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Ergativity*

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1 Introduction: three ergativity properties

The study of ergativity is concerned with ways in which languages show one or more of the following properties:

(1) Ergativity properties

a. *The ergative property.*

Subjects of transitive clauses behave differently from subjects of intransitive clauses for some grammatical generalization(s)

b. *The absolutive property.*

Objects of transitive clauses and subjects of intransitive clauses behave identically for some grammatical generalization(s)

c. *The argument-structural property.*

Subjects of unaccusative verbs behave differently from subjects of unergative and transitive verbs for some grammatical generalization(s)

Ergativity properties have been a subject of intense research for over forty years. During this time, the range of data available to syntacticians concerned with ergativity has grown immensely, with important consequences for the way that ergativity is viewed. It is now uncontroversially clear that there is a great deal of syntactic and morphological diversity among languages to be considered ergative in the broad sense of (1). Theories of ergativity are tasked with handling this diversity in a way that balances predictive power with empirical coverage.

This situation is an interesting one for Minimalism and its antecedents, e.g. Government and Binding Theory, which will be the focus of theoretical attention here. In a sense, these theories *predict* diversity in ergative languages, in that they offer no possibility of a unified formulation of the properties in (1). It is notable in this connection that very little of the description in (1) corresponds to primitive elements recognized by these frameworks. ‘Subjecthood’ and ‘transitivity’ must be cashed out in structural terms. So too must the various grammatical generalizations which conform to the broad ergative mold. In each case there will be some range of choices which could be pursued, with different choices potentially appropriate for different languages. This leads us to expect that the net cast by (1) may well bring in a range of species which are different in various ways. Two languages which pre-theoretically both show the ergative property and the absolutive property, for instance, could nevertheless manifest systematic and far-reaching structural differences.

Indeed one of the major results of generative studies on ergativity has been that exactly this situation does obtain. Bittner and Hale’s important work in the 1990s on Warlpiri versus Inuit showed that two languages showing similar morphological (1a)/(1b) ‘ergative-absolutive’ patterns nevertheless differ from one another in a range of syntactic and semantic dimensions (Bittner and Hale 1996a, 1996b). There is not just one ergativity, then, but at least two ergativities, the Warlpiri type and the Inuit type – two ways that languages can fall under the joint umbrella of properties (1a) and (1b). And where there are two ergativities there might be more than two. Languages described as ergative in view of the argument-structural property (1c) deserve additional attention. So too do languages showing the ergative property (1a) but not the absolutive property (1b).

What accumulates from ergativity studies then is not an overarching theory of ergativity as a single parameter or a primitive. From a theoretical perspective there is no particular reason why

this should exist. Primary concerns of theoretical ergativity studies today are questions of diversity – How many ‘ergative’ grammars are there? – and of formal unity beneath: What sort of theory can predict exactly these ergative types and no others?

This article will survey two ways of seeking answers to these questions. The first, shorter part (section 2) overviews major results of the typological approach to ergativity. The culmination of this section is a list of some proposed universals, which will play an important role in the motivation and evaluation of theoretical points of view. The second part of the article discusses syntactic and morphological theories of ergativity behaviors, first in relation to case, agreement and control (section 3) and then in relation to \bar{A} -movement (section 4).

2 Ways of being ergative

What is the profile of a language demonstrating one or more of the properties in (1)? When a linguist or a child is exposed to certain evidence of ergativity properties in a given language, what else might he or she conclude? Of the dimensions along which languages showing ergativity properties diverge, let me highlight three:

- *Variation by ergativity properties*

Which ergativity properties are at play?

- *Variation by grammatical manifestation of ergativity*

What type of grammatical generalizations reflect ergativity properties?

- *Variation by scope of ergative patterns*

How generalized or restricted are the ergative patterns?

We will first consider the logical relationships among the ergativity properties, and then consider the scale of variation in their grammatical manifestations and the scope of the patterns they define. Against this varied domain we will then consider a set of unifying correlations, drawing together properties, manifestations and scopes of ergative patterns.

2.1 *The relationship among the ergativity properties*

What is the relationship among the ergativity properties? The ergative property (1a) and the absolutive property (1b) are logically independent of one another, and indeed, natural languages occupy each place in the possibility space these two properties define. If we consider ergativity properties as seen in morphological case-marking, the following languages represent the four possibilities:

- (2) Interactions among (1a) and (1b) (absent (1c))

	Ergative property: yes	Ergative property: no
Absolutive property: yes	Warlpiri	Chinese
Absolutive property: no	Nez Perce	Latin

Warlpiri is a language showing ergativity properties (1a) and (1b). Subjects are marked with a distinct case in transitive clauses – the ergative – while objects appear in a bare form – the “absolutive” – also characteristic of intransitive subjects.

- (3) ngarrka-ngku ka wawirri panti-rni
man-ERG AUX kangaroo spear-NONPAST
The man is spearing the kangaroo.
- (4) kurdu ka wanka-mi
child AUX speak-NONPAST
The child is speaking.
- (5) kurdu kapi wanti-mi
child AUX fall-NONPAST
The child will fall.

These data come from Hale (1983), who provides (4) and (5) as evidence that Warlpiri makes no systematic division among intransitives. Warlpiri, that is, does not display property (1c). Parallel facts are found in a host of unrelated and geographically diverse languages, including Inuit languages such as West Greenlandic (Bittner 1994) and Inuktitut (Johns 1992), Austronesian languages such as Niuean (Seiter 1980), Australian languages such as Dyirbal (Dixon 1972), Amazonian languages such as Shipibo (Valenzuela 2010), West Nilotic languages Pāri and Shilluk (König 2008, ch 3) as well as Eastern Basque (Aldai 2009). Languages showing this combination of ergativity properties are called ‘ergative/absolute’.

Nez Perce is a language showing the ergative property (1a) but not the absolutive property (1b). Subjects are marked with a special case in transitive clauses (again glossed 'ergative'), but intransitive subjects and transitive objects also differ for case purposes. The former appears in a bare form ('nominative'); the latter takes a distinct case marker ('objective').

- (6) haacwal-nim pee-p- \emptyset -e cu'yeem-ne
boy-ERG 3SUBJ-eat-P.ASP-REM.PAST fish-OBJ
The boy ate the fish.
- (7) haacwal hi- \hat{x} eeleewi- \emptyset -ye
boy.NOM 3SUBJ-work-P.ASP-REM.PAST
The boy worked.
- (8) haacwal hi-peeleeey-n-e
boy.NOM 3SUBJ-get.lost-P.ASP-REM.PAST
The boy got lost.

As in Warlpiri, there is no systematic divide among intransitive subjects in Nez Perce. All intransitive subjects appear in the unmarked (nominative) form. Other languages showing this type of pattern include Wangkumara and Pitta-Pitta in Australia (Blake 1987, 22, 59) and Cashinawa in Peru (Montag 1981, 599). Languages showing this type of pattern are sometimes called ‘three-way ergative’ or ‘tripartite’ (Dixon 1994, 39).

This typology of (1a) and (1b) is rounded out by two additional types of languages. Chinese is a language with no morphological case-marking on subjects or objects. The absence of a distinctive mark is (trivially) in common between intransitive subjects and transitive objects, as in Warlpiri, conforming to (1b); but there is no mark on transitive subjects, either, failing (1a). Latin is a language that marks subjects distinct from objects regardless of transitivity, failing both (1a) and (1b). These examples remind us that the ergative property, (1a), and the absolutive property, (1b), are entirely logically distinct.

The relationship of the argument-structural property, (1c), to the ergative property (1a) and the absolutive property (1b) is slightly more complex. The absence of argument-structural effects is compatible with any combination of (1a) and (1b); the four languages just considered all fail to show argument-structural effects in case-marking. On the other hand, the presence of argument-structural ergativity, as applied to particular areas of linguistic generalization (e.g., morphological case), is not compatible with either the ergative property or the absolutive property on a strict interpretation. A system characterized by the ergative property (1a) and/or the absolutive property (1b) treats intransitive subjects as a class, whereas a system characterized by the argument-structural property (1c) bifurcates intransitive subjects. At the same time, whenever argument-structural ergativity obtains, there will necessarily be some intransitive subjects (i.e. subjects of unaccusatives) which behave unlike subjects of transitives, giving a partial case of the ergative property (1a). It can be helpful to think of loose versions of the ergative property (1a) and the absolutive property (1b) as follows:

- (9) (1a) (loose) Subjects of transitive clauses behave differently from *some* subjects of intransitive clauses for some grammatical generalization(s)
 (1b) (loose) Objects of transitive clauses and subjects of *some* intransitive clauses behave identically for some grammatical generalization(s)

In contrast to the (1c) - loose (1a) relationship, the relationship between the argument structural property (1c) and the loose version of the absolutive property (1b) is more flexible. It may or may not be the case that some intransitive subjects behave like transitive objects.

- (10) Given (1c), interactions among (1a)-loose and (1b)-loose

	(1a)-loose yes	(1a)-loose no
(1b)-loose yes	Georgian	impossible by definition
(1b)-loose no	Hindi/Urdu	impossible by definition

In Georgian, transitive subjects in the aorist aspect are marked with a distinct case, called the ergative, while objects appear in a bare form. Harris (1981) calls this form the nominative.

- (11) glexma datesa simindi
 farmer-ERG he-sowed-it-II-I corn-NOM
 The farmer sowed corn. (Harris 1981, 147)

Harris shows that the marking of intransitive subjects in Georgian is sensitive to a distinction between unaccusative and unergative predicates. Subjects of unergative verbs mark the ergative case, like subjects of agentive transitives. Subjects of unaccusatives appear in the nominative case, like objects of agentive transitives. Loose versions of both the ergative property (1a) and the absolutive property (1b) are in effect.

- (12) ninom daamtknara
 nino-ERG she-yawned-II-I
 Nino yawned. (Harris 1981, 40)
- (13) rezo gamoizarda
 rezo.NOM he-grew-up-II-2
 Rezo grew up. (Harris 1982, 293)

The operative distinction in Georgian splits the class of intransitive subjects into two groups. This type of pattern is therefore sometimes called ‘split S’ (Dixon 1979) or ‘split intransitive’ (Merlan 1985); other names include ‘active-inactive’, following Sapir (1917), ‘agentive’ (Mithun 1991), and ‘semantically aligned’ (Donohue and Wichmann 2008). Languages showing such patterns include Udi and Batsbi in the Caucasus (Harris 2010), Pomoan languages of California (Mithun 1991, O’Connor 1992, Deal and O’Connor 2011), and Western Basque (Aldai 2009).

A final combination of ergativity properties is found in Hindi/Urdu. This language marks transitive subjects with the ergative (in the perfective aspect), and marks certain objects with a distinct case-marker, here labeled ‘accusative’.

- (14) yasin-ne kōtte-ko dek^h-a
 Yassin.M.SG-ERG dog.M.SG-ACC see-PERF.M.SG
 Yassin saw the dog. (Butt and King 2004, ex (16b))

Intransitives show a split similar to Georgian. Subjects of unergatives may optionally mark the ergative case; unaccusative subjects must appear in a bare, nominative form.

- (15) yassin(-ne) k^hās-a
 Yassin.M.SG(-ERG) cough-PERF.M.SG
 Yassin coughed (Butt 2006, 147)
- (16) yassin gir-a
 Yassin.M.SG.NOM fall-PERF.M.SG
 Yassin fell (Butt 2006, 115)

The optionality of ergative case in (15) presents two ways of approaching the Hindi/Urdu facts. Focusing on the version without the ergative case, we see no argument-structural ergative pattern; case-marking is simply 3-way, as in Nez Perce. Focusing on the version with the ergative case, the pattern is argument-structural, entailing a loose version of (1a). Unlike in Georgian, however, the case possibilities for unaccusative subjects and transitive objects remain distinct. The latter may appear in the accusative case; the former may not. A similar profile (also including merely optional ergative marking of unergative subjects) is found in Semelai, a Mon-Khmer language of the Malay Peninsula (Kruspe 2004).

2.2 *The grammatical manifestation of ergativity*

Where in the grammar do ergativity properties show up? The most intense study has concentrated on morphosyntactic properties of case and verbal agreement, as well as on more narrowly syntactic properties related to \bar{A} -movement and control.

Agreement. Verbal agreement showing an ergative/absolutive pattern is found in Halkomelem, a Salish language. 3rd person subjects of transitives control a special verbal agreement suffix *əʃ*; subjects of intransitives and objects of transitives control no verbal agreement.

- (17) ni ʔiməʃ
 AUX walk
 He/she/it walked. (Gerdt 1988, 47)

- (18) ni q'wəl-ət-əs
 AUX bake-TR-3ERG
 He/she/it baked it. (Gerdts 1988, 47)
- (19) cf. ni cən q'wəl-ət
 AUX 1SG bake-TR
 I baked it. (Gerdts 1988, 47)

The inverse of this pattern is found in Tsez (Polinsky and Potsdam 2001) and a variety of Amazonian languages (Gildea and Castro Alves 2010): subjects of intransitives and objects of transitives control verbal agreement, whereas subjects of transitives do not. In Mayan languages, these patterns overlap (Larsen and Norman 1979): one form of verbal agreement ('set B') is controlled by the intransitive subject and transitive object, whereas another is controlled only by the transitive subject ('set A'). The following examples show this type of agreement in K'ichee (Larsen and Norman 1979).

- (20) x-at-war-ik
 COMPLETIVE-2SB-sleep-PHRASE.FINAL
 You slept.
- (21) x-at-u-ch'ay-oh
 COMPLETIVE-2SB-3SA-hit-PHRASE.FINAL
 He hit you.
- (22) x-∅-war-ik
 COMPLETIVE-3SB-sleep-PHRASE.FINAL
 He slept.

Verbal agreement also may reflect the argument-structural property, (1c), in parallel to the case facts in Georgian and Hindi/Urdu discussed above. Languages with this type of agreement include Karuk and Chimariko in California (Mithun 2008), Chol Mayan (Coon 2010a) and various dialects of Neo-Aramaic (Doron and Khan 2012).

Ā-movement. The case- and agreement-based patterns that we have now seen are morphosyntactic in nature. Other manifestations of ergativity properties occur in syntactic patterns, where they are sometimes discussed under the heading of 'syntactic ergativity'. The most famous of these concerns \bar{A} extraction, and ergativity properties (1a) and (1b). A variety of languages possess distinct relativization, focalization and/or interrogation strategies for intransitive subjects and transitive objects on one hand versus transitive subjects on the other. An example of this can be seen in Roviana, an Austronesian language. Roviana relative clauses featuring \bar{A} -movement of intransitive subjects or transitive objects involve the same forms of verbal marking as seen in ordinary matrix clauses (Corston 1996).

- (23) Hierana sa tie [RC sapu kote taloa]
 this DEF man REL FUT leave
 This is the man who is going away.
- (24) Hierana sa koreo [RC sapu tupa-i-a e Zone]
 this DEF boy REL punch-TR-3SG.DO ART John
 This is the boy that John punched.

Those featuring \bar{A} -movement of transitive subjects, on the other hand, require a specialized form of the verb.

- (25) a. * Hierana sa tie [_{RC} sapu tupa-i-u] *Normal verb form
 this DEF man REL punch-TR-1SG.DO
 This is the man who punched me.
- b. Hierana sa tie [_{RC} sapu tupa-qa rau] ^{OK}Special verb form
 this DEF man REL punch-1SG.NSUF I
 This is the man who punched me.

Many other Austronesian languages show similar patterns (Aldridge 2004), as do Dyirbal (Dixon 1977), Halkomelem Salish (Gerds 1988), Coast Tsimshian (Mulder 1994), Chuckchi (Comrie 1979), Trumai (Guiradello-Damian 2010), Eskimo languages such as Kalaallisut (Bittner 1994), and Mayan languages such as Mam (England 1983), Jacalteco (Craig 1977) and Q'anjobal (Coon, Mateo Pedro, and Preminger 2012).

Control. An additional 'syntactic' area in which ergativity properties have been observed is control. Languages plausibly showing ergativity properties this area are very rare, however, and their existence has been repeatedly called into doubt. For many years the only clear reported example of ergativity properties in control came from Dixon's work on Dyirbal (1994). In this language, according to the generalizations Dixon provides, properties (1a) and (1b) are implicated in the distribution of controlled PRO. PRO may serve as an intransitive subject, as in (26), or as a transitive object, as in (27), but not as a transitive subject.

- (26) yabu ŋuma-ŋgu giga-n [PRO banaga-ygu]
 mother.ABS father-ERG tell.to.do-NONFUT [PRO return-PURP]
 Father told mother_i PRO_i to return.
- (27) yabu ŋuma-ŋgu giga-n [gubi-ŋgu mawa-li PRO]
 mother.ABS father-ERG tell.to.do-NONFUT [doctor-ERG examine-PURP PRO]
 Father told mother_i the doctor to examine PRO_i

Dixon also reports that ergativity properties are manifested in the class of possible controllers of PRO in the main clause (1994, 136). The controller must be intransitive subject or transitive object; it cannot be transitive subject.

Subsequent work on Austronesian has augmented the picture from Dyirbal. Aldridge (2004) reports that for Seediq, property (1a) plays a role without property (1b): only intransitive subjects, not transitive subjects or transitive objects, may be controlled PRO. ((In)transitivity here must be understood formally, rather than notionally.)

- (28) M-n-osa [PRO m-ari patis taihoku] ka Ape.
 INTR-PERF-go [PRO INTR-buy book Taipei] ABS Ape
 Ape went to buy books in Taipei.
- (29) * M-n-osa [PRO burig-un taihoku ka patis] ka Ape.
 INTR-PERF-go [PRO buy-TR Taipei ABS book] ABS Ape
 Ape went to buy books in Taipei.

For Sama Southern, Trick (2006) reports a pattern of control showing both property (1a) and (1b), just as in Dyirbal. In this language, both intransitive subjects and transitive objects may be controlled PRO, but transitive subjects may not be.

- (30) a. Tuli akú
sleep 1SG.ABS
I will sleep.
- b. ka-bilahi-an-ku [tuli PRO]
INV-want-PAT-1SG.ERG [sleep PRO]
I want PRO to sleep
- (31) a. ni-lengan-an akú leh si Ben
AGR-call-PAT 1SG.ABS ERG PM Ben
Ben will call me.
- b. ka-bilahi-an-ku [ni-lengan-an PRO leh si Ben]
INV-want-PAT-1SG.ERG [AGR-call-PAT PRO ERG PM Ben]
I want Ben to call PRO
- c. * ka-bilahi-an si Ben [ni-lengan-an akú PRO]
INV-want-PAT PM Ben [AGR-call-PAT 1SG.ABS PRO]
Ben wants PRO to call me.

This type of fact will play a crucial role in the discussion in section 3.2.

2.3 The scope of ergative patterns

To what degree do particular ‘ergative languages’ show ergative properties? Moravcsik (1978) observes that every language that shows ergativity properties shows them to a limited degree. There are no languages where *all* grammatical generalizations distinguish transitive from intransitive subject; group intransitive subject and transitive object together; or distinguish among subjects of unaccusative and unergative intransitives. This means that every language showing ergativity properties has what is sometimes called an ‘ergative split’, or a division among domains in the grammar which do and do not show ergative behaviors.

The most famous such split concerns a distinction between languages which show ergativity properties only in morphological domains such as case-marking and agreement versus those which show ergativity properties in syntactic domains such as control and \bar{A} extraction. Based on the data we have seen above, Roviana and Sama Southern can be classified as ‘syntactically ergative’. Languages like Warlpiri have been held up as clear exemplars of the contrasting ‘morphologically ergative’ type (Bittner and Hale 1996a). Only subjects may be controlled PRO in this language, regardless of transitivity (Legate 2002).

- (32) Ngana_j-kurra-npa Jakamarra-kurlangu maliki_i nya-ngu [PRO_i t_j paji-rninja-kurra]?
who-OBJC-2SG Jakamarra-POSS dog see-PAST [bite-*INFIN*-OBJC]
- a. Who did you see Jakamarra’s dog_i PRO_i biting t_{who}?
- b. * Who did you see Jakamarra’s dog_i t_{who} biting PRO_i?
- (33) Ngarrka-ngku_i ka karli jarnti-rni, PRO_i wangka-nja-karra-rlu
man-ERG PRES boomerang trim-NONPAST, PRO speak-*INFIN*-SUBJC-ERG
The man is trimming a boomerang while speaking. (Legate 2002, 126)

While both Warlpiri and Sama Southern have ergative/absolute case-systems, only Sama Southern also shows the ergative and absolute properties in control. Thus the scope of ergative patterns

is broader in Sama Southern than it is in Warlpiri. Distinctions of this type will play a central role throughout sections 3 and 4 below.

Additional limitations on the scope of ergative patterns are found in reflection of two other types of distinctions, which, for reasons of space, will play less of a role in the theoretical survey to follow. First, many languages show a division in ergativity properties among different classes of nominals. It is quite common, for instance, to find first and second person pronouns lacking ergative case or agreement forms, in contrast to other nouns. This type of pattern is seen in Nez Perce, a language with a three-way case system for non-pronominals.

- (34) **'iin** lilooy-ca- \emptyset
 1SG.NOM be.happy-IMPERF-PRES
 I'm happy.
- (35) **'iin** cuy'eem-ne 'aa-p-sa-qa
 1SG.NOM fish-OBJ 3OBJ-eat-IMPERF-REC.PAST
 I was eating the fish.
- (36) ciq'aamqal-m hi-ke'nip- \emptyset -e **'iin-e**
 dog-ERG 3SUBJ-bite-P-REM.PAST 1SG-OBJ
 The dog bit me.

Whereas other nominals (including third person pronominals) show distinct ergative, nominative and accusative case forms, first and second person pronouns in this language show only nominative and accusative forms. Silverstein (1976) observes that the reverse of this type of pattern – pronouns, but not common nouns, showing an ergative marking – is not attested. Rather, he posits, types of nominals (pronouns, proper names, animate nouns, etc) are universally organized into an implicational hierarchy with respect to ergative versus nominative case marking. If any nominals lack an ergative form, it will be pronouns; if any nominals possess an ergative form, it will be inanimate nouns. This type of phenomenon is further studied in recent work by Alexiadou and Anagnostopoulou (2006), Merchant (2006), Wiltschko (2006) and Coon and Preminger (2012).

Second, in many languages the distribution of ergative patterns is limited by factors related to clausal properties, in particular viewpoint aspect. This type of pattern is found for instance in Chol Mayan (Coon 2010a). Agreement in this language shows the argument-structural property (1c), but only in the perfective aspect. In non-perfective aspects, for instance the progressive, the same agreement markers are used, but their behavior no longer shows the ergativity properties. All subjects agree using one set of markers ('set A'), and all objects agree using the other ('set B').

- | <i>Perfective: Ergative</i> | <i>Progressive: Non-ergative</i> |
|---|---|
| (37) a. Tyi i-jats'-ä-yoñ
PRFV A3 -hit-TV- B1
She hit me. | (38) a. Choñkol i-jats'-oñ
PROG A3 -hit- B1
She's hitting me. |
| b. Tyi majl-i-yoñ
PRFV go-ITV- B1
I went. | b. Choñkol i-majl-el
PROG A3 -go-NML
She's going. |

This type of pattern again reveals an asymmetry which appears to be universal. Where a language shows a split pattern in correlation with viewpoint aspect, it is always the perfective aspect, rather

than the imperfective, which shows ergativity properties (Dixon 1994). Recent studies of this type of ergative split may be found in the work of Laka (2006), Ura (2006), Reilly (2007), Salanova (2007), Müller (2009) and Coon (2010b,2012).

2.4 *Six potential ergative universals*

The wide variation we have just seen is balanced by a number of potentially universal generalizations. Some of these have already come up in discussion of the relationships among ergativity properties and of ergative splits. Further generalizations concern relations between manifestations of ergativity properties, and relations between ergativity properties and other aspects of particular grammars. Six of these are mentioned below.

The discovery of universals related to ergativity properties is a central project for ergativity investigators, and much attention has focused on particular proposed universals from both empirical and theoretical points of view. Some of this work has brought forward what are apparently counterexamples to the generalizations below. The proper treatment of these cases is clearly of the utmost importance to grammatical theories which take the various generalizations as a starting place. For this reason, I have reproduced or referenced data claimed to be problematic in the appropriate places as an indication of the current state of knowledge on these matters.

1. *Syntactic ergativity implies morphological ergativity.*

The languages that show ergativity properties in \bar{A} -movement or control are all languages which show ergativity properties morphologically – in case and/or agreement. This generalization comes from Dixon (1994, 172).

The only potential counterexample of which I am aware comes from Bajau, the issue of which is raised by Donohue and Brown (1999). The status of Bajau as a language with syntactic but not morphological ergativity is deserving of close scrutiny, though, on the basis of its pronominal paradigm: in a language claimed to lack any morphological manifestations of ergativity, it is telling that the form of pronouns in this language suggests a case-system organized on an ergative/absolutive basis. As Miller (2007) shows, intransitive subjects appear in ‘set II’ forms, as do objects in transitive clauses with certain verbal morphology. Subjects in such sentences appear in a distinct ‘set I’ form.

- (39) Ai pungkaw iyo
 PERF wake.up 3S.II
 (S)he has awakened/ gotten up.
- (40) Boi 0-boo=ku iyo pitu.
 CMPL UV-bring=1S.I 3S.II to.here
 I brought him/her here.

If clauses like (40) are indeed transitive (a question made especially difficult by the voice system of the language), then Bajau is not a language that lacks morphological manifestations of ergativity properties. It is rather a language with both morphological manifestations (in case) and syntactic manifestations (in relativization). The counterexample to Dixon’s generalization is then merely apparent.

As we will see in more depth in section 4, Dixon's generalization is part of a larger implicational generalization which divides syntactic ergativity into two types. Languages like Dyirbal show ergativity in both control and \bar{A} -movement. Languages like West Greenlandic show ergativity in \bar{A} -movement but not control. There are no languages where ergativity properties are relevant for control but not for \bar{A} -movement. The implicational hierarchy is thus

(41) Ergativity in control > Ergativity in \bar{A} -movement > Ergativity in case/agreement

where the phenomena to the left entail phenomena to the right.

2. *In languages showing ergativity in syntactic patterns, the pattern seen in syntax is ergative/absolutive – not just ergative (showing (1a) but not (1b)), and not argument-structural (1c).*

Austronesian languages showing syntactic ergativity are of the classic ergative/absolutive morphological type, contrasting transitive subject with intransitive subject/transitive object. It is this pattern which shows up in control (e.g. in Sama Southern) and in \bar{A} extraction: transitive subjects behave one way, and intransitive subjects and transitive objects behave another way. The Mayan family contains both languages showing syntactic ergativity (e.g. Mam, Kaqchikel, Q'anjob'al) and languages showing argument-structural ergativity (e.g. Chol), but the two patterns do not seem to overlap. There are not, for instance, languages in which only unaccusative subjects may be \bar{A} extracted with normal verbal morphology (in which case \bar{A} extraction would show an argument-structural ergativity property); nor are there languages in which intransitive subjects, but neither transitive subjects nor transitive objects, may be \bar{A} extracted with normal verbal morphology (in which case \bar{A} extraction would show the ergative property (1a) but not the absolutive property (1b)). To my knowledge, this generalization has not been noted in previous work.

The only potential exception of which I am aware concerns languages like Seediq, discussed above in connection with control. Aldridge (2004) reports that controlled clauses in Seediq must be formally intransitive. It is as a byproduct of this transitivity restriction that the distribution of PRO in Seediq shows the ergative property (1a); absolutive property (1b), however, is not involved. I am not aware of any potential exceptions to the generalization from syntactic ergativity in \bar{A} extraction.

It is especially interesting that this generalization should hold given that syntactically ergative patterns do crop up in languages which are not strictly ergative/absolutive on a *morphological* level. Dyirbal, for instance, is argued by Legate (2012) to show a (partially covert) three-way case system of the Nez Perce type. Nevertheless it appears that control and \bar{A} extraction treat intransitive subject and transitive object as a natural class in this language, even where morphology does not.

3. *Ergative case is never unmarked.*

When verbal agreement shows ergativity properties (1a) and (1b), either transitive subject (ergative) or intransitive subject/transitive object (absolutive) may be morphologically

marked. Dixon (1994) observes that the same freedom does not hold in the domain of case-marking. While there are many languages with a null or unmarked absolutive morphological case, there are no languages with unmarked ergative morphological case.

The Nias language of Indonesia provides a potential counterexample, as Donohue and Brown (1999) point out. In Nias, absolutive case is marked by an initial mutation. (The character of this morphology is discussed by Anderson et al. (2006).) There is no morphological marking of transitive subjects, however.

- (42) Abe'e sibai g-ehomo n-omo s=e-bua
 STAT.strong INTENS MUT-pillar MUT-house REL=STAT-big
 The pillars of the big house are very strong
- (43) I-a m-bavi ama Gumi
 3SG.REALIS-eat MUT-pig father Gumi
 Ama Gumi is eating/eats pork.

Thus the subject of (42) and the object of (43) are marked in the same way, in opposition to the subject of (43), yielding an ergative/absolutive system. However, the subject of (43) – the argument expected to show the ergative case – is distinguished not by any special marking, but by the absence of the initial mutation marking the absolutive.

4. *All ergative languages are verb-peripheral, or have free word order.*

This generalization was perhaps first noticed by Trask (1979) and subsequently popularized by Mahajan (1994, 1997), after whom it is sometimes called. There are certain well-known exceptions. Mahajan (1997) observes that languages like Kashmiri, which show V2 patterns, show ergativity in case-marking despite a preponderance of SVO clauses. Further counterexamples come from languages like Shilluk (West Nilotic), which has basic OVS and SV patterns without a clear case for Germanic-style V2:

- (44) byél á-'rākk' yī pān dájò
 grain.PL PAST.E-grind.TR.REP ERG person female
 The woman ground the durra grain (Miller and Gilley 2001, 36)
- (45) māc á-dùŋ áwālā
 fire PAST.E-smoke.ITER yesterday
 the fire smoked yesterday (Miller and Gilley 2001, 37)

Survey data from Comrie (2008) suggests that some generalization along the Trask/Mahajan line nevertheless holds at least as a statistical trend. Further work is needed to ascertain whether word order correlates with an particular subset of ergativity properties, or particular grammatical manifestations thereof. It remains to be shown, for instance, whether languages showing both (1a) and (1b) are especially likely to obey this generalization, and what the facts are like for languages showing property (1c).

5. *Manifestations of ergativity properties never treat derived subjects like basic transitive subjects.*

This generalization comes from Marantz (1991), a work which focuses primarily on languages showing ergativity property (1c). Marantz's generalization has nevertheless inspired a literature dealing primarily with languages which show ergative/absolutive (1a)/(1b) patterns, e.g. Legate (2008), and so bears discussion in relation to all three properties.

Let us first consider unaccusative subjects, as a prime instance of subjects that are derived. In the simplest cases, the generalization follows by definition. Ergativity property (1c) is manifested where unaccusative subjects are treated *unlike* transitive and unergative subjects; a process that treated the various subjects the same way would simply not show ergativity property (1c). Ergativity properties (1a) and (1b) call for intransitive subjects to pattern together in a way distinct from transitive subjects, ensuring that the pattern follows in this case, as well.

Things are more interesting when we consider unaccusative predicates made transitive in some way, for instance by addition of an applicative. An apparent counterexample in this domain comes from Shipibo, as Baker (2012) observes. When an applicative is added to an unaccusative Shipibo verb, the subject of the unaccusative verb obligatorily marks the ergative case.

- (46) Kokoti-ra joshin-ke
 fruit-PRT ripen-PRF
 The fruit ripened.
- (47) Bimi-n-ra Rosa joshin-xon-ke.
 fruit-ERG-PRT Rosa ripen-APPL-PRF
 The fruit ripened for Rosa.

If the subject of (47) is indeed a derived subject, the presence of ergative here counterexamples Marantz's generalization.

Another potential test comes from passive subjects, in particular passive subjects of ditransitive verbs. Such subjects – for instance *we* in the English example below – are derived subjects; they do not originate as external arguments. At the same time, there is also a natural sense in which they are subjects of verbs which remain transitive (albeit with transitivity reduced by comparison to the active ditransitive form).

- (48) We were given *t* this book.

Manifestations of ergativity properties do not classify such subjects with basic transitive subjects. In Nez Perce, for instance, ditransitive constructions are expressed via double-object constructions, as in English, but the passives of such constructions feature no ergative marking:

- (49) haama-pim cickan pee-'ni-se-ne ki-nye 'aayat-ona
 man-ERG blanket.NOM 3/3-give-IMPERF-REM.PAST this-OBJ woman-OBJ
 The man was giving this woman a blanket.

- (50) kii 'aayat hii-wes 'in-yiin cickan
 this.NOM woman.NOM 3SUBJ-be.PRES give-PASSIVE blanket.NOM
 This woman was given a blanket (lit. is blanket-given).

I am not aware of any language showing a passive like (50) but with ergative marking on the (derived) subject.

Other types of derived subjects – in particular, subjects of raising verbs – have engendered more controversy. These are discussed in section 3.4.

6. *If ergativity properties are manifested in verbal agreement, either (i) there is no morphological case-marking, or (ii) case-marking also shows ergativity properties.*

There is an asymmetry in the scope of ergativity properties in agreement and in case. Languages like Warlpiri show ergative/absolutive patterns in case-marking, but not in verbal agreement. All subjects agree in the same way in this language, e.g. both nominative subject *ngaju* 'I' and its ergative counterpart *ngaju-rlu* control agreement suffix *-rna* (Hale 1983, 18):

- (51) Ngaju ka-**rna** wangka-mi
 I PRES-1SUBJ speak-NONPAST
 I am speaking.
- (52) Ngaju-rlu ka-**rna**-ngku nyuntu nya-nyi
 I-ERG PRES-1SUBJ-2OBJ you see-NONPAST
 I see you.

Languages like Nez Perce show property (1a) alone in case-marking, but not in verbal agreement. All subjects agree in the same way in this language, too:

- (53) haacwal **hi**-êeeleewi-Ø-ye
 boy.NOM 3SUBJ-work-P.ASP-REM.PAST
 The boy worked.
- (54) ciq'aamqal-m **hi**-ke'nip-Ø-e 'iin-e
 dog-ERG 3SUBJ-bite-P-REM.PAST 1SG-OBJ
 The dog bit me.

Anderson (1977) generalizes that there are no languages showing the reverse pattern: ergativity properties in verbal agreement but not in morphological case (where there is a morphological case system to speak of).

Exceptions to this generalization from the Indo-Aryan family are discussed by Patel (2007). In Kutchi Gujarati past perfectives, verbal agreement is on an ergative/absolutive basis: only intransitive subjects and transitive objects agree. Case-marking, however, treats all subjects identically (leaving them unmarked), and singles out objects of transitive clauses (marking them accusative).

(55) Reena aav-i
 Reena.NOM came-F.SG
 Reena came.

(56) Reena chokra-ne mar-ya
 Reena.NOM boys-ACC hit-PFV.M/N.PL
 Reena hit the boys.

An additional reported exception is found in connection with pronouns only. As Gildea and Castro Alves (2010) discuss, pronouns in the Jê language Canela show a nominative-accusative case pattern; other nominals in Canela are unmarked. Despite this, verbal agreement in Canela is on an absolutive basis (just as in Kutchi Gujarati), targeting intransitive subjects and transitive objects.

(57) wa ha i-wrik narɛ
 1 IRR 1-descend.NF NEG
 I will not descend.

(58) wa ha iʔ-pir na
 1 IRR 3-grab.NF NEG
 I will not grab it (e.g., the knife).

If the prefixes *i-* and *iʔ-* indeed represent agreement (and not weak pronominals, as in Salanova's (2007) study of related language Mëbengokre), Canela is an additional example of a language showing an ergative/absolutive agreement system, but nominative-accusative behavior in case-marking. It is striking that such patterns, while extremely rare, are nevertheless apparently found in languages widely separated in genetic and geographical terms.

3 Theories of ergativity in case and its relatives

Moreso than any other manifestation of ergativity, syntacticians concerned with ergative languages have focused on its manifestation in case-marking, agreement and control, a group of phenomena generally held to be closely related. The ideal theory in this domain must face a trio of challenging desiderata. First, it must account for the differences between ergative languages and non-ergative ones. Second, it must allow for differences among ergative languages. Third, it must provide a natural account of universal constraints, to the extent these hold, related to ergativity in case and its relatives. These potentially include the implication from ergativity in agreement to ergativity in case-marking (should there be adequate treatment available for counterexamples such as Kutchi Gujarati) as well as the implication from ergativity in control to ergativity in case and/or agreement.

In this section I introduce a range of theories responding to ergativity in case and its relatives, sorted into three groups depending on the types of explanatory mechanisms posited. A first group makes use of strictly morphological mechanisms; a second, strictly syntactic mechanisms; and a third makes use of both. For reasons that will become clear, I will discuss the workings of the latter two types of proposals before returning to some critiques which potentially apply to both.

3.1 Morphology-based theories

The description of case in a particular language is traditionally a purely morphological description. Given the weight of morphological facts to be dealt with, various theorists have proposed to deal

with case and related morphological phenomena in an autonomous morphological representation. As noted by Bobaljik (2008), these morphological representations are autonomous not in failing to make reference to syntax (which, as we will see, they consistently do), but in failing to effect representational changes which are visible to syntactic rules. Two theories sharing this characteristic will be highlighted here: the case theory of Marantz (1991), and the agreement theory of Bobaljik (2008).

3.1.1 Morphological case hierarchies

The morphological case theory proposed by Marantz (1991) is one of a family of approaches, morphological and syntactic, making use of the idea of ‘case dependency’ (e.g. Yip, Maling, and Jackendoff 1987, Bittner and Hale 1996a,b, Baker and Vinokurova 2010, Baker 2012). Marantz proposes that case assignment falls under the purview of a post-syntactic morphological component, the input to which is syntactic structure. Four types of morphological case are identified, which are realized according to a disjunctive hierarchy:

- (59) Marantz’s case hierarchy
 - a. Lexically governed case
 - b. Dependent case (accusative and ergative)
 - c. Unmarked case (environment sensitive)
 - d. Default case

Lexically governed case covers datives and related cases assigned in a way connected to thematic information. In a given clause, if the conditions are met for a lexically governed case, the case algorithm assigns this case first. Subsequently, the algorithm checks whether the conditions are met for dependent case. The relevant condition considers not just a single DP, but the set of DPs present in a given clause: dependent case is assigned to a DP when *a distinct nominal without lexical case is present*. One nominal is distinct from another if the two are not part of a chain. Languages differ in whether the dependent case is assigned ‘up’, to the subject, or ‘down’, to the object, or (in an extension of what Marantz proposes) both. Finally, unmarked and default cases are realized on nominals not already covered by prior parts of the algorithm.

Several types of case systems can be handled in this way. In English, which lacks lexically governed cases, dependent case is assigned to the object when there is another nominal in the clause – the subject. The subject subsequently receives unmarked case. This produces a nominative/accusative case system. An analysis along these lines has been defended for Sakha by Baker and Vinokurova (2010) and Levin and Preminger (2013). A language like Warlpiri assigns dependent ergative to its subject when there is another nominal in the clause – the object. After dependent case is assigned to the subject, unmarked case is available to the object. This produces an ergative/absolutive case system. This type of analysis has been defended for Shipibo by Baker (2012). In Nez Perce, we could plausibly claim that dependent case is assigned both upward to the subject (which depends on the object) and downward to the object (which depends on the subject). Subsequently there remains no nominal in need of realization in an unmarked case. This produces a three-way case system.

This analysis makes a clear prediction for ergative case in clauses where a lexical case is assigned. In a clause with only two distinct DPs, if one of those DPs receives lexical case, the other

may not receive a dependent case such as ergative; the conditions for dependent case assignment are not met. While this prediction is often borne out, there are certain well-known problems. One is Warlpiri, which allows ERG-ABS (60), ABS-DAT (61) and crucially also ERG-DAT (62) case arrays (Nash 1980, Simpson 1991).

(60) ngajulu-rlu ka-rna nya-nyi kurdu
 1SG-ERG PRES-1SUBJ see-NONPAST child.ABS
 I see the child (Simpson 1991, 100)

(61) Ngarrka ka-rla marlu-ku yura-ka-nyi,
 man.ABS PRES-3DAT kangaroo-DAT stalk-NONPAST
 marna nga-rinja-kurr-ku
 grass.ABS eat-INF-OBJ.COMP-DAT
 The man is stalking the kangaroo, (while it is) eating grass (Simpson 1991, 319)

(62) ngarrka-ngku ka-rla karli-ki warri-rni
 man-ERG PRES-3SG.DAT boomerang-DAT look.for-NONPAST
 A man is looking for a boomerang. (Hale 1982, 248)

Coverage of the Warlpiri facts seems to require that certain lexically case-marked nominals (e.g. the dative in (62)) trigger dependent case for the subject, whereas others do not. In Warlpiri, this is in spite of the fact that the dative arguments in (61) and in (62) behave similarly for a variety of ‘objecthood’ tests (Simpson 1991). It is notable that this problem does not arise in all ergative languages. It is possible, therefore, that the difference between a language like Warlpiri, which allows ERG to co-exist with a case other than absolutive, and a language like Greenlandic, which does not, will constitute an important parameter dividing one class of ergative languages from another.

3.1.2 Morphological agreement hierarchies

The theory proposed by Bobaljik (2008) extends Marantz’s case theory to the domain of agreement. Bobaljik proposes that control of agreement is determined by the following principle:

(63) The controller of agreement on the finite verbal complex (Infl+V) is the highest accessible NP in the domain of Infl + V.

Accessibility in turn is crucially defined in terms of morphological cases, which can be classified into unmarked, dependent and lexical/oblique groups (following Marantz). Building from Moravcsik (1974)’s work on implicational universals in agreement systems, Bobaljik proposes an implicational relationship among case types for accessibility to agreement.

(64) Unmarked < Dependent < Lexical/Oblique

In a particular language, if any of the classes in (64) is accessible to agreement, so too will be all classes to its left. Thus in some languages, only unmarked nominals are accessible; in others both unmarked and dependent nominals are accessible; but in no language are dependent nominals accessible whereas unmarked ones are not.

This theory provides a natural analysis of two types of agreement systems important in connection with ergativity. In one type, only unmarked DPs are accessible to agreement. In a language

with ergative case-marking, ergative DPs will bear a dependent case, and thus agreement in a transitive clause will ignore the higher, ergative subject in favor of the lower, unmarked object. This leads to an absolutive pattern in agreement. A language plausibly analyzable in this way is Tsez.

- (65) ziya b-ik'i-s
 cow.III.ABS III-go-PST.EVID
 The cow left. (Polinsky and Potsdam 2001, 586)
- (66) eniy-ā ziya b-išer-si
 mother-ERG cow.III.abs III-feed-PST.EVID
 The mother fed the cow. (Polinsky and Potsdam 2001, 586)

In a second type of language, both unmarked and dependent-marked DPs will be accessible to agreement. In this scenario, control of agreement will be determined on the basis of structural height. Supposing ergative subject DPs occupy structural positions superior to those occupied by absolutive object DPs, the former rather than the latter will control agreement. This gives an analysis of languages showing a split in ergativity between case and agreement. Bobaljik proposes to analyze Nepali in this way. Transitive subjects are nominative (unmarked) in the imperfective in this language and ergative (dependent) in the perfective. In either situation, the subject and not the object controls agreement.

- (67) ma yas pasal-mā patrikā kin-ch-u.
 1 SG.NOM DEM.OBL store-LOC newspaper.NOM buy-NPT-1 SG
 I buy the newspaper in this store.
- (68) maile yas pasal-mā patrikā kin-ē
 1 SG.ERG DEM.OBL store-LOC newspaper.NOM buy-PT-1 SG
 I bought the newspaper in this store. (Bickel and Yādava 2000, 348)

A nominative pattern of agreement thus emerges in an ergative-case-marking language because both unmarked and dependent-marked nominals are equally accessible to agreement.

Because agreement rules operate on the output of case-marking rules on this theory, what is not expected are languages which show the reverse of the Nepali pattern: ergativity properties in agreement but nominative-accusative orientation in case-marking. This captures one of the universals proposed above. The challenges to that universal from Kutchi Gujarati and Canela are therefore challenges to the Bobaljik proposal; these are each reportedly languages with a nominative-accusative case system but an absolutive agreement system. Challenging too are the agreement facts from languages like Halkomelem, which shows agreement only with ergative DPs, rather than absolutive ones. This pattern is not straightforwardly describable if agreement with ergative DPs can arise only in languages where unmarked DPs (such as intransitive subjects) may also control agreement.

For Halkomelem in particular, a potential way out is suggested by work by Wiltschko (2006). Wiltschko analyzes agreement in that language as relating to three distinct syntactic loci – C, I, and *v* – and analyzes ergative agreement in particular as relating to *v*. If we understand Bobaljik's proposal as strictly concerning agreement in I, Halkomelem is then no longer a counterexample. It remains to be seen how the agreement pattern of the language can be handled within the general outlines of the agreement-hierarchical view, once a distinction is recognized between agreement in I and agreement in *v*.

3.1.3 General discussion

The scope of the theories just reviewed is by necessity limited to ergativity behaviors in morphological domains. On each proposal, a constrained range of syntactic facts constitutes the input to a morphological algorithm. The algorithm determines case or agreement behaviors in morphology alone. What these theories by their nature do *not* do is handle syntactic patterns of ergativity. Other things being equal, this deficit does not speak against the mechanisms just discussed *qua* analyses of the morphological facts; separate principles could be responsible for ergativity in syntax.

It seems quite clear on a cross-linguistic basis that other things are *not* equal, however. Ergativity in syntactic patterns is only found in languages that show ergativity in morphological patterns as well. For both of the theories reviewed above, this generalization is unexpected. Morphological factors *ex hypothesi* do not influence syntactic rules, and therefore the mechanisms for morphological ergativity cannot by themselves be implicated in syntactic ergativity. There must, rather, be some aspect of the syntax of syntactically ergative languages which requires morphological case and/or agreement mechanisms to kick in. Further development of morphology-based theories is required to elucidate what this connection might be.

3.2 Syntax-based theories

A second group of theories addressing ergativity in case and its relatives seeks to capture these patterns via fully syntactic means. There are two families of approaches in this vein: one which treats ergative marking as reflective of an adpositional structure, and one which treats ergative as a syntactically active feature or feature combination, assigned based on structural relationships between nominals and particular heads.

3.2.1 Ergative as an adposition

In classic instances of an ergative/absolutive case pattern, the ergative subject is marked overtly whereas the transitive object and the intransitive subject remain unmarked. A number of authors have proposed to handle this asymmetry by treating the ergative nominal as structurally larger than the absolutive nominal. In the theory of Bittner and Hale (1996a,b), the additional structure is a KP; other authors proposing additional structure for the ergative have identified this structure as a PP. Notably, the PP analysis immediately makes for a similarity between ergative clauses and passives. Both are syntactic encodings of semantically transitive clauses which involve the realization of the external argument in a prepositional adjunct. Indeed passive clauses are a major source of ergative constructions diachronically (Dixon 1994).

The general outline of this view is lent plausibility by patterns in nominalizations. In languages like Greek, as Alexiadou (2001) shows, adpositional structures are required for transitive subjects only.

- (69) i katastrofi tis polis (apo tus Italus)
the destruction the city-GEN by the Italians
the destruction of the city by the Italians

- (70) i afiksi tu Jani
the arrival the John-GEN
the arrival of John

This makes Greek nominalizations a particularly revealing example of an ergative pattern on the adpositional view. The transitive subject requires a PP structure, whereas other arguments do not.

Mahajan (1997) extends this type of analysis to ergative arguments in Hindi/Urdu, a language where adpositional status is harder to ascertain. He points out that the Hindi/Urdu ergative marker is P-like in occurring outside of coordinated subjects—a fact that is handled straightforwardly if ergative marking sits above the DP level. Note that parallel facts obtain in Nez Perce.

- (71) a. Raam or siitaa-ne (Hindi) b. Matt kaa George-nim (Nez Perce)
 Ram and Sita-ERG Matt and George-ERG
 Ram and Sita (ergative) Matt and George (ergative)

On the strongest version of the adpositional analysis, one might expect this behavior to obtain for the ergative case-marker only. In this respect Nez Perce coordinations involving objective case markers prove problematic. Here, too, the case-marker follows the entire coordination.

- (72) Matt kaa George-na
 Matt and George-OBJ

This complicates the assimilation of the Nez Perce pattern to the pattern of Greek nominalizations. If coordinations of this type provide a diagnostic for adpositions, then it is sometimes the case in ergative languages that all arguments, not just the ergative, are adpositional. If natural languages contain covert adpositions, such an analysis could in principle hold for a language like Hindi/Urdu, where objects may be unmarked. The ability of the adpositional analysis to account for the ways in which ergative is marked vis-à-vis other arguments thus seems to depend on a theory of covertness in adpositional structure.

An argument for the adpositional analysis from a rather different direction is provided by Stepanov (2004), who also draws evidence from Hindi/Urdu. In ergative constructions in Hindi/Urdu, agreement targets the object, rather than the ergative subject.

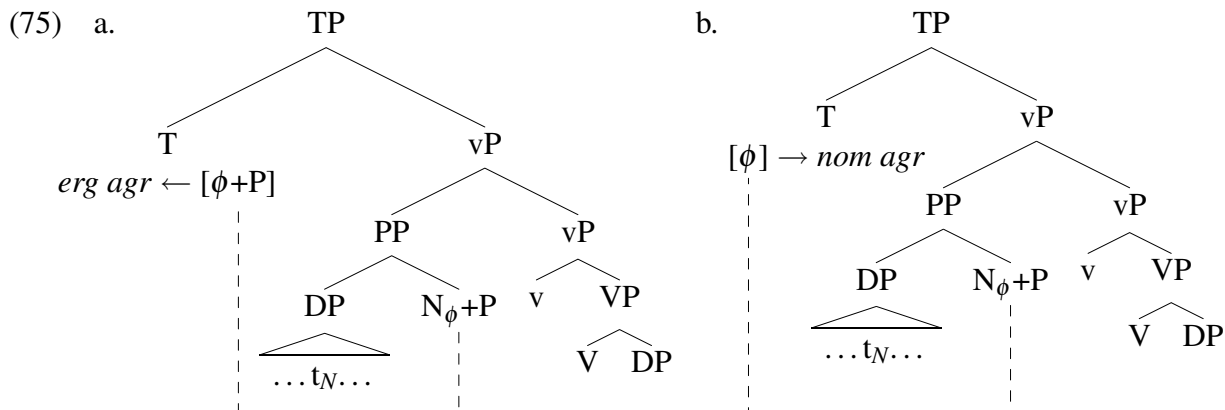
- (73) raam-ne roTii khaayii thii
 Ram.M-ERG bread.F.ABS eat.PERF.F be.PAST.F
 Ram had eaten bread.

Assuming that this agreement reflects the contribution of a T head, the question arises as to why the higher, ergative subject should be skipped over in favor of the lower, unmarked object. Stepanov proposes that the minimality problem is only apparent: ergative subjects are PP adjuncts adjoined late in the derivation, after agreement between T and the object has taken place. English PP adjuncts fail to intervene in raising constructions in a similar way.

- (74) Mary_i seems [to Sue] t_i to be smart.

As late-adjoined adjuncts, Stepanov proposes that ergative PPs cannot undergo cyclic syntactic rules. This provides an explanation for the absence of ergative on derived subjects, a proposed universal. The challenges to that universal from applicatives of Shipibo unaccusatives and from raising constructions (section 3.4) are therefore challenges to the Stepanov proposal. Further challenges come from languages where ergative subjects do in fact agree. These subjects would presumably need to be adjoined earlier in the derivation in order to be visible to agreement.

Some of these challenges are taken up by Markman and Grashchenkov (2012) in work on ergative agreement. These authors propose that ergative PPs may enter into agreement relationships with clausal heads just as ordinary DPs may (a view which entails that PPs are not always merged late in Stepanov's sense). The form of agreement that results will depend on two factors: whether the noun head of the ergative DP incorporates into the ergative P, and whether special realizations are possible for agreement with PP elements. Ergative agreement, which we see for instance in Halkomelem, comes about when the head N of the ergative nominal incorporates into P, and T agrees with the N-P complex in both ϕ -features and P category, (75a). Nominative-accusative agreement surfaces in connection with ergative case when N incorporates into P, but agreement of the N-P complex with T reflects only ϕ -features, not P category, as in (75b). Markman and Grashchenkov propose this type of analysis for Warlpiri.



Finally, for languages in which N does not incorporate into ergative P, they propose that agreement with the ergative PP is simply not possible. This is the pattern that we see in Tsez, where only absolutes agree (65)-(66). Given that ‘ergative agreement’ requires the presence of the ergative P on this view, we are close to an alternative explanation of the fact that ergative agreement systems are almost entirely absent from nominative-accusative case systems. To derive this effect, we will need a better understanding of covertness in ergative P heads, accusative case-marking, and the interaction between these two.

If the presence of a P head is the major distinguishing property of an ergative case system, ergative patterns in \bar{A} -movement and control must also be able to take account of the P head's presence. Further exploration is required to probe whether the adpositional analysis lends itself to insightful approaches to these effects.

3.2.2 Ergative as a case

The remaining group of theories under the ‘syntax-based’ umbrella treat ergative marking as realizing a feature assigned by a head. Contemporary work tends to identify the heads which are involved in case assignment as functional ones, and to connect the assignment of case to a nominal with a relationship, sometimes purely abstract, of agreement between the head and the nominal. Theories differ on the particulars of the heads they posit and the relationships that the posited heads enter into. An excellent summary of the different positions authors have taken in this domain through the end of the 1990s is provided by Johns (2000).

An important theme running through this literature is the connection between case-assignment and movement. For languages like English, it is now generally assumed that the subject is both

assigned case by T and moves to the specifier of the TP projection. The object, by contrast, is assigned case in situ by a functional head *v*. Parameterization of both pieces of this picture have been proposed in connection with morphological ergativity. Three positions can be discerned on what it is that makes ergative languages special:

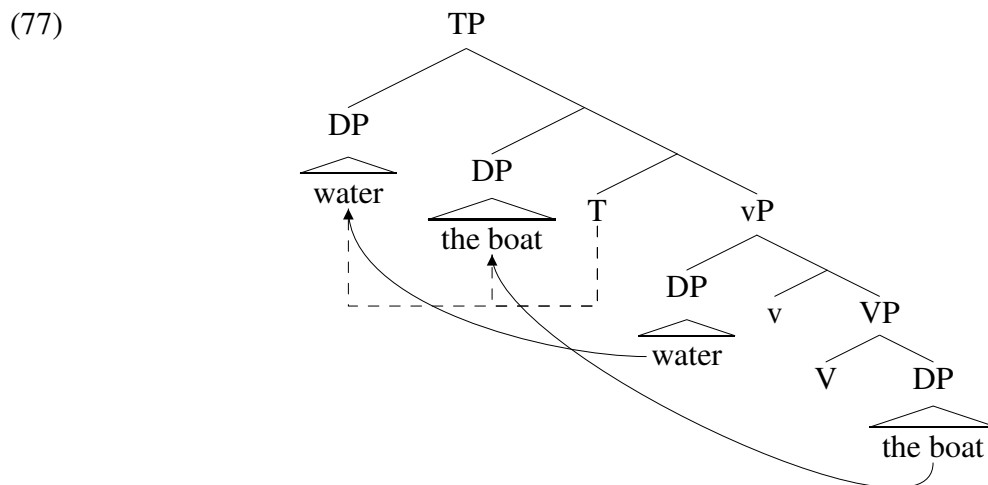
1. Subjects and objects receive case ex situ from T.
2. Subjects and objects receive case in situ from *v*.
3. Subjects receive case in situ from *v*; objects receive case ex situ from T.

The latter two of these have received the lion's share of attention in recent work, and various authors have proposed that both are indeed correct, for distinct groups of languages. In this section, I present exemplars of all three theories individually, noting in particular their predictions for control. After a discussion of jointly morphology- and syntax-based theories in section 3.3, I return to discuss certain critiques of the shared innovation of theories 2 and 3, namely the mechanism of in-situ case assignment to the subject, in section 3.4.

3.2.3 Subject receives case ex situ, object receives case ex situ

Bok-Bennema (1991) proposes that ergative languages are special in failing to assign case in situ to the object. This means that the object must receive case from another case assigning head, presumably the one which is also involved in assigning case to the subject. In order to receive this case, Bok-Bennema and others propose that the object must undergo movement in ergative languages. A recent exemplar of this type of approach is Bobaljik and Branigan (2006). These authors propose that in Chukchi, both subject and object move to specifiers of a TP projection. Case assignment in the tree below is indicated with dotted lines.

- (76) əʔtvʔet jərʔen-nin mimt-e
 boat.ABS fill-3SG/3SG water-ERG
 Water filled the boat.



In support of this derivation, Bobaljik and Branigan note that verbal agreement takes portmanteau forms in Chukchi. The portmanteau forms, they propose, realize the features of the two nominals to which T has assigned case.

If the identification of absolute with nominative is correct – both, on this proposal, would be unmarked cases assigned by T – predictions follow for the treatment of non-finite clauses. A loss of finiteness in TP is associated with the loss of nominative case. Indeed, it is absolutive nominals in opposition to ergative ones which are lost in Dyirbal in purposive control complements, as we saw above.

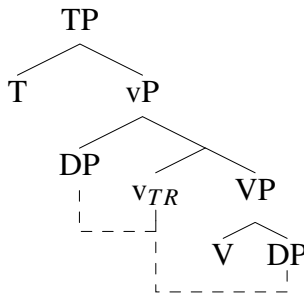
- Several aspects of this view limit its applicability beyond languages of the Dyirbal type, however. Languages in which absolutive nominals persist in non-finite environments will require a different treatment. Warlpiri has been discussed in this connection (Legate 2008); see for instance the persistence of absolutive DP *miyi* ‘food’ in the non-finite clause bracketed below.

- Additional distinct machinery will be required for languages in which the ergative is not the more marked of the cases assigned in transitive clauses. This is particularly relevant for languages showing property (1a) but not (1b), as in the Nez Perce facts shown in (6)-(8).

An alternative line of thinking locates the source of ergativity in case-assignment not to the object, but to the subject. This approach owes its impetus to Woolford (1997)'s proposal that ergative be treated as an inherent case, a case assigned in connection with θ -role assignment. Woolford proposed that languages showing ergativity in morphology have lexical entries for their verbs which

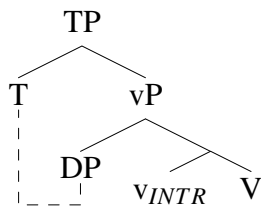
connect the Agent role and the ergative case. This idea connects naturally with the proposals from Kratzer (1996) and others that Agent arguments are introduced by a special functional head v or Voice, and from Nash (1996) and Bittner and Hale (1996a,b) that ergative DPs are case-licensed in their base positions. Putting these pieces together, Legate (2002, 2006, 2008, 2012) and Aldridge (2004, 2008, 2012) propose that v assigns ergative case, in situ, to its specifier argument in ergative languages. It may additionally assign case to the object in such languages, meaning that both arguments are case-licensed in situ by the same head. Let us call the v head which assigns case features in this way ‘transitive v ’, or v_{TR} .

(81)

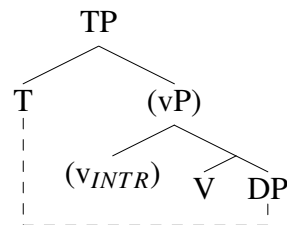


Whereas in a transitive clause v assigns case both to the subject and to the object, leaving T with no case-assignment duties, intransitive clauses feature either (i) no v head, or (ii) a v which assigns no case at all. In either situation, T steps in to assign case to the subject.

(82) a.



b.



A central feature of this view is that objects and intransitive subjects, despite their similarity in surface case, receive their case features from different grammatical loci. Absolutive on objects reflects case assignment by v and not by T. It is therefore expected to persist in non-finite environments; this accounts for Warlpiri examples like (80). Absolutive on subjects reflects case assignment by T, however, and is thus expected to be impossible in non-finite environments. Legate (2008) shows that this is indeed so; a grammatical absolutive non-finite object in (80) contrasts with an ungrammatical absolutive non-finite subject in (83).

- (83) * Ngarrka-patu-rlu ka-lu-jana puluku
 man-PAUC-ERG PRES.IMPERF-3PL.SUBJ-3PL.OBJ bullock.ABS
 turnu-ma-ni [kurdu parnka-nja-rlarni].
 group-CAUSE-NONPAST [child.ABS run-NONFIN-OBV.C]
 The men are mustering cattle while the children are running.

This pattern is different from the Dyirbal pattern discussed above, and indeed both Aldridge and Legate propose a distinct analysis for languages of the Dyirbal type. This proposal is discussed in section 3.2.5.

Legate (2008) discusses an extension to this view to cover languages like Georgian or Western Basque which show argument-structural ergativity. Whereas Warlpiri differs from English in the ability of v_{TR} to assign ergative case, Legate suggests that languages showing property (1c) are

systems where all v heads, both in transitive and in unergative clauses, assign ergative to their specifiers (2008: 58). Three groups of languages may thus be discerned:

- (84) v assigns ergative to its specifier
- Never: English
 - Only when it also assigns case to the object: Warlpiri
 - Always: Western Basque

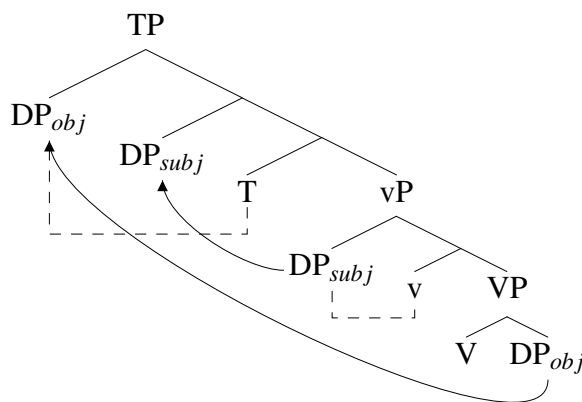
The treatment of ergative as a case assigned to the subject in situ, along with in-situ mechanisms for object case, thus are able to account for a broad range of morphological patterns of ergativity, as well as a distinction between absolutive subjects and absolutive objects in non-finite contexts in Warlpiri.

3.2.5 Subject receives case in situ, object receives case ex situ

A final combination of subject and object case assignment mechanisms involves subject case assignment in situ in vP and ex situ case assignment to the object. This type of proposal is advanced by Ura (2001) as a general treatment of ergative case-marking; a close cousin of that view is proposed by Müller (2009). Similar ideas are advanced by Bittner and Hale (1996a), Aldridge (2004) and Legate (2008) specifically in light of manifestations of ergativity properties in syntax.

On Ura's proposal, v may only assign one case. As on the Marantz 1991 view, this assignment may look either 'up' (to the subject) or 'down' (to the object); ergative case is the name for what v assigns to the subject, and accusative case for what it assigns to the object. Assignment of v 's sole case to the subject leads to a lack of vP -internal case assignment possibilities for the object, as on the Bok-Bennema (1991) and Bobaljik and Branigan (2006) views. The object must therefore move close to the nominative-assigning T head. Ura proposes that the subject moves into an inner specifier of T , receiving no additional case, and that the object receives nominative case in an outer specifier of T .

(85)



A closely related analysis is proposed by Müller (2009). The subject receives case from v in an ergative language, and the object receives case from T , but the case-assignment relation between the object and T need not result in movement. Whether the v head assigns case to the subject (resulting in ergativity) or to the object (resulting in accusativity) comes down to the order in which the v head participates in Merge and Agree. If Agree comes first, that operation will take place as soon as v is merged. Its specifier has not yet been merged, and so v must agree with the

internal argument. This results in v assigning case to the internal argument; this is the source of accusative. If v participates in Merge before Agree, the next step after Merge of v itself will be Merge of its specifier DP. When v subsequently participates in Agree, it agrees with its specifier DP, the external argument; this is the source of ergative. Müller proposes that v must agree with the external argument rather than the internal argument in this case because a specifier of a head is closer to that head than is material contained in the head's complement.

Ura's and Müller's proposals make predictions for non-finite clauses which parallel those of the Bobaljik and Branigan view. Since T is the source of absolutive case for the object, absolutive case should be uniformly lost in non-finite environments. This prediction is appropriate for the Dyirbal facts, as we've seen, but not for the facts of other languages such as Warlpiri. For this reason, Aldridge (2004) and Legate (2008) propose derivations similar to (85) only for languages showing loss of absolutive arguments in non-finite contexts. Languages like Warlpiri are to be handled with in situ case assignment mechanisms for both subject and object according to these authors.

3.3 Jointly morphology- and syntax-based theories

A final group of theories makes use of both syntactic and morphological means to capture ergativity in case and agreement. One of these is the theory of Legate (2002, 2006, 2008), discussed above in connection with syntactic approaches. Beyond the syntactic means of case feature assignment, an essential piece of Legate's proposal involves the interface between morphology and syntax. Case distinctions present in syntax in virtue of syntactic configurations can be lost or obscured by morphological impoverishment. This is generally the situation, Legate proposes, in ergative/absolutive languages showing only morphological ergativity. For Warlpiri (86), for instance, she proposes that the v head assigns accusative case to the object *wawirri* 'kangaroo', and ergative case to the subject *ngarraka* 'man'. In intransitive (87), the v head assigns no case, and the subject is assigned nominative by T.

- (86) ngarrka-ngku ka wawirri- \emptyset panti-rni
 man-ERG AUX kangaroo-ACC spear-NONPAST
 The man is spearing the kangaroo.
- (87) kurdu- \emptyset ka wanka-mi
 child-NOM AUX speak-NONPAST
 The child is speaking.

Case assignment in Warlpiri is then entirely parallel to what we see in a three-way case-marking system like Nez Perce. There is no syntactic category of absolutive that is assigned sometimes by T and sometimes by v (cf. Aldridge 2004). Why does the transitive object share the surface realization of the intransitive subject? The key lies in the way that syntactic case features are mapped to phonological realizations. Legate proposes the following list of syntax/phonology pairings for the Warlpiri case system:

- (88) Warlpiri case morphemes (partial list)
 [ERG] \leftrightarrow -rlu/-ngku
 [DAT] \leftrightarrow -ku
 [CASE] \leftrightarrow \emptyset (= 'absolutive')

This list does not provide special exponents for [NOM] and [ACC] cases. These cases, then, have recourse to a default case form. It is their shared realization through default case morphology that leads to the conflation of [NOM] and [ACC] in an ‘absolutive’ category in Warlpiri.

Evidence for this proposal comes from mismatches in case-marking within a single DP. An interesting example of this is seen in Djapu, a Pama-Nyungan language. Case-marking in this language is generally on a three-way basis, like in Nez Perce.

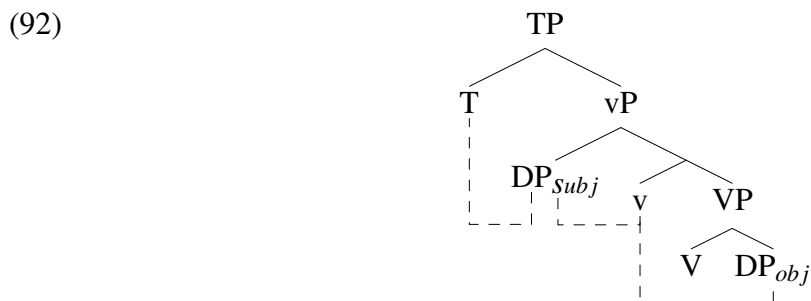
- (89) Mak rlinygu-n galka-y’ ba:pa-’ngali-n dharpu-ngal.
 maybe already-IM sorcerer-ERG father-KIN.PROP-ACC spear-PERF
 Maybe a sorcerer has already speared your father. (Morphy 1983:111)
- (90) Ngarritj nha:-ma wa:yin-gu.
 Ngarritj.NOM see-UNM animal-DAT
 Ngarritj is looking for animal(s). (Morphy 1983:38)

However, whereas common nouns show specialized accusative case forms, demonstratives lack any accusative morphology. When a demonstrative forms a DP with an accusative noun, the demonstrative appears in the unmarked, default case – a seeming partial emergence of a morphological absolutive.

- (91) Wungay’ marrtji-nya ngunhi-ny-dhi yolngu-n
 honey.ABS go-PAST.NONINDIC that.ABS-PRO-ANAPH person-ACC
wapirti-warrtju-na-puyngu-nha-ny weka-nha.
 stingray-spear.PL-NMLZR-INHAB-ACC-PRO give-PAST.NONINDIC
 We would go and give honey to those stingray-spearing people

Such mismatches are elegantly accounted for via the distinction between syntactic and morphological case permitted by Legate’s system. The overall DP ‘those stingray-spearing people’ is assigned [ACC] by *v*, but the component pieces of the DP present different possibilities for inflection. Nouns which have specialized accusative forms adopt those forms, but demonstratives, lacking any such forms, appear in an unmarked, default morphological case. This default is a constrained example of a pattern that happens on a larger scale in a language like Warlpiri.

A somewhat different example of a mixed syntax- and morphology-based theory is provided by Deal (2010a,b). As on the proposals by Legate and Aldridge discussed above, Deal proposes that *v* enters into a syntactic relationship both with the subject in Spec,*v*P and with the object inside VP. These relationships, however, are understood to be agreement relationships which transfer only ϕ -features; there are no case features in the syntax per se. Deal also proposes that T enters into an agreement relationship with the subject; in languages like Nez Perce, this additional agreement is realized as a subject agreement affix on the verb. It is agreement relationships, rather than syntactic case assignment, that are indicated via dotted lines in the tree below.



One nominal, then, agrees with two functional heads, in virtue of being closest to T within its c-command domain (agreement down) and being in the specifier of ν P (agreement up). Deal proposes that this syntactic configuration is interpreted morphologically as ergative case. Morphological interpretation of agreement dependencies first copies the features of the object onto the ν head and of the subject onto the T head. It then interprets the spec-head agreement relationship between ν and the subject by sharing the subject's features and ν 's agreement features, which have been obtained from the object. The subject DP thus ends up endowed with two sets of ϕ -features, its own and those of the object. The morphological exponent of this complex feature bundle is what we recognize as the ergative case.

(93) Nez Perce case morphemes (partial list)

$[\phi-T, \phi-\nu, D] \leftrightarrow -nim$

$[\phi-\nu, D] \leftrightarrow -ne$

This type of approach provides a natural treatment of languages like Sahaptin, a Penutian language, where the appearance of ergative on the subject is conditioned by the person of the object. Ergative case is only expressed on a 3rd person singular subject in the presence of a 1st or 2nd person object.

(94) iwínš-nim=naš i-q'ínun-a.

man-ERG=1SG 3SUBJ-see-PAST

The man saw me. (Rude 1997, ex 25)

(95) iwínš i-q'ínun-a miyánaš-na.

man 3SUBJ-see-PAST child-ACC

The man saw the child. (Rude 1997, ex 26)

(96) i-wiyánawi-ya iwínš.

3SUBJ-arrive-PAST man

The man arrived. (Rude 1997, ex 2)

Because the ergative case marker realizes, in part, the features of the object, it is possible for the marker to be different or to be zero only where the object has a certain featural profile.

3.4 Challenges for ergative in situ

Several of the theories considered above have in common the treatment of the ergative case as assigned in situ to the specifier of ν P. This approach has been quite influential in the recent literature, as witnessed by the papers in Johns, Massam, and Ndayiragije (2006), and work by Woolford (2006), Aissen (2010), Coon (2010a), Coon et al. (2012), and Mahajan (2012). For this reason it is especially important to consider the types of examples that have been raised as possible challenges to it. These concern the correlation between ergativity and thematic role; the absence of ergative case on certain nominals occupying Spec, ν P; and the possibility of raising to ergative.

First, insofar as the ν head assigning ergative case is connected with agency per se, the proposal makes the prediction that ergative case should not be available on non-agent subjects. There are many languages showing ergativity properties in case and agreement for which this prediction is not accurate (Comrie 1978, Bobaljik and Branigan 2006, Otsuka 2006, Bruening 2007, Deal

2010a, Preminger 2012, Baker 2012). Examples below from Chukchi and Nez Perce underline this point.

- (97) əʔtvʔet jərʔen-nin mimt-e
 boat.ABS fill-3SG/3SG water-ERG
 Water filled the boat. (Chukchi)
- (98) piswe-m 'inii-ne pee-tqe-likeece-θ-ye.
 rock-ERG house-OBJ 3/3-suddenly-on.top-P-REM.PAST
 A rock fell on the house. (Nez Perce)

The standard way to reconcile such data with the *v*P proposal is to weaken the connection between *v* and an agent *θ*-role. The *v* head may assign a broader class of ‘external’ or ‘causer’ *θ*-roles, for instance, including whatever roles are appropriately assigned to the ergative nominals in the examples above (e.g. Monrós 2007, Legate 2012). In this sense the original proposal that ergative is a *θ*-linked case is crucially modified to highlight the *structure* in which various roles are assigned, rather than the roles themselves. What is central to the proposal is that ergative is assigned in situ to the specifier of *v*P; a full account of examples like those above is left to await a proper theory of the mapping between this type of structural configuration and observable semantic consequences.

A second challenge concerns whether occupying the Spec,*v*P position is sufficient for ergative case-marking. Arguments that it is not come from Basque and from Nez Perce. Between them, Basque dialects and Nez Perce cover three major types of ergativity: ergative/absolutive (eastern Basque), three-way (Nez Perce), and argument-structural (western Basque).

Basque dialects converge on the marking of transitive and unaccusative clauses. Transitive objects and unaccusative subjects appear in an unmarked absolutive case; transitive subjects take a special marker, the ergative.

- (99) Nekane-k Miren eta Jon ikusi ditu.
 Nekane-ERG Miren.ABS and Jon.ABS seen AUX.3PA.3SE
 Nekane saw Miren and Jon.
- (100) Miren eta Jon etorri dira.
 Miren.ABS and Jon.ABS come AUX.3PA
 Miren and Jon came.

For the question of the sufficiency of Spec,*v*P position for ergative marking, the relevant examples in Basque involve gerundive complements of perception verbs, which contrast with full clausal complements (Rezac, Albizu, and Etxepare 2010). In full clausal complements, such as the bracketed constituent below, transitive subjects must be marked ergative.

- (101) [Katu-ek/*ak sagu-ak harrapa-tu
 [cat-DEF.PL.ERG/*DEF.PL.ABS mouse-DEF.PL.ABS catch
 dituzte-la] ikusi dut
 AUX.3PLABS.3PLERG-that] seen AUX.1SGERG
 I saw that the cats caught / were catching the mice.

If ergative is assigned in situ in *v*P, the possibility of ergative assignment to the subject is expected to persist in gerundive complements, which possess a reduced clausal structure. This, however, is not the case: gerundive complements show absolutive subjects, rather than ergative ones. (See Rezac et al. (2010) for arguments for the constituency represented here.)

- (105) Jon-ek eta Miren-ek_k [t_k lagunei_j liburuak_i bidali] behar di-zkii-ej-tek.
 Jon-ERG and Miren-ERG [friends.D books.A send] must AUX-3PA_i-3PD_j-3PE_k.
 Jon and Miren must send friends books.

In (106), on the other hand, *Jon eta Miren* raises from a position in the projection of unaccusative ‘come’, in which ergative case is *not* assigned. The ergative case appearing on *Jon eta Miren* in its derived position must therefore be the result of raising.

- (106) Jon-ek eta Miren-ek_k [t_k etorri] behar du-te.
 Jon-ERG and Miren-ERG [come] must AUX-3PE
 Jon and Miren must come.

This appears to counterexemplify the proposed universal that ergative does not appear on derived subjects.

If ergative is by definition a case that is assigned to DPs in Spec,vP in virtue of their base-generation in that position, two main avenues remain open to deal with the Basque facts. First, we might treat the case similarity between the raised subject in (106) and the ordinary transitive subject in (99) as an instance of homophony. The ordinary transitive subject in (99) indeed receives the ergative case in virtue of its base position, but the raised subject in (106) receives some other case, which happens to be realized in a way identical to the ergative. Just as for the two types of absolutive in Warlpiri discussed above, what must be shown is a distinction in syntactic or morphological behavior between these two case categories in support of the postulated difference. The alternative avenue is simply to deny that Basque makes use of an ergative case. This in turn requires identifying an alternative means of case-assignment for Basque and distinguishing this route from the ergative one by independent means.

4 Theories of ergativity in \bar{A} -movement

We now turn to the manifestation of ergativity properties in the grammar of \bar{A} dependencies. The core phenomenon in this domain concerns a difference in the way that \bar{A} movement is encoded when transitive subjects are extracted versus when other constituents are extracted. Roviana data showed us this pattern above. Object and intransitive subject relativization in Roviana makes use of ordinary verb forms in the embedded clause. Transitive subject relativization makes use of a special nominalized form.

- (107) Hierana sa tie [_{RC} sapu kote taloa]
 this DEF man REL FUT leave
 This is the man who is going away.
- (108) Hierana sa koreo [_{RC} sapu tupa-i-a e Zone]
 this DEF boy REL punch-TR-3SG.DO ART John
 This is the boy that John punched.
- (109) a. *Hierana sa tie [_{RC} sapu tupa-i-u] *Normal verb form
 this DEF man REL punch-TR-1SG.DO
 This is the man who punched me.
- b. Hierana sa tie [_{RC} sapu tupa-qa rau] ^{OK}Special verb form
 this DEF man REL punch-1SG.NSUF I

Corston (1996) reports that the type of verbal morphology seen in (109b) cannot be used in object extraction, and suggests that it cannot be used in intransitive subject extraction either. This suggests that verbal morphology is strictly correlated with whether an ergative or a non-ergative is extracted. The literature on ergativity in \bar{A} extraction explores both morphological and syntactic explanations for this type of correlation.

An example of a purely morphological approach is provided by Stiebels (2006)'s study of \bar{A} extraction in Mayan. Across a range of Mayan languages, a special verb form appears when transitive subjects are \bar{A} extracted. This form is called the 'agent focus' (AF) in the Mayanist literature. The AF form does not appear when intransitive subjects or transitive objects are extracted. An example from Q'eqchi is given below.

- Working in lexical decomposition grammar, Stiebels analyzes the special verbal morphology in (110c) as akin to a form of agreement. Agreement in Mayan languages is generally on an ergative-absolutive basis. The AF morphology is like other ergative agreement markers, Stiebels proposes, but with an additional focus feature (triggering \bar{A} -movement) and impoverished ϕ -features. When the subject is ergative and has a focus feature, use of AF agreement is obligatory; this is simply because failure to use the correct agreement form generally leads to ungrammaticality. When the subject has a focus feature but is not ergative, use of AF is not possible for these same reasons. Together with additional machinery regulating the form of agreement with objects in AF clauses, this proposal is able to account for a wide range of data from diverse Mayan languages.

(111) Pära bai u-agang *pro* hämyu un pupuengi
FUT.IRR 1SG.IRR-call you.PL one evening
I was going to call you one evening. (Chung 1998, 35)

When there is \bar{A} extraction, however, the form of agreement changes, and the change is determined by the case of the \bar{A} -moving element. When a nominative is \bar{A} moved, the infix *um* is inserted; when an accusative is A' moved, the infix *in* is inserted (Chung 1982, 1998).

- (112) Hayi f-um-a'gasi *t* i kareta
 who WH[Nom]-wash the car
 Who washed the car? (Chung 1998, 236)
- (113) Hafa k-in-annono'-mu *t* ?
 what WH[Obj].Agr[2s]-eat.Prog
 What are you eating? (Chung 1998, 237)

As analyzed by Stiebels, the Mayan AF form is essentially a form of *wh*-agreement in an ergative language. Agreement in Mayan, as in Chamorro, reflects both case and extraction. Extracted ergatives trigger a special overt form of *wh*-agreement, namely the AF suffix, and other instances of agreement with *wh*-phrases are syncretic with ordinary agreement. Now, the Chamorro forms demonstrate the possibility of *wh*-agreement both with subjects and with objects, with roughly equal morphological complexity in the two cases. One might expect to find, then, an ergative language showing special forms of verbal morphology of equal complexity in both ergative \bar{A} -movement and in absolutive \bar{A} -movement. It is striking that such a language appears to be unattested. The generalization seems to be:

- (114) When verbal morphology is affected by \bar{A} extraction of arguments in an ergative language, the forms used for \bar{A} extraction of ergatives are always more complex than those used for non-ergatives.

The challenge for the morphological account is to provide a natural account of this type of generalization.

4.2 *Syntax-based theories*

In contrast to the morphological view, various researchers have posited a structural difference between clauses where ergatives are extracted and those where non-ergatives are. On this view, the standard clausal syntax of some ergative languages makes it impossible to \bar{A} move the subject. Two major threads connect the theories in this domain. The first concerns the involvement of object movement. This movement is frequently, though not always, connected to a second common thread: the idea that the object receives case from T or I. The structure resulting from the object's movement is one in which the subject cannot undergo \bar{A} -movement; or, alternatively, the structure in which the subject \bar{A} -moves is one in which the object cannot be assigned case in the typical way.

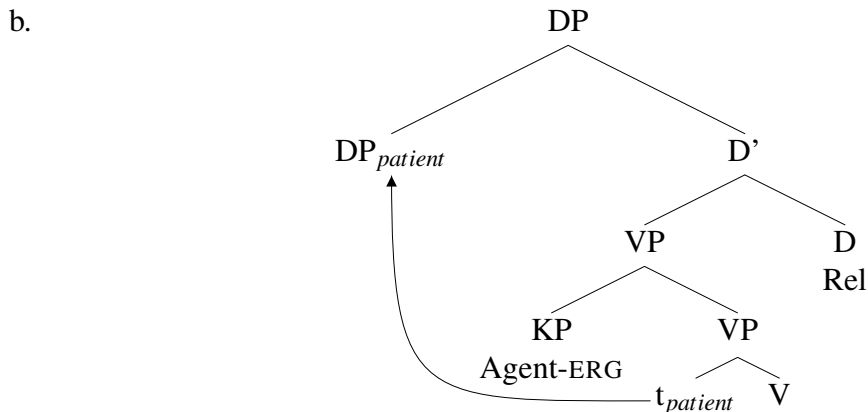
4.2.1 *The problem is object \bar{A} -movement*

A first set of analyses identifies syntactically ergative languages as languages in which objects must undergo \bar{A} -movement in ordinary transitive clauses. This leads to problems in \bar{A} extraction of subjects in transitive clauses. Theories along these lines are proposed by Bittner (1994), Bittner and Hale (1996a) and Campana (1992).

For Bittner and Hale, objects move to an \bar{A} position for reasons of case in a syntactically ergative language. Spec,IP, the nominative case-checking position, is to be considered \bar{A} ; in ordinary

transitive clauses, it is to Spec,IP that objects raise. Case-driven object movement interacts with other types of \bar{A} -movement when a limited number of \bar{A} positions are available. This is the situation Bittner and Hale find in Inuit relative clauses, which they propose are formed via nominalization of VP. To fulfill its case needs, the object of a transitive must raise to Spec,DP, the closest \bar{A} position. The subject receives ergative case in situ in virtue of case competition with the object. (Details of this are discussed by Bittner and Hale (1996b).)

- (115) a. miiqqa-t [__ Juuna-p paari-sa-i]
 child-PL [__ Juuna-ERG look.after-REL[+TR]-3SG.PL]
 the children that Juuna is looking after (Bittner 1994, 55)

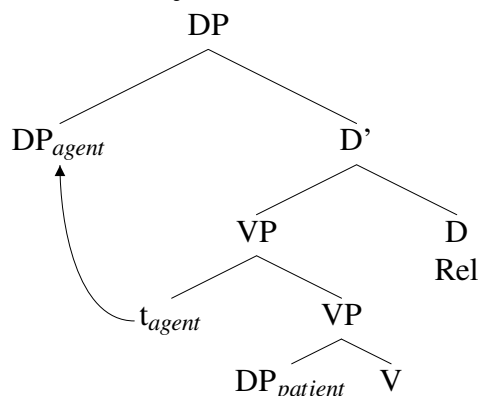


Subject relativization is dependent on transitivity. When an object is not present, the subject may raise to Spec,DP for case reasons, (116a). A transitive subject may not do so, however, (116b).

- (116) a. miiqqa-t [__ sila-mi pinnguar-tu-t]
 child-PL [__ outdoors-LOC play-REL[-TR]-PL]
 the children who are playing outdoors (Bittner 1994, 55)
- b. * angut [__ aallaat tigu-sima-sa-a]
 man [__ gun take-PRF-REL[+TR]-3SG.SG]
 the man who took the gun (Bittner 1994, 58)

As Bittner (1994, 58) discusses, the problem with (116b) concerns the case filter. When the subject raises to the only available \bar{A} position, the object is left without a source of case. No case is available to it VP-internally.

- (117) Structure of *(116b): no case for the object



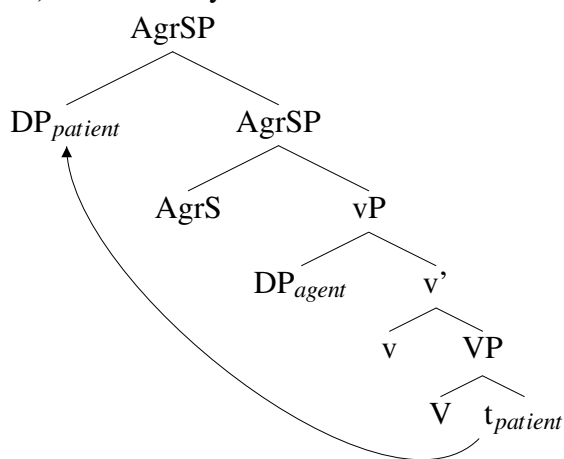
Special morphology reflects a structure in which the object's case-needs have found a different means of satisfaction. In this structure – the ‘antipassive’ – the object is able to receive case VP internally, freeing the subject to occupy the sole \bar{A} position available in the relativization structure.

- (118) angut [__ aallaam-mik tigu-**si**-sima-su-q]
 man [__ gun-INST take-AP-PRF-REL[-TR]-SG]
 the man who took the gun (Bittner 1994, 58)

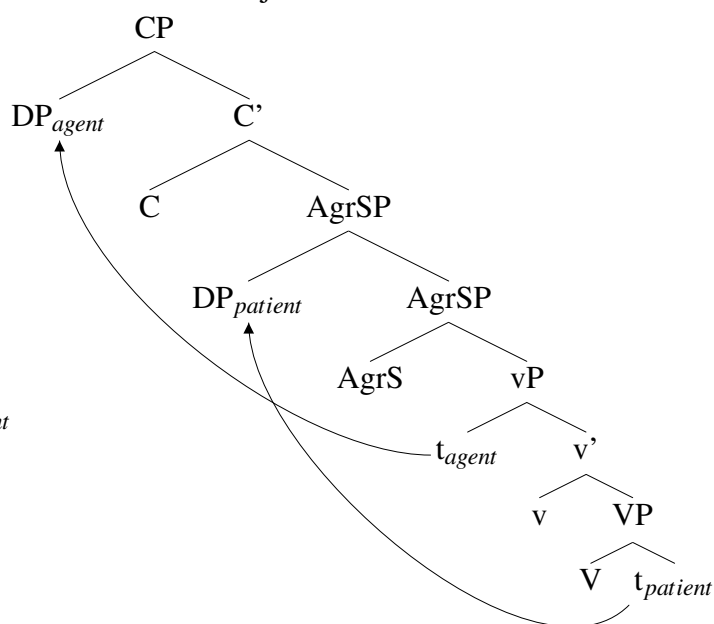
Additional machinery is required to extend this proposal to ergativity in \bar{A} -movement in full clausal domains, such as relative clauses in Roviana or matrix questions in Q'eqchi. Here, object movement to Spec,IP should be possible, fulfilling the case needs of the object; the remaining difficulty in subject \bar{A} -movement to Spec,CP remains to be accounted for.

The proposal by Campana (1992) allows for these further examples while carrying over various features of the Bittner and Hale approach. Like Bittner and Hale, Campana proposes that objects must raise for case reasons to an \bar{A} position in ordinary transitive clauses in syntactically ergative languages. He identifies this position as an adjunct position in Agr,SP. Subjects receive case below AgrSP. (I show this position, anachronistically, as Spec,vP in the trees below.) \bar{A} -movement of a transitive subject therefore creates a second \bar{A} -dependency which crosses over the first:

- (119) a. Ordinary transitive clause



- b. Transitive subject extraction



Campana proposes that structure (119b) is ill-formed due to the ECP, a principle requiring the trace of the subject in Spec,vP and its co-indexed antecedent (the subject DP itself) to be sufficiently close together. In (119b) the \bar{A} position occupied by the object intervenes between the subject's trace and its landing site, disrupting this locality and producing deviance. Just as on the Bittner and Hale proposal, circumventing this deviance requires finding some way to assign case to the object without \bar{A} moving it. Campana discusses the use of passive and antipassive strategies that achieve this result.

The ECP-based explanation makes for a natural parallel between syntactic ergativity in \bar{A} -movement and the *that*-trace phenomenon. Examples like (120b) are handled on the standard GB

approach (Chomsky 1986) in much the same way as Campana treats instances of ergative extraction such as (116b): something intervenes between a trace of the moving subject and its next highest antecedent. In structures like (119b), this is the object DP; in (120b), it is the complementizer *that*.

- (120) a. Who_i do you think [_{CP} t_i [_{IP} t_i won the game]] ?
 b. * Who_i do you think [_{CP} t_i that [_{IP} t_i won the game]] ?

A major prediction of both Campana's and Bittner and Hale's theories concerns non-finite clauses – a challenge which will come up repeatedly throughout this section. Transitive subject movement on these theories is complicated by movement of the object, and object movement is driven by a need to receive case *ex situ*. The object's case, received from T and its analogues, is the nominative. In non-finite clauses, nominative is expected to become unavailable. This means that languages with ergativity in \bar{A} -movement should be languages where overt objects, modulo some special means of case-assignment, are impossible in non-finite clauses. Structures which are plausibly non-finite in West Greenlandic Inuit appear challenging from this perspective.

- (121) Miiqqat [PRO Juuna ikiu-ssa-llu-gu] niriursui-pp-u-t
 children.ABS [PRO Juuna.ABS help-FUT-INF-3SG] promise-IND-INTR-3PL
 The children promised to help Juuna. (Manning 1994, 113)

Bittner (1994) proposes to handle such non-finite clauses with mechanisms very similar to those used in finite clauses; nominative-assignment possibilities are dissociated from finiteness. It remains to be seen how a broader range of non-finite clauses, including those of the English and Dyirbal types, can be accounted for under this proposal.

An additional prediction of the Campana theory in particular concerns \bar{A} movement of adjuncts and indirect objects. Movement of such elements out of ν P is expected to induce an ECP violation parallel to that shown in (119b). Yet languages showing ergativity in \bar{A} movement do not typically show parallel effects in adjunct or indirect object extraction. In Kaqchikel (Mayan), for instance, transitive subjects may not extract when the verb bears ordinary morphology; an AF marker is required.

- (122) a. n- \emptyset -u-löq' jun sik'iwuj ri a Carlos
 INCOMPL-3SG.ABS-3SG.ERG-buy INDEF book DET CL Carlos
 Carlos buys a book.
 b. * achike n- \emptyset -u-löq' jun sik'iwuj
 who INCOMPL-3SG.ABS-3SG.ERG-buy INDEF book
 Who buys a book?

Extraction of low adjuncts and indirect objects imposes no parallel condition. These elements freely extract in clauses with ordinary verbal morphology.

- (123) achoq r-ik'in n- \emptyset -u-sël ri ti'ij ri a
 what 3SG-POSS-RN.INSTR INCOMPL-3SG.ABS-3SG.ERG-cut DET food DET CL
 Carlos?
 Carlos
 With what does Carlos cut the meat?

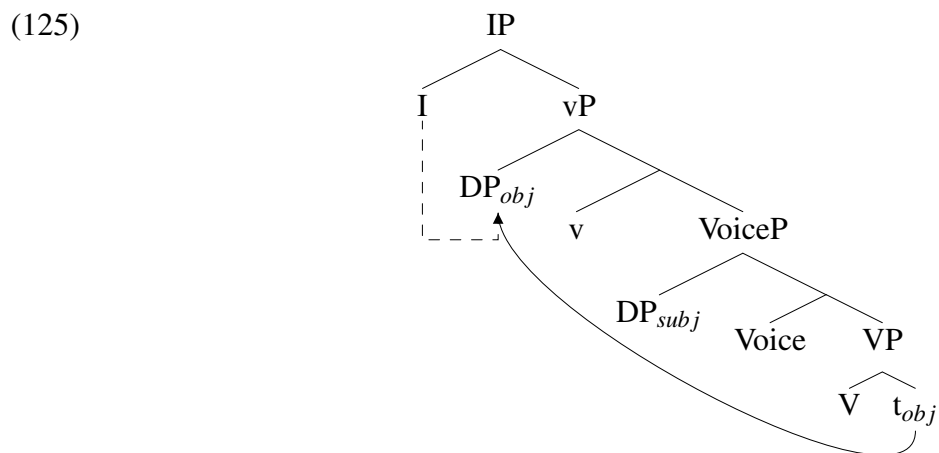
- (124) achoq chi re n-Ø-u-ya' a Carlos jun sik'wuj
 who PREP DET INCOMPL-3SG.ABS-3SG.ERG-give CL Carlos INDEF book
 To whom does Carlos give a book?

These data come from Assmann et al. (2012), who observe that this type of theory in effect predicts an “absolute island” effect in clauses with ordinary verbal morphology. The prediction is contravened by low adjunct movement past an absolute in (123) and indirect object movement past an absolute in (124).

4.2.2 The problem is locality

A second set of analyses identifies syntactically ergative languages as those in which transitive subject movement is barred by a principle of locality. Different types of locality conditions are invoked in this literature.

Coon et al. (2012) propose that the relevant principle is one of *absolute* locality: the Phase Impenetrability Condition (Chomsky 2001). Like Campana and Bittner and Hale, Coon et al. propose that there is no source for object case in VP in the syntactically ergative languages they discuss. Objects must therefore receive case *ex situ* from IP. IP, however, lies on the opposite side of a phase boundary from the object's base position. The object is therefore required to move into the specifier position of the phase head, which Coon et al. identify as a *vP* above the base position of the subject in VoiceP. Once moved to Spec,*vP*, the object may enter into a local agreement relationship with I and receive case.



Movement of the object through the specifier of ν P also comes with consequences for the subject. \bar{A} -movement to Spec,CP requires the subject to cross the ν P phase boundary. However, the object is required to occupy the only specifier position available in ν P. \bar{A} -movement of the subject is thus ruled out in virtue of the PIC.

Special morphology appearing in \bar{A} -movement of ergatives is again connected to an alternative means of case-assignment for the object – one which operates strictly within the lower phase. One might then expect that this means of case-assignment would appear in other environments in which objects have case-needs that cannot be met in IP; for instance, it might appear in non-finite clauses. Coon et al. discuss evidence from Q'anjob'al showing exactly this type of convergence. The Q'anjob'al suffix *-on* appears in embedded non-finite clauses (126) and in contexts of transitive subject movement (127).

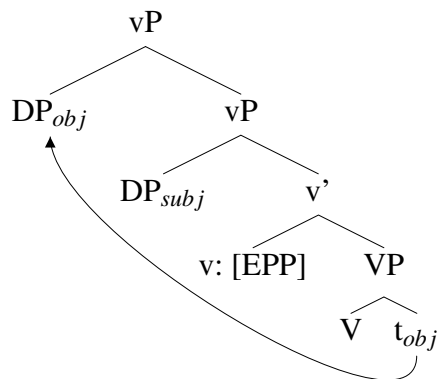
- (126) Chi uj [hin y-il-on[-i] ix Malin].
 ASP be.able.to [ABS1 GEN3-see-AF-ITV CL Maria]
 Maria can see me.
- (127) Maktxel max-ach il-on-i.
 who ASP-ABS2 see-AF-ITV
 Who saw you?

Coon et al. propose that the *-on* ("agent focus") suffix is a special Voice head which assigns case to the object in situ. This obviates the dependence of the object on I, and thus makes an overt object possible in a non-finite context in (126). It also obviates the need for object movement through Spec,vP, and thus opens the way for subject extraction in (127). The view presents a straightforward approach to the fact that the forms used for \bar{A} extraction of ergatives are morphologically more complex than those for extraction of non-ergatives. The Voice head is more syntactically complex under ergative extraction than it would normally be; only in this case does it bear a case feature.

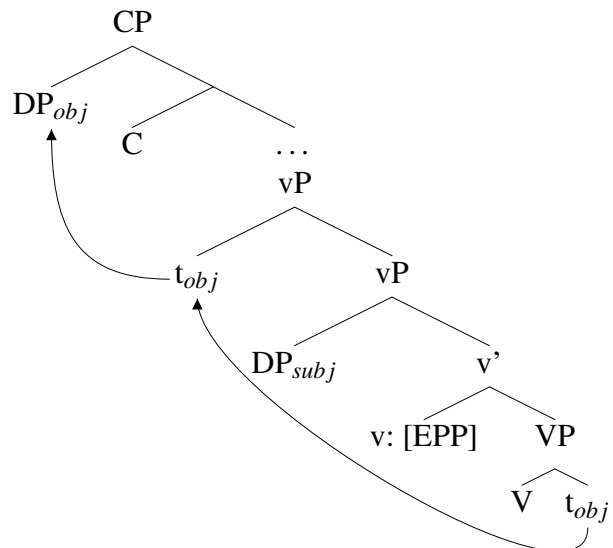
The challenges for this view are similar to those facing Campana's view. Here, too, it remains to be seen how \bar{A} extraction asymmetries can be handled in languages like West Greenlandic, where objects do not seem to depend on IP for case. This raises the question of why objects would have to raise to vP in such languages, blocking subject movement. The challenge of adjunct extraction and indirect object extraction also is applicable to this view. The vP escape hatch must be unavailable to subjects when an object occupies Spec,vP, but it must be open to adjuncts and indirect objects.

Aldridge (2004, 2008, 2012) proposes an alternative locality-based account according to which the relevant principle is one of *relative* locality: Attract Closest. Syntactically ergative languages, she proposes, are those in which transitive *v* possesses an [EPP] features which triggers raising of the object to vP's outer specifier. \bar{A} -movement to Spec,CP is likewise triggered by an [EPP] feature which attracts *the closest DP*. \bar{A} -movement of objects and intransitive subjects therefore proceeds straightforwardly; these are the highest DPs in their respective vPs.

(128) a. Basic vP structure

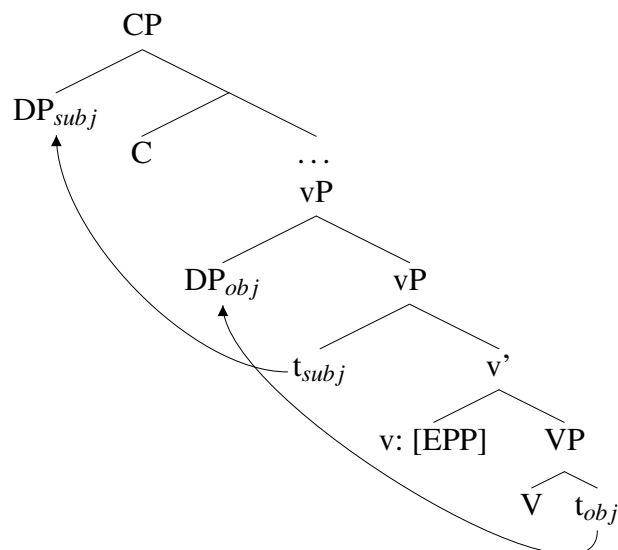


b. Object \bar{A} -movement



\bar{A} -movement of transitive subjects to Spec,CP is forbidden because relative to the object, the subject is not local to C. Only the highest DP in vP can \bar{A} move.

(129) *Transitive subject movement: a violation of Attract Closest



Special morphology appearing in contexts of ergative \bar{A} -movement is connected to a difference in the syntax of the object. Aldridge proposes that antipassive clauses (e.g. (118)) contain a v head which does not carry an [EPP] feature triggering object movement. The subject remains the highest DP, and is able to \bar{A} move.

This approach faces a mix of the challenges applying to Stiebel's account and those applying to Campana's and Coon et al.'s. First, like on the Stiebels approach, it remains unexpected why the forms used for \bar{A} extraction of ergatives should be morphologically more complex than those for extraction of non-ergatives. We must somehow assure that transitive v is not realized overtly unless antipassive v also is. Transitive v is furthermore potentially more syntactically complex than antipassive v – it contains an [EPP] feature. One might expect, then, that *ergative* extraction would feature reduced complexity in verbal morphology, contrary to fact. Second, to the extent that adjuncts and indirect objects behave like DPs in their interaction with [EPP], facts like those in (123) and (124) are also unexpected. Like Campana's and Coon et al.'s proposal, Aldridge's leads us to expect some version of an absolutive island. It remains to be clarified why adjuncts, which are typically *less* mobile than arguments, are able to extract in cases where subject arguments are not.

A distinctive aspect of this proposal lies in the connection between object movement and object case. Unlike in the other views reviewed here, the connection between these two is only indirect. For languages like Tagalog and West Greenlandic, Aldridge proposes that movement of the object to the outer specifier of vP takes place even though there is a source for object case vP internally. Ergativity in \bar{A} -movement is therefore possible even when absolutive case (being assigned at the vP -level) remains available to objects in non-finite clauses, as we saw for West Greenlandic in (121). The reverse, however, is not possible. In a language where absolutive objects are not possible in non-finite clauses, objects receive their case from T; T, like C, must attract the closest DP. In order for it to be the object that is attracted, the object must first shift past the subject at the vP level. Aldridge proposes that a language showing this profile is Seediq. Crucially, there is *no* language where absolutive objects are impossible in non-finite clauses (as in Seediq) but there is no \bar{A} extraction restriction.

(130) Aldridge's generalization

If a language does not provide a source for absolutive case in a non-finite clause, then it does not allow transitive subjects in normal clausal structures to be \bar{A} extracted.

The innovation of Aldridge's proposal is that it allows this generalization to be derived as a one-way implication, rather than a biconditional.

Notably, this analysis requires \bar{A} -movement in syntactically ergative languages to work slightly differently than does its counterpart in English. Either subject or object may \bar{A} move in English, despite the fact that the former is systematically closer to C than the latter. The English facts are typically handled by positing that an [EPP] feature on C attracts not just the closest DP, but the closest constituent with a *wh*-feature. This provides a ready account of superiority effects, as in (131c-d).

(131) English: C attracts the closest *wh*-feature

- a. Who ate the pizza?
- b. What did Susan eat?
- c. Who ate what?
- d. *What did who eat?

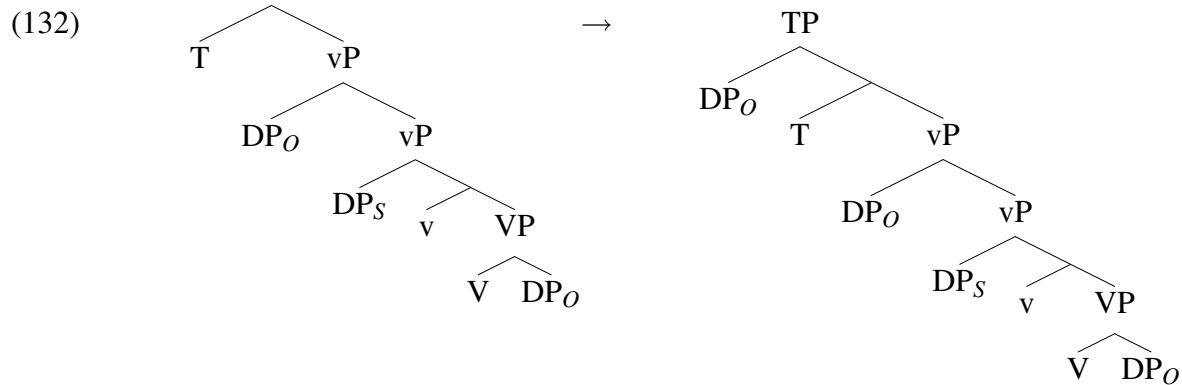
To produce a syntactically ergative language, then, two independent pieces must come together. First, objects must move to a position above that occupied by subjects. This type of idea is widely explored in the literature on Germanic object shift (e.g. Collins and Thráinsson 1996). Second, triggers of \bar{A} -movement must attract the closest DP without regard to its featural specification. This type of parameter could potentially be useful in dealing with Keenan and Comrie (1977)'s observations regarding languages where only subjects may relativize. Such languages may be examples of closest-DP attraction by a relative C independent of the object shift that Aldridge posits for syntactic ergativity.

4.2.3 The problem is rule ordering

A final type of syntactic approach shares with Bittner and Hale, Campana and Coon et al. the core idea that case assignment to the object is blocked by \bar{A} movement of an ergative DP. Assmann et al. (2012) propose an implementation of this idea that comes out of the ordering between the operations Merge and Agree.

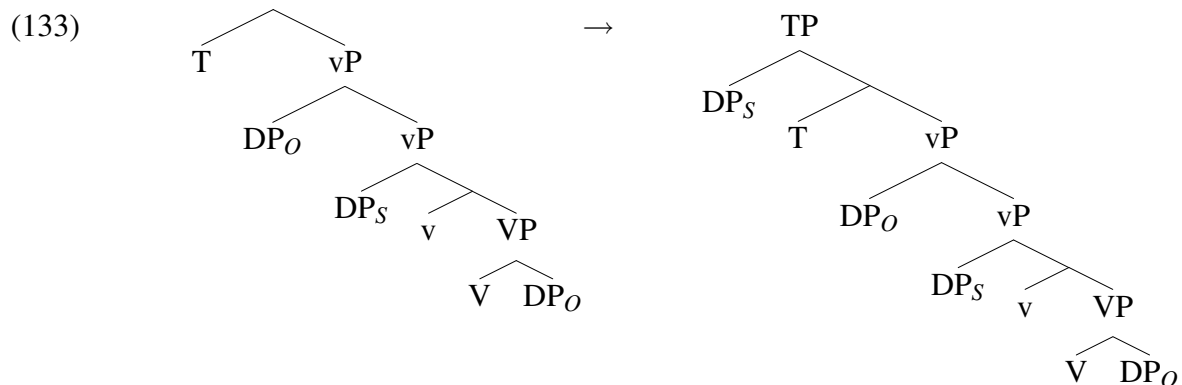
Assmann et al. adopt Müller (2009)'s approach to ergative case, reviewed in section 3.2.5. Structural case across languages is connected to two loci, ν and T. Ergativity results when ν must participate in Merge before it participates in Agree; this has the effect that ν agrees with the DP in its specifier position and assigns it ergative case. In this scenario the object is assigned case by T. Ergative extraction restrictions arise, Assmann et al. propose, because \bar{A} movement to the left periphery necessarily stops in the Spec,TP position (an idea they connect to the proposal that TP is a phase). This means that T, like ν , participates in both Agree (i.e. case-assignment) and Merge (i.e. attraction of a DP to its Spec). Crucially, if a language requires Merge before Agree at the ν P level – resulting in ergative case – it also requires Merge before Agree at the TP level. This has the effect of allowing object extraction but not transitive subject extraction to proceed straightforwardly in an ergative language.

Object extraction proceeds as follows. Immediately after T is merged, a DP must move to its specifier position. When it is the object that moves, the structure is altered by Merge as shown in (132). The object, having previously moved to the edge of the vP phase, moves to Spec,TP. (Note that this tree reflects a copy theory of movement.)



The next step triggered by T is Agree, and this targets the DP in T's specifier. This DP (the object) is thus assigned case. If C is merged, the object can proceed to move to Spec,CP. This produces object \bar{A} -movement.

Matters are different when a subject is extracted. Suppose that the initial structure in (132) serves as the input to an alternative, equally available application of Merge. It is the subject DP that moves to Spec,TP.



Once again, the next step will be Agree between T and the DP in its specifier position. This DP has already received case from v, but it remains a legitimate goal for Agree with T. Agreement of T with its DP specifier, however, prohibits T from engaging in any further agreement with other DPs in its domain. In particular, it may not subsequently agree with the object DP inside its sister vP. That object is thus unable to receive case, and the derivation crashes. The requirement that all movement to Spec,CP proceed through Spec,TP thus interacts with the order of Merge and Agree to produce a prohibition on ergative extraction.

Special morphology appearing in \bar{A} -movement of ergatives is again connected to an alternative, 'marked' means of object case-assignment. Assmann et al. analyze agent focus clauses (e.g. (127)) as featuring an additional case-assigning feature, attached to V. As on the Coon et al. approach, this means that contexts of ergative extraction feature more syntactic complexity than those with object extraction. This helps explain the increased morphological complexity of ergative extraction verbs.

A prediction of this approach concerns environments in which both subject and object are \bar{A} extracted. In this case, both DPs move to Spec,TP, and the object DP may receive case from T appropriately. Both DPs subsequently raise to Spec,CP. No special mechanism of case assignment at the VP level is needed, and thus no special morphology of ergative extraction is expected. This prediction is confirmed by Kaqchikel double questions like (134) and combined question/focus sentences like (135).

(134) atux achike n- \emptyset -u-löq'
 what who INCOMPL-3SG.ABS-3SG.ERG-buy
 Who buys what? (Assmann et al. 2012, ex 44)

(135) achike ja ri jun sik'iwuj n- \emptyset -u-löq'
 who FOC DET INDEF book INCOMPL-3SG.ABS-3SG.ERG-buy
 Who buys a BOOK? (Assmann et al. 2012, ex 43)

What is notable about these examples is that transitive subject DPs are extracted with no special verbal morphology.

In tying ergative extraction asymmetries to object case, the Assmann et al. view inherits the challenge of languages like West Greenlandic (as do all views reviewed here, with the exception of Aldridge's). Given that objects do not clearly receive case from T in such languages, it remains to be seen what precise obstacle is encountered in completing a derivation like (133). It is in addition an open question how the view is properly expanded to deal with languages that do not show syntactic ergativity in the first place, like Warlpiri. If ergativity in morphological case uniformly arises when Merge precedes Agree at the ν P level, as Müller (2009) proposes, and if the order of operations at TP always mirrors the order at ν P, merely morphologically ergative languages are a surprising exception. Finally, like all of the other approaches reviewed in this section, the Assmann et al. proposal leaves it unclear why indirect object DPs and adjunct DPs should be extractable with ordinary verbal morphology. Movement of an indirect object DP through Spec,TP is expected to bleed case assignment to the object in a way precisely parallel to what happens with subjects.

5 Future directions in ergativity studies

It should be clear from the foregoing that ergativity studies offer a great number of leads on the shape of the human language faculty as it relates to syntax and to morphology. The various theoretical approaches surveyed here present different ways of contextualizing the result of ergativity studies in the theory of grammar. Ergativity may be valuable as a source of insight into post-syntactic morphological computation; into the mapping between verbal argument structure and syntactic categories; into the nature of case features in syntax and their distribution across clausal heads; into the shape of \bar{A} dependencies and the distribution of 'escape hatches' in syntax. Most likely ergativity as a broad phenomenon will bear on more than one of these components, given both the diversity of ergative languages and their systematicity in discrete domains.

Future work on ergativity is urgently needed in several areas. A high priority should be accorded to the proper treatment of the proposed ergative universals and especially their apparent counterexamples. Further work is also required to elucidate crucial questions on which turn promising ideas in the treatment of case and its relatives. Of particular concern is the ergative-in-situ hypothesis and its associated challenges related to raising-to-ergative and the absence of ergative

on certain in-situ subjects. Finally, many of the analyses we have seen suggest interesting future work to be done on questions of covertness in ergative languages. If languages may not have the underlying syntax of ergativity without showing it overtly, why should this be? What sort of cues must be overt in the input in order for ergative languages to be learned?

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