of English, with specifiers preceding heads and complements following them. The verb raises to merge with T, and in transitive clauses the subject raises to the specifier of TrP where it receives Case and agreement is satisfied. Intransitive subjects and transitive objects satisfy their Case and agreement requirements in the specifier of TP. However, she argues that movement from VP to this specifier position is only required at LF. Thus, absolutive arguments remain *in situ* at S-Structure.

Murasugi assumes, following Chomsky, that lexical items are inserted in a fully inflected form. Both lexical items and functional categories also bear abstract K-features

and ϕ -features. Values for K-features are chosen from the set {Nom (=Abs), Acc (=Erg), Dat,...} and values for ϕ -features are chosen from the subsets of {{1, 2, 3...}, {f, m, n...}, {sg, pl...}...}, where K-features may take only a single value, and ϕ -features may take one and only one value from each member set of the set of ϕ -features for a particular language.

All features are ungrammatical if they remain at the end of a derivation, in which case the derivation is said to crash. Thus, features must be eliminated during derivation. She employs Chomsky's (1992) mechanism of feature-checking to accomplish this, which is repeated here as (33).

(33) Feature Checking:

If the features on a head match the features on its specifier, then the features are eliminated.

As discussed in Chapter One, features may be either weak or strong. Strong features are ungrammatical at the level of PF and must be eliminated at S-Structure. Weak features are invisible at PF, and thus can be eliminated at either S-Structure or LF. Murasugi uses the strong/weak distinction to motivate her analysis, and offers the following parameter:

(34) The Ergative Parameter:

In accusative languages, K-features on T (i.e. Abs) are strong, and K-features on Tr are weak. In ergative languages, K-features on Tr (i.e. Erg) are strong, and K-features on T are weak.

This permits the movement of the object to the specifier of TP indicated in (32) to occur after SPELLOUT. All other movement, however, is overt, resulting in a surface VSO word order.

Despite the fact that there is no overt Case marking in Jacaltec, such an analysis depends on the hypothesis that lexical items are inserted fully inflected at D-Structure. Otherwise, the correct verbal morphology could not be realised as SPELLOUT would occur before the arguments came to occupy the specifiers of agreement phrases, and agreement triggered in those positions could have no phonetic consequence. This

hypothesis, however, is questionable in the case of Jacaltec, as discussed in the following section.

3.4.3 *A Critique of Base-Generated Morphology and LF Movement*

If we assume the feature checking occurs between the absolutive argument and Abs at LF rather than S-Structure, then the assumption that lexical items are inserted in an inflected form at D-Structure becomes crucial. An X^0 -movement account of affixation would become untenable, as affixation at LF could have no phonetic realisation. While this is true of third person absolutive agreement, all other absolutive markers have phonetic content in Jacaltec.

The original motivations for assuming that all lexical elements were inserted with inflection already present were twofold. First, while head-movement provides a useful account of affixation for many languages, it proves troublesome for English, where the verb appears to remain *in situ*, as outlined in Chapter One. Pollock (1989) offers an affix-lowering rule, but this rule was difficult to reconcile with principles of GB such as the ECP. While V-raising to pick up affixes required overt movement, raising an already inflected V to check its features could be done at LF.

Secondly, the existence of exceptional morphology, especially English umlauting where no overt affixation can be seen, is problematic for accounts which involve head-movement to prevent affix-stranding.

In spite of these advantages, I suggest that a solution requiring base-generated morphology poses serious problems for Jacaltec. In the case of English, one might be able to overcome these problems by positing the insertion of inflected forms drawn from a collection of “listemes” (Di Sciullo and Williams 1987) in the lexicon.²⁵ However, the synthetic nature of Jacaltec makes this morphological approach highly implausible. A relatively large number of Jacaltec verb-complexes can serve as sentences in their own right. These complexes usually possess a fairly high degree of internal morphological structure. Thus, if we are to assume that such forms are inserted into D-Structure completely inflected, we would have to assume a set of lexical word-formation rules which

²⁵ This view should not be taken as denying the existence of structure within the lexicon. It merely requires recursive word-formation rules which feed back into the lexicon rather than feeding into the syntax (D-Structure) directly.

duplicates a large portion of the syntax. Similar problems arise in other polysynthetic languages (including Inuktitut, which was the focus of Murasugi's analysis).

Such a solution would be unparsimonious if the same result could be accomplished without creating duplication in the syntactic and morphological components of the grammar. I propose, then, that inflection processes should be treated as part of the feature-checking mechanism, itself, if possible. The elimination of features which are checked against one another will trigger a morphological operation—affixation where Jacaltec is concerned—which is dependent upon the values of the features which were checked.

Even if the complex morphological structure found in Amerindian languages such as Jacaltec were not a compelling reason to abandon this approach, a second difficulty exists for the Minimalist Framework's division of features into the categories [\pm strong]. By relying on non-overt movement (i.e. movement at LF), the Minimalist framework has succeeded in offering unified accounts of phenomena which are, on the surface, very different. However, both scientific verifiability and scientific falsifiability are seriously compromised in the process.

While it is true that LF movement is generally held to be subject to the same constraints as SS movement, which makes some falsifiable predictions, the powerful nature of the transformational component which the Minimalist Framework inherits makes it highly undesirable to rely heavily on movement which is never overtly realised as a source of explanation.

Both of these difficulties may be avoided if we adopt the following methodological assumption:

- (35) All feature-checking takes place at the level of SS

If all movement were motivated by the need to check features, this would ensure that all movement would be overt. If it can be shown, therefore, that an account which adopts the assumption in (35) is possible, then I suggest that such an account would also be preferable to one which relies on LF movement, both in terms of learnability and scientific methodology.

In the following Chapter, I hope to show that such an account of Jacaltec is possible. I present a model of lexical representation of features which allows us to account for both the ergative and accusative subsets of Jacaltec using only overt movement. This model relies

on the basic phrase structure presented above, and thus correctly accounts for word order and affix order in Jacaltec as well.

Chapter Four

A NEW ACCOUNT OF ERGATIVITY IN JACALTEC

4.0 Introduction

In this Chapter I expand upon the theory of phrase structure introduced in Chapter Three by providing a model of the lexical representation of features and revising Chomsky's (1992) feature checking mechanism to account for Jacaltec's accusative subset.

In §4.1, I provide a detailed theory of features which allows affixation to be carried out entirely within the syntax and which avoids non-overt movement. Affixes are produced as a result of the checking of features. I also argue that features on lexical elements may be ordered with respect to one another.

In §4.2, I illustrate the theory presented in §4.1 through a number of complete Jacaltec derivations. Both the ergative and accusative subsets of the language are treated here.

In §4.3, I summarise the more salient aspects of the theory, paying particular attention to those aspects which differ from Chomsky's (1992) account of features.

Finally, in §4.4, I provide evidence from extraction and Binding Theory which supports the model of phrase structure which I described. Data are discussed which clearly indicate that ergativity is more than just a morphological phenomenon in Jacaltec. Syntactic processes such as relativisation are also sensitive to the ergative/absolutive distinction, and the structural superiority of the absolutive argument is supported.

4.1 The Theory of Features

4.1.0 Introduction

In Jacaltec, there is no overt Case marking. However, I will assume that its ergative agreement pattern is paralleled in its abstract Case-marking system. Tentatively, then, I will assume that there are two distinct types of K-features, Abs and Erg. I will also assume for now that ϕ -features are chosen from the subsets of $\{\{1p, 2p, 3p\}, \{Sg, Pl\}, NC\}$ where NC is the set of twenty-one genders which determine which noun-classifier (determiner) will occur with a given NP. Because the noun-classifiers do not play a role in the verbal

agreement system, however, I will restrict my discussion to person and number features only.

As well as inflecting for agreement, Jacaltec verbal complexes also inflect, obligatorily in the case of matrix verbs, for tense/aspect. Craig (1977) refers to the verbal prefixes *ch-* and *x-* as aspect markers, while Day (1973) assumes them to be tense markers, though he continues to refer to clauses which lack these markers as “aspectless embedded clauses”. In order to develop a general theory of inflection which accounts for all standard verbal inflection in similar terms,²⁶ I assume that tense/aspect marking involves features similar to those involved in Case and agreement marking. I will refer to tense/aspect features as *T*-features and will tentatively assume that they are chosen from the set of {-Pst, +Pst}.²⁷ *T*-features may or may not be equivalent to Chomsky’s tense features.

4.1.1 *The Relationship between Agreement and Case*

Both Pollock (1989) and Chomsky (1991, 1992) assume that Case and agreement are mediated by a single functional category, AGREEMENT. However, the two features are treated as distinct features. ϕ -features are carried by NP arguments and V. K-features are carried by NPs, TENSE, and transitive verbs. In each instance, the functional category AGREEMENT serves only as a locus for checking the features. T raises to Abs where it checks its features against (NP, AbsP). V_T raises to Erg, where it checks its features against (NP, ErgP).

As a general rule, then, NP arguments which possess abstract Case also possess abstract agreement. The Minimalist framework does not offer an account of Case relations between prepositions and their objects, but in English it seems *prima facie* improbable that this relationship also involves an abstract agreement relationship. In Jacaltec, however, we have seen that prepositions do bear agreement markers. The close relationship which exists between Case and agreement suggests that a single operation may be involved here, rather

²⁶ A formal definition of what constitutes “standard” inflection is needed here. I am concerned with inflectional elements which are obligatory on matrix verbs, but not with (arguably) inflectional elements such as passive markers, etc. which occur in only a subset of matrix verb complexes.

²⁷ There are a number of morphemes in Jacaltec which have been glossed as “future”, but it is not clear that that they are properly grouped with the two standard tense/aspect morphemes. These morphemes are suffixes rather than prefixes, and often cooccur with the standard prefixes, suggesting they may actually be modal affixes. In some places, the “future” suffix *-oj* is also glossed as an irrealis marker, supporting this view.

than two separate operations. In fact, the literature on Jacaltec often uses the terms Case and agreement interchangeably when referring to verbal affixes. The view that a single process may be involved is reminiscent of Baker's PF Interpretation Principle.

(1) **The Principle of PF Interpretation:**

Every Case indexing relationship at S-Structure must be interpreted by the rules of PF (Baker 1988: 116).

Baker goes on to say that "PF interpretation includes (at least) the assignment of morphology conditioned by one member of the relationship to the other member", suggesting that Case is a form of agreement relationship. Lapointe (1985) also argues that Case and agreement can be treated as instances of a single phenomenon.

I suggest, then, that it might be possible to dispense with either ϕ -features or K-features, treating Case marking and agreement as manifestations of a single feature-checking operation. In other words, we may refer to the the union of the set of ϕ -features and the set of K-features as a single entity to which feature checking is sensitive.²⁸ I will continue to refer to this set simply as the set of ϕ -features. Therefore, in Jacaltec, we might recognise the following features alone:

(2) **Jacaltec Features:**

- a. ϕ -features: $\{\{1p, 2p, 3p\}, \{Sg, Pl\}, \{Abs, Erg\}, NC\}$
- b. T-features: $\{+PST, -PST\}$

4.1.2 *The Revised Feature-Checking Mechanism*

In a model where elements are inserted fully inflected, it is necessary that categories which participate in the feature-checking process carry a full complement of features. An NP which bears inflection for Case must possess a value for Case to ensure that it matches its Case "assigner" in value. In the previous chapter, however, I argued that such a model

²⁸ The Warlpiri examples cited earlier in this Chapter are problematic for this view, as Case and agreement follow different patterns. Warlpiri is ERG_{Case} and ACC_{Agr} . However, the view proposed here is only intended as an account of features in Jacaltec. The organisation of features may be a source of linguistic variation.

is inappropriate for polysynthetic languages. I will assume instead that all lexical items are instantiated into the syntax in an uninflected form.

In a system where no inflection is present at D-Structure, it is no longer necessary to assume that lexical elements are fully specified for all features which they require in the lexicon. The lexical representation of features in the Minimalist Framework and the framework which I will adopt are contrasted below:

(3) **The representation of features in Chomsky (1992)**

- a. V_T : *walk* [Acc, -Pst, 1p, Sg], *walk* [Acc, -Pst, 2p, Pl], ...
walks [Acc, -Pst, 3p, Sg]
walked [Acc, +Pst, 1p, Sg], *walked* [Acc, +Pst, 2p, Pl], ...
- b. V_I : *walk* [-Pst, 1p, Sg], *walk* [-Pst, 2p, Pl], ...
walks [-Pst, 3p, Sg]
walked [+Pst, 1p, Sg], *walked* [+Pst, 2p, Pl], ...
- c. N *cat* [Nom, 3p, Sg], *cat* [Acc, 3p, Sg], *cat's* [Gen, 3p, Sg]
cats [Nom, 3p, Pl], *cats* [Acc, 3p, Pl], *cats'* [Gen, 3p, Sg]
- d. NP *I* [Nom, 1p, Sg], *me* [Acc, 1p, Sg], *my* [Gen, 1p, Sg]

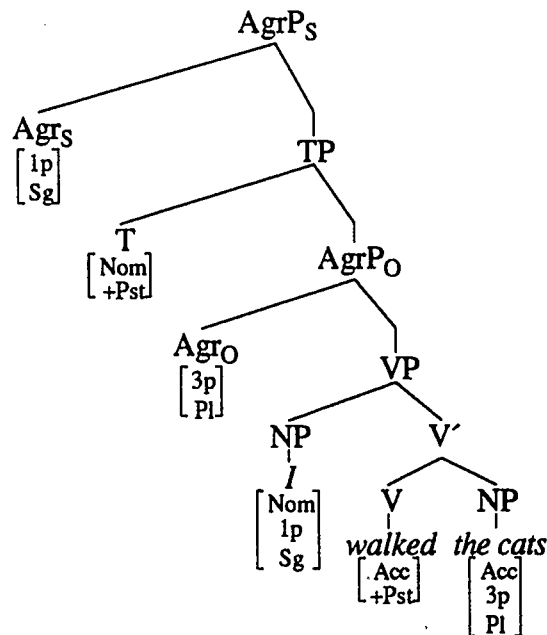
(4) **The representation of features in the proposed analysis**

- a. V_T : *walk* [Acc]
- b. V_I : *walk* []
- c. N *cat* [3p]
- d. NP *I* [Nom, 1p, Sg], *me* [Acc, 1p, Sg], *my* [Gen, 1p, Sg]
- e. T: T [Nom, +Pst] (-*ed*), T [Nom, -Pst] (- \emptyset)
- f. Aff: -s [+Pl], - \emptyset [-Pl]

In Chomsky's representation in (3), a separate lexical entry is required for each inflected form of a word.²⁹ The alternative which I present in (4) lists only uninflected and irregular forms, specifying only those features which are invariant across each paradigm. In order to account for inflection, I propose a revised checking-mechanism which combines features from different elements prior to checking, and leaves an affix as a reflex of the checking-process, itself.

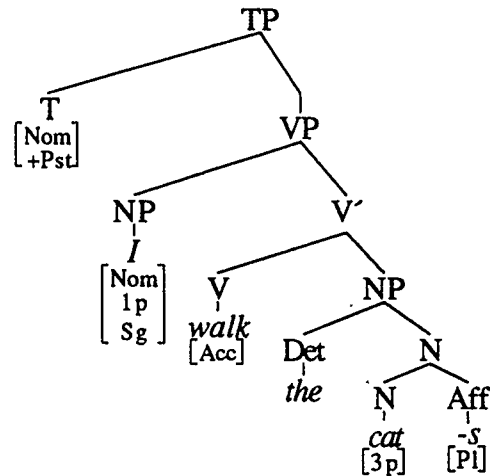
Consider, for example, the sentence *I walked the cats*. Chomsky would assign this example the structure in (5a), whereas I would offer (5b). AGREEMENT phrases are omitted in (5b) as no features are initially present on AGREEMENT heads. Specifiers of functional heads are omitted in both examples.

(5) a. Chomsky's (1992) Minimalist Model



²⁹ Chomsky (1992) does not explicitly provide examples such as those in (3). However, the principles which he outlines require that representations such as these be adopted. This does not preclude us from employing a set of lexical rules to generate these forms without explicitly storing them. However, the lexical component would be entirely outside of the domain of syntax.

b. An Alternative Model



In Chomsky's model in (5a), matching features are eliminated. The verb and the object raise into AgrP_O. The combined features of V and Agr_O are [+Pst, Acc, 3p, Pl]. The features on the object are [Acc, 3p, Pl]. With the exception of the tense feature +Pst, all features match and are eliminated. V then raises to T, where [+Pst] on T and [+Pst] on V cancel. Finally, both the verbal complex (which now bears the feature [Nom]) and the subject raise into AgrP_S. Both the verbal complex and the subject bear the features [Nom, 1p, Sg]. These features, therefore, cancel.

In the model which I present in (5b), a somewhat different mechanism is employed. At D-Structure, most elements are underspecified for features, and all forms are uninflected except for the pronoun *I*, which has exceptional morphology. The features on elements within NP percolate to the NP node and combine to form [3p, Pl]. Because the syntax of nominals is beyond the scope of this thesis, the exact mechanism involved here will not be considered, and all subsequent discussion will simply refer to features on NPs.

Again, V and the object raise into AccP (=AgrP_O, which is not shown). The feature on Acc+V, [Acc], combines with the features on NP, [3p, Pl] to form [Acc, 3p, Pl]. These features now constitute a complete set of ϕ -features. Features are checked when a complete set (as defined in (7) below) is formed, and appropriate reflexes are left (in this case, none). In this model, Acc serves no role save to mediate the feature-checking mechanism. This model will be revised in subsequent sections such that the agreement phrase is given a greater role.

Tense-features are present on T, and form a complete set at D-Structure. V raises to T to provide a suitable attachment site, at which point [+Pst] is eliminated, and the reflex *-ed* is left behind. Finally, the subject and verb complex raise into NomP (=AgrP_S, which is not shown). The feature on the verb complex is [Nom]. Features on the subject are [Nom, 3p, Sg]. The operation employed to combine features is that of set union, so the result is [Nom, 3p, Sg]. The fact that Case is specified twice creates no problems, as both values are identical. This set may be eliminated, leaving a null subject agreement reflex on the verbal complex.

The mechanism employed in the preceding example is made explicit below.

(6) **Revised Feature-Checking Mechanism:**

Given a functional head F which is specified for feature set ϕ , and a maximal projection G which is specified for feature set ψ , check ϕ and ψ iff

- i) $\phi \cup \psi$ is complete.
- ii) FP is the smallest X^{\max} containing G .

Part (ii) of (6) captures the notion of locality which the Minimalist Framework assumes. A definition of a *complete* feature set is given in (7).

(7) **Complete Feature Set**

Given a language L in which α -features are chosen from the set F , and a set of features S , S is a complete α -feature set iff

- i) $\forall x(x \in F) \exists y(y \in x) \mid y \in S$.
- ii) $\forall x(x \in F) \sim \exists y(y \in x) \exists z(z \in x) \mid x \in S \wedge y \in S \wedge z \neq y$

In other words, a feature set is complete only when it is specified for one and *only* one value for each meaningful type of feature which the set must contain. Note, however, that duplication is allowed in the two operands of the union operation. In the case of Jacaltec (using the feature inventory given in (2)), this means that a ϕ -feature set is complete if it contains one value for person, one value for number, one value for Case, and one value for gender (NC). A complete ϕ -feature set could be replaced by a phonetic reflex which would be dependent on the values of the checked features.

(8) Inflection Rule:

Given a functional head F specified for feature set ϕ , and a maximal projection G specified for feature set ψ , and given that F and G are checked against each other, a morphological operation involving F or G may be triggered whose output is determined by $\phi \cup \psi$.

Finally, to ensure that all features are checked, we need the following rule:

(9) Unchecked Feature Filter:

If derivation S contains unchecked ϕ - or T -features at PF, then $*S$.

This filter ensures that all features are satisfied if a derivation is to be successful.³⁰

The advantages of this system over the one provided by Chomsky are as follows: first, it allows us to account for inflectional affixation without duplicating syntactic processes in the morphology. This is particularly important for agglutinative languages, as argued in §3.4.3.

Secondly, Chomsky's model is forced to rely heavily on filtering. Because of the locality constraints imposed by the Minimalist Framework, it is impossible for elements in VP to be sensitive to elements in either AGREEMENT phrase at D-Structure. Nothing, therefore, rules out the instantiation of conflicting features at D-Structure. It would, however, be impossible for those features to be checked, resulting in a failed derivation. The mechanism described above avoids this difficulty as features are combined rather than constrained to match.

Finally, Amanda Pounder (p.c.) notes that it is unclear that the features which Chomsky's theory employs have no relevance at LF. While it is arguably the case that features such as grammatical gender play no role in semantic interpretation, this is not true of features such as tense and number. Under Chomsky's analysis, however, strong features can never participate in semantic interpretation, as they are eliminated prior to LF.

³⁰ (9) is not ideal, as it allows us to create D-structures which satisfy all well-formedness conditions on D-Structure for which there do not exist well-formed S-Structures. Ideally, the principles which motivate movement should not be expressed as filters for this reason. However, I will adopt this rule pending a better solution. The model of lexical representation in Jacaltec which I develop in the following section, however, will ensure that the majority of well-formed D-Structures map to well-formed S-Structures.

Within the model presented above, however, feature-checking essentially involves marking sets of features as being fully specified. It is not necessary to assume that these features cease to be available.

4.1.3 *The Lexical Representation of Features*

Before offering concrete examples of how these mechanisms might be applied to Jacaltec, one further issue need to be addressed: how are various features instantiated in the lexicon? I will first consider which elements possess ϕ -features which are specified for Case values.

In simple sentences with no oblique arguments, there are typically two Cases available. In intransitives, there is only one. Because transitivity is a lexical property of the verb, it is fairly clear that transitive verbs must possess a Case specification which intransitive verbs lack. However, it is necessary to establish which value that Case will have. The obvious assumption would be that transitive verbs carry an ergative Case. A problem arises, however, in that the ergative Case also appears to be available to aspectless intransitive verbs.

Setting this issue aside, the location of the absolutive Case is also problematic. As mentioned earlier, Chomsky (1992) assumes that the Case not carried by the verb is carried by TENSE. This is problematic in Jacaltec, however, if we want to perform Case-checking within an AGREEMENT phrase (AbsP or ErgP) because the projection of TENSE dominates the agreement phrases in Jacaltec. We might, therefore, assume that one (or both) of the AGREEMENT phrases in Jacaltec are not merely loci for checking, but actually have Case values instantiated onto them. In order to achieve the appropriate Case-marking and agreement pattern, I consider the four possibilities shown in (10).

- (10) a. V_T is [+Erg], Abs is [+Abs]
 b. V_T is [+Abs], Erg is [+Erg]
 c. Abs is [+Abs], Erg is [+Erg]
 d. V_T is [+Abs, +Erg]

(10a) is ruled out because ergative Case is available to intransitives when tense-features are absent. (10b) is even more implausible, as absolutive Case is normally used in intransitive constructions. This leaves us with (10c) and (10d). I will not adopt (10c)

because we would then be forced to accept some sort of nonlocal relationship between V, TENSE and *both* AGREEMENT elements to determine whether Abs or Erg is active in an intransitive clause. In the case of (10d), all Cases are represented on the verb, which alleviates some of these difficulties, though we must still determine how V interacts with TENSE.

I will adopt the view that both Cases are represented on the verb, and I outline below how the difficulties raised by Jacaltec's tense/aspect split may be alleviated. We must also consider how Case is instantiated onto intransitive verbs. Here, two logical possibilities exist.

- (11) a. V_I is [+Abs]
- b. V_I is [+Erg]

As absolutive Case is the Case which is normally found in intransitive structures, the option in (11a) seems more probable. However, we must also account for the accusative subset of Jacaltec, where ergative Case occurs in intransitives. I will show that this problem can be overcome if we revise our set of Case values. Rather than selecting from {Abs, Erg}, Case values will be assumed to be either [K] or absent. The presence of [K] simply denotes the ability to contribute a Case. However, because V is not a functional category, features of V cannot be matched against the features of an NP. Instead, the verb must transmit this ability to an appropriate functional head, either Erg or Abs. The verb, therefore, contributes Case-checking *ability* to the AGREEMENT head, but Abs and Erg also contribute something of their own, which determines the phonetic form of the reflex left behind. This is captured below.

(12) **Revised Inflection Rule:**

Given a functional head F specified for feature set ϕ , and a maximal projection G specified for feature set ψ , such that F and G are checked against each other,

A) a morphological operation may occur on F whose output is determine by

i) $\phi \cup \psi$.

ii) some function f_1 over the category status of F and G .

B) a morphological operation may occur on G whose output is determine by

i) $\phi \cup \psi$.

ii) some function f_2 over the category status of F and G .

Abs and Erg, therefore, are not required to contribute a feature to the feature-checking procedure (and therefore their role is not subject to the Unchecked Feature Filter). However, features checked in AbsP may trigger morphology which differs from the morphology which would have been produced had the same features been checked in ErgP.

This modification to my earlier rule in (8) accomplishes two things. First, it overcomes the possible objection that AGREEMENT phrases serves no real function in the model presented above other than to provide a locus for checking. Secondly, it allows us to account for the accusative subset provided that we can motivate checking in ErgP in aspectless intransitives, and in AbsP in other intransitives without representing Case differently in the two grammatical subsets.

Until now, I have largely ignored T -features. I have assumed that the functional category TENSE is specified for tense/aspect. If the features on T , however, are the only type of T -feature, then a complete set would be formed at D-Structure, and the features could be checked freely. This would lead to a highly unconstrained grammar. Travis (1991), however, argues for the existence of the grammatical category “inner aspect” or “inner tense”. If such features are instantiated onto V , then features on V would be available to check the features on T .³¹

³¹ Travis assumes that inner aspect (Asp2) is a functional category within the projection of V . However, Asp2 and V are required to merge via X^0 -movement, in which case its features would be instantiated onto the verbal complex. I will put aside the issue of VP internal structure and adopt the position that these features are present on (tensed) verbs.

The exact nature of inner tense is not considered in detail by Travis. However, Tenny (1992) and Van Valin (1990) both offer some thoughts on this matter. Their research suggests that notions traditionally referred to as “aspect” are more closely associated with V than are temporal notions. This suggests that the confusion over the status of the morphemes *x-* and *ch-* in Jacaltec, which have been analysed as both tense morphemes (Day 1973) and aspect morphemes (Craig 1977) may result from the fact that these morphemes are actually triggered by the union of tense features on T with aspectual features on V. Similar situations arise in unrelated languages such as Latin, where the semantically distinct categories “tense” (related to the beginning of an action) and “aspect” (related to the delimitation of an action) are represented by port-manteau morphemes.

Because this is not a study of the semantics of the Jacaltec tense/aspect system, I will not commit myself to a particular view on the available aspectual categories in Jacaltec. I will assume that tense values are chosen from $\{\pm\text{Pst}\}$. For aspectual features, I will use the same values marked with prime symbols. However, it should be understood that a more thorough investigation of Jacaltec is required to determine the actual meanings of these values. A complete inventory of features in Jacaltec would therefore consist of the following:

- (13) a. ϕ -features
 - i) NP selects from $\{1p, 2p, 3p\}$, $\{\text{Sg}, \text{Pl}\}$, and NC.
 - ii) V selects from $\{K\}$
- b. *T*-features
 - i) T selects from $\{+\text{Pst}, -\text{Pst}\}$
 - ii) V selects from $\{+\text{Pst}', -\text{Pst}'\}$

A complete set of ϕ -features requires a value for person, number, and gender. A complete set of *T*-features requires a value for (outer) *tense* and a value for *aspect* (inner tense). The values given above for aspect are tentative. This, however, is not significant in that the analysis below requires only that tensed verbs be specified for aspect, without making reference to specific values for that feature.

This leaves us in a situation where T is specified as possessing *T*-features and NPs are specified as possessing ϕ -features. Vs, however, are specified for both ϕ -features and *T*-features. I now consider the possibility that these features are ordered with respect to one

another. Four main cases arise here: we must be concerned with transitive vs. intransitive verbs, and tensed vs. aspectless verbs. I show that if we assume the ordering of features in (14), it becomes possible to explain the tense/aspect split found in Jacaltec's agreement system.

(14)	V_T	V_I
+Asp	$[[[K_1] T] K_2]$	$[[K_1] T]$
-Asp	$[[K_1] K_2]$	$[K_1]$

In all cases, the outermost (rightmost) feature must be checked before any other features are available to the checking operation. All verbs possess a single ϕ -feature, K_1 (subscripts here are not theoretically significant), and therefore may check a single argument for Case. Transitive verbs have an additional Case to assign, K_2 . Intervening between these two Cases is inner tense.

Because inner tense occurs outside of K_1 , it is necessary to check T -features before default Case is checked. However, in aspectless embedded clauses, inner tense is not present, and it is therefore possible to check K_1 at any time when the appropriate configuration arises. The result of this is that intransitive constructions will check Case in AbsP whenever T -features are present. When T -features are absent, on the other hand, Case will be checked in ErgP, a result which conforms with the behaviour of the language.³²

That this order will produce the desired behaviour in both the ergative and accusative subset is best illustrated by example. A number of complete derivations are discussed in the following section which both demonstrate this and also clarify how the principles developed in this Chapter interact with one another in Jacaltec in both transitive and intransitive clauses.

³² The ordering of features which I assume here is not totally arbitrary. Travis (1991) proposes a model of the phrase structure in which VP is dominated by the projection of INNER ASPECT (Abs2P). In transitive constructions Abs2P is dominated by a second VP headed by an element whose meaning corresponds roughly to *cause*. If we assume that each verb is associated with a single Case, and that the inner verb raises to Asp2, which in turn raises to the upper verb, the same order of features is obtained.

4.2 Applications of the Theory

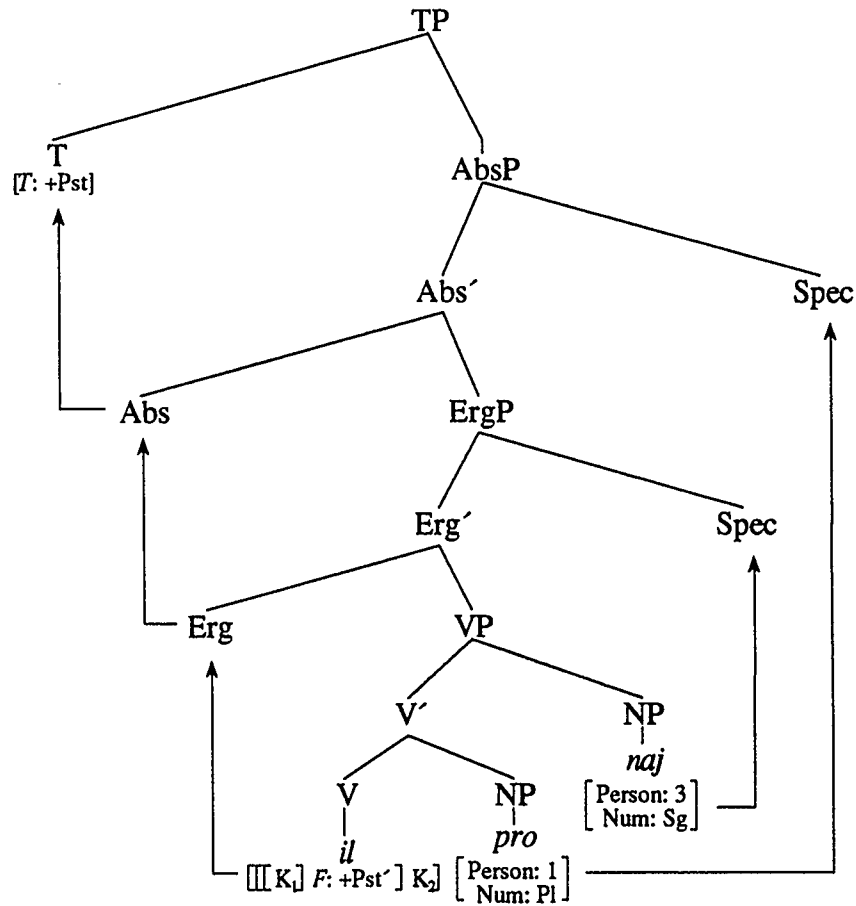
In this section I provide a number of complete derivations which clarify the nature of the principles which are described above. §4.2.1 goes through the derivation of a simple transitive clause, §4.2.2 goes through the derivation of a simple intransitive clause, and §4.2.3 goes through the derivation of an aspectless embedded intransitive clause. The derivation of a transitive embedded clause is not provided as it is sufficiently similar to that of a tensed transitive clause.

4.2.1 Tensed Transitive Clauses

Example (17) illustrates the above principles through the derivation of a simple transitive Jacalteco sentence.

- (17) a. x-hoñ-y-il naj *pro*
 Pst-A1p-E3-see he us
 "He saw us."

b.



(17b) is the D-Structure of the sentence in (17a). The fact that the D-Structure contains unchecked features provides the primary motivation for all movement in this structure. No feature checking may take place within VP, as feature checking always involves a functional category according to the mechanism proposed in (6). The structure first attempts to satisfy the features of its agent, which moves to the specifier of ErgP. V moves to Erg and carries its features with it. Its features are then available to the functional head Erg, which checks its features against the features of the agent. The morphological reflex of this checking operation is sensitive to the values [3p], [Sg], and the category Erg, resulting in the affix *y-*, which is prefixed to the Erg+V complex. The features remaining on Erg are [[[K₁] T].

Because the specifier of ErgP is occupied, the patient is required to move to the specifier of AbsP. Erg then raises to Abs. However, it cannot check its features against

the patient because *T*-features and ϕ -features are incompatible. A mechanism must be found to eliminate the intervening tense/aspect features before checking takes place. We cannot, however, raise the Abs+Erg+V complex to *T*, as feature checking always involves a head and a maximal projection. Adjoining Abs+Erg+V to *T* would result in a relationship between two heads.

It should be noted that Chomsky's assumption that checking always involves a head and its specifier is motivated by the desire to keep relations as local as possible. Strictly speaking, nothing rules out relations between a head and its complement.³³ Lieber (1992) assumes that features carried by a head may percolate to its maximal projection. The maximal projection of Abs, which carries the verbs *T*-features following percolation, is the complement of *T*, and thus in a local relationship where checking can take place.

I suggest that this percolation indeed takes place, and the *T*-features on Abs and *T* are checked, resulting in the past-tense form *x-*, which "attaches" to the phonetically null head *T*. This means that the ϕ -features on Abs are now available to check the features of the patient, resulting in the 1p/Pl absolutive prefix, *hoñ-*, which attaches to Abs. The verbal complex Abs+Erg+V must then raise to *T* to provide an attachment site for the stranded past tense affix to avoid violating the Stray Affix Filter.

Following this movement, all morphemes are properly attached and no features remain unchecked, resulting in a viable PF form. SPELLOUT can then take place, at which time phonological adjustments to morpheme boundaries are made resulting in a grammatical sentence of Jacalteco.

The percolation of features from Abs to AbsP seems somewhat unusual at first. However, this mechanism may actually prove to be the norm rather than a "loophole" for this one instance. Most of the other instances of checking which I have discussed have involved an AGREEMENT head and an NP. As I discussed in §4.1.2, however, the features on NPs are actually derived from elements inside NP. In Jacalteco, N is most likely specified for person and gender. The number specification, however, would be derived

³³ Chomsky's (1992) position is that the only grammatically relevant relationships are those which hold between a head and either its specifier or complement. Because movement to a complement is ruled out by the Projection Principle, the former is more common. Therefore, he does not make use of the latter.

from a affix³⁴ or other element within NP. All of these features percolate to the NP node to allow them to be checked against a functional head.

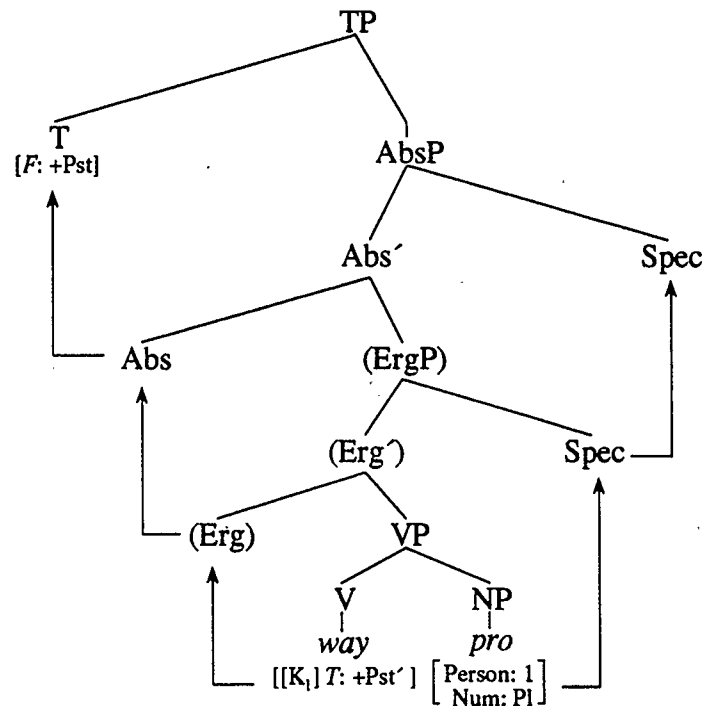
4.2.2 *Tensed Intransitive Clauses*

In the case of intransitive matrix clauses, the subject cannot check its features in ErgP, as the percolation of aspectual features from Erg to ErgP would not allow them to be checked against T because ErgP is not in a local relationship with T. The argument and verb must further raise to AbsP, where all features may be checked. This is illustrated below.

- (18) a. x(c)-oñ-way *pro*
 Pst-A1p-sleep we
 ‘‘We slept.’’

³⁴ In example (5b), I treat the plural element as an affix which occupies its own position in the syntax. The model presented above might eventually be extended to deal with morphological processes within NPs, in which case this affix would have to be replaced with an abstract functional head which triggers grammatical number marking.

b.



In (18), the argument and the verb both raise to ErgP, but no features can be checked as the verb's *T*-features prevent the verb's *K*-feature from combining with person and number features on NP to form a complete set of ϕ -features. The argument and Erg+V then raise to AbsP, where the features can be checked. Here, *T*-features on Abs can percolate to AbsP where they are checked against T generating the morphological reflex *x-*. ϕ -features on Abs and NP can then combine, producing the first person absolutive marker *oñ-*. At this point all features have been satisfied. The verb must then raise to T to provide an attachment site for the tense morpheme, after which the derivation is complete.

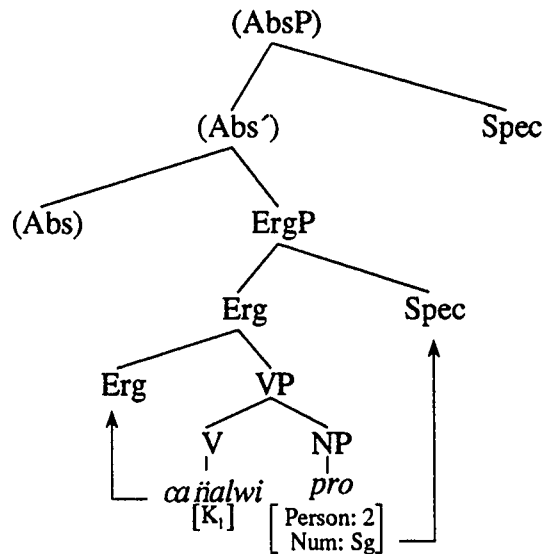
4.2.3 Intransitive Aspectless Embedded Clauses

In the case of aspectless embedded clauses, no *T*-features are present on the verb. Transitive clauses are derived in much the same way as presented in §2.5.2.1, except that checking between T and AbsP is unnecessary. However, in the case of intransitive aspectless clauses, the absence of *T*-features on V allows checking of the NP argument's ϕ -features to occur in ErgP, the functional projection immediately dominating VP. Movement to the higher agreement phrase in the case of tensed clauses was motivated

solely to check *T*-features. Once this need is removed, movement to the lower functional projection is more economical.

- (19) a. x-Ø-w-il [ha-cañialwi *pro*]
 Pst-A3-E1-see [E2-dance you]
 "I saw you dance."

b.



The structure in (19b) illustrates the embedded clause from (19a) only. I will assume that verbs which take aspectless embedded clausal complements select AbsPs, not TPs. In the absence of TP, the verb cannot carry *T*-features as there would be no way of checking those features as only V and T carry *T*-features. Because of this, once V and the argument have moved into ErgP, the features of the argument may be checked, resulting in the ergative agreement marker *ha-*. The verb has no need to raise any further as all affixes are attached and no features remain unchecked.

The phrase structure which I have assumed in the preceding analyses is based largely on the order of verbal affixes in Jacaltec. In the following sections, further evidence will be offered for this phrase structure. I will attempt to show that the D-Structure and S-Structures which I have been assuming are essentially correct, and that the patient of a transitive clause occupies a more prominent position in the tree than the agent at

S-Structure. First, however, I briefly summarise the main points of divergence between my theory and that of Chomsky (1992).

4.3 Summary of the Theory

This system of feature checking which we have outlined provides a consistent description of the agreement patterns found in both transitive and an intransitive clauses in Jacaltec, with and without aspect marking. This system allows affixation to be treated as an integral part of the syntax, rather than positing separate (and redundant) syntactic and morphological accounts of the verbal complex in Jacaltec.

Another advantage of this system over systems in which inflection is inserted at D-Structure is the fact that it relies less on filtering out ungrammatical structures. In a system where features are constrained to match, but where feature-checking only occurs in very local areas, a large number of derivations will crash because features cannot be checked at any point in the derivation. These structures, however, will have valid D-Structures. One cannot determine whether a valid D-Structure will produce valid structures at other levels of explanation without attempting the derivation. This is also true of the model outlined above with respect to the requirement that V can only bear aspectual features where T is present. In most other respects, however, the derivation will force features to match correctly since features are essentially shared.

In summary, I have adopted a model which is similar to Chomsky's (1992) model. However, the following modifications are made:

- (i) Morphological operations are not viewed as occurring entirely before the syntax. Instead, the morphological and syntactic components of the grammar interact at various levels.
- (ii) Case and agreement, which are treated as distinct features in Chomsky's model, are unified into a single type of feature, ϕ -features.
- (iii) Feature-checking is no longer sensitive to features which match. Instead, underspecified feature-sets are instantiated onto lexical elements. Feature-checking involves combining partial sets of features to form a completely specified, internally consistent feature set.
- (iv) The Case component of ϕ -features is not seen as having a particular value. Instead, the Case with which an element is marked is dependent upon the

functional head which mediates feature-checking. This is the only contribution which functional categories make directly.

- (v) Feature-checking always involves a local relationship between a functional category and a maximal projection, but it is no longer restricted to specifier-head relationships.
- (vi) Features on categories which are specified for multiple different types of features will be ordered with respect to one another. Only the outermost feature is visible to the checking operation.

A significant difference between Chomsky's phrase structure and the phrase structure which I offer for Jacaltepec is my claim that the **A** position (the transitive subject) is actually inferior to the single position occupied by **S** or **P** (intransitive subjects or transitive objects). I also suggest that the projection of **TENSE** is the highest projection in the tree (other than **COMP**), but this is less controversial in that it has been argued that the position of **T** is subject to cross-linguistic parameterisation (e.g. Laka 1990). My concluding chapter will investigate the broader ramifications of this analysis upon our notions of subjecthood, objecthood, and linguistic universals.

4.4 Additional Evidence for Absolutive Superiority

In the previous sections I present an analysis of Jacaltepec which differs from analyses of accusative languages in that the object of a transitive verb is structurally superior to its subject prior to **SPELLOUT**. My analysis also suggests that transitive subjects and intransitive subjects form a disjoint class not only in terms of Case marking and agreement, but that they also occupy different positions at **S-Structure**. In this chapter, I provide evidence for the superiority of the object in transitive clauses. I also attempt to show that intransitive subjects and transitive objects participate in a number of processes which exclude transitive subjects, thereby providing evidence that we must distinguish between two classes of subjects, **A** and **S**, with respect to syntactic as well as purely morphological phenomena.

If this is the case, one must question whether the grammatical relationships "subject" and "object" are actually universal, or whether these terms are essentially applicable only in accusative languages. I suggest that in the context of phenomena which follow an ergative pattern, these terms are not structurally universal if they are to retain the same thematic

connotations which exist in accusative languages. Instead, one should refer to ergative and absolutive positions. However, both sets of relations are meaningful insofar as few languages, if any, follow purely ergative or purely accusative patterns. The choice of terminology should reflect the phenomenon under consideration. Alternately, one could restrict their descriptions to the neutral terms A, P, and S.

In §4.4.1, I investigate the process of relativisation in Jacaltec, and show that this process is sensitive to the {S, P}/{A} distinction rather than the {S, A}/{P} distinction. Thus, relativisation is best described as an ergative phenomenon, supporting my claim that ergativity in Jacaltec's agreement system reflects ergativity in its syntax.

In §4.4.2, I discuss a number of other extraction phenomena which follow the same pattern as relative clause formation.

Finally, in §4.4.3, I discuss some binding evidence first noted by Woolford (1991). Woolford argues that pronoun-binding in Jacaltec suggests a nonconfigurational ("flat") structure. I argue, however, that her data is also consistent with a model in which absolutive arguments are superior to ergative arguments.

4.4.1 *Evidence from Relativisation*

In §2.2.2, I discuss the process of relativisation in Dyirbal to illustrate the phenomenon of syntactic ergativity. In Dyirbal, only absolutive arguments may relativise. Ergative arguments cannot. A similar pattern is found in Jacaltec, suggesting that it is desirable to analyse all absolutive arguments as occupying a position distinct from ergative arguments, which is consistent with my earlier analysis of Jacaltec phrase structure. Consider the following examples:

- (20) a. ch'en ome [xinliko]
 Det earrings (that) [A3-E1-bought]
 "...the earrings that I bought..."
- b. xwil naj [xto ewi]
 Pst-A3-E1-see Det (man) [A3-go yesterday]
 "I saw (the man) who went yesterday"

- c. *metx x'i' [xintx'a ni'an unin]
 Det dog [A3-E3-bite little child]

“the dog that bit the little child” (Campana 1992:91 citing Craig 1977)

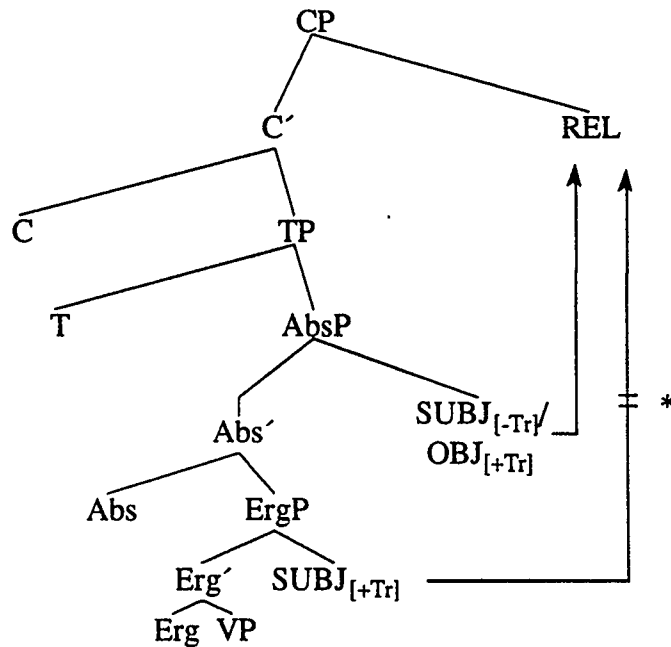
In (20a) and (20b), a transitive object and an intransitive subject are relativised, respectively. Both produce grammatical results. However, transitive subjects cannot be relativised as illustrated in (20c).

Based on these examples, it is apparent that the distinction between absolutive and ergative arguments is syntactically relevant in Jacaltec, at least with respect to relativisation. If we assume that syntactic processes are sensitive to structural relations alone, then this would suggest that the “subject” relationship cannot be defined in structural terms for Jacaltec. Moreover, it suggests that intransitive subjects and transitive objects share at least some structural properties, which is in keeping with my analysis.

In GB theory, relativisation is viewed as a movement process in which the relativised element is raised to the specifier of CP. Keenan and Comrie (1977) argue that NPs in certain structural positions are more easily extracted than others cross-linguistically. NPs in subject position are, according to them, the most easily extracted elements in any language. The fact, then, that ergative subjects in Jacaltec cannot be relativised suggests that they are not true subjects, despite the fact that A-arguments are usually referred to as “transitive subjects”.

Because relativisation is a movement process, it is logical to assume that (20c) is ruled out by Bounding theory. Because (20a) and (20b) are both grammatical, whereas (20c) is not, it is also logical to assume that the movement involved in (1c) is longer (in terms of XPs crossed) than the movement involved in (20a) or (20b).

(21)



I assume here that subjects and objects must raise out of VP to the specifier of an agreement phrase in order to have their Case features checked *before* relativisation takes place. Therefore, only the second movement is considered in (21), that is, movement from the specifier of an agreement phrase to the specifier of COMP.³⁵ As seen in the diagram above, the ergative NP must cross ErgP and AbsP (and possibly TP) in a single step, since the specifier of AbsP is already occupied. The absolutive NP, on the other hand, must only cross AbsP (and possibly TP).

This does not refute Keenan and Comrie's claim that their "accessibility hierarchy" is universal if by *subject* we assume that they are referring to the argument occupying the specifier of the higher agreement phrase (AbsP in the case of Jacaltec). In this case, Jacaltec conforms to their generalisation very well. However, thematic properties associated with "subjecthood" and "objecthood" suddenly become very different in accusative languages such as English, and Jacaltec. We are then left in a position where we can either retain universal definitions of subjecthood and objecthood in terms of structural

³⁵ The specifier of TP may or may not be available as a landing site for A' movement. However, this does not affect the analysis presented here, as this position would be available for both absolutive and ergative relativisation.

relations while abandoning any thematic notions, or retain thematic definitions of these concepts, while abandoning the view that these terms may be defined structurally across languages.

There are some apparent counterexamples to the claim that A-arguments do not relativise in Jacaltec. Consider the following examples.

- (22) a. x-Ø-s-watx'e naj hun-ti'
 Pst-A3-E3-make he one-this
 "He made this."
- b. x-Ø-w-il *pro* naj x-Ø-watx'e-n hun-ti'
 Pst-A3-E1-see I he Pst-A3-make-Suff one-this
 "I saw the man who made this." (Craig 1977: 196).

(22a) shows a typical transitive clause. In (22b) the same clause appears as an embedded structure in which the agent has been relativised. Where two arguments are present, the UTAH dictates that the agent should be viewed as the A-argument, or "subject". Thus, one might infer from this example that transitive subjects can in fact be relativised.

However, there are a number of reasons for doubting that the relativised element in the above example is actually extracted from the specifier of ErgP. Compare (22) with (23) and (24) below.

- (23) a. x-Ø-to naj ewi
 Pst-A3-go he yesterday
 "He went yesterday."
- b. x-Ø-w-il *pro* naj x-Ø-to ewi.
 Pst-A3-E1-see I him Pst-A3-go yesterday
 "I saw the man who went yesterday." (Craig 1977: 196f).

- (24) a. x-Ø-ha-watx'e *pro* te' tx'at
 Pst-A3-E2-make you the bed
 "You made the bed."
- b. x-Ø-w-il *pro* te' tx'at x-Ø-ha-watx'e *pro*
 Pst-A3-E1-see I the bed Pst-A3-E2-make you.
 "I saw the bed that you made." (Craig 1977: 196f)²

(23) illustrates the relativisation of an S-argument. (24) illustrates the relativisation of a P-argument. In neither case are overt complementisers or relative pronouns found. The relativisation process consists entirely of deleting the relativised element from the relative clause (this is only apparent where third person arguments are concerned, as other arguments are normally suppressed, anyway). In all other respects the relative clause is identical to its matrix counterpart.

This is not, however, the case where (22) is concerned. Two additional differences can be noted. First, the ergative agreement marker *s-* is missing in the relative clause. This, in and of itself is suggestive that we are not dealing with a true transitive clause. The second difference is the appearance of the suffix *-n(i)* on the verbal element in the relative clause, an affix which is not found when S- or P-arguments are relativised.

Keenan (1985) makes a distinction between "basic" and "derived" sentences, arguing that the presence of verbal morphology which is not found on all verbs is a sign that a derived sentence is under consideration. In the above example, I suggest that *-n(i)* is functioning as an antipassive affix.

Antipassivisation, which was discussed in Chapter One, is a process which demotes the patient of an intransitive clause to the status of an adjunct. If the patient in (22), *hun-ti'*, is in fact an adjunct, then the agent in (22) is actually a S-argument rather than an A-argument. This would explain the absence of ergative marking in (22), and is consistent with the claim that A-arguments do not relativise.

4.4.2 Other Extraction Processes

A number of other phenomena in Jacaltec operate in much the same way as relativisation. S- and P-arguments are easily extracted, but A-arguments are inaccessible

unless antipassivisation has first applied. Consider, for example, *wh*-movement, illustrated below.

- (25) a. *mac* *x-Ø-ul* *ewi*
 who *Pst-A3-come* *yesterday*
 “Who came yesterday?”
- b. *mac* *x-Ø-haw-il-a* *pro*
 who *Pst-A3-E2-see-Aug* *you*
 “Whom did you see?”
- c. **mac* *xc-ach-s-mak* *pro*
 who *Pst-A2-E3-hit* *you*
 “who hit you?”
- d. *mac* *xc-ach-mak-ni*
 who *Pst-A2-hit-Apas*
 “Who hit you” (Craig 1977: 14)

(25a) and (25b) illustrate *wh*-movement of **S**- and **P**- arguments respectively. As can be seen in these example, *wh*-movement is overt in Jacaltec. The *wh*-word *mac* ‘who’ occurs sentence initially rather than post-verbally, and the third person classifier *naj* does not appear. However, the *wh*-word agrees with the verb as any argument would. No special morphology surfaces on the verb.

This pattern is not observed, however, in the case of **A**-arguments. In (25d), a transitive subject is questioned. No ergative agreement is found on the verb, and the antipassive marker *-ni* surfaces. Again, this suggests that transitive subjects are less accessible than absolutive arguments, suggesting that the ergative argument is actually lower on the tree. Similar patterns are observed with other *wh*-expressions, such as *tzet* ‘what’.

Cleft sentences also follow this pattern. Intransitive subjects may be clefted without morphological changes on the verb. Transitive subjects, however, trigger the *-ni* marker, which I have analysed as an antipassive marker.

- (26) a. x-Ø-s-lok naj Pel no' cheh c'ej'iĩ
 Pst-A3-E3-buy Det Peter Det horse black
 "Peter bought the black horse."
- b. no' cheh c'ej'iĩ x-Ø-s-lok naj Pel
 Det horse black Pst-A3-E3-buy Det Peter
 "It is the black horse that Peter bought."
- c. naj Pel x-Ø-lok-ni no' cheh c'ej'iĩ
 Det Peter Pst-A3-buy-Asas Det horse black
 "It is Peter who bought the black horse."

Again, we note that the verb in (26c), where a transitive subject has been clefted, appears to be in the antipassive form. In (26b), on the other hand, where the object has been clefted, no special markers show up.

These facts reinforce the relativisation evidence presented in (20). All of these movement processes suggest that the object is structurally superior to the subject, supporting the phrase structure which I developed in Chapter Three based on the order of verbal affixes.

One would expect, if the phrase structure which I have employed is correct, that ergative subjects of aspectless embedded intransitives would be equally inaccessible to extraction processes. In fact, none of the processes mentioned above apply to aspectless embedded clauses. Even absolutive arguments must remain *in situ*.

Note, however, that I suggested in §4.2.3 that aspectless embedded clauses are actually AbsPs rather than full clauses. In this case, no COMPLEMENTISER projection exists. Because all of these processes involve movement to CP³⁶, it is not surprising that they do not apply to relative clauses.

This is supported by the fact that aspectless embedded clauses cannot be negated.

³⁶ Clefting may actually be an adjunction process. However the word order in clefted sentences indicates the the landing site is, minimally, outside of TP.

- (27) a. xal naj [chubil mach x-Ø-to naj]
 said he [that not Pst-A3-go he]
 “He said that he did not go.”
- b. *xtac hin c’ul [mat ha-toyi pro]
 burn my stomach [not E2-go you]
 “I am sad that you are not going.”
- c. xtac hin c’ul [ta mach xc-hach-toyi pro]
 burn my stomach [if not Pst-A2-go you]
 “I am sad that you are not going.”

(27a) illustrates the negation of a finite embedded clause. The complementiser *chubil* is followed by the negative element *mat* or *mach*, which is followed by the aspect marker. This order suggests that NegP dominates AbsP if Jacaltec is consistently head-initial.

In (27b), an aspectless embedded clause is negated, and the resulting string is ungrammatical. (27c) expresses the same phrase with a complementiser and tense marker, and the result is fine. In Jacaltec, only tensed clauses may be preceded by a complementiser.

4.4.3 Evidence from Binding

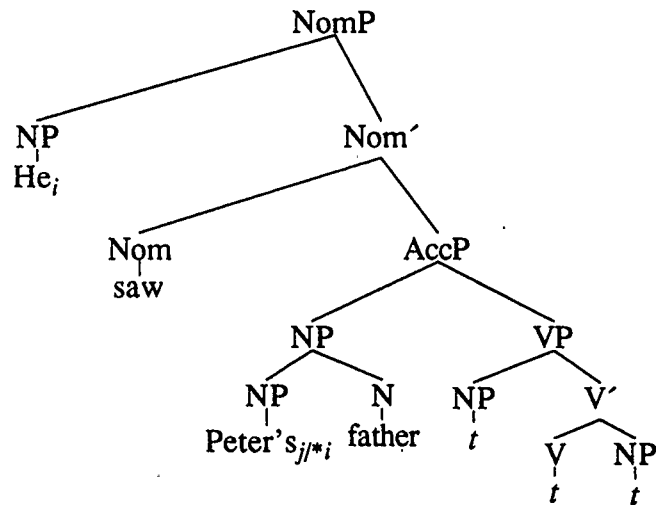
Woolford (1991) argues for a nonconfigurational analysis of Jacaltec, in which the V'-node is absent. She provides evidence from binding theory to suggest that that transitive objects C-command their subjects in Jacaltec. This result would not be predicted in languages in which the subject is superior to the object, but it is consistent with the analysis which I have offered. I will not, however, go so far as to adopt a nonconfigurational analysis, as I assume binary-branching to be a universal property of human language.

Consider the following sentences of English:

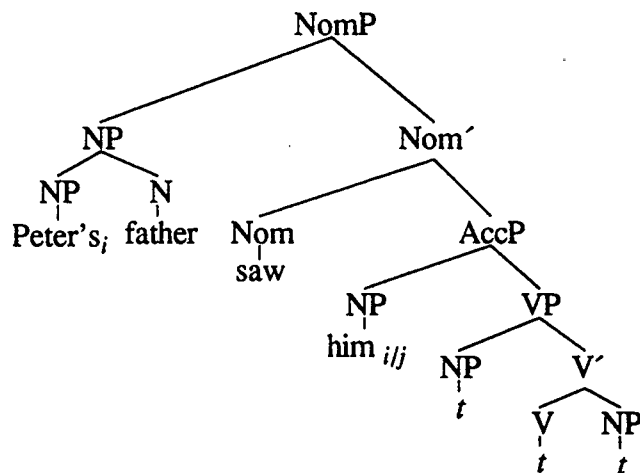
- (27) a. He_i saw Peter's_j*_i father.
 b. Peter's_i father saw him_{j/i}

In (27a), coreference between the pronoun *he* and the R-expression *Peter* is ruled out by Binding theory as a principle C violation, since *Peter* is not free. In (27b), on the other hand, coreference is acceptable since *Peter* does not m-command *him*. The relevant structural relations are illustrated in (28) (some details omitted).

(28) a.



b.



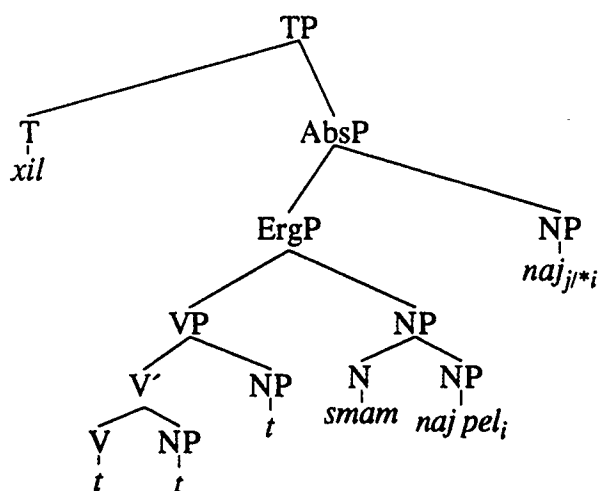
In (28a), *Peter* is structurally inferior to the pronoun *he*, and is thus bound by the pronoun, blocking coreference. In (28b), on the other hand, *Peter* is structurally superior to the pronoun, and remains free. Coreference is thus permitted. Woolford, however,

demonstrates (drawing on data from Craig 1977) that coreference is not permitted in Jacaltec sentences analogous to (28b).

- (29) a. xil [s-mam naj pel_i] naj_{j/*i}
 saw [E3-father the Peter] him
 'Peter's_i father saw him_{j/*i}
- b. xil [s-mam naj pel_i] Ø_{j/*i}
 'Peter's_i father saw it/*him_i (Woolford 1991)

There may exist independent reasons in Jacaltec which prevent overt pronouns from being coreferential with another NP, so (29) is given with both the overt and null form of the pronoun. In neither case, however, can the pronoun refer to *Peter*. Within the framework which I have developed, the example in (29a) has the structure below.

(30)



This structure predicts the ungrammaticality of (29) with coreference in terms of binding theory. Because the ergative NP *s-mam naj Pel* is inferior in the tree, *Pel* is bound by the pronoun *naj*, producing a Principle C violation. If, on the other hand, the ergative argument were superior as Chomsky's (1992) analysis predicts, then we would expect the same binding relationships to hold for Jacaltec that hold for English.

4.5 Conclusion

In the preceding two chapters, I have provided an account of ergativity in the Jacaltec agreement system using a revised version of the Minimalist Theory. However, differences between ergative systems across the other languages which I have discussed suggest that this account should not be construed as universal.

I have also shown that it is possible to account for Jacaltec agreement without relying on movement at LF if one treats affixation as an integral part of the feature-checking mechanism, rather than a morphological phenomenon which occurs entirely before D-Structure.

The structure which I have adopted for this analysis departs from standard GB analyses in that it treats the absolutive argument as the structurally highest argument in the tree. We have seen, however, that such a view is empirically supported in Jacaltec. The movement patterns illustrated in §4.4.1 and §4.4.2 both suggest object superiority in that it is the object which is more accessible to extraction rather than the subject, contrary to Keenan and Comrie's (1977) hierarchy of accessibility. The binding facts which Woolford (1991) discusses are also consistent with this view.

Unlike Marantz' (1984) theory of thematic ergativity, the structure adopted herein does not violate the UTAH, as θ -roles are discharged within VP to the same structural positions as they are in accusative languages. The superiority of the object, then, is a surface phenomenon in my analysis. In Chapter Five, I will discuss the ramifications which this model has upon our notions of subjecthood and objecthood.

Chapter Five

CONCLUSION

5.0 Introduction

In this thesis I have demonstrated that it is possible to account for Jacaltec's agreement system within a Minimalist model, but that many details of Chomsky's (1992) framework must be revised in order to accurately describe ergative phenomena.

To correctly account for the morphological structure of the Jacaltec verb complex it is necessary to revise our model of phrase structure. That the ergative agreement marker occurs inside the absolutive marker reflects the surface superiority of the absolutive argument in Jacaltec. This superiority is manifested in other aspects of the grammar as well, as illustrated in the previous chapter. Thus, I adopt a new model of phrase structure for Jacaltec which incorporates these hierarchical relationships.

To accommodate Jacaltec's polysynthetic morphology, it is also necessary to incorporate major modifications into the feature-checking mechanism which Chomsky proposes. It is not reasonable to assume that lexical elements are inserted into D-Structure in an inflected form in the case of morphologically complex languages. Such an assumption would reduce the explanatory power of the theory to an unacceptable extent. Therefore, it is necessary to assume that inflection is triggered within the syntax, in which case forms inserted into D-Structure must be uninflected.

Feature-checking must therefore be responsible not only for eliminating grammatical features prior to SPELLOUT, but also for determining inflectional morphology which is dependent upon grammatical features. This prevents us from adopting the position that feature-checking takes place at the level of logical form, as any operation performed at LF cannot affect phonetic form.

Finally, to account for split-ergativity in Jacaltec, it is necessary to revise some aspects of Case theory. Because both ergative and absolutive Case are used in intransitive constructions in Jacaltec, it is necessary to assume that a verb's Case grid is devoid of any real morphological content. A Case assigner contributes the ability to assign Case to

functional categories in a structure, but the morphological realisation of that Case is determined independently of the Case assigner.

In §5.1, I discuss some of the broader ramifications of the theory which I have developed. §5.1.1 investigates the ramifications of the proposed model of phrase structure upon the universality of subjecthood and objecthood. §5.1.2 discusses the place of ergativity in Universal Grammar, arguing that a universal account of ergativity is probably an unattainable goal, but that certain generalisations can still be made. Finally, §5.1.3 describes a number of problems with current linguistic methodology which have been brought out by this research.

In any research project there remain unanswered questions and avenues deserving further investigation. In §5.2, I conclude this thesis by identifying a number of open questions which, while beyond the scope of this work, merit further attention.

5.1 Ramifications

5.1.1 Structural Subjects and Objects

In §2.3, I offered three (nonexhaustive) hypotheses concerning the universality of subjecthood. Those three positions are repeated below.

- (1) The notions of 'subject' and 'object' do not have universal structural definitions which can be applied equally to all languages.
- (2) The notions of 'subject' and 'object' have been misapplied in previous descriptions of ergative phenomena. There exists an isomorphic mapping between {Erg, Abs} and {Subject, Object}.
- (3) Subjecthood and objecthood are not determined purely by structural relations, but make reference to lexical properties of the verb (in particular, transitivity).

From what we have seen in the preceding two chapters, it is apparent that absolutive and ergative arguments are associated with well-defined structural positions. Similarly, nominative and accusative arguments in accusative languages are associated with well-

defined structural positions. Because the notions of ‘subject’ and ‘object’ have never been assumed as primitives in GB Theory, but have instead been defined in terms of structural relationships, position (1) is not plausible. It is apparent that distinct argument positions exist in both ergative and accusative languages. Defining ‘subject’ and ‘object’ in terms of these structural positions, however, leads to very different ideas of subjecthood for ergative and accusative languages which raises some problems.

We might, for example, attempt to equate the notion of ‘subjecthood’ with the structurally most prominent argument, in which case absolutive arguments in Jacaltec are subjects, and ergative arguments are objects. This is the position proposed in (2). This, however, rejects the universality of thematic properties normally associated with subjects and objects in simple transitive sentences, where the “subject” position is normally associated with the agent, and the “object” position is normally associated with the patient.³⁷

Nonetheless, hypothesis (2) is more tenable than (3). While we have seen that the lexical properties of the verb are instrumental in explaining the accusative split found in Jacaltec, they play no role in defining the structural positions associated with absolutive or ergative arguments, themselves.

To adequately capture the notion of subjecthood and objecthood, therefore, I propose that it is necessary to distinguish between *structural* subjects and objects, and *thematic* subjects and objects. We can refer to the absolutive argument as the “subject” in Jacaltec in order to preserve the universality of Keenan and Comrie’s accessibility hierarchy. In this instance, we are referring to structural subjects. However, the traditional definition of absolutive Case as the Case assigned to the subject of an intransitive verb or the object of a transitive verb is still meaningful, provided the terms ‘subject’ and ‘object’ are interpreted thematically in this context. A similar conclusion is drawn by Guilfoyle et al. (1992), who argue that we must distinguish two senses of the term ‘subject’ to account for various properties of Austronesian languages.

³⁷ Here, I appeal to Keenan’s (1985) notion of ‘basic’ sentences, which lack special morphology. Associating positions with specific thematic properties is more problematic for derived structures such as passives, antipassives, etc.

5.1.2 Ergativity and UG

The analysis which I offer in this thesis allows us to describe those aspects of the Jacaltec agreement system which were problematic for the Active AGREEMENT Hypothesis. However, in §3.3 I describe a number of ergative systems which behave differently from Jacaltec. I demonstrate that different ergative systems differ in ways which makes it impossible to offer a unified explanation of ergativity.

While the absolutive argument in Jacaltec appears to behave as the structural subject, this is not universal. Thus, the phrase structure which I offer may be appropriate for Jacaltec, but it is not viable as a universal model. As a result, the analysis which I offer also cannot be viewed as a universal account.

However, a generalisation can still be made about ergative and accusative systems. In accusative languages, the notions of structural and thematic subject collapse in both transitive and intransitive clauses. In ergative languages, however, this is not the case. There exists a mismatch between thematic and structural definitions of subjecthood and objecthood in either transitive or intransitive constructions, but not both. Three plausible mappings between structural and thematic arguments exist. These are given below, where s-subject/object denotes a structural subject or object, and θ -subject/object denotes a thematic subject or object.

	<u>Intransitive Constructions</u>	<u>Transitive Constructions</u>
(4)	θ -subject \Leftrightarrow s-subject	θ -subject \Leftrightarrow s-subject θ -object \Leftrightarrow s-object
(5)	θ -subject \Leftrightarrow s-subject	θ -subject \Leftrightarrow s-object θ -object \Leftrightarrow s-subject
(6)	θ -subject \Leftrightarrow s-object	θ -subject \Leftrightarrow s-subject θ -object \Leftrightarrow s-object

The mappings shown in (4) describe an accusative system such as English. In this system, thematic subjects always map onto structural subject positions in underived

sentences. Similarly, thematic objects always map onto structural object positions. Thus, these two types of subject and objecthood are easily conflated.

(5) and (6) describe two possible types of ergative system. In the system in (5), intransitive constructions pattern after intransitives in accusative systems. However, there is a mismatch between thematic and structural positions in transitive structures. In the system in (6), transitive structures pattern after accusative transitive structures. A mismatch occurs in intransitive structures, where the thematic subject maps onto the structural object position. Both of these systems would appear, superficially, as ergative languages, despite the fact that they differ radically.

The agreement system found in Jacaltec appears to resemble the system in (5). I have shown that the absolute position is superior, suggesting that it is the structural subject position, in which case the mismatch between structural and thematic arguments exists only in transitive clauses. The accusative subset of Jacaltec, however, does not pattern after accusative systems such as the one described in (4). In aspectless embedded clauses, all thematic subjects map onto the structural object position, suggesting that accusativity might also have two manifestations: the pattern indicated in (4), and the less common one in (7).

	<u>Intransitive Constructions</u>	<u>Transitive Constructions</u>
(7)	θ -subject \Leftrightarrow s-object	θ -subject \Leftrightarrow s-object
		θ -object \Leftrightarrow s-subject

The analysis which I offer accounts for ergative systems resembling (5). However, the phrase structure employed by Chomsky's AAH might be able to account for systems such as the one in (6). The ergative subset of Georgian, which is described in Chapter Three might be such a system as ergative and nominative markers are homophonous as Chomsky's analysis predicts.

Demonstrating that there are two separate types of ergative systems is an empirical question which extends beyond the scope of this thesis. However, I suggest that this may be a promising line of research. This also suggests the possibility of four distinct types of two-way split ergative systems,³⁸ as well as numerous three and four way systems.

³⁸ These would be mixtures of (4) and (5), mixtures of (4) and (6), mixtures of (5) and (7), and mixtures of (6) and (7). Eight types of systems could be described in this manner if we distinguish between the dominant and nondominant system in a given language.

An interesting observation can be made with respect to earlier accounts of ergativity. While Hale's (1970) passive analysis and Marantz' (1984) thematic analysis differ from my own, they both describe ergativity in terms of accusative phenomena where structural and thematic definitions of subjecthood do not coincide. Hale relies on passivisation in accusative languages, where θ -objects map onto s-subjects. Marantz's account of intransitive structures relies on the unaccusative hypothesis, where a similar mapping is found.

θ -subjects and θ -objects may be associated with structural positions at D-Structure in accordance with the UTAH. S-subjects and s-objects, on the other hand, correspond to structural positions at S-Structure. In simple, "underived" transitive structures it is relatively easy to capture mismatches between θ - and s-positions provided that one adopts the VP-internal subject hypothesis. However, neither Hale nor Marantz had this hypothesis available to them at the time that they advanced their theories. This would render it difficult for them to capture ergative systems such as the one found in Jacaltec without drawing upon derivational processes from accusative languages. We might, therefore, regard the success of my analysis as an additional piece of indirect evidence in favour of the VP-internal subject hypothesis.³⁹

5.1.3 *Linguistic Methodology*

Turning away from subjecthood and objecthood, my analysis raises another important point on a more methodological level. In Chapter Three, I introduce a constraint on theory formation which I repeat below.

- (8) All feature-checking takes place at the level of SS.

This position was adopted to rule out analyses which rely upon LF operations primarily in order to force syntactic explanations of morphological phenomena.

However, I also believe that the falsifiability problems surrounding LF explanations cannot be underestimated. By positing explanations which rely on nonovert movement, it is possible to unify a wide variety of linguistic phenomena, as Chomsky (1992) succeeds in doing for word order in English and French. Such explanations, however, are difficult

³⁹ The original motivations behind this theory are not discussed in this thesis.

to disprove empirically, and may also pose learnability problems if we assume that the language learner must rely on cues which have no overt realisation.

Such learnability problems can be avoided if we assume that LF is not subject to parameterisation, in which case the language learner has *a priori* access to the well-formedness conditions which govern LF. However, theories which place too much reliance on UG essentially fail to provide explanations for the phenomena which they set out to describe. In a sense, LF and UG have become the “black boxes” of linguistic theory where all phenomena for which we can offer no satisfactory explanation are relegated. Chomsky’s Procrastinate Principle, which is repeated below, serves only to exacerbate this situation by forcing an even greater reliance on LF.⁴⁰

(9) **Procrastinate:**

LF operations are less costly than overt operations. Any operation which may be performed at LF must be performed at LF.

The success of my analysis in using only overt movement suggests that the criterion offered in (8) can be strengthened in order to avoid the problems discussed above. The constraint on theory formation offered below directly contradicts the Procrastinate Principle.

(10) All applications of Affect- α must be realised at PF.

I have only demonstrated the possibility of adopting (10) with respect to a single phenomenon. Problems relating to scope interpretation and other “purely” LF phenomena

⁴⁰ Procrastinate also creates *serious* computational problems. The model described in (42) of Chapter Two views linguistic derivation as essentially a computational process, where DS maps onto LF via a number of discrete steps. Between DS and LF, SPELLOUT is performed, producing a phonetic output. Procrastinate requires that any step which can be performed either before or after SPELLOUT should be performed following it. This, however, requires either that our algorithm have a certain amount of predictive power over subsequent steps in the derivation, or that we attempt a number of distinct derivations even after an acceptable solution has been found. If we assume a serial algorithm, the temporal complexity of the latter option would be (minimally) a polynomial function over the length of the derivation. If, instead, we assume a parallel algorithm, the system resource requirements of the algorithm would be (minimally) a polynomial function over the length of the derivation, though the temporal problems are avoided. None of these possibilities are acceptable. The alternative which I offer faces none of these problems.

may require this position to be weakened. However, I suggest that this remains a useful methodological consideration for subsequent research.

5.2 Directions for Future Research

The analysis which I propose allows us to describe a wide range of phenomena in Jacaltec. However, it also raises a number of questions which are beyond the scope of this investigation. In this section I suggest a number of issues which may constitute productive avenues for future research.

In Chapter Four, I propose the Revised Feature-Checking Mechanism and offer a number of illustrative examples of its application. All of the examples which I provide, however, concern satisfying *T*-features and ϕ -features associated with verbal arguments in simple transitive constructions. If, however, we assume that a single feature-checking mechanism is at work throughout the Jacaltec grammar, we must also account for other manifestations of agreement. In Chapter Two, I show that agreement is found in a wide range of constructions, including, stative ([+N]) constructions, prepositional phrases, and possessive phrases.

I also assume, tentatively, that ϕ -features on NP arguments percolate from the head noun up to NP. If a more thorough investigation of Jacaltec were to reveal that the syntactic behaviour of nominals and PPs could be accounted for using the principles which I have outlined, this would provide some confirmation of this view. If the Revised Feature-Checking Mechanism is to be employed within all types of phrasal projections, we require a model of the representation of features on different categories of lexical heads, and possible ordering relationships between those features. This would supplement the model of feature representation which I provide for verbs.

Also, in §5.1.2, I suggest that ergativity might exist in two forms, and that split systems might have an even greater number of manifestations. It would be interesting to see whether the Revised Feature-Checking Mechanism can be applied to languages such as Georgian which do not exhibit the same type of ergativity as is found in Jacaltec. It may be the case that the feature-checking mechanism which I propose is incapable of dealing with such languages without further modification. However, it may also be the case that these languages differ only in terms of how features are represented in the lexicon.

Mixed systems, such as Warlpiri, in which Case and agreement markers follow different distributions, may represent yet another type of system. I suggest that it is

possible to treat Case and agreement as manifestations of a single phenomenon. This, however, cannot be universal, as Warlpiri has an ergative Case marking pattern accompanied by an accusative agreement system. It may be necessary to posit separate classes of agreement and Case features in this, and related, languages.

- (11). ngajulu-rlu ka-ma-palungu maliki-jarra-Ø nya-nyi
 I-Erg Aux-S1s-O3d dog-Dual-Abs see-Pres
 "I see the two dogs." (Ortiz de Urbina 1989: 3)

An additional fact worth noting about Warlpiri is the fact that its accusative agreement system does not conform with Chomsky's (1992) account of agreement in accusative languages. In (11), we see that the subject agreement morpheme is the innermost morpheme. This suggests that Warlpiri agreement follows the same pattern as is found in the accusative subset of Jacaltec, illustrating that the system shown in (7) is not exclusive to the Mayan languages.

Because the mismatch between thematic and structural positions is found throughout the Warlpiri agreement system, it may be impossible to preserve the UTAH in the description of so-called "deep" ergative languages. Alternately, it may be the case that agreement in Warlpiri can be accounted for using a mechanism similar to the one which I propose for the accusative subset of Jacaltec. However, in intransitive clauses, the argument may be required to raise to the higher agreement phrase to satisfy Case features, even though agreement was satisfied in the lower phrase.

Finally, to test the limits of the methodological assumption which I offer in (8), it would be worthwhile to return to the English and French data upon which Pollock (1989) and Chomsky (1991, 1992) base their analyses. At present, I have no suggestions for applying the Revised Feature-Checking Mechanism to accusative languages like English. However, further investigation might show that it is possible to account for differences among accusative languages without relying on LF movement.

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Appendix

THE JACALTEC ORTHOGRAPHIC SYSTEM

Jacaltec speakers employ an alphabet which is derived largely from Spanish orthography, with a few irregularities. A list of alphabetic symbols is given below, along with their approximate IPA equivalents (adapted from Craig 1977 and Day 1973). All Jacaltec data cited in this thesis employs this system.

<u>JACALTEC</u> <u>IPA</u>		<u>JACALTEC</u> <u>IPA</u>	
a	a	o	o
b'	p'	p	p
c, qu	k	r	r (flap)
c', q'u	k'	s	s
ch	č	t	t
ch'	č'	t'	t'
e	e	tx	č
f	f	tx'	č'
h	h	tz	t ^s
i	i	tz'	t ^s '
j	x	u	u
k	q'	w	w
l	l	x	š
m	m	š	š
n	n	y	y
ñ	ŋ	,	?

Here, apostrophes indicate glottalisation and underscored dots indicate retroflexion. In addition to the symbols above, *b*, *d*, *g*, and *j* are also used, but only in Spanish loan words. They correspond to [b], [d], [ɣ], and [x], respectively. In data cited from Craig (1977), *b* is used in place of *b'*. Word-initial glottal stops are not normally written.