Case Interactions in Syntax

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Summary
The phenomenon of case has been studied widely at both the descriptive and theoretical levels. Typological work on morphological case systems has provided a picture of the variability of case cross-linguistically. In particular, languages may differ with respect to whether or not arguments are marked with overt morphological case, the inventory of cases with which they may be marked, and the alignment of case marking (e.g. nominative-accusative vs. ergative-absolutive). In the theoretical realm, not only has morphological case been argued to play a role in multiple syntactic phenomena, but current generative work also debates the role of abstract case (i.e. Case) in the grammar: abstract case features have been proposed to underlie morphological case, and to license nominals in the derivation.

The phenomenon of case has been argued to play a role in at least three areas of the syntax: (i) agreement, (ii) A-movement, and (iii) A'-movement. Bobaljik (2008) provides convincing evidence that morphological case—rather than grammatical function—determines a nominal argument's eligibility to participate in verbal agreement. Preminger (2014), building upon Bobaljik's work, claims that languages vary as to whether movement to subject position is case-sensitive. As for case-sensitive A'-movement, recent literature debates whether this phenomenon should be seen as another instance of 'case discrimination' (Deal 2016c) or whether the pattern arises from other properties of ergative languages (e.g. Henderson and Coon 2016). Finally, other recent work (e.g. Brown 2016) has examined agreement and A'-extraction patterns in languages with no visible case morphology (e.g. Mayan, Tsimshianic, and Salishan languages). It is shown that the presence of patterns and typological gaps—both in languages with overt morphological case and in those without it—lends support to the relevance of abstract case in the syntax.

Keywords
case, agreement, A-movement, A'-movement, syntactic ergativity

1. An overview of case
The study of *case* is the investigation into the form and distribution of nominal expressions in language. As a first descriptive approximation, morphological case marking on nominals can be seen as a device that tracks grammatical function—for example subject, object, indirect object, or possessor—as illustrated by the forms in (1).[1]

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[1] Abbreviations in glosses which are not listed in the Leipzig glossing conventions are as follows: AF – Agent Focus; AOR – aorist; CN – connective; DFLT – default; EVID – evidential; GF – grammatical function; REM – remote. In some cases, gloss abbreviations have been modified from those of the original authors for consistency.

(1)   a.   Masha   Misha-**qa**   at-**y**   bier-de.
           Masha.NOM Misha-DAT horse-ACC give-PST.3SGSBJ
           'Masha gave Misha a horse.'   (Sakha; Baker and Vinokurova 2010, 595)

      b.   Hwan-**pa** wasi-n-**ta**   rika-a.
           John-GEN house-3SG-ACC see-1SG
           'I see John's house.'   (Quechua; Blake 2011, 24)

      c.   Ha-hácwal-**m** pée-kiwyek-se-ne   ciq'áamqal-**na**.
           PL-boy-ERG   3/3-feed-IPFV-REM.PST dog-ACC
           'The boys fed the dog.'   (Nez Perce; Deal 2016a, 8)

      d.   Mirtanya-**lu** juntiya-rna pulara   kamparra-**la**   wangka.
           old.man-ERG tell-PST   3SG.LOC little.one-LOC story.ACC
           'The old man told the little child a story.'   (Nyamal; Dench 2011, 758)

Examples (1a) and (1b) illustrate canonical case-marking in nominative-accusative languages. In such systems, nominative case generally maps to subjects, accusative case to direct objects, dative case to indirect objects, and genitive case to possessors. In (1a), the subject *Masha* appears in the morphologically unmarked nominative form, while the indirect object *Misha* takes the dative suffix *-qa* and the direct object *at* takes the accusative suffix *-y*. The genitive suffix *-pa* in the Quechua example in (1b) indicates that John is the possessor of the house, which is marked accusative case by virtue of being the direct object. Examples (1c) and (1d), on the other hand, have subjects marked in the ergative case, which is canonically reserved for subjects of transitive verbs in languages that have ergative-absolutive case-marking systems. Nez Perce in (1c) shows what is known as a "tripartite" pattern: transitive subjects are marked ergative, direct objects are marked accusative, and intransitive subjects appear in a distinct form.

Nonetheless, the correlation between morphological case marking and grammatical function is frequently imperfect. Case systems cross-linguistically vary along a number of dimensions, including inventories of cases, case syncretisms, the mapping between morphological case and grammatical function, and the *alignment* of arguments (e.g. nominative-accusative, ergative-absolutive); see for example Blake 1994 and works in Malchukov and Spencer 2011 for typological and descriptive work on morphological case marking.

Since the introduction of Case Theory (Vergnaud 1976/2006; Chomsky 1980, 1981), the term "case" has been used to refer not just to special morphological forms that nominals show in certain environments (*morphological case*), but also to the abstract mechanisms taken to be responsible for licensing nominal arguments in the derivation (*abstract case*, or *Case*) (see e.g. Butt 2006; Bobaljik and Wurmbrand 2008; Pesetsky and Torrego 2011; Markman 2010, and Baker 2015 for overviews and discussion). Current generative research debates whether abstract case is assigned to nominals by functional heads (e.g. Legate 2008); configurationally based on the nominal's relationship to other arguments (e.g. Baker and Vinokurova 2010; Baker 2015); or whether morphological case should be disassociated from licensing requirements altogether (Marantz 1991; McFadden 2004).

Recent literature also focuses on how to account for differences in alignment within and across languages (Legate 2008; Deal 2016a; Coon, Massam, and Travis 2017), as well as in which grammatical module case assignment occurs (Marantz 1991; Bobaljik 2008; Preminger 2014).

This survey article examines interactions of *case* in several areas of the syntax. Section 2 begins with a look at the relationship between morphological agreement and case. Section 3 reviews the interaction of case and A-movement, and 4 turns to the interaction of case and A'-movement. While sections 2–4 focus specifically on the effects of *morphological case*; section 5 turns to analogous facts in languages without overt case morphology, investigating the relevance of abstract case to the agreement and movement restrictions in sections 2–4. Further reading is suggested in section 6.

2. Case-sensitive agreement

Case has been shown to play an important role in *morphological agreement* (Moravcsik 1974, 1978; Bobaljik 2008). For the purposes of the discussion here, we follow Preminger (2014) in defining agreement as morphologically overt covariance in ϕ-features (i.e. person, number, and gender features) between a verb (or verb-like element, e.g. auxiliary) and one or more nominal arguments (see also Corbett 2006; Wechsler 2009). Examples from French, Chuj, and Mi'gmaq are shown in (2); as these examples illustrate, the agreed-with argument may be unpronounced.

(2) a. Nous all-**ons** à l'école.
         we   go-1PL to school
         'We go to school.'   (French)
     b. Mu   nem-**u'ln**-u-**eg**.
         NEG see-2SG-NEG-1PL.EXCL
         'We_EXCL don't see you.'   (Mi'gmaq; Coon and Bale 2014)
     c. Ix-**ach**-**ko**-chel-a'.
         PFV-2SG.ABS-1PL.ERG-hug-TR
         'We hugged you.'   (Chuj; Coon and Carolan 2017)

Section 2.1 examines implicational hierarchies governing the accessibility of nominal arguments to agreement operations like those which underlie (2). In section 2.2 we briefly review the empirical motivation for these hierarchies, and finally turn to a typological gap in case–agreement interactions in section 2.3.

2.1. Implicational hierarchies

In a typological study of agreement patterns across languages, Moravcsik (1974) (later revised in Moravcsik 1978), presented an implicational hierarchy, shown in (3), connecting a nominal argument's eligibility to trigger agreement to its grammatical function in the sentence.

(3) MORAVCSIK HIERARCHY (Moravcsik 1978)
     subject > object > indirect object > adverb

The hierarchy is read as follows: only if a language exhibits subject agreement will it also exhibit agreement with some or all objects; only if a language exhibits subject *and* object agreement will it also exhibit agreement with some or all indirect objects, and so on. French in (2a) is an example of the left-most restrictive type, showing only subject agreement, while Mi'gmaq in (2b) shows both subject and object agreement. According to the hierarchy, no language shows agreement only with objects; see also Gilligan 1987 for a survey corroborating Moravcsik's initial findings.

Building on and revising Moravcsik's generalizations, Bobaljik (2008) provides evidence that the accessibility of nominal arguments for agreement is best stated in terms of *morphological case*, rather than grammatical function (GF): "When case and GF diverge, it is m-case, not GF, that defines accessibility for agreement" (Bobaljik 2008, 303). Bobaljik follows Marantz (1991) in neutralizing the differences between ergative and accusative case-marking patterns by grouping nominative and absolutive cases into one category, *unmarked case*, and ergative and accusative cases into another, *dependent case*. Cases assigned by specific lexical items such as verbs and prepositions, fall into the category of *lexical/oblique case*. The revised hierarchy is given in (4), with cases appearing from left to right in order of ascending markedness:
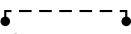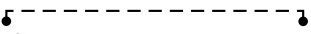
(4)   BOBALJIK HIERARCHY (Bobaljik 2008, 303)
       unmarked case > dependent case > lexical/oblique case

According to (4), in a given language, if arguments marked in a certain case are eligible for verbal agreement, then arguments marked in each less-marked case must also be eligible for agreement.

2.2. Empirical motivation

The original hierarchy formulated by Moravcsik is well supported both for the environments in which case and grammatical function coincide (i.e. nominative subjects, accusative objects, etc.), as well as for *some* environments in which they diverge (see Nepali in §2.3). In order to motivate the revised hierarchy in (4), Bobaljik (2008) examines two domains in which grammatical function and morphological case diverge: subjects marked with quirky case, and subjects marked with ergative case. We examine each in turn.

In a regular Icelandic nominative-accusative transitive sentence, like the one in (5a), the verb agrees in person and number with the nominative subject. However, certain verbs in Icelandic appear with non-nominative or "quirky" subjects (Andrews 1976; Thráinsson 1979); the verb 'like' in (5b), for example, always appears with a dative-case-marked subject; the object appears in the unmarked nominative case. A range of work in Icelandic demonstrates that these quirky subjects pass language-internal subjecthood diagnostics, which the nominative objects consistently fail (Zaenen et al. 1985; Sigurðsson 1989; Harley 1995; Jónsson 1996). Nonetheless, the finite verb must agree with the nominative object.
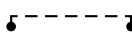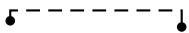
(5)   a.   Við   lásum   bókina.
           we.NOM read.1PL the.book.ACC
           'We read the book.'

      b.   Henni líkuðu   ekki þessar athugasemdir.
           her.DAT liked.3PL not these comments.NOM
           'She did not like these comments.'   (Icelandic; Sigurðsson 1996)

In Icelandic, the generalization is that only *nominative* arguments may agree; in the absence of a nominative argument—as in the dative–accusative construction in (6)—the verb resorts to a default form.
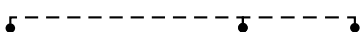
(6)   Okkur vantaði   bókina.
      us.DAT lacked.DFLT the.book.ACC
      'We lacked the book.'   (Icelandic; Sigurðsson 1996)

Data like these thus support Bobaljik's generalization that when morphological case and grammatical function do not align, it is morphological case marking that determines agreement.

Case~agreement interactions in some ergative languages provide a similar result. Hindi shows an ergative-absolutive case pattern in the perfective aspect: transitive subjects appear with the ergative case marker *-ne*, while (setting aside differential object marking) transitive objects and intransitive subjects are in unmarked absolutive forms. The verb consistently agrees with the unmarked absolutive argument: the transitive object in (7a) and the intransitive subject in (7b).

(7)   a.   Raam-ne   roTii   khaayii.
           Raam(M)-ERG bread(F) eat.PFV.F
           'Raam ate bread.'

      b.   Raam baazaar gayaa.
           Raam market go.PST.M.SG
           'Raam went to the market.'   (Hindi; Mahajan 1990)

Hindi shows an aspectual split: transitive subjects in the imperfective aspect, as in (8), do not show ergative case marking and appear instead as absolutive. In such examples, verb agreement is with the transitive subject.

(8)   Raam   roTii   khaataa   thaa.
      Raam(M) bread(F) eat.IPFV.M be.PST.M
      'Raam (habitually) ate bread.'   (Hindi; Mahajan 1990)

Just as in Icelandic, agreement in Hindi is then best described as targeting the highest

morphologically unmarked argument, regardless of its grammatical function (Kachru et al. 1976; Mohanan 1994).[2]

2.3. Accounting for a Typological Gap

In addition to accounting for apparent exceptions to Moravcsik's original hierarchy, Bobaljik (2008) proposes that framing the accessibility of nominal arguments to agreement in terms of morphological case, as in (4), provides an explanation for a particular typological gap; see also Woolford 2000 for a similar proposal.

As observed in early typological work on case~agreement interactions (Anderson 1977; Comrie 1978; Moravcsik 1978; Dixon 1979), and corroborated in WALS (Comrie 2013; Siewierska 2013), languages may show a split in case and agreement alignment, but only in a single direction, shown by the *unattested* cell in (9). Note that the potentially misleading term "nominative-accusative agreement" refers to an agreement pattern in which agreement follows a nominative-accusative pattern, for example, all subjects are agreed with, regardless of the case marking in that particular language.

(9)

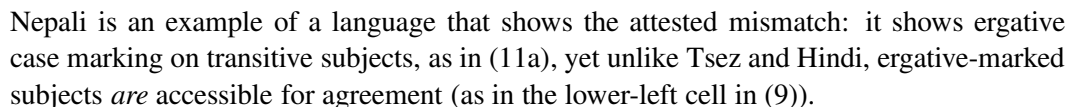| AGREEMENT / CASE	NOM-ACC	ERG-ABS
NOM-ACC	✔	*unattested*
ERG-ABS	✔	✔

Many languages follow the same alignment in both case and agreement, as in the upper-left and lower-right cells. There are also many languages which have ergative-absolutive systems of morphological case but in which agreement nonetheless tracks all subjects (i.e. "nominative agreement"), as in the lower-left cell; examples include Nepali, Warlpiri, and Chukchi (Bobaljik 2008). The reverse—a language with a nominative–accusative system of morphological case, but ergative-aligned agreement—is unattested (see also Woolford 2000; Markman and Grashchenkov 2012).

Under the assumption that morphological agreement targets the *highest accessible* nominal argument, the gap in (9) is predicted. Crucially, Bobaljik (2008) assumes, following Marantz (1991), that morphological case is determined *post-syntactically*, in the morphological component of the grammar. Bobaljik thus uses the dependence of agreement on case to argue that agreement must also be calculated post-syntactically. More recently, Preminger (2014) argues that agreement—and therefore, by Bobaljik's reasoning also morphological case—must instead be located in the narrow syntax.[3] Woolford (2000)
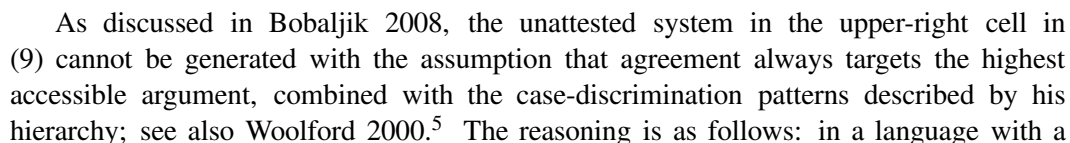
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[2]It should be noted that Bobaljik's case-based hierarchy is not undisputed. One apparent counterexample comes from Gujarati, in which a verb agrees with a lower accusative object in the presence of a higher ergative argument (Bhatt 2005, 774). According to the hierarchy, ergative and accusative both fall into the dependent case slot and hence the same for the purposes of agreement. Hence, we would expect the verb to agree with the higher ergative argument. See also Baker to appear for other possible counterexamples in Coast Tsimshian and Semelai, as well as discussion in section 5.1.

[3]Preminger's argument is based on the fact that ϕ-agreement feeds movement to subject position, discussed in section 3 below. Given independent evidence that movement to subject position must happen in the narrow syntax, ϕ-agreement, and therefore morphological case, must be computed in the syntax as well.

accounts for the same typological gap under the assumption that φ-agreement is syntactic, and we represent this system here. Specifically, we assume that φ-agreement is the result of an abstract *Agree* relationship between a probe and a nominal argument, the goal (Chomsky 2000, 2001). We illustrate how this proposal works by examining two ergative-case-marking languages which show the two different possibilities for agreement.

The Hindi examples from (7) illustrate a system in which both case and agreement follow an ergative pattern, as in the lower-right cell of (9). In (7a) the transitive subject is marked with ergative case; the verb agrees only with the (unmarked) absolutive argument. This can be modelled in a system in which certain case-marked arguments are inaccessible for agreement and the agreeing probe must continue searching the structure for an accessible argument—in this case, the absolutive object, as in (10).[4]

(10)   [$_{IP}$ Infl^0 [$_{vP}$ Subj-**ERG** v^0 [$_{VP}$ V Obj(**ABS**)]]]
         └────────── *Agree* ──────────↑

Nepali is an example of a language that shows the attested mismatch: it shows ergative case marking on transitive subjects, as in (11a), yet unlike Tsez and Hindi, ergative-marked subjects *are* accessible for agreement (as in the lower-left cell in (9)).

(11)   a.   **maile**   yas pasal-mā patrikā   kin-ē.
             1SG.ERG DEM store-LOC newspaper.ABS buy-1SG
             'I bought the newspaper in this store.'

       b.   **ma**   thag-ī-**ē**.
             1SG.ABS cheat-PASS-1SG
             'I was cheated.'   (Nepali; Bickel and Yādava 2000, 348)

The Nepali pattern is schematized in (12). Agreement targets all subjects, regardless of their morphological case marking, and may thus be described as a *nominative* agreement pattern.

(12)   [$_{IP}$ Infl^0 [$_{vP}$ Subj-**ERG** v^0 [$_{VP}$ V Obj(**ABS**)]]]
         └ *Agree* ↑

As discussed in Bobaljik 2008, the unattested system in the upper-right cell in (9) cannot be generated with the assumption that agreement always targets the highest accessible argument, combined with the case-discrimination patterns described by his hierarchy; see also Woolford 2000.[5] The reasoning is as follows: in a language with a

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[4]See e.g. Woolford 2000, Markman and Grashchenkov 2012, and Preminger 2014 for discussion of how to account for the fact that agreement "skips" the marked subject.

[5]As discussed in Coon 2017b, a critical assumption of the Bobaljik/Woolford account presented here is that agreement is calculated "from above". We return to this in our brief discussion of morphologically-caseless languages which nonetheless show ergative agreement in section 5.

nominative-accusative case-marking system, subjects typically appear in the (unmarked, accessible) nominative case, and are thus accessible for agreement from the higher probe. In order for a language with a nominative-accusative case pattern to generate the absolutive agreement found, for example, in Hindi, the agreement probe would need to skip over unmarked transitive subjects, contradicting the hierarchy in (4).

3. Case-sensitive A-movement

Preminger (2014) gives the name *case discrimination* to the phenomenon in which the relative markedness of cases influences arguments' eligibility for agreement in a systematic way, as introduced in section 2. In this section, we keep the phenomenon of case discrimination close at hand as we look at another area of the syntax proposed to be sensitive to case, namely that of A-movement. In particular, we are concerned here with the movement of arguments to canonical subject position (MtoCSP), as in the English raising example in (13).

(13)   Sam$_i$ seems [$_{TP}$ ___$_i$ to like linguistics].

A good deal of recent work takes A-movement of the sort in (13) to be parasitic on φ-agreement (*Agree*; Chomsky 1995, et seq.). Relevant to the topic of this survey, Preminger (2014, ch. 8) argues that this is a point of cross-linguistic variation: in non-quirky-subject languages, like English and French, A-movement to subject position is dependent on agreement, while in quirky-subject languages like Icelandic, he argues, it is not. We examine his proposal in this section.

In the following examples from French and Icelandic, an NP marked with dative case appears raised to subject position. Crucially, this movement has different outcomes in each language: in French in (14), the dative nominal *à Marie* has moved over the verb *semble* to canonical subject position, and the result is degraded.[6] The comparable construction in Icelandic in (15), in which the dative pronoun *mér* has raised to subject position, is grammatical.

(14)   ?*À Marie$_i$ semble ___$_i$ [Jean avoir   du talent].
       to Marie seem   Jean have.INF of talent
       Intended: 'To Marie Jean seems to have talent.'   (French; McGinnis 1998)

(15)   Mér   virðast hestarnir   vera seinir.
       me.DAT seem.PL horses.the.PL.NOM be   slow
       'It seems to me that the horses are slow.'   (Icelandic; Holmberg and Hróarsdóttir 2003)

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[6]It is important to note that there is disagreement about the judgements and how they relate to the apparent intervention pattern, both for the French data discussed here, as well as in other languages for which similar facts have been reported (e.g. Spanish, Torrego 1996; Greek, Anagnostopoulou 2003; and Italian, Rizzi 1986). See Bruening 2014 and works cited there for further discussion. There is similar disagreement about the sentence in (16) below (Preminger, p.c.).

Note further that Icelandic is like English and French in that only nominative arguments may agree with verbs; the dative nominal in (15) is unable to agree with the verb, despite being in subject position. Instead, the verb *virðast* agrees with the nominative argument *hestarnir* 'horses'. Hence, Preminger concludes that it cannot be the case that movement to subject position is parasitic on (overt) agreement in Icelandic.[7]

In (16), we find a grammatical variant of (14) in which the dative nominal—in this case *au général*—does not move to subject position but instead remains in situ. The verb still cannot agree with the dative argument, but here the dative argument also blocks agreement from happening with the lower nominative *deux soldats* 'two soldiers':

(16)   Il   semble   au   général être arrivé deux soldats en ville.
        EXPL seem.DFLT to.the general to.be arrived two   soldiers in town
        'There seem to the general to have arrived to soldiers in town.' (French; Bošković 2007)

For the sake of completeness, note such expletive constructions are possible in Icelandic, as shown in (17), in which the dative experiencer *einhverjum manni* remains in its base position. On par with (16), the verb in the Icelandic expletive construction agrees neither with the dative nominal nor with the lower nominative one:

(17)   það   virðist   [einhverjum manni   ] hestarnir   vera seinir.
        EXPL seem.DFLT some.DAT man.DAT horse.the.PL.NOM be   slow
        'A man finds the horses slow.'

Crucially, what (16) and (17) show is that in both French and Icelandic, *in the absence of A-movement*, it is licit to have a dative nominal intervene between the probe and the lower nominative; in cases like this, neither argument agrees. With this in mind, the contrast between the ungrammaticality of French constructions like (14) and the grammaticality of Icelandic constructions like (15), leads Preminger (2014, 161) to conclude that ungrammaticality of the type in (14) "arises precisely at the juncture of ϕ-agreement and movement."

According to Preminger, the crucial discrepancy is between the requirements for this type of A-movement in quirky and non-quirky subject languages. In non-quirky subject languages, like French, MtoCSP is licit only for those arguments that have been *successfully* targeted by the agreement probe. Recall that French, like both English and Icelandic, makes the cutoff in the hierarchy in (4) at unmarked case, meaning only nominative arguments are allowed to agree with verbs. Therefore, it follows that in French, MtoCSP "is case-discriminating derivatively, because it can only see noun phrases through the prism of ϕ-agreement" (Preminger 2014, 162). In quirky-subject languages like Icelandic, on the other hand, MtoCSP is permitted for *any* noun phrase, regardless of case-marking and regardless of the outcome of ϕ-agreement.

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[7] And see Preminger to appear for arguments that there can be no abstract agreement in the absence of some overt morphological agreement; i.e. that there is no agreement which is systematically null.

Preminger (2014) further presents a typological gap at the intersection of case, agreement, and the operation MtoCSP. Recall that A-movement is sensitive to case in non-quirky-subject languages, but not in quirky-subject languages. Hence, in the former, the set of morphological cases that render arguments eligible for agreement is *equal to* the set of cases that render arguments eligible for MtoCSP. In quirky-subject languages, on the other hand, the set of morphological cases with which arguments can agree is a *proper subset* of those with which arguments can undergo MtoCSP.[8]

As Preminger points out, there seems to be no language in which the set of morphological cases with which arguments can agree is a *superset* of those with which they can undergo MtoCSP. That is, in any given language, the number of morphological cases compatible with verb agreement is always equal to or less than the number of cases compatible with MtoCSP. This pattern is summarized in the table in (18), from Preminger (2014, 164):

(18)

Languages	Eligible for MtoCSP	Relation	Eligible for φ-agreement
Icelandic	NOM, ACC, DAT. . .	$\supseteq$	NOM
English, French	NOM	=	NOM
(Unattested)	NOM/ABS	$\subsetneq$	NOM/ABS, ACC/ERG, DAT. . .

To sum up, non-quirky-subject languages like French and English allow only nominative arguments to appear in subject position. In such languages, A-movement—more specifically, the operation MtoCSP—is sensitive to an argument's case-marking. According to Preminger (2014), this is because in these languages, an argument must first be successfully targeted by an agreement probe in order to be eligible for MtoCSP. The agreement probe, for its part, is only successful when targeting nominative arguments. A-movement in quirky-subject languages does not show the same sensitivity to case-marking. In these languages, arguments are eligible for MtoCSP regardless of their case-marking and regardless of whether they are eligible for morphological agreement. What (18) illustrates is that case discrimination is a property of φ-agreement. Insofar as A-movement can be discriminating, it can only do so by virtue of utilizing the case discrimination capacities of φ-agreement. Nonetheless, given the small sample of languages for which movement-to-subject position and quirky subjects have been extensively studied (see fn. 8), as well as the debate about the status of French examples like (14) (see fn. 6), this is an area which requires further work. In sections 4 and 5 we turn to the question of whether case discrimination can be a property of A'-movement.

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[8]An anonymous reviewer notes that movement to subject position is a complex topic for which we lack information in many of the world's languages. This reviewer points to English locative inversion (e.g. Bresnan 1994) as a potential counterexample to the generalization in (18), though note that there exist many analyses of these constructions in which the true subject position is occupied by a null expletive (see Bruening 2010 and references there).

4. Case-sensitive A'-movement

In this section we turn to a phenomenon known as "syntactic ergativity"; see Deal 2016c and Polinsky to appear for recent overviews. Taken in its broadest sense, the term covers any syntactic phenomenon which is sensitive to the distinction between ergative and absolutive arguments (see Dixon 1972). The most prevalent use of the term, however, is used to describe an asymmetry in *A'-movement*. We confine ourselves to this phenomenon here, both because of the topic of this article, and because it is unclear whether there are true cases of syntactic ergativity outside of A'-movement (see Legate 2012 on Dyirbal).

Specifically, we focus here on the fact that in some morphologically ergative languages, ergative subjects are ineligible from undergoing some or all A'-movement operations. It is a matter of current debate whether this should be considered another instance of case discrimination—along the lines of agreement and A-movement asymmetries discussed in section 3—or not. Moreover, it is not yet fully understood to what extent different types of A'-movement restrictions pattern together. The empirical facts are laid out in section 4.1 and formal approaches are described in 4.2.

4.1. Syntactic ergativity

In many—but not all—morphologically ergative languages, ergative subjects are restricted from undergoing A'-extraction; i.e. extraction for focus, relativization, and *wh*-questions.[9] In this section we focus specifically on syntactic ergativity in languages with morphological case, and return briefly to agreement-only ergative languages in section 5.

Tongan is an example of a morphologically ergative language which restricts the A'-extraction of ergative case-marked subjects (Otsuka 2006; Polinsky to appear). The examples in (19) illustrate the basic ergative alignment of the language:

(19)   a.   'Oku malimali ['a   e   ta'ahine].
               PRS   smile   ABS DET girl
               'The girl is smiling.'
    b.   'Oku 'ene ['e   he   tamasi'i] ['a   e   ta'ahine].
               PRS   tickle ERG DET boy   ABS DET girl
               'The boy is tickling the girl.'   (Tongan; Polinsky to appear)

The A'-extraction asymmetry is shown in (20), here illustrated with relativization. Intransitive subjects (20a) and transitive objects (20b) may be freely relativized; ergative subjects, as in (20c), may not relativize with a gap.

(20)   a.   'a   e   ta'ahine$_i$ ['oku malimali ___$_i$]
               ABS DET girl   PRS smile
               'the girl who is smiling.'

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[9]We are unable to give a reliable estimation as to what percentage of morphologically ergative languages display syntactic ergativity. See, for instance, Polinsky to appear, who claims that upon first glance, it appears that a majority of morphologically ergative languages are also syntactically ergative, though Haig (1998) notes that, in comparison with morphological ergativity, it is rather more difficult to establish the presence syntactic ergativity.

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b. 'a   e   ta'ahine*$_i$* ['oku 'ene 'e   he   tamasi'i ___*$_i$*]
   ABS DET girl   PRS tickle ERG DET boy
   'the girl whom the boy is tickling'

c. *'a   e   tamasi'i*$_i$* ['oku 'ene ___*$_i$* 'a   e   ta'ahine]
   ABS DET boy   PRS tickle   ABS DET girl
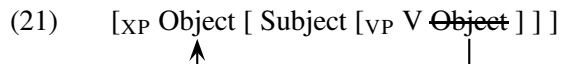   intended: 'the boy who is tickling the girl'   (Tongan; Polinsky to appear)

Languages which restrict the A'-extraction of morphologically-case-marked ergative arguments are found across the globe and in different language families. Such languages include West Greenlandic (Bittner and Hale 1996), Chukchi (Comrie 1979; Polinsky to appear), Dyirbal (Dixon 1972), and Katukina (Queixalós 2010).[10] On the other hand, many other morphologically ergative languages show no such restriction; these include Niuean (Seiter 1980), Basque (Hualde and Ortiz de Urbina 2003), and Tsez (Polinsky 2016). Crucially for the theories which seek to explain this phenomenon, described below, morphological ergativity appears to be a *necessary* condition for syntactic ergativity (no nominative-accusative languages have been described as restricting the A'-extraction of only transitive subjects; Deal 2016c; Polinsky to appear), but not a sufficient one. To further complicate matters, it has been reported that not all A'-extraction pattern together in syntactically ergative languages; in Chukchi, for example, ergatives may A'-move for questions but not for relativization (Polinsky to appear); see also Stiebels 2006 for variation across different A'-extraction processes in Mayan.

4.2. Approaches

As discussed in more detail in Polinsky's (to appear) survey, formal approaches to syntactic ergativity can be divided into two groups: (i) those which locate the restriction on ergative-subject extraction in the nature or configuration of the ergative subject itself, and (ii) those which seek to explain the restriction on ergative-subject extraction in terms of more global properties of the clause, and in particular the location of the *absolutive* argument. In section 4.2.1, we begin with the latter approach, dubbed the *Standard Theory* in Deal 2016c; we turn to the ergative-subject-based approach in section 4.2.2.
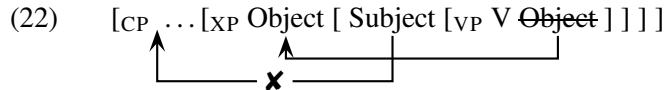
4.2.1. A'-extraction and the nature of absolutive

In her recent overview of syntactic ergativity, Deal (2016c) surveys a group of approaches to syntactic ergativity in which the problem with extracting the ergative subject is the result of movement and/or licensing needs of the (absolutive) object. The basic configuration is schematized in (21).

(21)   [$_{XP}$ Object [Subject [$_{VP}$ V ~~Object~~]]]

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[10]Languages which exhibit syntactic ergativity have different strategies for circumventing this restriction, discussed in more detail in Polinsky to appear. These include the use of antipassivization (in which the argument corresponding to the ergative subject is realized as absolutive); the use of resumptive pronouns; nominalization, and language-specific constructions such as Agent Focus in Mayan languages (§5).

This account has been advanced in some form or other by Campana (1992); Ordóñez (1995); Bittner and Hale (1996); Aldridge (2004, 2008, 2012); Coon, Mateo Pedro, and Preminger (2014), and Assmann, Georgi, Heck, Müller, and Weisser (2015). Though details differ, these approaches locate the problem with ergative-subject extraction not in the ergative argument itself, but in the licensing needs and/or location of the transitive object. Specifically, in many variants of this account, the object moves to a position above the transitive subject, blocking the subject from undergoing A'-extraction.[11]

(22) $[_{CP} \ldots [_{XP}$ Object [Subject [$_{VP}$ V ~~Object~~]]]]

Analyses differ in the motivation for object∼subject inversion; some accounts (e.g. Campana 1992; Ordóñez 1995; Bittner and Hale 1996; Coon et al. 2014) tie it to licensing needs of the absolutive object—specifically, the object raises over the subject in order to be licensed by Infl^0. Aldridge (2004, 2008, 2012) proposes that the inversion is triggered by an [EPP] feature on v^0, which may be present even in languages in which the object is licensed lower in the derivation. See Deal 2015, 2016c for further discussion.

Analyses of this sort assume that ergative is an *inherent case* (Nash 1996; Woolford 1997, 2006; Aldridge 2004, 2008; Legate 2006, 2008) assigned to the transitive subject in its base merged position (i.e. Spec,VoiceP). Movement of the object above the subject, as in (21), does not create a problem in non-A'-movement environments, as the ergative subject is licensed in its base position. These approaches thus successfully account for the fact that syntactic ergativity is found only in *morphologically ergative* languages, under the assumption that it is only these languages in which transitive subjects will receive inherent ergative case.

4.2.2. A'-extraction and the ergative subject
Another group of approaches locates the problem with ergative A'-extraction in the nature of the ergative subject itself. Polinsky (2016) argues that ergative languages may be divided into two types: (i) languages in which transitive subjects are DPs and ergative is a structural case, and (ii) languages in which transitive subjects are actually PPs (see also Markman and Grashchenkov 2012), and ergative case is assigned by an adposition (silent or overt).

According to this proposal, a subset of the latter ("PP-ergative") group of languages shows ergative extraction restrictions, while in the former ("DP-ergative") type of language, ergative subjects may freely extract. Support for an ergative-as-PP approach comes from diachronic evidence in certain language families in which ergative is proposed to be a reanalyzed passive *by*-phrase (see e.g. Hale 1970; Comrie 1978 and citations in Polinsky 2016), as well as formal behavior of some ergative case markers. In languages for which the ergative subject is a PP, several factors conspire to render the PP subject unextractable:

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[11] An exception is Assmann et al. 2015 who argue that A'-movement of the ergative subject through Spec,TP *maraudes* the case features normally assigned by T^0 to the absolutive object, resulting in ungrammaticality. This account does not involve inversion of the sort illustrated in (21), but nonetheless falls into this group of approaches in which syntactic ergativity is not about the ergative subject itself.

(i) the P^0 head cannot be stranded (as is true for many adpositions cross-linguistically), and (ii) the PP cannot be pied-piped along with the thematic DP subject. The latter possibility includes PP-ergative languages which Polinsky claims have null ergative-assigning P^0 heads, citing evidence that pied-piping may be sensitive to the phonological content of the operator (e.g. Hornstein and Weinberg 1981; den Dikken 1995).

Polinsky's account focuses in detail on two languages taken to be paradigmatic examples of DP- and PP-ergative languages: Tsez (Nakh-Dagestanian) and Tongan (Polynesian), respectively. Further work is needed to understand whether the proposal that subjects are PPs can be maintained in a wider array of syntactically ergative languages. Concerns include how PP subjects can bind lower arguments (discussed briefly in Polinsky 2016, ch. 7); independent evidence for the PP status of ergatives, especially in languages in which the P^0 head is claimed to be null; as well as languages in which agreement targets only ergatives, discussed further in section 5.

A different recent approach which also locates the locus of ergative extraction asymmetries in properties of the ergative subject is found in Deal 2016c. Deal raises concerns with the reliance of the object~subject inversion approaches described in section 4.2.1 on ergative as an inherent case. Deal's alternative proposal, building on Otsuka's (2006; 2010) work on Tongan, draws on the notion of *case discrimination*, with a focus on surface morphological case, discussed at length in sections 2–3.

Deal's reasoning is straightforward: there is empirical evidence both from morphological agreement (Bobaljik 2008, §2) and from A-movement (Preminger 2014; §3) that *Agree* for ɸ-features may, in some languages, be sensitive to the case of the goal DP. Under the assumption that A'-extraction also requires an *Agree* relationship to be established between the goal XP and the C^0 head (Chomsky 1995, 2001; van Urk 2015)—this time for operator features [WH], [FOC], or [REL]—we might then expect that this A'-movement-triggering "*Agree*-F" relationship may also be case discriminating.

On this account, there is no necessary relationship between case discrimination in *Agree*-ɸ and in *Agree*-F: a given language might, for example, prohibit the A'-extraction of ergative subjects, but allow them to be targeted for morphological agreement (as in West Greenlandic), and vice versa (as in Tsez). Similarly, Deal's approach allows for flexibility in the absoluteness of syntactic ergativity: as foreshadowed in section 4.1, in Chukchi (Chukoto-Kamchatkan), ergatives may extract for *wh*-questions (23a), but not for relativization (23b). Under Deal's account, *Agree*-[REL] is case-discriminating, while *Agree*-[WH] is not.

(23)   a.   Mikəne   ___ERG milger   kun-nin?
               who.ERG   gun.ABS buy-AOR.3SG>3SG
               'Who bought a/the gun?'
       b.   *[___ERG milger   kənnə-lʔ-ən   ] ənpənačg-ən
                    gun.ABS buy-PTCP-ABS   old.man-ABS
               intended: 'the old man who bought the gun'   (Chukchi; Polinsky to appear)

Deal (2016c) bases her case-discrimination account on the assumption that case discrimination discriminates the targets DP's *overt case morphology*.[12] An important consequence of this account, as formulated by Deal, is that ergative languages with no morphological case—i.e. languages in which ergativity is expressed via head-marking on the predicate—should *never* exhibit syntactic ergativity. We turn to these languages, along with their implications for case, in section 5.

5. Case sensitivity in caseless languages

We have focused on the interaction of case in three syntactic domains: verbal agreement (§2), A-movement (§3), and A'-movement (§4). The discussion thus far has concentrated on languages in which (at least some) case marking is morphologically overt. In this section, we further examine possible interactions between the syntax and case in pure head-marking languages (i.e. languages in which grammatical relations are indicated by marking on the head, rather than its dependents), with a special focus on two of the typological gaps identified in the preceding sections. In section 5.1 we examine ergative agreement systems in head-marking languages, and in section 5.2 we turn to head-marking languages which exhibit syntactic ergativity. The existence of these systems provides evidence for (i) the existence of abstract case features, even in languages in which case marking is never expressed overtly, and (ii) that case discrimination must target case features, rather than case morphology.

5.1. Caseless languages and ergative agreement

A range of current generative literature debates the nature of the syntactic mechanism responsible for the assignment of abstract case features; see Butt 2006; Bobaljik and Wurmbrand 2008; Legate 2008; Pesetsky and Torrego 2011; Markman 2010, and Baker 2015 for for recent overviews and discussion. With respect to the ergative-absolutive systems examined in this section, current work debates whether ergative case is best represented as an *inherent case* assigned by transitive v^0/Voice^0 to the ergative subject in its specifier position, or a *dependent case* assigned configurationally to the higher of two arguments in a certain syntactic domain (see e.g. Baker and Bobaljik 2017; Legate 2017 for recent discussion). Coon (2017b) argues that ergative agreement systems provide evidence that ergative is an inherent case in head-marking ergative languages.

Recall from section 2 that for languages with both morphological case and agreement, case~agreement mismatches are found only in a single direction: there are no attested languages with a nominative-accusative case system and ergative-absolutive agreement. Woolford's (2000) account of this gap relied on the assumption that agreement originated in a high probe (e.g. Infl^0); Bobaljik (2008) proposes that verbal agreement always targets the *highest* accessible nominal in a certain domain (recall that for Bobaljik, case and agreement are post-syntactic). An ergative-absolutive agreement system can then only arise when a

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[12]Deal assumes further that case-discrimination is necessarily based on a configurational account of case assignment: "where the standard theory requires a treatment of ergative as an inherent case, the case-discrimination theory requires treatment as a dependent case" (Deal 2016c, 177). An alternative would be to relativize *Agree* to abstract case features, regardless of how they are assigned.

structurally high ergative-case-marked subject is inaccessible for agreement, resulting in agreement with absolutive arguments (as in Hindi). Note, however, that ergative agreement systems are attested even in the absence of overt morphological case, discussed in Woolford 2000 and shown in the added row in table (24).

(24)

CASE \ AGREEMENT	NOM-ACC	ERG-ABS
NOM-ACC	✔	*unattested*
ERG-ABS	✔	✔
unmarked	✔	✔

In particular, we are concerned with languages in the lower-right cell, which show an ergative-absolutive alignment but no visible case marking. Such languages are found, for example, in Mayan, Tsimshianic, and Salishan language families, as well as in Abkhaz and Abaza (Northwest Caucasian). Examples from Ch'ol (Mayan) are shown in (25).

(25) a. Tyi **i**-chuk-u   ñeñe' x'ixik.
          PFV 3ERG-carry-TR baby woman
          'The woman carried the baby.'
      b. Tyi jul-i   x'ixik.
          PFV arrive-INTR woman
          'The woman arrived.'   (Ch'ol)

As in many other Mayan languages, transitive subjects trigger a special agreement prefix on the verb. Third person absolutives—the object in (25a) and the intransitive subject in (25b)—trigger no marking, while first and second person absolutives are pronominal clitics (Grinevald and Peake 2012; Coon 2017a). A similar ergative agreement pattern is found in Halkomelem (Salish), in which third person ergative subjects trigger agreement on the verb (Wiltschko 2006). These patterns directly contradict the claim by Bobaljik (2008, 306), that ergative agreement entails the existence of absolutive agreement (since ergative is the more marked case, and agreement tracks case). While this appears to hold true in languages with overt case marking, it does not hold of head-marking ergative languages (see also fn. 2). Wiltschko (2006) and Coon (2017a) propose that ergative agreement in Halkomelem and Ch'ol, respectively, does not originate from a high probe (Infl^0; contra Woolford 2000; Bobaljik 2008), but rather represents agreement between the external argument and the head which introduces it: transitive v^0 or Voice^0.

   Note that a pattern in which only ergatives agree raises questions for how to account for the typological gap in (9)/(24). Coon (2017b) argues that in order to correctly rule out the unattested languages in (24), ergative agreement of the sort found in Ch'ol and Halkomelem, must be parasitic on *inherent ergative case assignment*. There are thus two types of "ergative agreement" systems. One is the Hindi-type system represented in (26), in which a high agreement probe skips over an inaccessible ergative subject, resulting in a system in which only absolutives agree. For this system, all that is needed is that the transitive subject have ergative case which the language deems inaccessible.

(26)　　$[_{\text{IP}} \text{Infl}^0 [_{vP} \text{Subj-}\textbf{ERG } v^0 [_{\text{VP}} \text{V Obj }]]]$　　　　　　　*absolutives agree*

　　　　　　└── *absolutive (=nominative)* ──↑

The second type of system is the Ch'ol/Halkomelem-type system, schematized in (27), in which agreement occurs low in the structure. Coon (2017b) proposes that this type of agreement is only possible as the result of the feature-sharing relationship which occurs between v^0 and the external argument for inherent ergative case assignment.

(27)　　$[_{\text{IP}} \text{Infl}^0 [_{vP} \text{Subj} [_{v'} v^0 [_{\text{VP}} \text{V Obj }]]]]$　　　　　　　*ergatives agree*

　　　　　↑ *ergative* ┘

Crucial to ruling out the gap in (24), both types of ergative agreement rely on a system of underlying ergative case assignment (contra Woolford 2000, discussed in Coon 2017b). However, the two systems "rely on case" in different ways. In (26), ergative case is assigned by some mechanism, and the marked-ergative subject is inaccessible to agreement which targets the highest accessible nominal. In the second system in (27), agreement goes hand-in-hand with the feature-sharing relationship needed for inherent ergative case assignment; in other words, there is no *probe*.[13]

　　Crucially, this latter Ch'ol/Halkomelem-type of system is incompatible with a configurational approach to ergative case assignment, since agreement should otherwise not preferentially target a marked ergative subject (see Bobaljik 2008 and section 2).[14] Furthermore, if these languages were claimed to rely on a covert system of configurational case assignment, additional stipulations would be required in order to rule out a scenario in which the ergative agrees but dependent *accusative* case is assigned (contra the gap in (24)). See Coon 2017b for further discussion.

　　Given the strong evidence in favor of configurational case assignment in certain languages with overt ergative case morphology (e.g. Shipibo discussed in Baker 2014, to appear, and Nez Perce in Deal 2016b), this suggests that both configurational and inherent options for case assignment must be possible (see also Baker and Vinokurova 2010).

5.2. Caseless languages and syntactic ergativity

Finally, we return to the ergative A'-extraction asymmetries introduced in section 4, this time with a focus on head-marking ergative languages. As in section 5.1, we are concerned here with how to derive a particular case-related gap. Recall that while some languages with ergative case marking also restrict A'-extraction of ergative arguments, no language with a

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[13] An anonymous reviewer asks about unergatives and inherent case assignment. For recent discussion, see Baker and Bobaljik 2017 and Legate 2017. For overt morphological evidence in Mayan that ergative-assigning transitive v/Voice^0 must be distinguished from non-ergative-assigning unergative v/Voice^0, see Coon to appear.

[14] An anonymous reviewer asks about the relevance of Béjar and Rezac's (2009) model of Cyclic Agree, in which a probe first searches its c-command domain and then, if its features have not been satisfied, it may agree with the argument in its specifier position. Crucially, the inherent ergative agreement approach outlined above cannot be the result of Cyclic Agree, as the internal argument (i.e. absolute object) does not agree. Furthermore, it is only by restricting low Ch'ol/Halkomelem-type agreement with the ergative subject to environments in which inherent ergative case is assigned that this agreement is constrained from occurring in languages with nominative-accusative case systems, per (24).

nominative-accusative case system restricts extraction of transitive subjects ("ergatives"), as shown in (28). Deal's (2016a) case-discrimination approach to syntactic ergativity accounts for this gap because in her system, an ergative extraction restriction relies on the presence of what she assumes must be morphologically-overt ergative case marking. However, note that syntactic ergativity is also found in languages in which ergativity is expressed not by morphological case, but by agreement, as in the bottom-right cell of (28).

(28)

A'-MOVEMENT CASE	ERGs A'-extract	ERGs do not A'-extract
NOM-ACC	✔	***unattested***
ERG-ABS	✔	✔
unmarked	✔	✔

Transitive examples from Q'anjob'al (Mayan) and Gitskan (Tsimshianic) are shown in (29) and (30). In both languages, transitive subjects trigger special agreement marking on the predicate, and nominal arguments are unmarked for case. In (29a) and (30a), the (absolutive) transitive objects are A'-extracted for a *wh*-question and focus, respectively. Extracting the transitive subject—the argument responsible for triggering ergative agreement on the predicate—is ungrammatical, as shown in (29b) and (30b).[15]

(29)   a.   Maktxel max y-il   naq winaq __(ABS)?
          Who   PFV 3ERG-see CLF man
          'Who did the man see?'
       b.   *Maktxel max y-il   __(ERG) ix   ix?
          who   PFV 3ERG-see   CLF woman
          intended: 'Who saw the woman?'
          (grammatical as: 'Who did the woman see?')   (Q'anjob'al; Coon et al. 2014)

(30)   a.   Smax=hl jakwd-i-s   Lisa __(ABS)
          bear=CN kill-TR-3ERG.CN Lisa
          'Lisa killed *a bear*.'
       b.   *Smax=hl jakwd-i-s   __(ERG) Lisa
          bear=CN kill-TR-3ERG.CN   Lisa
          intended: '*A bear* killed Lisa.'   (Gitskan; Brown 2016)

Deal (2016a, 178) states that a case-discrimination approach to syntactic ergativity "predicts that bans on ergative A'-extraction should be found only in languages with ergative case marking" (we will return shortly to discrimination based on abstract case features). Deal aims to reconcile the existence of these patterns with her account by appealing to *wh*-agreement (see Baier 2017 for an overview discussion). In languages with *wh*-agreement, like Abaza (Northwest Caucasian), the regular agreement pattern is replaced by special agreement markers for arguments which are A'-extracted. In Abaza, the

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[15]The suffix *-s* glossed '3ERG.CN' in the forms in (30) is a phonological reduction of two morphemes: the third person ergative ("series II") agreement marker *-t* and the connective for proper names, *t* (Davis 2016).

ergative third person singular feminine agreement morpheme is *l-*, as in (31a); however, for all A'-extracted ergative subjects, the agreement marker becomes *zə-* (31b).

(31) a. ʃʷə-**l**-bat'
         ABS.2PL-ERG.3SG.FEM-see
         'She saw you.'

      b. dəzda s-axčʲa   **zə**-ɣəčʲ
         who   1SG-money ERG.WH-steal
         'Who stole my money?'   (Abaza; O'Herin 2002)

Deal proposes that Q'anjob'al and Gitksan do not exhibit true syntactic ergativity, and that instead, the forms in (29b) and (30b) are ungrammatical because they lack the appropriate agreement morpheme.

     How do transitive subjects A'-extract in Q'anjob'al and Gitksan? Both languages have special strategies available to convey the intended meanings in forms like (29b) and (30b). Mayan languages with ergative extraction restrictions have a special construction known as Agent Focus (Stiebels 2006; Coon et al. 2014; Aissen 2017). Compare the transitive in (32a) with the Agent Focus example in (32b).

(32) a. Max=ach y-il   ix ix.
         PFV=2ABS 3ERG-see CLF woman
         'The woman saw you.'

      b. Maktxel max=ach   il-**on**-i?
         who   PFV=2ABS see-**AF**-INTR
         'Who saw you?'   (Q'anjob'al; Coon et al. 2014)

Gitksan also has a special construction used for extracting transitive subjects.[16] In (33b), an additional morpheme *an* appears, marked with invariable 3rd person "series I" (dependent clause ergative) agreement. The verb appears in the dependent order, typical of non-finite embedded clauses, and lacks the transitive suffix found in regular matrix transitives.

(33) a. Gya'a=s   Lisa=hl 'ul.
         see.TV=3ERG.CN Lisa=CN bear
         'Lisa saw the bear.'

      b. Naa **an=t**   gya'a=hl 'ul?
         who AN=3.I see=CN   bear
         'Who saw the bear?'   (Gitksan; Brown 2016)

     The Q'anjob'al and Gitksan examples in (32b) and (33b) raise two serious questions for a *wh*-agreement analysis of ergative extraction. First, note that unlike in the Abaza pair

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[16]As noted in Deal 2016a, Gitksan seems to present a *tri-partite* pattern of A'-extraction (Hunt 1993; Davis and Brown 2011). While transitive objects extract with no special morphology, the A'-extraction of intransitive subjects involves the addition of special suffix *-it*. This morpheme *does* appear in a canonical agreement slot, and Brown (2016) suggests this suffix may indeed be an instance of *wh-* or default agreement.

in (31), the change between regular transitive and ergative-extraction clauses in (32) and (33) involve more than simply a change in agreement. In Mayan Agent Focus, the ergative agreement marker goes missing entirely, and a special suffix—here *-on*—is added to the verb; the verb appears with an intransitive, rather than transitive, "status suffix". The suffix *-on* does not occupy a typical agreement slot, but rather appears in a position normally occupied by voice and other derivational morphology (Coon 2016). As discussed in detail in Davis and Brown 2011 and Brown 2016, the Gitksan construction in (33b) also involves more than simple agreement changes.

Second, and more concerning for a *wh*-agreement approach to these constructions, is the fact that both constructions are found in other, non-ergative-extraction environments in their respective languages. As discussed in Coon et al. 2014, the Q'anjob'al Agent Focus form is also found in all dependent (non-finite) embedded transitives in the language. Coon et al. (2014), building on Ordóñez 1995, argue that the suffix *-on* is inserted to assign case to the absolutive object. The suffix is thus needed in non-finite embedded clauses which lack the normal absolutive licenser, finite $Infl^0$, as well as in ergative-extraction environments. The use of *-on* in matrix clauses obviates the object's need to invert to a position above the ergative subject for case, as in (21) (cf. the "standard theory" in §4.2 above), permitting subject extraction. For Gitksan, Brown (2016) argues that *an* is a nominalizer, and that the construction in (33b) presents a solution to syntactic ergativity by avoiding extraction altogether. As expected under this account, Brown shows that *an* is also found as a repair strategy in other environments in which A'-extraction is impossible, such as extraction out of adjuncts.

These facts suggest that true syntactic ergativity—not simply *wh*-agreement—is attested in languages which lack overt morphological case entirely, as in the lower-right cell in (28) above. As with the ergative agreement patterns discussed in section 5.1, our theory must therefore be constrained enough to limit syntactic ergativity to those languages with a morphologically ergative alignment, but also permissive enough to allow syntactic ergativity in languages which express ergativity through visible case marking, as well as in agreement-only ergative languages.

In principle, both of the approaches to syntactic ergativity discussed in 4.2—object inversion in §4.2.1 and nature-of-ergative in §4.2.2—could achieve this. For the latter nature-of-ergative-subject approach, one could modify Deal's *Agree*-F to discriminate based on *abstract*, rather than morphological, case.[17] And as Polinsky (2016) notes, the ergative P^0 heads which block extraction in her system could be null; she proposes that this is the case in Q'anjob'al. If this family of approaches to syntactic ergativity is correct,

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[17]This is independently needed under approaches in which case and agreement are part of the narrow syntax (§3), and thus presumably do not discriminate based on the *phonological content* of case morphology. Further empirical evidence that case discrimination should target abstract case features comes from accidental case homophony. In Icelandic, for example, certain nominative forms are homophonous with dative forms but are nonetheless eligible for agreement (Jim Wood, p.c.). Similarly, in Inuktitut, certain absolutive arguments are homophonous with ergative case forms, but only the latter are banned from A'-extraction (Richard Compton, p.c.).

we would expect to find not just ergative, but also quirky-subject languages in which quirky subjects are banned from A'-extracting. We are not aware of such cases at this time. Similarly, we expect that languages in which certain unergative subjects pattern as ergative ("Split-S"), these subjects should be unable to extract; at this time, we have not found an example of a Split-S language with A'-extraction restrictions. The absence of such languages is noted as a generalization in Deal 2015, 665.

Turning to the object-inversion approach discussed in section 4.2.1, recall that this type of account locates the problem not with the ergative subject, but with the position and/or case needs of the absolutive object. Under this approach, ergative subjects should be *permitted* to extract, so long as no object inversion takes place. Evidence in favor of this analysis comes from Mayan forms with (i) bare incorporated objects, (ii) reflexive and bound objects, and (iii) intransitive subjects in split-ergative environments which appear with ergative agreement in the absence of any object (Aissen 2011; Coon et al. 2014). In all three of these environments, ergative-agreeing subjects extract without the need for Agent Focus morphology. It is a question for future work whether syntactic ergativity should receive the same analysis in all languages, or whether—as discussed for ergative agreement—it may stem from different sources.

5.2.1. Summary

This final section highlights the importance of abstract case features in describing and accounting for interactions between case and other syntactic phenomena. As detailed in sections 2–4, the effects of case in the syntax are clearly seen in a variety of languages in the domains of verbal agreement, A-movement, and A'-movement. In this final section, we observed that typological gaps regarding interactions of case and agreement (§5.1), and case and A'-movement (§5.2) are also present in languages without morphological case marking. In order to prevent overgeneration, the theories which explain these gaps must make reference not to surface morphological forms, but to the underlying case features which produce these forms; in turn, these case abstract features must be present in languages even with no morphological case.

This provides evidence against approaches which locate morphological case purely in the post-syntactic morphological component (Marantz 1991; McFadden 2004; Bobaljik 2008), but many questions remain open. For example, we know that surface morphology may imperfectly realize underlying case features; in addition to accidental gaps, see for example Legate 2008 on languages which are underlyingly tripartite, but which systematically neutralize the distinction between nominative in intransitives and accusative in transitives as absolutive (often null), resulting in a surface ergative-absolutive system (her "ABS=DEF" languages). However, if abstract features are responsible for syntactic ergativity, something must be in place to ensure that there is *some* connection between underlying case assignment and surface form, if the gaps described in the preceding sections are to be maintained. We suggest that learnability is likely at play here—i.e. a language learner is unlikely to posit abstract case features which *conflict* with surface forms—though we leave this and other details as topics for future work.

6. Further reading

6.1. Links to digital materials
- Coon and Adar (2013) — Oxford bibliography, *Ergativity*
- Preminger (2013) — Oxord bibliography, *Agreement*

6.2. Further reading
- Aldridge (2008)
- Baker (2015)
- Blake (1994)
- Bobaljik (2008)
- Coon, Massam, and Travis (2017)
- Corbett (2006)
- Deal (2015)
- Deal (2016c)
- Dixon (1994)
- Johns (2000)
- Johns, Massam, and Ndayiragije (2006)
- Malchukov and Spencer (2011)
- Markman (2010)
- Pesetsky and Torrego (2011)
- Polinsky (to appear)
- Preminger (2014)
- Ura (2001)
- Wechsler (2009)

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