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Polyvalent case, geometric hierarchies, and split ergativity

JASON MERCHANT
University of Chicago

Prominence hierarchy effects such as the animacy hierarchy and definiteness hierarchy have been a puzzle for formal treatments of case since they were first described systematically in Silverstein 1976. Recently, these effects have received more sustained attention from generative linguists, who have sought to capture them in treatments grounded in well-understood mechanisms for case assignment cross-linguistically. These efforts have taken two broad directions. In the first, Aissen 1999, 2003 has integrated the effects elegantly into a competition model of grammar using OT formalisms, where iconicity effects emerge from constraint conjunctions between constraints on fixed universal hierarchies (definiteness, animacy, person, grammatical role) and a constraint banning overt morphological expression of case. The second direction grows out of the work of Jelinek and Diesing, and is found most articulated in Jelinek 1993, Jelinek and Carnie 2003, and Carnie 2005. This work takes as its starting point the observation that word order is sometimes correlated with the hierarchies as well, and works backwards from that to conclusions about phrase structure geometries. In this paper, I propose a particular implementation of this latter direction, and explore its consequences for our understanding of the nature of case assignment. If hierarchy effects are due to positional differences in phrase structures, then, I argue, the attested cross-linguistic differences fall most naturally out if the grammars of these languages countenance polyvalent case—that is, assignment of more than one case value to a single nominal phrase. [1]

1 Monovalent case

In traditional accounts of alternating case morphology on nominal phrases, the case morphology on DPs is determined by the presence and position of other local heads, typically verbal or prepositional. The traditional view is that there is a one-

[1] Thanks to the CLS officers for their kind invitation to present this work at CLS 42, and to the audience for stimulating comments and suggestion. Thanks also to the participants in my fall 2005 seminar on case and voice, where parts of this material were first presented. Finally, thanks to Anastasia Giannakidou for continuing discussions and commentary.

to-one mapping between case assigners and case assignees. In many contemporary accounts, this is captured by positing a case feature on the DP ([Case: __]) whose value is determined by a matching case feature on another head. Values for [Case:__] may differ across languages. For example, in a transitive clause in a language like English such as (1a), the subject receives nominative case from the head of the clause, T, while the object receives accusative case from the (extended projection of the) verb, *v*. DPs enter the derivation with unvalued Case features (represented as [Case:__] as in (1b)) and are targeted by the operation Agree. In a structure like (1b), Agree will apply between the probe T and *he* with respect to the Case features, with the result that the value of the Case feature on T is given to the Case feature on *he*; mutatis mutandis for Agree between *v* and *her*. I will write the applications of Agree as in (1c), where the notation Agree(X,Y;F) is to be read as 'X values feature F of Y' (or 'Y agrees with X in the value of the feature F'). After the applications of Agree given in (1c), the resulting valued feature structures will be those in (1d). (It is often further assumed, e.g. by Chomsky 2001, that the Case feature on the probes is uninterpretable and hence deleted by the operation Agree: this is notated here with strikethrough, though the putative uninterpretability of Case is orthogonal here, and will be rejected below.) The relevant definition of Agree is given in (2).[2]

(1) a. He sees her.
b. T[uCase:NOM] [$_{vP}$ he[Case:__] *v*[uCase:ACC] see her[Case:__]
c. Agree(T, *he*; Case), Agree(*v*, *her*; Case)
d. T[~~uCase:NOM~~] [$_{vP}$ he[Case:NOM] *v*[~~uCase:ACC~~] see her[Case:ACC]]

(2) DEFINITION: **Agree(X,Y;F)**
For any syntactic objects X and Y, where X bears a feature F with value Val(F) and Y bears a matching unvalued inflectional feature F′, and either X c-commands Y or Y c-commands X,
let Val(F′) = Val(F) and
if F is uninterpretable, let F = ~~F~~

Furthermore, it is clear that a large part of the distribution of case marking is entirely syntactic in nature. It cannot be reduced entirely to 'semantic' or theta roles, as pairs like (3a,b) show: in both sentences the 3sm pronoun realized as *he* or *him* bears no semantic relation to the matrix predicate *believe* (or, in other terms, receives no theta role from *believe*), but does bear the same relation to the embedded predicate *be qualified.*

[2] Possible further locality conditions holding between X and Y are omitted here; many efforts attempt to subsume these conditions under more general principles of locality, however implemented (as in phase-based models, etc.), and as such, these conditions are more appropriately factored out of the definition of Agree itself. Similar consideration may hold for the c-command condition as well.

(3) a. We believe that he is qualified.
b. We believe him to be qualified.

Not only is there no unique mapping from case to thematic role—neither is there a unique mapping from thematic role to case, as consideration of passives reveals. The semantic or theta role of *trust* remains constant in (4), assigned uniformly to the 3sm pronoun—whether this pronoun surfaces as accusative or nominative depends on other properties of the clause (here, voice), not on semantic properties of the verb.

(4) a. Everyone trusted him.
b. He was trusted by everyone.

Nor is it easy to specify an equation between case and grammatical function such as 'subject' or 'direct object', given the well-known existence of languages in which these notions are distinct, such as Korean and Icelandic (with dative 'subjects' and nominative 'objects'; see below).

In sum, it's clear that there is an irreducible part of case assignment which is purely syntactic, namely dependent entirely on syntactic aspects of the clause. Broadly speaking, analyses that accept this fact fall into two classes. The first we can call the 'unique determination of case' class: a case is assigned to a DP based solely on that DP's position relative to the case assigner, which is a (possibly complex) head which uniquely determines the case to be assigned. On this view, the case assignment mechanism or algorithm does not inspect the entire clause for other potential case assignees. This view, which is probably most widely held, is represented by Chomsky 2001, Ura 2001, and many others.

Contrasting with this view is the 'comparative determination of case' class: in such analyses, while the case of a nominal DP is still determined based on properties of the clause in which DP occurs, including properties of the verbal, voice, and tense systems, the case assigning mechanism is sensitive as well as to the presence or absence of other DPs (potential case competitors): there is competition among DP clausemates for cases. Varieties of this view are represented by Bittner and Hale 1996, Marantz 1991, and Yip et al. 1987, going back to Jakobson's oppositional view of case.

All of these theories, however, are what I will characterize as *monovalent case* theories: they posit that a DP is assigned and expresses exactly *one value* for its Case feature, and that Case assigners assign Case *one time* only in a given structure. In the remainder of this paper, I want to turn our attention to phenomena which indicate that such monovalent case theories are too narrow, and that we need to allow both many-to-one assignment of Cases to a DP as well as one-to-many assignment of a Case value from a Case assigner.

2 Polyvalent case

There are several kinds of facts that lead to the conclusion that traditional monovalent must be modified, and that the theory of Case must be enriched beyond that sketched above. These come in two types: cases where the same Case assigner apparently determines the Case value on more than one target (one-to-many assignment), and cases where more than one Case assigner appears to target a single DP (many-to-one assignment).

2.1 One-to-many Case assignment

The first set of facts comes from Case 'agreement' or 'concord', both within a DP and from a DP to another external XP. Consider first simple adjectival concord within the DP, as in German:

(5)	a.	der	mutmaßliche	Täter
		the.NOM	*presumed.NOM*	*perpetrator.NOM*
	b.	den	mutmaßlichen	Täter
		the.ACC	*presumed.ACC*	*perpetrator.ACC*
	c.	dem	mutmaßlichen	Täter
		the.DAT	*presumed.DAT*	*perpetrator.DAT*
	d.	des	mutmaßlichen	Täters
		the.GEN	*presumed.GEN*	*perpetrator.GEN*
		'the presumed perpetrator'		

Although to a large degree syncretic, the desinences on attibutive adjectives in German, like many languages, agree in case (and number and gender) with that of the determiner and the head noun. These cases show either that the Case assigner can assign the same case as often as needed (to the D, as many adjectives as occur, and the N), or that the Case feature on the D can itself trigger agreement (serve as the probe) to value the Case features on the heads it c-commands (and further, that this process can recur). Either of these options are fatal for assumptions that Case features are deleted once valued, or valued only when spelled out. Nor is the second option compatible with restricting Agree to operate only on Categorial features of probes, valuing only Inflectional features of goals.

A second set of problems for monovalent Case theories comes from case on predicates, both in main clause and small clause predicational domains as in (6) and (7) and in secondary predicative depictive and resultative uses in (8) and (9) respectively.

(6)	Er	ist	Idiot.			(German)
	he.NOM	*is*	*idiot.NOM*			
	'He is an idiot.'					
(7)	Wir	betrachten	ihn	als	Idioten.	(German)
	we	*consider*	*him.ACC*	*as*	*idiot.ACC*	
	'We consider him an idiot.'					

(8) To vrikame nekro. (Greek)
him.ACC *we.found* *dead.ACC*
'We found him dead.'

(9) Vafume tus tixus panda kokinus. (Greek)
we.paint *the.ACC* *walls.ACC* *always red.ACC*
'We always paint the walls red.'

In all such cases, we are again confronted by an element (*Idiot(en)* in (6) and (7), *nekro* in (8), and *kokinus* in (9)) whose Case value is determined by some other element in the clause. Two possibilities emerge for such cases: either the predicate's Case value is given by Agree with the 'subject' of the predicate (*er* in (6), *ihn* in (7), *to* in (8), and *tus tixus* in (9)), or this value is determined directly by Agree with the Case assigner (T for the nominative in (6), *v* for the accusative in the others). If the latter, we again find a single Case probe multiply active.

While the above cases may be argued to involve not the theory of Case assignment (or Agree) sensu stricto but rather a (yet to be determined) theory of nominal 'concord', the next set of facts are less amenable to such a diversion. Instead, they indicate that on standard assumptions, a single Case assigning head is valuing (via multiple applications of Agree) the Case features on several distinct elements in the clause, none of which plausible contain the others (unlike, say, adjectival Case agreement inside a DP, or 'predicate' Case agreement inside a predicate).

The first such facts come from Korean. As is well known, Korean allows for multiple nominatives in some circumstances (Japanese shows a similar phenomenon). The following data are from Yoon 2004, which also contains references to the substantial previous literature (thanks to Younglee You for discussion). A certain class of predicates, including *philyoha* 'need' in (10), take what are traditionally described as dative subjects and nominative objects (and these DPs do pass a variety of Korean tests for these grammatical relations; see Yoon 2004 for discussion); the neutral expression of this verb's arguments with the appropriate Case markers is given in (10a).

(10) a. Chelsu-eykey ton-i philyoha-ta.
Chelsu-DAT *money-NOM* *need-DECL*
b. Chelsu-eykey-ka ton-i philyoha-ta.
Chelsu-DAT-NOM *money-NOM* *need-DECL*
c. Chelsu-ka ton-i philyoha-ta.
Chelsu-NOM *money-NOM* *need-DECL*
'Chelsu needs money.'

The crucial examples are those in (10b,c): in these cases, we see that, under discourse circumstances that are the subject of ongoing investigation, the 'subject' of *philyoha* can receive nominative case: either in addition to the dative marker as in (10b), or instead of the dative as in (10c). In both these latter cases, the clause

has *two* DPs which bear the nominative case: *Chelsu* and *ton*. If nominative is assigned uniformly by T, this requires that T Agree both with the subject and the object of the clause, valuing both with nominative.

A second example comes from the spectacular case marking found in certain Australian (and other) languages, for example in Kayardild, a Tangkic, non-Pama-Nyungan language described in great detail in Evans 1995, 2005. In Kayardild, we find what Evans calls 'complementizing' cases: they are used to mark clauses either (a) as complements of a higher clause (as in (11)), or (b) "as having the shared NP departing from the unmarked sequence where it would be the subject in both main and subordinate clause" (Evans 2005:406), as in (12).[3]

(11) Ngada mungurru, [maku-ntha yalawu-jarra-ntha yakuri-naa-ntha
I know woman-C.Obl catch-Past-C.Obl fish-M.Abl-C.Obl
thabuju-karra-nguni-naa-ntha mijil-nguni-naa-nth].
brother-Gen-Ins-M.Abl-C.Obl net-Ins-M.Abl-C.Obl
'I know that the woman caught the fish with brother's net.'

(12) jina-a bijarrb, [nga-ku-l-da bakiin-ki
where-Nom dugong(Nom) 1-Incl-Pl-Nom all-C.Loc
kurulu-tharra-y]?
kill-Past-C.Loc
'Where is the dugong, which we (i.e., we and you) killed?'

It seems that whatever head is triggering the complementizing case (be it the embedding predicate or an unpronounced C) must be able to Agree with more than one goal.

Theoretically, this state of affairs has been anticipated by many recent researchers, who have proposed analyses in which a single head undergoes multiple applications of Agree with different goals, such as Richards 1997, 2001, and Anagnostopoulou 2005 (though both of these posit separate features on the heads that undergo Agree, so that a kind of featural one-to-one matching is maintained). Barring the introduction of as yet unspecified mechanisms of feature transmission or 'concord', then, these phenomena demonstrate the need for allowing a single head to probe multiple goals in Agree—that is, in a single derivation, and for specified values of X,Y,Z, and F, we must countenance both Agree(X,Y;F) and Agree(X,Z;F).

2.2 Many-to-one Case assignment

The obverse also obtains—we find phenomena that indicate that a single DP may be the goal for multiple probes, each probe giving the DP a separate Case value. Such cases fall into two classes: traditional multiple case phenomena, where there

[3] In the glosses, 'C.Obl' is the complementizing oblique case, triggered when the embedded subject does not include the addressee; 'C.Loc' is the complementizing locative case which appears when the embedded subject does include the addressee, following Evans's description of the alternation; and 'M.Abl' is the 'modal ablative' used to mark a variety of non-subject DPs.

are multiple overt case markers, and more recently discussed situations in which it appears that more than one Case is assigned although only one case is morphologically realized.

The first set of facts comes from what are termed 'case-stacking' or 'Suffixaufnahme' languages, such as several Caucasian and Australian languages (see Plank 2005 for an extensive overview), Korean, and Zazaki as analyzed by Larson and Yamakido 2006. We have just seen examples from Korean (from Yoon 2004) and Kayardild (from Evans 2005) that illustrate this situation:

(13) Chelsu-**eykey-ka** ton-i philyoha-ta.
*Chelsu-**DAT-NOM*** *money-NOM* *need-DECL*
'Chelsu needs money.'

(14) Ngada mungurru, [maku-ntha yalawu-jarra-ntha yakuri-naa-ntha
I know woman-C.Obl *catch-Past-C.Obl* *fish-M.Abl-C.Obl*
thabuju-**karra-nguni-naa-ntha** mijil-nguni-naa-nth].
*brother-**Gen-Ins-M.Abl-C.Obl*** *net-Ins-M.Abl-C.Obl*
'I know that the woman caught the fish with brother's net.'

In the Korean example in (13), both dative and nominative case markers can appear on the subject *Chelsu*. In (14), four distinct case markers appear on *thabuju* 'brother': the genitive (assigned by the possessive), instrumental (assigned in agreement with the instrumental on 'net'), the 'modal ablative' (assigned to non-subjects in this case), and the 'complementizing oblique' (assigned here to all elements in the complement clause). These languages have the morphological resources to express all these Cases simultaneously, possibly because of recursion of a KaseP shell on the NP (following Bittner and Hale 1996 and others for KP). It is surely no accident that in these languages, case markers are affixal, and analytic, displaying none of the syncretism typical of case morphology in Indo-European languages (where gender, number, and case information cannot be segmented out in the inflections).

In languages with more synthetic case morphology, it has sometimes been proposed that a single DP can receive more than one Case, but that due to morphological factors, only one of these values is realized on the DP. Such cases include Icelandic (in Svenonius 2005's analysis), as in (15). In (15a), we see that the object is assigned a dative Case which persists under passivization in (15b). In (15b), Svenonius argues the *skipinu* has also been assigned nominative Case from T: if Case is uninterpretable on T, it must be assigned (i.e., it must participate in an Agree relation). Alternatively, if Case on T is strong, it must be checked (i.e., undergo Agree) at least once (perhaps in an especially local relation with its goal, perhaps not); it may persist on T without further incident if we abandon the notion of 'PF uninterpretability' for Case.

(15) a. Skipstjórinn sökkti skipinu.
the.captain.NOM sank the.ship.DAT
'The captain sank the ship.'
b. Skipinu var sökkt af skipstjóranum.
the.ship.DAT was sunk by the.captain
'The ship was sunk by the captain.'

But case syncretism is not a necessary condition for such multiple Cases to be realized with only one marker. Bejar and Massam's 1999 analysis of Nieuan posits that the absolutive marked *Sione* in (16b) has received ergative case in the embedded clause out of which it has raised (as it does in the non-raising case in (16a), but that only the highest Case assigned is realized.

(16) a. Teitei ke fakatau e Sione taha fale.
nearly SUBJNCT buy ERG Sione one house
'It nearly happened that Sione bought a house.'
b. Teitei [a Sione]$_i$ ke fakatau t_i taha fale.
nearly ABS Sione SUBJNCT buy one house
'Sione nearly bought a house.'

A similar assumption informs the analyses of Joseph 1979, 1990 and Merchant 2006 for cases in Greek in which an accusative DP object of a preposition raises out of a finite clause in which the DP receives nominative (see McCloskey 1984 and Kayne 2004 for similar proposals for raising into prepositional domains for Irish and French, respectively). According to Joseph 1990, Greek permits raising of the subject of a finite subjunctive clause (which receives nominative in other circumstances) into the position of the object of the preposition *me* 'with' in (17), where it receives accusative case. Note that Greek lacks infinitivals, and that the idiom chunk *ton kombo* retains its idiomatic reading under raising, ruling out a control analysis.

(17) Me ton kombo na ftani sto xteni etsi, i lisi
with the knot.ACC SUBJ reach.3s to.the comb thus the solution
faneronotan.
manifested.3s
'With things coming to a head in this way, the solution was becoming evident.' (lit. 'With the knot thus is reaching the comb, ...')

A parallel conclusion is reached in Merchant 2006 for apparently phrasal comparatives in Greek: the DP after *apo* 'than' in 'phrasal comparatives' shows island effects, and these DPs are therefore analyzed as having undergone movement out of a clausal domain (with concomitant obligatory ellipsis), as in (18) for a simple (non-island containing) example.

(18) I Maria exei perissotera vivlia apo ton Gianni.
the Maria has more books than the.ACC Giannis.ACC
'Maria has more books than Giannis.'

All these cases appear to support the conclusion that polyvalent case is possible: a single DP may receive more than one Case value, whether or not it is embedded in a morphological system that allows the expression of such. This entails that Agree can apply to a single goal with respect to a single feature with multiple probes; that is, that Agree(X,Y;F) and Agree(Z,Y;F) may both be found in a single derivation. This conclusion is reached on independent grounds by Platzack 2006, who proposes that the grammar contains, in addition to value-specifiying operations like Agree, conditional statements that determine morphological spellout and which have access to the history of the derivation. While the case of languages like Korean and Kayardild raise important questions about how many, where, and what kind of Case features are found in the nominal domain in these languages, for present purposes the Nieuan or Greek cases are more instructive: all they require is that we countenance that Agree may apply to a Case feature which already has a value, and it may respecify this value (in effect, 'overwriting' the previous value)[4]. The requisite modification of the definition of the Agree operation is simple, involving only the removal of the condition 'unvalued' from the feature F′ on Y:

(19) DEFINITION: **Agree(X,Y;F)**
For any syntactic objects X and Y, where X bears a categorial feature F with value Val(F) and Y bears a matching inflectional feature F′, and either X c-commands Y or Y c-commands X,
let Val(F′) = Val(F) and
if F is uninterpretable, let F = ~~F~~

Such a definition, assuming a bottom-up application of operations, will correctly derive the Nieuan and Greek cases.

3 Geometric hierarchies and nominal-based split ergativity

This perspective on iterated Case assignment reveals a new way of looking at nominal-based split ergative systems. In nominal-based split ergative systems (as opposed to aspectual or verb-based ones), properties of the nominal argument on some prominence scale determine what Case surfaces on the DP. These properties are typically animacy, as defined along the scale in (20), and definiteness, as in (21).

[4] This will not suffice for Icelandic, of course, since in that language, the first assigned value is preserved. The generalization is that the last assigned structural Case is realized, but an inherent Case like the datives in Icelandic persists, a straightforward case of Paninian elsewhere conditioning, if dat > nom,acc on a markedness scale.

(20) Animacy hierarchy (Silverstein 1976, Aissen 2003)
humans > animates > inanimates

(21) Definiteness hierarchy (Aissen 2003)

1/2 pronoun	>	3 pronoun	>	proper names (PN)	>	definite/ specific (Def/spec)	>	indefinite/ specific (Indef/spec)	> indefinite nonspecific (Indef/nspec)

In general, nominal-based splits occur at some point on the scale, with for instance subjects at or higher than that point showing nominative marking in transitive clauses, and subjects lower than that point showing ergative marking. The reverse is true for objects, in languages with differential object marking: objects at or higher than some point on the scale show accusative marking, and objects lower in prominence show absolutive. In both situations, nominative and absolutive tend to be the unmarked case, with no morphological exponence, while ergative and accusatives are marked overtly in some way (an iconicity effect). These generalizations are illustrated in the following table.

(22) Subject case:
NOM → ← ERG
1/2 > 3 > proper > def/spec > indef/spec > indef/nonspec
names
Object case:
ACC → ← ABS

A typical example comes from Kham, a Tibetic language spoken in Nepal and described in Watters 2002. First and second person transitive subjects are unmarked ('nominative'), while third person (pronominal or not) transitive subjects appear in the ergative. Kham further shows a typical differential object marking system often found in such split ergative systems: 3 person indefinite objects are unmarked ('absolutive'), while 1/2 and 3 person definite objects must appear in the 'objective' case. These systems may overlap, yielding the nominative-absolutive pattern in (23) as well as the ergative-objective one in (24) (Watters 2002:68) (this system is parallel in most respects to that of 'four-way' case-marking languages like Nez Perce):

(23) ge:-∅ em-tə mi:-rə-∅ ge-ma-ra-dəi-ye
we-NOM *road-on* *person-pl-ABS* *1pS-NEG-3pO-find-IMPFV*
'We met no people on the road.'

(24) gẽ:h-ye ŋa-lai duhp-na-ke-o
ox-ERG *I-OBJ* *butt-1sO-PFV-3sS*
'The ox butted me.'

Another classic example is Dyirbal, as described in Dixon 1972 and analyzed in Legate 2006 among many others. In Dyirbal, pronouns show a nom/acc pattern, and nouns show erg/abs. These splits are summarized as follows.

(25)	Dyirbal (Legate 2006)	Kham (Watters 2002)
	a. NOM-ACC: pronouns	a. NOM-ACC: 1/2 pronouns
	b. ERG-ABS: nouns	b. ERG-ABS: 3 pronouns and all nouns

Aissen 1999 provides an insightful account of such patterns using an OT formalism by allowing variable ranking of a constraint, *STRUC_{C}, which penalizes overt Case marking, with respect to other constraints that penalize zero-marking of various grammatical function/prominence scale combinations. It succeeds in capturing in a very direct way the iconicity patterns generally found. Aissen 2003 extends this analysis to differential object marking, in which objects higher on some prominence scale tend (across languages) to receive some overt case marking. Aissen 2003 gives, among others, the following examples of differential object marking:

(26) a. Sinhalese, in which case marking is optional, but only animate-referring objects may be case marked;
b. Hebrew, in which object case marking is obligatory, but is limited to definite objects;
c. Romanian, in which object case marking is obligatory for some objects, optional for others, and excluded for a third set. Those for which it is obligatory are animate-referring personal pronouns and proper nouns.

The heart of Aissen's approach is the difference between iconic (here, overt) case marking. This means that the approach has difficulty in extending to phenomena that display similar patterning but in which no morphological distinction is made; the major such set of patterns come from cases in which the hierarchies influence word order. The best known of these come from the Germanic languages, in which scrambled and 'object shifted' word orders are sensitive to definiteness/specificity (as in Hebrew, Turkish, and Farsi). Consider the following data from Yiddish (Diesing 1997). Yiddish is an SVO, V2 language in which objects may appear either before or after the verb: pronominal objects must appear before the verb, while other nominal objects appear before the verb just in case they are definite. (Having an indefinite object precede the verb is extremely marked, as is having a definite object follow the verb. Diesing uses the stigma 'M' for 'marked' on such examples.)

(27) a. *Maks hot gekent undz.
Max has known us

b. Maks hot undz gekent.
Max has us known
'Max knew us.'

(28) a. Maks hot geleynt a bukh.
Max has read a book
'Max has read a book.'

b. Maks hot dos bukh geleynt.
Max has the book read
'Max has read the book.'

This is entirely reminiscent of differential object marking in Hebrew, and Aissen indeed remarks that the prominence hierarchies may play the same role in regulating word order in some languages as they do in determining case marking in others. The difficulty is that iconicity at the morphological level as required by the constraint *STRUC$_C$, is absent in such cases.

The alternative is to take the word order alternations as providing a window on the workings of the prominence hierarchies and to work backwards from the former to the latter. For differential object marking, to start with, this would mean that objects that receive marked case (accusative) raise to positions higher than those objects that do not. For example, in Hebrew, where definite objects are obligatorily marked with the accusative case marker *'et*, and other objects are obligatorily unmarked, we would posit that the marked objects have raised to a higher position in the clause than the unmarked ones, on a par with the overt word order differences in Yiddish. In fact, such claims are well known: de Hoop 1992, Diesing 1992, Runner 1995, 1998, and Hallman 2004 all discuss such cases and, with variations, posit a difference in position for differentially marked objects.

In the domain of subjects, the logic is the same: nominative marking results when the subject raises 'high', and ergative marking when it remains 'low'. This is the direction of investigation taken by Jelinek in particular. Jelinek 1993, analyzing a split in Lummi parallel to that in Kham, proposes that 1/2 pronouns raise out of VP for semantic reasons (they are inherently specific), while 3 pronouns and other nouns stay inside VP and receive ergative. The difficulty here is twofold: first, it's not clear why third person pronouns couldn't be specific—that is, there is a difficulty in making the semantic properties directly responsible for the movement. Second, there is the technical problem of Case assignment: if ergative Case is assigned inside the verbal domain (as on many proposals, such as Woolford 1997, Aldridge 2005, Legate 2006), to what is it assigned when the subject pronoun subsequently raises out of the *v*P? These questions are dealt with by Carnie 2005, who posits that there is a varying inventory of little *v*s which can subcategorize for e.g. person features on the arguments they select. For example, the Dyirbal *v* which selects a 1/2 person pronominal subject does not assign any Case (allowing these subject pronouns to raise into the T domain and receive nominative), but the little *v* that selects 3rd person subjects assigns ergative. While this is a perfectly workable technical solution to the problem, it opens the

door to a kind of lexical cross-linguistic variation that is not attested: if Case and varying prominence features can be co-selected, why don't we find languages in which, for example, there is an ergative-assigning *v* which selects only for first person pronominal subjects, while all other subjects receive nominative (a reversal of the scale, in other words)?

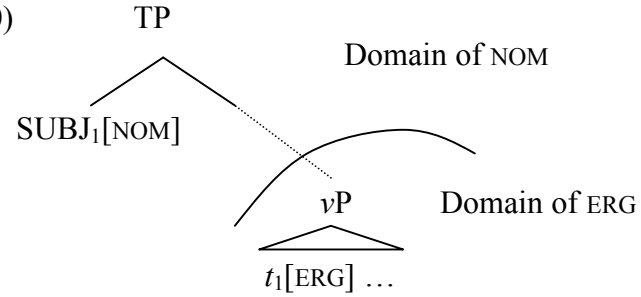
Consider instead the idea that the prominence hierarchies are in fact directly coded in the geometry of the clause.[5] This would mean, for instance, that the functional architecture of the clause includes a set of functional heads (for each subject or object) whose purpose is to host in their specifiers DPs with the various prominence properties. For simplicity, consider just the definiteness scale, encoded as a series of functional heads:

(29) [1/2 [3 [PN [Def/Spec [Indef/Spec [Indef/Nonspec

This set of functional heads by hypothesis c-commands the *v*P in which the subject originates. If the subject is a first or second person pronoun, it moves into the specifier of the head 1/2; if the subject is a definite/specific DP, it moves to specDef/SpecP, and so on.

With the possibility of polyvalent case assignment, we can overcome the difficulty of the Jelinek proposal by simply assuming that the ergative case is assigned uniformly inside the *v*P to all subjects, but that some of these then raise and get a second Case value, nominative, the latter of which determines the morphological exponence of the Case feature. This retains Jelinek's basic insight, but allows us to eschew the complications of adding person selectional features to *v*. Schematically, split ergative languages vary in what subjects undergo movement up into the nominative-assigning domain:

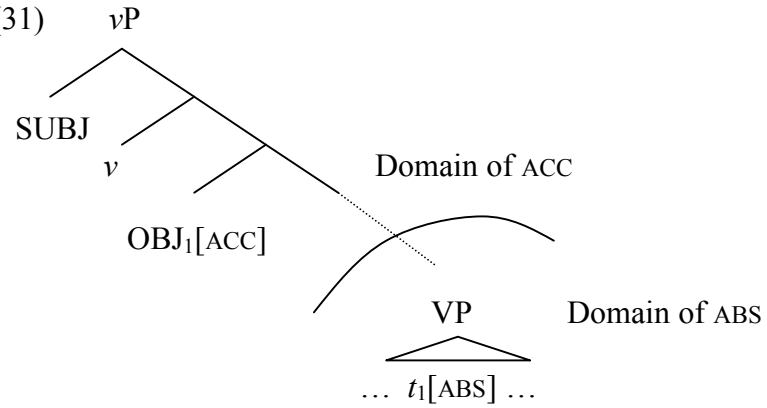
(30)



Applying these ideas to differential object marking, following especially Hallman 2004, who identifies different object positions based on prominence (and assuming that the domain of object Case assignment is under the base position of the subject), we arrive at the following schema:

[5] Whether this geometry itself owes much to iconicity considerations of the kind often debated for given/new word order correlations and 'topic'-hosting functional heads is an obvious question to explore.

(31)



One possible advantage of such a system comes from the peculiar behavior of appositives in some split ergative languages: when a nominative transitive subject has an appositional modifier, this modifier may appear in the ergative case; when an accusative object has an appositive, the appositive surfaces in the absolutive case. Legate 2006 gives the following examples from Dyirbal.

(32) a. ngadya wuygi-ngu balan dyugumbil balga-n
I.NOM *old-ERG* *CLASS* *woman.ABS* *hit-Past*
'I, old, hit the woman.'

b. ngayguna wuygi balag-n
I. ACC *old. ABS* *hit-Past*
'I, old, was-hit.' [Someone hit old me]

Polyvalent case assignment combined with movement furnishes a way of looking at such case mismatches: appositives stay low, and show the lower Case. The next order of business is the search for language-internal structural evidence for confirmation of the posited structural differences, for example between nominative marked arguments and ergative marked ones in split ergative languages: all other things being equal, the current approach predicts that the former should appear higher in the structure than the latter. Conducting this research will be complicated by the fact that other factors determine word order, that many of the relevant languages have highly 'free' word order, and that overt position does not in general determine many dependencies (such as control of infinitivals and the like).

Cross-linguistic variation in such a system may have one of two sources. The simplest is to retain a very strict locality requirement on Case assignment, requiring a specifier-head relation between the Case assigner and the DP that receives the Case value. We can then say that languages differ in where in the functional hierarchy the relevant Case-assigning heads are located. For example, in a language like Kham, nominative-assigning T is located between 1/2 and 3:

(33) Kham: [1/2 [T [3 …

In an example like (23) above, the nominative subject *ge:* 'we' is assigned ergative inside the vP, and then raises through specTP, where it receives nominative, to spec1/2P.

(34) [*ge:*$_1$ 1/2 [t′$_1$[NOM] T [3 … [t$_1$[ERG] *v* ….

A non-first or second person subject in Kham, such as *gẽ:h* 'ox' in (24), raises to the appropriate specifier (here, specDef/SpecP), but all other specifiers are below T, so it will not be assigned nominative, surfacing instead with the ergative marker *-ye*:[6]

(35) [1/2 [T [3 [PN [*gẽ:h*$_2$*-ye* Def/Spec … [t$_2$[ERG] *v* ….

In a language like Dyirbal, on the other hand, T is c-commanded by 3, entailing that any DP that must raise to either spec1/2P or spec3P must first pass through specTP and will therefore surface with nominative.

(36) Dyirbal: [1/2 [3 [T [PN …

The details of the analysis of differential object marking are the same. We posit the relevant heads between the base position of the object and the base position of the subject, and allow the head which assigns accusative case (call it v_{acc} or v_{tr}) to be interpolated between these as the language determines. (Note that such cross-linguistic differences in head ordering would be easily learnable from the primary data, assuming the case assinging mechanisms here.)

For Kham, for example, a definite object will raise through specv_{acc} to the specifier of whatever heads matches its features. Applying this to the first person object *ŋa-* 'I' in (24) above yields the following partial structure; because *ŋa-* has raised through specv_{acc}, it surfaces with the accusative marker *–lai*.

(37) [ŋa$_1$-lai 1/2 [3 [… Def/Spec [t′$_1$[ACC] v_{acc} [Indef/Spec … [V t$_1$[ABS] …

An indefinite object like *mi:-rə-* 'people' in (23) raises to specIndef/NSpec—not far enough to get accusative Case assigned in this language, and so it surfaces with the absolutive, which I assume is assigned inside the VP, by V.

[6] A consequence of this analysis is that the Case feature on T must not be PF-uninterpretable, since there are convergent derivations in which it is never checked, such as those in which ergative surfaces. The assumption of uninterpretability for T's Case feature never had to my knowledge much to support it, and eliminating the stipulation simplifies the theory of Agree as well, since Case on T can then be a Categorial, not Inflectional feature.

(38) [1/2 … Def/Spec [v_{acc} [Indef/Spec [*mi:-rə*$_2$- Indef/NSpec … [V t_2[ABS] …

The scope of cross-linguistic variation in Case assignment must of course also countenance non-differential, non-split systems like those found in English, German, and West Greenlandic Eskimo. Such cases simply represent the limiting cases of the present system: in a strict nom/acc language like English, for example, T and v_{acc} are simply located below any of the relevant functional heads (i.e., all subjects will pass through specTP, receiving nominative, and all objects through specv_{acc} , receiving accusative). In a strict erg/abs language, the opposite is true: T and v_{acc} (if they need be posited at all) are above all the relevant heads, so their Case values are never assigned. In other words, this analysis makes in some sense an ergative/absolutive system basic (lower in the tree), including for languages like English (see Johnson 1991, Runner 1995, 1998 and Lasnik 2001 among others for the claim that English objects move out of the VP overtly). It's just that these Case values are masked by the position of the nominative and accusative assigning heads.

The other factor that can lead to uniform-looking languages is of course the morphological resources of the given language: for example, though Yiddish shows differential object position in line with the analysis given here, its case morphology does not reflect these differences. In such languages, the absolutive and accusative, for example (and ergative and nominative) may simply have the same exponence (see Legate 2006 for other examples of morphological syncretisms in ergative languages, and a careful discussion of why these nevertheless may have separate ergative/absolutive syntax).

The second possible source of cross-linguistic variation would be to fix the position of all heads, e.g., by putting T above all the heads, but to make its Case value variably inaccessible to DPs in lower specifiers. This could be done by making different assumptions about how Agree works, or by employing a mechanism that would differentially remove the relevant, lower, DPs from the structure earlier than higher DPs, for example by a variably placed phase boundary triggering cyclic spellout. This route involves considerable complexities and its full ramifications are not clear to me at this point, however; as such, it seems less attractive than simply allowing the Case assigning heads to vary in their position.

4 Conclusion

A careful examination of the variety of case marking leads to the conclusion that a one-to-one correspondence between Case assigners and Case-marked elements cannot be maintained, and that we must countenance polyvalent Case. The accommodation of polyvalent Case also proves useful in accounting for case mismatches, and opens the possibility to a new kind of analysis of split ergative and differential object marking systems. The advantages of the above analysis, combining polyvalent Case and geometrically encoded prominence hierarchies, is

that it allows for a uniformity in Case assigning mechanisms across languages, positing only that the position of the Case-assigning heads may be higher or lower in the functional structure, depending on the language. One may question the number of functional heads required here, but it may be the case that all the heads on one side or the other of the relevant Case assigning head are actually realized only by a single head able to check any of the range of features necessary (cf. Bobaljik and Thráinsson 1998). Such fusing may also be a necessary ingredient of a more complete analysis taking into account the intersections of the various hierarchies that Aissen discusses, an important issue I haven't been able to address here. The cases of apparent optionality in differential object marking (though not, to my knowledge, in differential subject marking such as split ergatives) are also issues that will require further research from the current perspective (note that from the current perspective, this 'optionality' should have the same source as 'optionality' of object scrambling and the like). I have tried merely to show that by taking phenomena like case-stacking seriously, we arrive at a more flexible theory of Case, one which provides suggestive insights into a possible way of framing prominence effects in geometric terms.

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Department of Linguistics
University of Chicago
1010 E. 59th St.
Chicago, IL 60637 USA

merchant@uchicago.edu