4 Agreement and global case splits: agreement determining case

4.1 Introduction

The goal of this chapter is to extend the analysis of inverse agreement in Hungarian to other languages and explore its cross-linguistic implications. In Chapter 3, I proposed that Hungarian object agreement relies on cyclic Agree and interprets person features as sets of sub-features.

In this chapter, I argue that the specific assumptions about the nature of Agree and entailment relations among person features are not simply *ad hoc* rules that serve to explain a quirk of Hungarian grammar. I show, following a.o. Béjar & Rezac (2009), Georgi (2012), Keine (2010), that the agreement pattern found in Hungarian is only one possible expression of grammatical phenomena that can be characterised by the notions of “direct” and “inverse”, i.e. certain relations between the ϕ-features of the external and the internal argument.

So-called *global case splits* (Silverstein 1976, de Hoop & Malchukov 2008, Malchukov 2008, Keine 2010, Georgi 2012) are a related phenomenon. The term *global* refers to the fact that the properties of more than one argument determine whether that argument shows case-marking or not. *Local* splits, on the other hand, depend on the properties of

a single argument only. Kashmiri, discussed below, represents an example of a global case split. In this language, case-marking of the object depends on the properties of both the subject and the object.

As Georgi (2012) illustrates convincingly, such splits can pose a problem for derivational approaches to syntax. In a language in which the morphological case of the direct object shows a global case split, i.e. where its case depends on the properties of both the subject and the object, *v* cannot assign Case upon entering an Agree relation with the direct object, as this would be too early in the derivation.

In this chapter, I propose that this problem of timing Case assignment finds a simple solution in the approach to cyclic Agree introduced in Chapter 3. If *v* can enter Agree relations as long as it has not exhausted its ϕ-probe and Case assignment follows Agree, the ϕ-features of both the external and the internal argument will be able to value a probe before Case assignment happens. Whether a language exhibits a global case split or not is then (in part) a consequence of the order of Agree and Case assignment on *v* (see Müller 2004a, 2009, Heck & Müller 2007, Müller 2010, Keine 2010, Georgi 2014 on the order of syntactic operations initiated by functional heads).

Combining this approach with the view that person features can grammaticalise different properties across languages, including definiteness and animacy, I show that a small set of assumptions derives the agreement and case patterns of a wide range of unrelated languages.

To illustrate the phenomenon consider the following data from Kashmiri (Indo-European, Indo-Aryan; Wali & Koul 1997), to be discussed in more detail below. In (1a), the subject is a first person pronoun and the object is a second person pronoun. Both are unmarked for case (glossed as NOM). In (1b), however, the first person pronoun is an object, and now it surfaces in its dative form.

(1) a. *bɨ* *chu-s-ath* *tsɨ* *parɨna:va:n*
I.NOM be.M.SG-1SG.SBJ-2SG.OBJ you.NOM teaching
'I am teaching you.'

b. *tsɨ* *chu-kh* *me* *parɨna:va:n*
you.NOM be.M.SG-2SG.SBJ I.DAT teaching
'You are teaching me.' (Wali & Koul 1997: 155, glosses adapted)

(1) indicates that first person objects can surface as datives. As (2) shows, however, second person objects undergo a similar alternation. In (2a), the subject is a second person, and the object is a third person pronoun, both unmarked (NOM). When the subject is third person, as in (2b), and the object is second person, the object surfaces as dative.

(2) a. *tsɨ* *chi-h-an* *su* *parɨna:va:n*
you.NOM be-2SG.SBJ-3SG.OBJ he.NOM teaching
'You are teaching him.'

b. *su* *chu-y* *tse* *parɨna:va:n*
he.NOM be.M.SG-2SG.OBJ you.DAT teaching
'He is teaching you.' (Wali & Koul 1997: 155, glosses adapted)

In brief, whether a second person object surfaces as dative or not depends on the person of the subject.

The pattern in (2) resembles the distribution of the Hungarian *-lak/-lek* suffix, discussed in the previous chapter: with a first person subject, the verb agrees with a second person object, but with a third person subject, it seemingly does not. As I have

argued in Chapter 3 that the distribution of agreement in Hungarian can be likened to direct and inverse marking in other languages, I will suggest that data like (1) and (2) provide additional evidence for treating global case splits in a similar way.

What characterises these phenomena is that certain properties of the subject and the object, in this case their person features, have to be "compared" to determine the morphological form of the verb. I have argued in Chapter 3 that this comparison, and the distinction between direct and inverse configurations, can be read off the values of the φ-probes of T and *v*, respectively, after they have agreed with the subject and the object. Direct configurations are characterised by *v* having more than a single set of ϕ-features.

I will show that the same holds for global case splits, with the difference that the relevant exponent is the case morphology on one of the two arguments. Global case splits are therefore a dependent-marking counterpart to inverse agreement, which reflects the properties of two arguments on the verb, i.e. the head (using the terminology introduced by Nichols 1986).

While the two phenomena appear to be two sides of the same coin, then, there is a crucial difference following from the dependent-marking nature of global case splits: the case morphology determined by the Agree relations with the subject and the object are not spelled out on the probe that is valued by the arguments, but on the dependents, i.e. the arguments providing the values. Yet in order to determine the form of case-marking, both the subject and the object will have had to value the head that determines case assignment. In other words, if the object's case depends on the person features of the subject as well, case assignment to the object has to wait until the subject has agreed with the object's case assigner.

This chapter is structured as follows. In the following section, I discuss case splits in two languages (Kashmiri and Sahaptin) in more detail. In Section 4.3, I discuss a crucial aspect of the analysis of global case splits: the timing of case assignment and its interaction with Agree. In Section 4.4, I implement my analysis and show detailed derivations of case splits based on person and animacy in six unrelated languages, grouped in pairs. First, Kashmiri and Sahaptin show a differential object and subject marking, respectively. Second, Awtuw and Fore show evidence of animacy as a person feature, and third, Chukchi and Kolyma Yukaghir show agreement and case-marking patterns that cross the divide between direct and inverse. Section 4.5 concludes.

4.2 Case studies: inverse agreement and global case splits

In this section, I will present data from two languages that show global case splits on different arguments. It will become clear that the patterns of case-marking and agreement that are morphologically expressed in these languages correspond closely to the "gaps" in Hungarian object agreement discussed in Chapter 3.

4.2.1 Kashmiri

As briefly mentioned above, Kashmiri (Indo-Aryan, Indo-European) has a split-ergative system based on aspect: in non-perfective aspect, the alignment of a clause is nominative-accusative, while it is ergative in perfective aspect. In non-perfective aspect, the features of both the subject and the direct object determine case-marking. Recall that so-called *inverse* configurations are those in which the person of the subject is "lower" than the person of the object, e.g. a second person subject and a first person object.

In such inverse contexts in the non-perfective aspect, the object has overt case that resembles the dative. This dative appears on the direct object in all inverse configurations, whereas the direct object is unmarked in direct configurations (note again, that this alternation does not appear in the perfective).

In the following pairs of examples (repeated from above), the direct object in the first example is unmarked (in direct contexts), whereas it is marked in the second example (in inverse contexts). (3) illustrates this for first and second person. The case-marking on the object is shown in (3b). The second person singular pronoun *tsɨ* 'you.NOM' is identical in (3a) and (3b), but the case-marking on the first person object changes depending on its grammatical role. (4) shows the analogous pattern for second and third person. (5) illustrates that two third person arguments also give rise to dative on the direct object.[1] The distribution of this dative is summarised in Table 4.1.

(3) a. *bɨ* *chu-s-ath* *tsɨ* *parɨna:va:n*
I.NOM be.M.SG-1SG.SBJ-2SG.OBJ you.NOM teaching
'I am teaching you.'

b. *tsɨ* *chu-kh* *me* *parɨna:va:n*
you.NOM be.M.SG-2SG.SBJ I.DAT teaching
'You are teaching me.' (Wali & Koul 1997: 155, glosses adapted)

(4) a. *tsɨ* *chi-h-an* *su* *parɨna:va:n*
you.NOM be-2SG.SBJ-3SG.OBJ he.NOM teaching
'You are teaching him.'

[1] Note that second person arguments are always coded on the verb, while other persons do not have to be (Wali & Koul 1997: 246).

b. *su* *chu-y* *tse* *parɨnaːvaːn*
he.NOM be.M.SG-2SG.OBJ you.DAT teaching
'He is teaching you.' (Wali & Koul 1997: 155, glosses adapted)

(5) *su* *vuch-i* *təmis.*
he see-3SG he.DAT
'He will see him.' (Wali & Koul 1997: 156, glosses adapted)

Note also that the dative case assigned to the object in these examples is a structural, and not an inherent Case (Béjar & Rezac 2009). Evidence for this comes from passivisation: the dative assigned to first and second person direct objects is not retained under passivisation, as shown in (6) for second person:

(6) a. *su* *kariy* *tse* *me* *havaːlɨ*
he.NOM do.FUT.2SG.OBJ you.DAT I.DAT handover
'He will hand you over to me.'

b. *tsɨ* *yikh* *me* *havaːlɨ* *karnɨ* *təm'sɨndi* *dəs'*
you.NOM come.FUT.2SG.OBJ.PASS I.DAT handover do.INF.ABL he.GEN by
'You will be handed over to me by him.' (Wali & Koul 1997: 208)

In contrast to the nominative on the logical object in (6b), Wali & Koul (1997: 209) point out that indirect objects retain their dative under passivisation (see also Béjar & Rezac 2009).[2]

[2] Wali & Koul (1997: 209) mention that this is not true for all varieties of Kashmiri. Dative can be retained under passivisation for some speakers. See also Bhatt (2007) on Hindi for a similar pattern.

EA→IA	1	2	3
1	—		
2	DAT	—	
3	DAT	DAT	DAT

Table 4.1 Distribution of inverse dative in Kashmiri

The previous examples and Table 4.1 show that the distribution of this pronominal dative case is similar to the distribution of subject agreement with Hungarian personal pronouns. Note, however, that in Kashmiri, the bottom-right cell of Table 4.1 indicates that 3⟶3 counts as inverse as well, in contrast to Hungarian.[3]

Obviously, Kashmiri also differs from Hungarian in that the morphosyntactic exponent that is sensitive to the ϕ-features of the external and the internal argument is case morphology, and not verb morphology. Before turning to a full analysis of this pattern, I turn to a language in which case is assigned to the external argument rather than the internal argument in inverse contexts.

4.2.2 Sahaptin

Sahaptin (see Keine 2010, Deal 2010, Rigsby & Rude 1996, Zúñiga 2006), a relative of Nez Perce, is similar to Kashmiri in that it shows differential case-marking in inverse contexts. However, whereas a global case split affects the direct object in Kashmiri, Sahaptin shows what Rigsby & Rude (1996) call the "inverse ergative" and the "obviative ergative". Both are realised on the subject, with the inverse ergative appearing

[3] This is a more "regular" behaviour, as a single probe cannot be valued by two third person arguments. For Hungarian, I have argued that the configuration 3⟶3 patterns with direct configurations because *v* and T can fuse (see Section 3.3.2).

with first and second person objects and the obviative ergative appearing with third person objects. In this language, case-marking of the external argument depends on properties of the subject and the direct or indirect object. The following examples from Rigsby & Rude (1996) illustrate the distribution and form of this case. The crucial difference lies in the person of the object: when the direct object is second person, as in (7b), the subject bears the inverse ergative suffix *-nɨm*.

(7) a. *ɨwínš i-ɋ́ínun-a yáamaš-na.*
man 3.NOM-see-PST mule deer-OBJ
'The man saw a/the mule deer.' (Rigsby & Rude 1996: 673)

b. *ɨwínš-nɨm=nam i-ɋ́ínu-ša.*
man-INV.ERG=2SG 3.NOM-see-IPFV
'The man sees you.' (Rigsby & Rude 1996: 677)

The obviative ergative appears when both the subject and the object are third person and it tracks the relative pragmatic status of the two arguments (Rigsby & Rude 1996, Zúñiga 2006). Zúñiga (2006: 146) characterises the the difference between the two arguments as "high-pragmatic" (HP) and "low-pragmatic" (LP), respectively. When an LP third person subject has a HP third person object, it will bear the obviative ergative suffix. An example is shown in (8).

(8) *ɨwínš-in pá-tuχnana yáamaš-na.*
man-OBV.ERG 3INV-shot mule deer-OBJ
'The man shot a mule deer.' (Rigsby & Rude 1996: 676)

The obviative ergative also correlates with a change in verb morphology. In (8), the verb shows the *pá-* suffix rather than *i-* as in (7). Rigsby & Rude (1996) suggest that the suffix *pá-* allows tracking the reference of salient arguments in a discourse, illustrating with the pair in (9). In (9a), the subject of the first clause remains the subject of the second, conjoined clause. According to Rigsby & Rude (1996), the subject is the topic in both clauses.

(9) a. *ɨwínš i-ɻ́qínun-a wapaanłá-n ku kʷaaná* ***i-***ʔíƛ̓*iyawi-ya.*
man 3.NOM-see-PST grizzly-OBJ and that.OBJ 3.NOM-kill-PST
'The man saw a grizzly and he killed it.'

b. *ɨwínš i-ɻ́qínun-a wapaanłá-n ku* ***pá-***ʔíƛ̓*iyawi-ya.*
man 3.NOM-see-PST grizzly-OBJ and 3.INV-kill-PST
'The man saw a grizzly and it killed him.' (Rigsby & Rude 1996: 677)

In (9b), on the other hand, the *object* of the first clause becomes the subject of the second clause and the verb shows the *pá*-suffix, indicating a reversal of the roles of the first clause: the object of the first clause is topical in the second clause.[4]

As these examples illustrate, Sahaptin has a rich inventory of verbal marking in addition to case-marking. Pronominal enclitics co-reference first and second person arguments (participants), while the prefixes indicate third person arguments, as well as (certain) inverse, reflexive and reciprocal forms (Rigsby & Rude 1996: 675f.). In this chapter, I will only focus on describing the case-marking pattern, and in particular the distribution of the *inverse* ergative, i.e. case-marking on the subject when the object is

[4] Note that the pattern of verb morphology in (9) resembles so-called *switch-reference* (see Finer 1985, Stirling 1993, Keine 2013). As I am interested on the case of the external argument in this section, I will not discuss this matter here.

first or second person (see Rigsby & Rude 1996, Zúñiga 2006: 149ff. for discussion of Sahaptin verb morphology in more detail, including the distribution of the prefix *pá-*). Table 4.2 summarises the distribution of ergative marking, and Table 4.3 summarises the distribution of inverse markers.

EA→IA	1	2	3
1	—		
2		—	
3	inverse ergative	inverse ergative	obviative ergative

Table 4.2 Distribution of the inverse ergative with singular subjects in Sahaptin (Rigsby & Rude 1996).

EA→IA	1	2	3
1	—		
2	*pá-*	—	
3	*i-*	*i-*	*pá-*

Table 4.3 Distribution of inverse verb markers for singular subjects in Sahaptin (Rigsby & Rude 1996).

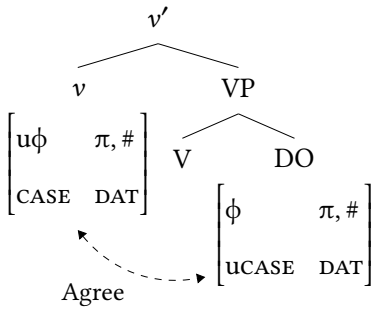
4.3 Case assignment and cyclicity

Recall the issue of timing Case assignment mentioned in the introduction to this chapter. When *v* agrees with the direct object in Kashmiri, it should not yet assign the direct object Case, because the Case of the direct object also depends on the person of the subject. Assuming that a post-syntactic impoverishment rule determines the spell-

out of the case on the direct object could be an option, but the context for such a rule refers to a large syntactic domain and gives rise to an extremely powerful notion of impoverishment. Following Keine (2010), I will take the impoverishment rules in this chapter to only apply in the domain of a single functional head, although this head might be complex. This restricts the power of such rules.

(10) illustrates this argument (DAT in (10) represents the structural Case assigned to the direct object in Kashmiri). If *v* assigns DAT on agreeing with the direct object, it is unclear how later stages of the derivation can delete (by impoverishment) the DAT feature from the direct object if the configuration does not require this case on the object.[5]

(10)



The Kashmiri data introduced above show that the direct object is assigned dative in inverse configurations. A first step towards an analysis is to take this into account in the derivation. In the system of cyclic Agree argued for in Chapter 3, direct and inverse configurations, respectively, can be distinguished by the sets of person features on *v*.

Recall from the previous chapter that I assume a person specification like [1], [2] or [3] to refer to a set of features like SPEAKER, PARTICIPANT and π (Harley & Ritter

[5] From now on, I will use simplified feature matrices in derivations, as in (10). I will not indicate person, number and gender probes separately; they will be shown as uϕ. If a head only has a person probe, it is shown as uπ, as before. Number and gender are only shown when relevant.

2002, McGinnis 2005, Béjar & Rezac 2009). Subset/superset relations referencing these sets give rise to entailment relations between persons and therefore model hierarchical effects. A "higher" set of person features is a proper superset of a "lower" set of person features (cf. the discussion of (19) in Chapter 3).

$$(11) \quad [1] = \left\{ \begin{array}{l} \textsc{speaker}, \\ \textsc{participant}, \\ \pi \end{array} \right\} \supset [2] = \left\{ \begin{array}{l} \textsc{participant}, \\ \pi \end{array} \right\} \supset [3] = \{\pi\}$$

Assuming further that unvalued features on v correspond to these sets, v can have the values shown in Table 4.4 after agreeing with the direct object and the subject. Table 4.4 clearly shows how direct and inverse configurations can be distinguished from each other: in inverse configurations, v only has a single set of person features. This is because the features of the subject on the second cycle of Agree cannot value v as they are not a proper superset of the object's features. The cells indicated by "—" refer to reflexives that are outside the scope of the present discussion.

EA→IA	1	2	3
1	—	v: [1, 2]	v: [1, 3]
2	v: [1]	—	v: [2, 3]
3	v: [1]	v: [2]	v: [3]

Table 4.4 Distribution of person features on *v*

In direct configurations, however, it is possible for v to be valued by two arguments: the features on the external argument are a (proper) superset of the features of the object and therefore v can be valued by the subject in addition to the object. v is

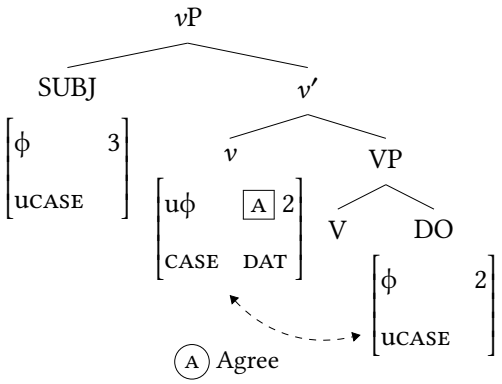
valued by two sets of person features. In addition, the superset relation between the sets makes it clear that the stronger set always corresponds to the subject: whenever there are two sets of person features on *v*, the subject valued *v* second. This follows from the fact that any set of features on a probe that remains unvalued after a cycle of Agree has an additional person feature, i.e. if a second person argument values *v*, only *v*'s unvalued first person feature set will be unaffected — the feature set referring to third person will be valued by entailment. Only a stronger set of features can therefore value a probe in a second cycle of Agree.

(12) illustrates a derivation taking these entailment relations among person features into account, showing a clause involving a third person subject and a second person object (and ignoring number and subject agreement, for now).

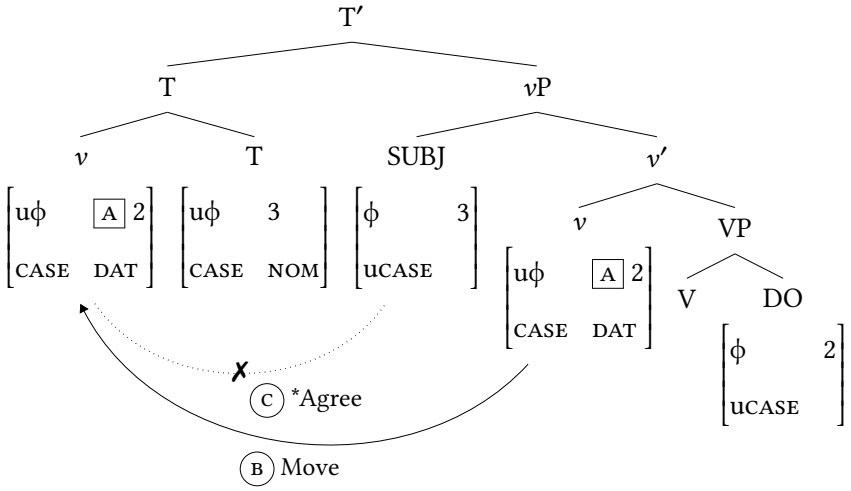
First, in (12a), *v* agrees with the direct object, which values *v*'s ϕ-features. There is no Case assignment yet. Next, in (12b) *v* moves to T and probes again, because its ϕ-features have not been fully valued yet.[6] Since the subject has a [3] person feature set which cannot value *v* again, *v* can now assign Case, as shown in (12c).

[6] Note that movement of *v* to T is not strictly necessary: in the derivation in (12), it serves the purpose of allowing *v* to enter an Agree relation with the subject by agreeing downward. For the sake of clarity, I adopt this approach to Agree throughout this chapter, but there are alternatives, like Zeijlstra's (2012) *Upward Agree* (see Preminger 2013 for a critique) and Wurmbrand's (2014) *Reverse Agree*. Finally, Béjar & Rezac (2009), Georgi (2012) argue that if *v*'s features percolate upwards in *v*P, *v* can also enter an Agree relation with the argument in Spec*v*P without moving.

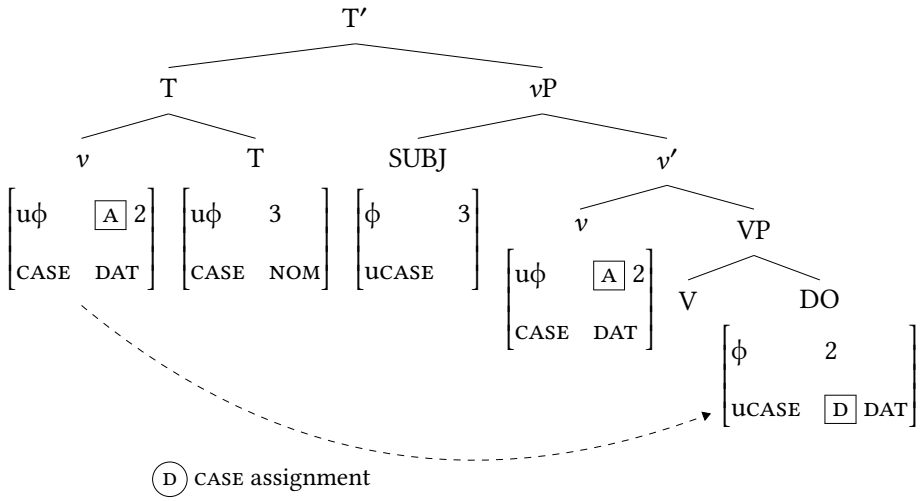
(12) a.


vP
SUBJ
v′
[ϕ 3 uCASE]
v
VP
[uϕ A 2 CASE DAT]
V
DO
[ϕ 2 uCASE]
A Agree

b.


T′
T
vP
v
T
SUBJ
v′
[uϕ A 2 CASE DAT]
[uϕ 3 CASE NOM]
[ϕ 3 uCASE]
v
VP
[uϕ A 2 CASE DAT]
V
DO
[ϕ 2 uCASE]
C *Agree
B Move

c.



Since *v*'s only value is a [2] feature set, it will assign DAT to its direct object. The derivation in (12) leaves two questions open, however:

1. How is Case assignment delayed?

2. How is the spell-out of Case determined on an argument?

The first of these two questions gets a simple answer. I assume that the order in which a probe discharges its features and gives rise to syntactic operations is fixed but can vary across languages. For *v*, the relevant head in (12), the order is one in which Agree precedes (≺) the assignment of CASE features: [ϕ ≺ CASE]. This ordering means that Agree takes place before copying a CASE feature onto the direct object. Following the logic of cyclic Agree, Case assignment only takes place once the probe can no longer enter Agree relations.[7]

[7] Note that while Case assignment in (12) happens crosses the *v*P, this does not violate the version of the *phase impenetrability condition* (PIC) in Chomsky (2001: 14, (12)). See also Müller (2009: 276f.).

This means that if *v* encounters a first person object, it will instantly be fully valued and assign Case to the direct object. With second and third person objects, however, it is possible that there is a second cycle of Agree before Case assignment can take place. On this second cycle, it is determined whether the external argument can value *v* or not, and this information can feed Case assignment, as desired. In this chapter, I locate these processes in syntax and I will discuss this choice and provide further evidence for it in Chapter 5.

Note that this system diverges from Chomsky's (2000, 2001) analysis of Agree, on which Case assignment and agreement in ϕ-features are two aspects of a single syntactic operation happening simultaneously. I have argued that a probe can attempt to enter several Agree relations to value its ϕ-features which influence which Case it assigns to an argument. Case can therefore be delayed until a ϕ-probe is no longer probing. In Chapter 5, I will discuss further evidence for dissociating Case and agreement from each other. Now, I turn to the question of how person features determine Case assignment.

4.3.1 CASE features, case assignment and impoverishment

As we have seen, the direct object in Kashmiri can appear in nominative or in a form that resembles the dative of an indirect object (but behaves differently in syntax with respect to passivisation as shown in (6)). Assuming, as seems reasonable, that the spell-out of direct object is determined by its features, there must be a way for *v* to determine which CASE feature to assign to the direct object.

One way of modelling this is to assume that CASE features are not privative, but complex (as I have been assuming for person features), consisting of sub-features like [±subj], [±obj] and [±obl], for "subject", "object" and "oblique", respectively (see, e.g.,

Jakobson 1971 [1936], Bierwisch 1967, Kiparsky 2001, Wunderlich 1997, Müller 2002, 2004b, Keine & Müller 2008, Wiese 1999, Keine 2010, McFadden 2004, Caha 2009, 2013, Harðarson 2016 and Chapter 5). On this perspective, *v* does not merely assign a single CASE feature, but a set of such features.

I adopt a specific version of this approach, building on Caha (2009, 2013). I will discuss further details in Chapter 5, and only give a brief idea here (see also Section 1.5.3). Rather than adopting features like [±subj], etc., I will use sans-serif small-capital letters to indicate CASE features: **A**, **B**, etc. Importantly, these features form a hierarchy ordered by the proper subset relation (⊂), as shown in (14).

(13) $\left[\mathbf{A}\right] \subset \left[\mathbf{A}, \mathbf{B}\right] \subset \left[\mathbf{A}, \mathbf{B}, \mathbf{C}\right] \subset \cdots$

The choice of these characters indicates that there is not necessarily any inherent meaning to **A**, **B**, etc., but these features determine some syntactic properties and the spell-out of noun phrases just like [±subj] above.[8] The hierarchical organisation of these features will more become relevant in Chapter 5, but introducing the features here allows for a more consistent picture throughout this and the following chapter. The basic idea is that the hierarchy in (13) is related to "case hierarchies" like the one in (14) (from Blake 2001: 156):

(14) NOM — ACC/ERG — GEN — DAT — LOC — …

The further right one proceeds along, the further right one proceeds on (13), too. This means that the more oblique a case is in (14), the more features it will contain. Both (13) and (14) are also connected to a hierarchy of grammatical relations. Again, I will return to a more detailed discussion of these patterns in Chapter 5.

[8] Note that all similar labels are somewhat stipulative and what matters most for present purposes is the logic behind using CASE features.

In what follows, I assume that the verb assigns sets of CASE features to its arguments, rather than atomic Cases. I will follow Müller (2005, 2006, 2007), Keine & Müller (2008), Keine (2010) in assuming that these sets can be modified during the syntactic derivation. Rather than assuming that impoverishment (cf. Chapter 1) can only apply after syntax, these authors suggest that feature structures can be subject to impoverishment as soon as the input conditions of an impoverishment rule are met. Figures 4.1 and 4.2 illustrate this.

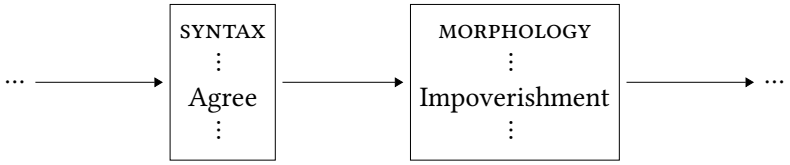


Figure 4.1 Standard view of the order of syntax and morphology (Keine 2010: 1)

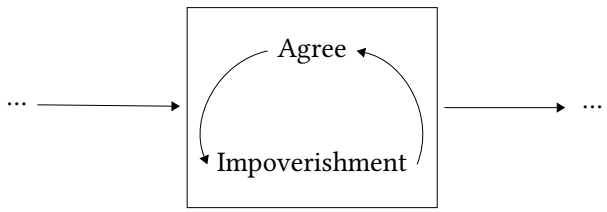


Figure 4.2 Keine's proposed order of syntax and morphology (Keine 2010: 2)

Keine (2010) takes advantage of the model in Figure 4.2 by assuming that the result of an Agree operation, i.e. a feature matrix, can be subject to impoverishment rules *right away*. Impoverishment does not have to wait until the end of the syntactic derivation, but it can be triggered by certain configurations of features on a head during the derivation.

To illustrate this, consider a transitive clause with a first person subject and a second person object, such as the Kashmiri example in (3a), repeated as (15).

(15) *bɨ* *chu-s-ath* *tsɨ* *parɨna:va:n*
I.NOM be.M.SG-1SG.SBJ-2SG.OBJ you.NOM teaching
'I am teaching you.' (Wali & Koul 1997: 155, glosses adapted)

I assume that NOM and DAT correspond to the features in (16). I treat non-dative object case as NOM here, as in the glosses above. (17) shows the relevant vocabulary insertion rules for Kashmiri.

(16) NOM = $\left[\mathbf{A}\ \right]$ DAT = $\left[\mathbf{A}, \mathbf{B}\right]$

(17) **Vocabulary insertion rules**

a. $\left[\mathbf{A}\ \right] \leftrightarrow$ *bɨ* 'I.NOM', *tsɨ* 'you.SG.NOM', *su* 'he.NOM'

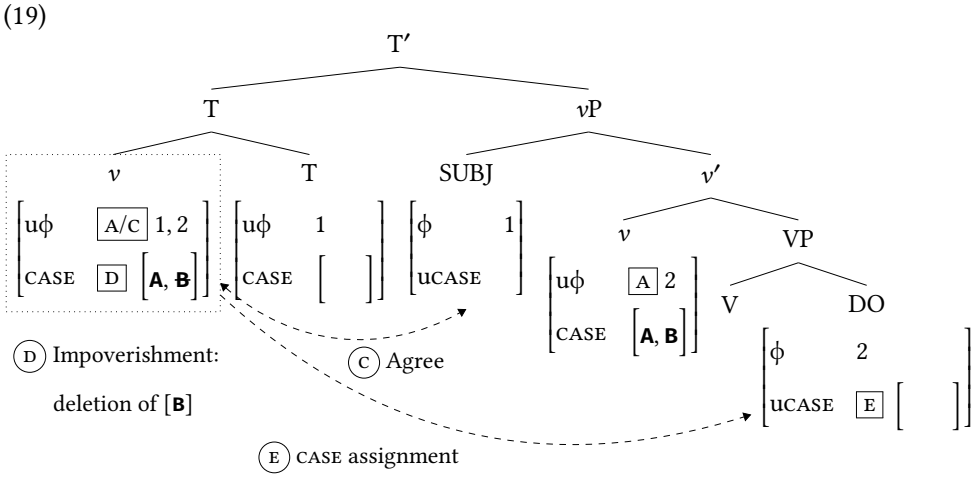
b. $\left[\mathbf{A}, \mathbf{B}\right] \leftrightarrow$ *me* 'I.DAT', *tse* 'you.SG.DAT', *təmis* 'he.DAT'

Finally, the impoverishment rule in (18) applies if *v* is valued by two sets of person features, shown as [α, β], and deletes the features [**B**].

(18) [**B**] ⟶ ∅ / *v* = [α, β]

If impoverishment can apply as part of the syntactic derivation, we can derive (15) as shown in (19) (following the earlier steps of the derivation as seen in (12)). The crucial point is step (D): the impoverishment rule in (18) deletes [**A**, **B**] if *v* is valued by sets of person features from two arguments. *v* therefore assigns an empty set of CASE features to the direct object: this is spelled out as nominative, according to (18).

(19)



On this perspective, *v* generally assigns DAT to its direct object, unless the feature [**B**] is deleted by the impoverishment rule in (18).

But why does this rule apply when *v* has been valued by two sets of person features in particular? An answer to this question comes from the nature of Agree, as discussed here. Following Béjar & Rezac (2009), I argued in Chapter 3 and summarised above that direct and inverse configurations can be distinguished by the content of *v*. (19) states that this impoverishment rule only applies in a direct configuration, i.e. when the subject's set of person features is a proper superset of the object's set of person features.[9]

Since multiple valuation is only possible in such contexts, it corresponds exactly to direct configurations stated on a hierarchy like the one in (20):

(20) 1 > 2 > 3

[9] While I do not necessarily endorse such a view, it is possible to give a functional answer to this question too. A direct configuration is more typical than an inverse one and therefore less likely to require case-marking of the object. This is why the CASE features of the object are impoverished in direct configurations.

[1, 2], [1, 3], and [2, 3] are direct, and distinguish the configurations in which the direct object in Kashmiri surfaces without case-marking from those in which the direct object bears dative (cf. also the agreement pattern with Hungarian personal pronouns and case-marking in Sahaptin). The analysis proposed here derives this split by relying on sets of person features, rather than hierarchies (see Section 4.5.1 for a brief comparison of this approach to other proposals).

In the rest of this chapter, I show how this approach successfully derives case-marking and agreement patterns in a number of unrelated languages and therefore presents a viable alternative to other approaches to global case splits.

4.4 Analysis

In this section, I will analyse three kinds of global case splits. First, I show how Kashmiri and Sahaptin are mirror images of each other in that the former has morphological case on the direct object in inverse configurations, whereas the latter has morphological case on the subject in the same contexts. In Section 4.4.2, I discuss the languages Awtuw and Fore, in which nominals are marked depending on the relative animacy of subject and object. I show how such a system can be captured in the same way as systems in which marking depends more directly on "person" features. Finally, in Section 4.4.3, I discuss Chukchi and Kolyma Yukaghir, which are similar in that the exponents of agreement (Chukchi) and case (Yukaghir) morphology do not adhere strictly to the distinction between direct and inverse. In Chukchi, a subset of inverse configurations shows the so-called *spurious antipassive*, whereas in Yukaghir the same case suffixes can appear in both direct and inverse contexts.

These languages are chosen because they illustrate the same kind of phenomena based on seemingly different properties, i.e. person and animacy. This serves to illustrate that these two notions can be thought of as one.

4.4.1 Global case splits on subject and object

I argued above that in order to derive the kind of case split exhibited by Kashmiri and Sahaptin, *v* only assigns Case once its ϕ-probe cannot enter any further Agree relations. For the sake of illustrating the analysis, I will first analyse both languages as having a single ϕ-probe on T and *v*, respectively (like Hungarian). I will return to indirect object agreement in Kashmiri in Chapter 5. For ease of exposition, derivations are split into several trees, as above.

4.4.1.1 Kashmiri

Starting with Kashmiri, consider again the data from the introduction to this chapter, repeated here.

(21) a. *bɨ* *chu-s-ath* *tsɨ* *parɨna:va:n*
I.NOM be.M.SG-1SG.SBJ-2SG.OBJ you.NOM teaching
'I am teaching you.'

b. *tsɨ* *chu-kh* *me* *parɨna:va:n*
you.NOM be.M.SG-2SG.SBJ I.DAT teaching
'You are teaching me.' (Wali & Koul 1997: 155, glosses adapted)

(22) a. *tsɨ* *chi-h-an* *su* *parɨna:va:n*
you.NOM be-2SG.SBJ-3SG.OBJ he.NOM teaching
'You are teaching him.'

b. *su* *chu-y* *tse* *parɨna:va:n*
he.NOM be.M.SG-2SG.OBJ you.DAT teaching
'He is teaching you.' (Wali & Koul 1997: 155, glosses adapted)

(23) *su* *vuch-i* *təmis.*
he see-3SG he.DAT
'He will see him.' (Wali & Koul 1997: 156, glosses adapted)

In order to derive all of the possible forms of personal pronoun objects in (23), the following assumptions are necessary. *v* has unvalued ϕ-features and can assign the set of CASE features shown in (24).

(24) v: $\begin{bmatrix} \text{u}\phi & \\ \text{CASE} & [\mathbf{A}, \mathbf{B}] \end{bmatrix}$

To derive the patterns in (21) to (23), the CASE features in (25) suffice. (26) shows the vocabulary insertion rules for the data discussed here. Recall that non-dative object case is spelled out like NOM.

(25) NOM = $[\mathbf{A}]$ DAT = $[\mathbf{A}, \mathbf{B}]$

(26) **Vocabulary insertion rules**

a. $\left[\textbf{A}\right]$ ↔ *bɨ* ‘I.NOM’, *tsɨ* ‘you.SG.NOM’, *su* ‘he.NOM’

b. $\left[\textbf{A}, \textbf{B}\right]$ ↔ *me* ‘I.DAT’, *tse* ‘you.SG.DAT’, *təmis* ‘he.DAT’

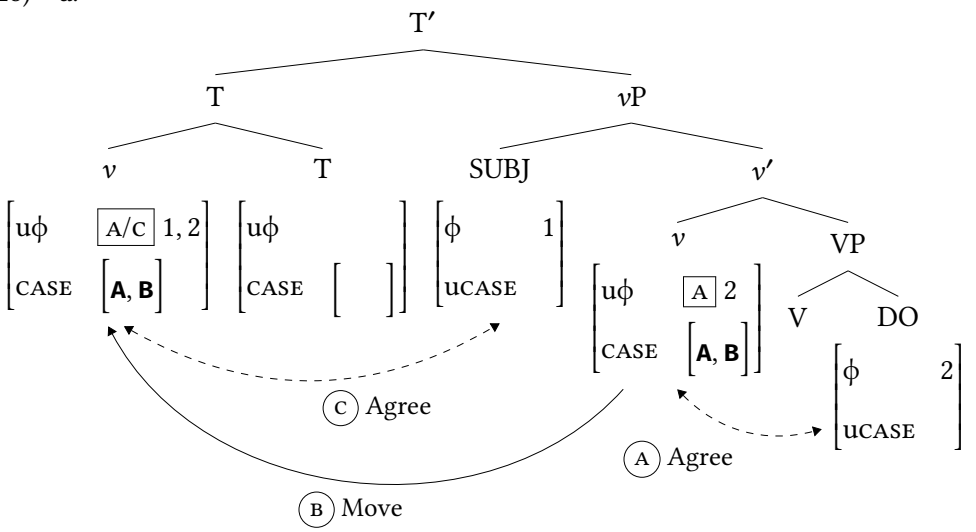
Finally, a single impoverishment rule is needed to derive the distribution of DAT on direct objects:

(27) $[\textbf{B}] \longrightarrow \emptyset \; / \; v = [\alpha, \beta]$

There are only two types of transitive derivations with personal pronoun direct objects: direct configurations, in which *v* is valued twice, and inverse configurations, in which it is only valued once. In direct configurations, *v* will be valued by the subject and the object together and will have two sets of person features. This creates the context for the rule in (27) to apply and delete [**B**] from the set of case features assigned by *v*. This is illustrated in (28), which shows the derivation of a clause with a first person subject and a second person object.

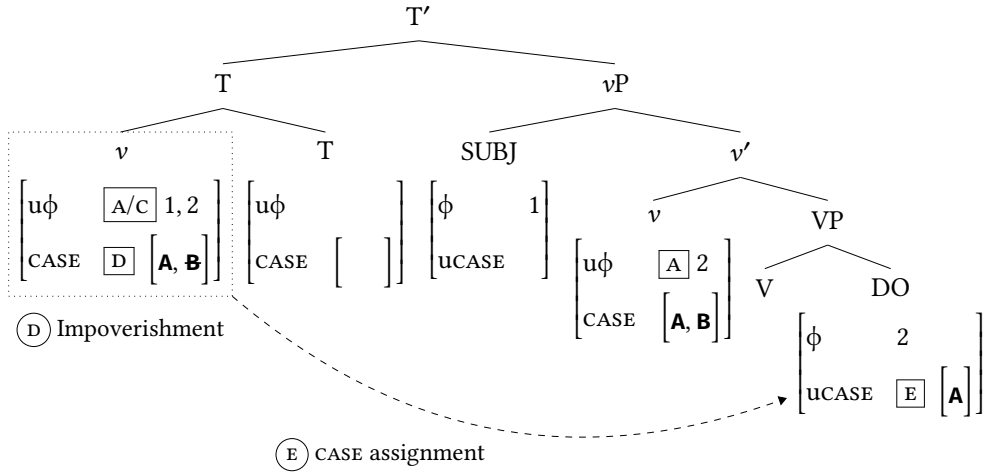
First, *v*’s ϕ-features are valued by the direct object in (A). Then *v* moves to a position where it enters an Agree with the subject in (B) and is valued with an additional [1] feature in (C) (cf. footnote 6 on the direction of Agree).

(28) a.



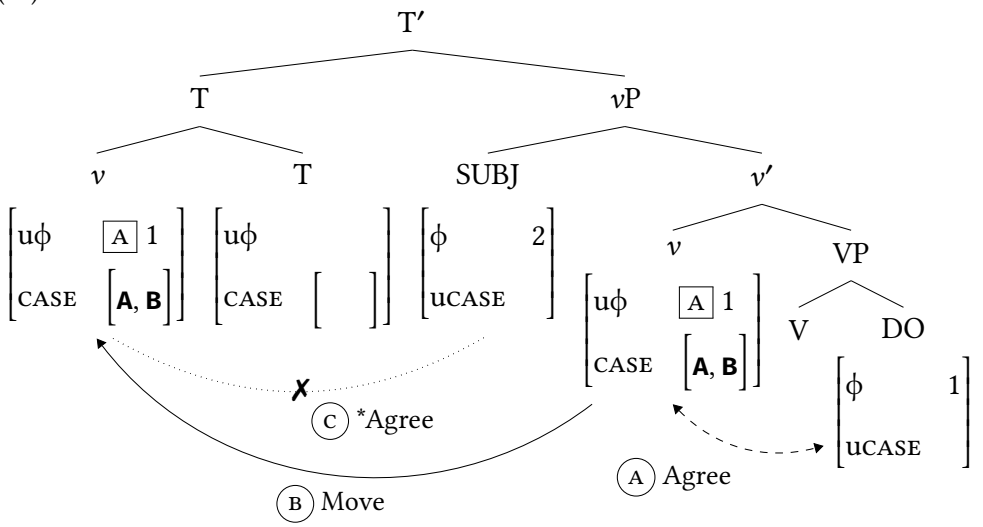
The two sets of ϕ-features on *v* match the context for the impoverishment rule in (27): impoverishment applies and deletes [**B**] in (D). This results in an empty set of CASE features being assigned to the direct object and the (post-syntactic) vocabulary insertion of the nominative form, as determined by (26a) above.

b.



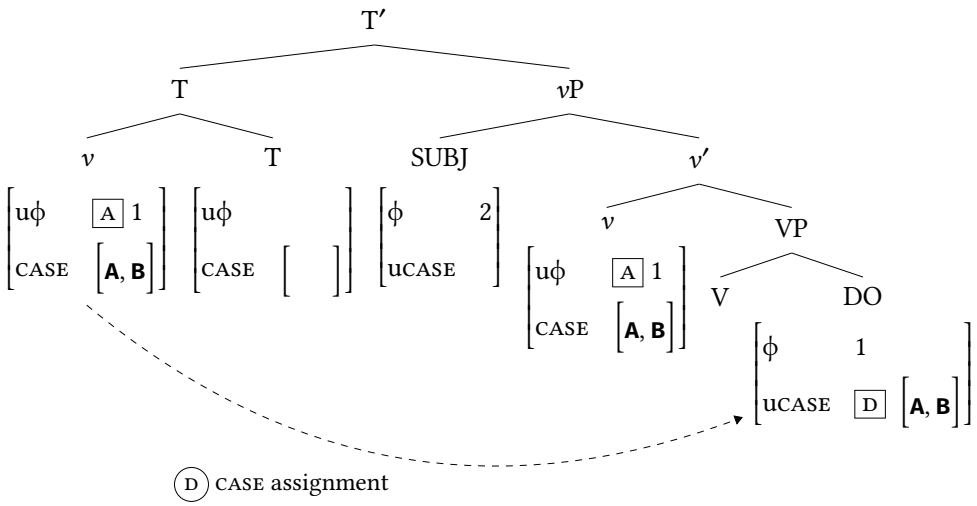
Inverse configurations are different in that *v* will only end up with a single set of ϕ-features, as shown in (29). This will bleed the context for the impoverishment rule in (27). The derivation in (29a) differs from the one in (28) in step (C): in (29a), the subject's [2] feature set cannot value *v*, which has already been valued as [1].

(29) a.



As *v* has a single set of ϕ-features, no impoverishment takes place, and the feature [**A**, **B**] is assigned to the direct object. Given the insertion rule in (26b), this form will be spelled out as a dative pronoun.

b.



The derivations so far have ignored Kashmiri's split-ergativity, mentioned at the beginning of this section. They are therefore only valid for non-perfective aspects. In perfective aspects, the subject is ergative-marked and the object is in the absolutive. Without going into any detail about the structure of the ergative clause in Kashmiri, it might simply come with a different *v*, which assigns inherent case to its specifier rather than to the direct object. (30) shows that the verb agrees with both the subject and the object even when the former is ergative and the latter absolutive. v_{PFV} might also assign Case before entering an Agree relation with the object, bleeding the possibility of impoverishing the CASE features it assigns (see also Müller 2009, Assmann et al. 2015).

(30) *tse* *vuch-u-th-as* *bɪ*
you.ERG saw-M.SG-2SG.SBJ-1SG.OBJ I.ABS
'You saw me.' (Wali & Koul 1997: 156, glosses adapted)

4.4.1.2 Sahaptin

As briefly introduced above, Sahaptin differs from Kashmiri in that the case morphology that is restricted to inverse contexts appears on the external argument. In addition, inverse case-marking in Sahaptin only appears on third person subjects.

The fact that the global case split affects the external argument raises the question where the inverse and obviative "ergatives" come from:[10] are they assigned by v as inherent Case (Woolford 1997, Legate 2008, 2012, Woolford 2006, Sheehan 2014, 2017) or assigned by T as structural Case (see Deal 2010 on Nez Perce and Sahaptin, Rezac et al. 2014 on Basque). Note that independently of whether ergative in Sahaptin is inherent or structural, its form is determined by the person features of the subject and the object.

Arguments for treating the ergative as structural and originating from T come from the range of thematic roles that ergative-marked subjects can bear. Consider the following examples:

(31) a. *x̣ʷɬ́saat-in* *pá-tuyayč-a* *áswani-na.*
old.man-OBV.ERG INV-lecture-PST boy-OBJ.SG
'The old man lectured the boy.'

b. *hulí-in* *pá-wilapx̣ʷ-ša* *łáł-x̣na.*
wind-OBV.ERG INV-blow.up-IPFV dust-OBJ.SG
'The wind is blowing up the dust.' (Rigsby & Rude 1996: 677)

[10] Recall the discussion in Section 4.2.2 about inverse and obviative ergative: the former is sensitive to person alone, while the latter appears with third person pronouns of different pragmatic salience (Rigsby & Rude 1996, Zúñiga 2006). I will simplify here and focus on how the presence of both can be derived.

The subjects of (31a,b) have different thematic roles and different levels of volitionality, yet they can both appear in the obviative ergative (see also Deal 2010: 102f. on similar examples from Nez Perce, where the ergative-marked subject lacks "characteristic properties of agents, e.g. animacy and volition").

I will thus assume that *v* assigns Case to the object in Sahaptin, and T assigns Case to the subject. For implementing this pattern, the following CASE features suffice:

(32) ERG = $\left[\mathbf{A}, \mathbf{B}\right]$ OBJ = $\left[\mathbf{A}, \mathbf{B}, \mathbf{C}\right]$

(33) **Vocabulary insertion rules**

a. $\left[\mathbf{A}, \mathbf{B}\right]$ ↔ *-nim* (INV.ERG)

b. $\left[\mathbf{B}\right]$ ↔ *-in* (OBV.ERG)

c. $\left[\mathbf{A}, \mathbf{B}, \mathbf{C}\right]$ ↔ *-na* (OBJ), *ína* 'I.OBJ', …

d. $\left[\mathbf{A}\right]$ ↔ ∅

As the ergative is assigned to the external argument by T, by assumption, the relevant impoverishment rules target the CASE features on T (rather than *v*, as in Kashmiri, cf. (27) above). These rules are shown in (34).

(34) **Impoverishment rules**

a. $\left[\mathbf{A}\right]$ → ∅ / T = [3]

b. $\left[\mathbf{A}, \mathbf{B}\right]$ → ∅ / T = [PART]

Rule (34a) specifies that if T is valued by a [3] argument only, its [**A**] feature is deleted and the external argument is assigned [**B**] only. (34b) states that if T is only valued by

PARTICIPANT arguments, it will assign an empty set of CASE features to the external argument (correctly restricting inverse or obviative ergative marking to third person subjects).

These ingredients lead to the following derivations. I will illustrate the appearance of the inverse ergative in (36), the obviative ergative in (38), and null suffixes in (39). Examples for each of these types of clauses are given in (35) ((35a) repeated from (7b), (35b) from (31b); (34c) is from Rigsby & Rude 1996: 674).

(35) a. *ɨwínš-nɨm=nam* *i-ʔ́qínu-ša.*
man-INV.ERG=2SG 3.NOM-see-IPFV
'The man sees you.'

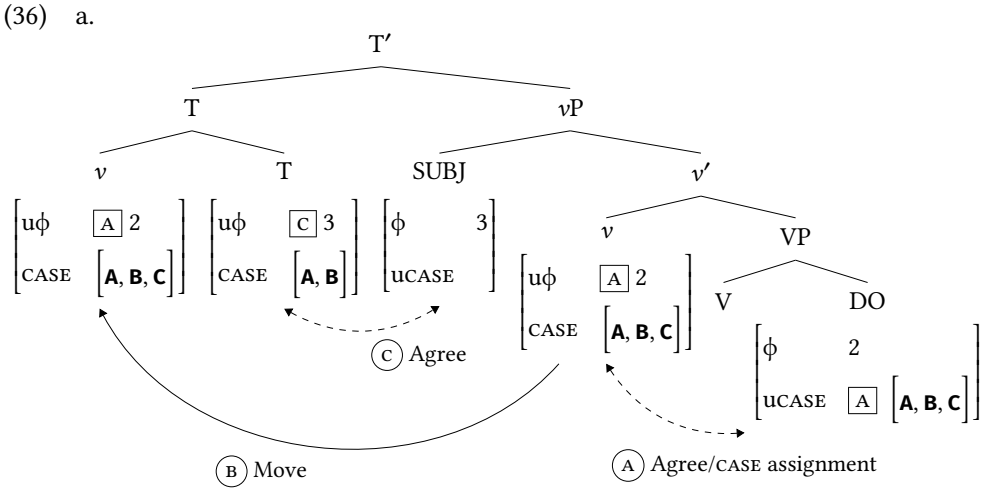
b. *hulí-in* *pá-wilapx̣^{w}-ša* *łáłx̣-na.*
wind-OBV.ERG INV-blow.up-IPFV dust-OBJ.SG
'The wind is blowing up the dust.'

c. *ín=aš* *á-ʔ́qínu-ša* *payúwii-na* *łmáma-an*
I-1SG 3.ABS-see-IPFV sick-OBJ old.woman-OBJ
'I see the sick old woman.'

(36a) illustrates the first steps of deriving (35a).[11]

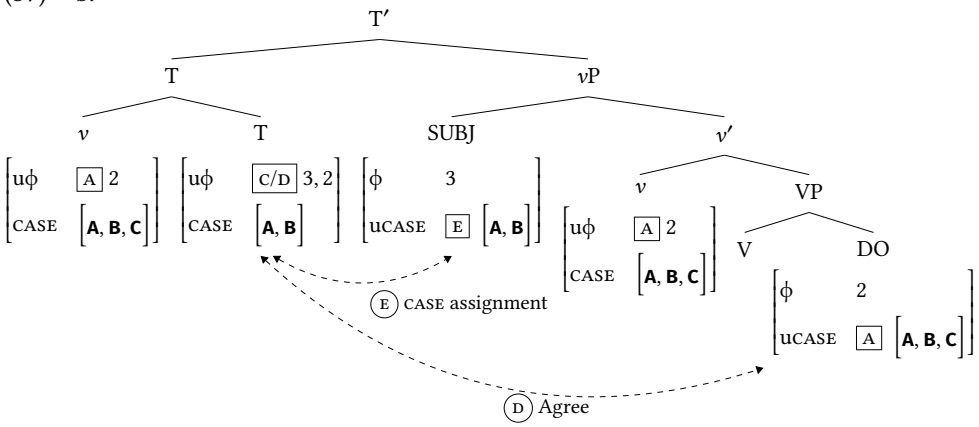
[11] Note that neither *v*-to-T movement nor immediate Case assignment to the direct object are crucial ingredients to this derivation. The existence of second-position enclitics like *=nam* '2SG' in (35a) indicates that *v* might move to a high position in the course of the derivation.

(36) a.



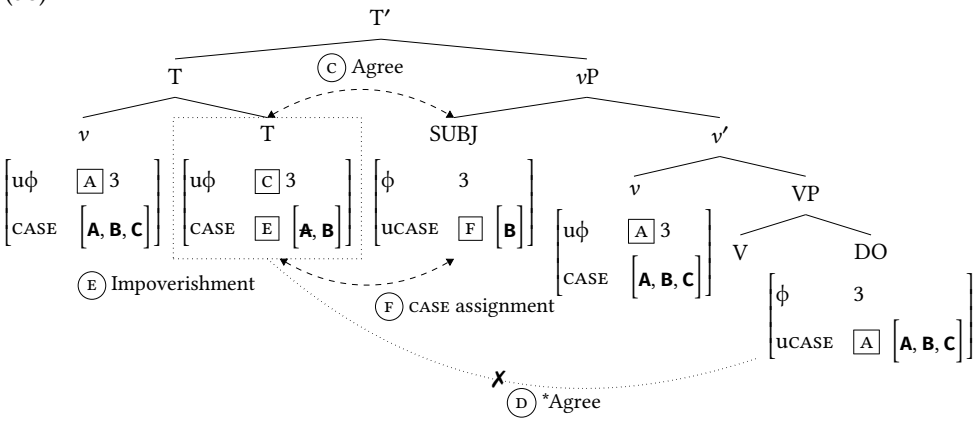
In (36b), after T has agreed with the subject and its ϕ-features are valued by the subject (C), it enters an Agree relation with the object (D): T ends up with the values [3, 2]. This value does not trigger any of the impoverishment rules in (34) and therefore T assigns its full set of CASE features to the subject. This will be spelled out as the inverse ergative.

(37) b.



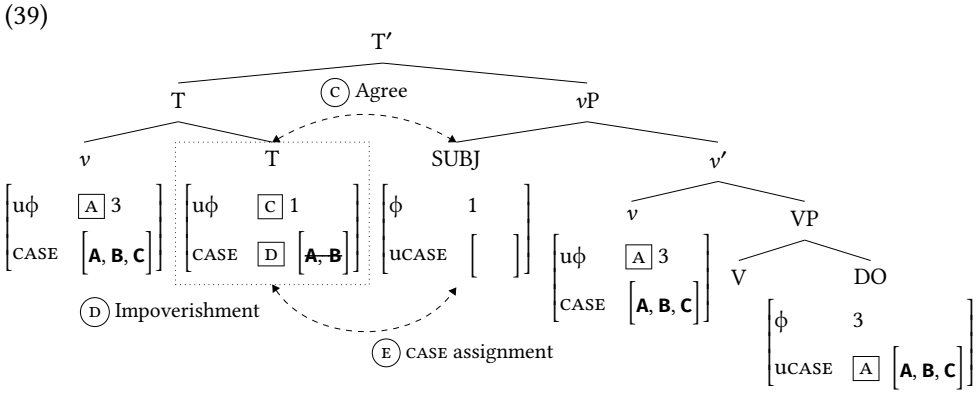
(38) shows the derivation of a clause giving rise to the obviative ergative on the external argument. The first steps of the derivation are essentially as in (37a), so only the remaining steps are shown. Again, T agrees with the subject and is valued [3] in (C). Agreeing with the direct object does not change this value, and thus the features on T provide the right context for the impoverishment rule in (34a). [**A**] is deleted and the subject is assigned [**B**] only, which is spelled out as the obviative ergative.

(38)



Finally, (39) shows the relevant steps of the derivation of (35c), with a first person subject and a third person object. T's ϕ-features are fully valued after the Agree relation with the first person subject in (C) and provide the right context for the impoverishment rule in (34b) to apply in (D), deleting all the features. The result is that the subject is unmarked for case.

(39)

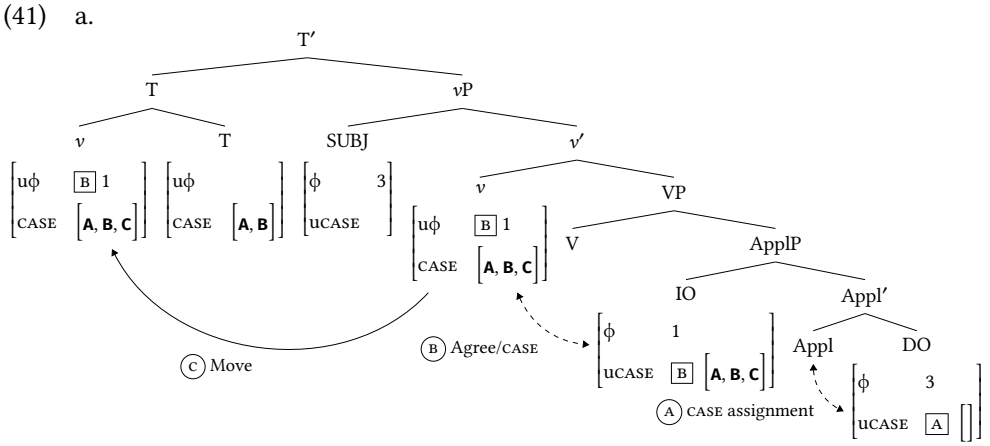


In Sahaptin, indirect objects also affect the appearance of the inverse ergative. In ditransitive clauses, it is the *indirect* object's ϕ-features that determine whether the subject bears inverse ergative, or not. Consider (40). The subject and the direct object are both third person. This is not a configuration that gives rise to the inverse ergative. However, the first person indirect object *ína* (in its object form) triggers the inverse ergative *-nim* on the subject. The direct object remains unmarked.

(40) *łmáma-nim=š* *i-ní-ya* *ína* *k̓pitłimá.*
old.woman-INV.ERG=1SG 3.NOM-give-PST me piece of beadwork
'The old woman gave me a piece of beadwork.' (Rigsby & Rude 1996: 677)

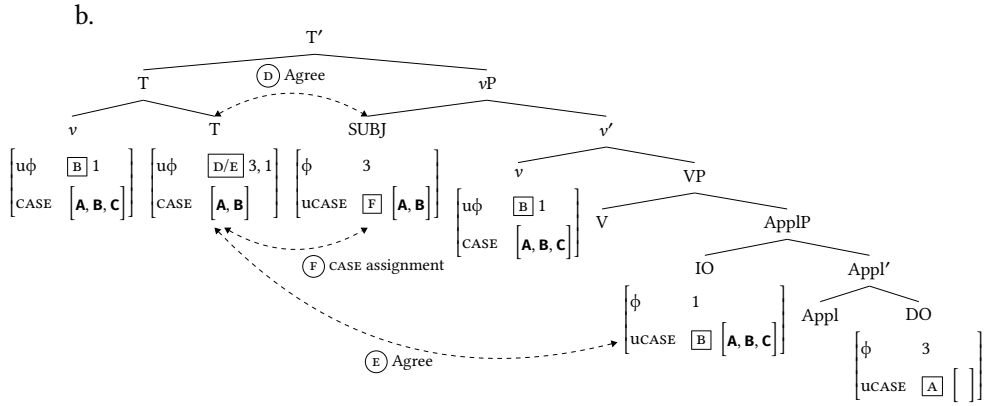
(40) can be modelled by the structures in (41), involving a low applicative structure, in which the indirect object is introduced in the specifier of ApplP (Pylkkänen 2008). I assume that Appl assigns Case to the direct object (which remains unmarked) in (A) and that *v* enters an Agree relation with the indirect object and assigns it object Case in (B). The indirect object is thus treated as the primary object in such constructions (Dryer 1986); in the terminology used in Chapter 5, the alignment of the direct and indirect object is *secundative* (Haspelmath 2005, Malchukov et al. 2010).

(41) a.



T, as before, enters an Agree relation with the subject and is valued as [3]; but it will enter a second Agree relation and find the indirect object which provides the second value [1] in (D) and (E). These sets of ϕ-features do not create the context for any of the impoverishment rules in (34), and therefore the subject is assigned an untouched set of CASE features in (F), to be spelled out as the inverse ergative.

b.



4.4.1.3 Interim summary

Kashmiri and Sahaptin both code inverse configurations in case morphology, albeit not on the same argument: in Kashmiri, the direct object surfaces as dative in roughly the same situations in which the subject surfaces as ergative in Sahaptin. As the distribution of these case-markers is very similar to the distribution of object agreement with personal pronouns in Hungarian as discussed in Chapter 3, I applied the same mechanisms to determine direct and inverse configurations: when *v* is valued by more than one set of ϕ-features, a derivation is direct. In Kashmiri, the direct object surfaces as dative when *v* has been valued by a *single* argument, i.e. in inverse contexts only.

I argued that in Sahaptin the same approach can derive the assignment of ergative case to the subject from T. Note, however, that since T agrees with the subject first, inverse configurations will result in more than one set of ϕ-features on T.

A crucial assumption throughout this chapter was that the order of operations that are carried out by a probe can be such that Agree precedes case assignment. If a probe can enter into several Agree relations before it is fully valued, Case assignment can be delayed until the head has agreed with more than one argument. The heads *v* and T thus determine the Case of the internal and the external argument, respectively, in a parallel fashion.[12]

Exploiting the role of *v* and T to license object and subject Case, respectively, is a possible advantage over other approaches to global case splits, where comparing the features of the subject and the object has to happen on a single functional head with two probes, one each for the subject and the object, respectively (e.g. Keine 2010, Georgi

[12] If the direct object has been assigned Case, it might not be accessible for an Agree relation with T any more, in contrast to the derivation in (41b). If so, an alternative approach to the impoverishment rules in (34) would be to compare the ϕ-features on T and *v*.

2012; see Section 4.5.1). Assuming a restrictive mapping between functional heads and probes, as I have done here, is motivated empirically. There is a cross-linguistic tendency for languages to only exhibit object agreement if they also exhibit subject agreement (see e.g. Siewierska 2013, D'Alessandro & Roberts 2008: 488, and Chapters 5 and 6). A way of modelling this trend is to only assume ϕ-probes on functional heads if there is evidence for agreement between that head and an argument. To capture the asymmetry between subject and object agreement, I will argue that *v* can only have a ϕ-probe if T also has one. I will return to this question in Chapter 5.

In the following section, I address similar case splits that are based on animacy and extend the analysis presented so far.

4.4.2 Global case splits and animacy

4.4.2.1 Awtuw

Awtuw, a Sepik language spoken in Papua New Guinea, is discussed in Malchukov (2008) in the context of local and global case splits (data from Feldman 1986, cf. de Swart 2007, de Hoop & Malchukov 2008, Malchukov 2008 for other analyses). Feldman (1986: 87) writes that even though the verb is final in the language, the order of subject and object is too varied to be useful in identifying grammatical relations.

Awtuw has differential object marking and the subject of the clause is always unmarked. The set of OBJ suffixes is *-re/-te/-e* (Feldman 1986: 107).[13] These markers obligatorily appear on some direct objects, may appear on others, and always appear on indirect objects. Since personal pronoun and proper name objects, as well as indi-

[13] There are further allomorphs that are not relevant for the present discussion. *-re/-te* indicate unmarked and (optionally) feminine gender, respectively, whereas *-e* is the suffix that appears on personal pronouns. The vowel quality can change due to vowel harmony.

rect objects always require case-marking independently of the relative animacy of the subject and the object, the domain of differential object marking does not extend to all objects. In other words, for personal pronouns and proper names, object marking is not differential. In consequence, the global case split only affects common noun objects.

Feldman indicates that the "empathy hierarchy" in (42) determines the case-marking of the object based on the relative position of the subject and the object on the hierarchy.

(42) Pronoun > Proper name > [+human] > [+animate] > [−animate]

(Feldman 1986: 108, labels adapted)

Feldman (1986: 110) writes that when "the object is equal to or higher than the Subject in empathy, it must take the Object suffix … When two unmarked NPs co-occur in a clause, the one that is higher on the empathy hierarchy is again obligatorily interpreted as the Subject." Malchukov (2008) cites the following examples as indicating the global nature of the Awtuw case split:[14]

(43) a. *tey* *tale-re* *yaw* *d-æl-i*
3.F.SG woman-OBJ pig FA-bite-PST
'The pig bit the woman.'

b. *tey* *tale* *yaw(-re)* *d-æl-i*
3.F.SG woman pig(-OBJ) FA-bite-PST
'The woman bit the pig.', *'The pig bit the woman.'

(Feldman 1986: 110, glosses adapted)

[14] I have adapted the glosses in this section. In addition to the regular glosses, Feldman (1986) uses FA for 'factive'.

In (43b), the default mapping of arguments to grammatical relations is mapping the argument that is higher on the empathy hierarchy onto the subject function.[15] This can be overridden by adding the object marker *-re* to the argument to be interpreted as the direct object as in (43a).

Awtuw case-marking therefore combines aspects of local and global case-marking. As mentioned above, for personal pronouns and proper name direct objects (as well as indirect objects), object marking is obligatory (Feldman 1986: 89). Case-marking in these contexts can therefore be seen as local: there is no need to refer to the properties of the subject to determine whether the object will be case-marked or not.

This local aspect of case-marking is illustrated in (44), for example. In (44a), the direct object *rey-e* 'him' is not equal or higher on the empathy hierarchy than the subject, yet it has to be marked.

(44) a. *wan rey-e du-k-puy-ey*
1SG 3.M.SG-OBJ FA-IPFV-hit-IPFV
'I'm hitting him.'

b. **wan rey du-k-puy-ey*
1SG 3.M.SG FA-IPFV-hit-IPFV
*'I'm hitting him.', *'He's hitting me.'

(Feldman 1986: 109, glosses adapted)

Similarly, in (45a), the proper name *Kampo* is case-marked. Again, proper names require object marking; this explains why *Kampo* cannot be the object in (45b). The case

[15] Note that (43b) is not ungrammatical, it just cannot give rise to the interpretation in which *yaw* 'the pig' is the subject.

of the object in (44) and (45) is determined locally, the properties of the subject do not matter.

(45) a. *rey* *piyren* *Kampo-re* *d-æl-i*
3.M.SG dog Kampo-OBJ FA-bite-IPFV
'The dog bit Kampo.'

b. *rey* *piyren* *Kampo* *d-æl-i*
3.M.SG dog Kampo FA-bite-IPFV
'Kampo bit the dog.', *'The dog bit Kampo.'

(Feldman 1986: 109f. glosses adapted)

The distribution of the object case-marker is shown in Table 4.5. Shaded cells indicate that the marker is optional. These cells indicate where case-marking is global, because it is sensitive to the properties of the object as well as the subject. Note further that since inanimate definites can also show case marking, there is no cell that completely rules out case-marking.

EA→IA	1	2	3	[+human]	[+anim.]	[−anim.]
1	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ
2	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ
3	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ
[+human]	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ
[+animate]	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ
[−animate]	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ	-OBJ

Table 4.5 Distribution of object case-marking in Awtuw; shaded cells indicate optional case-marking

In the languages discussed so far, animacy did not play a role in determining agreement or case morphology. In order to analyse the distribution of object case in Awtuw, I will assume that animacy is grammaticalised in this language, and expressed as a person feature. Animate third person noun phrases therefore have a set [3]: inanimate noun phrases lack person features.

Since Awtuw distinguishes humanness from animacy, there are in fact three possible types of third person in Awtuw. I will refer to these as [3^{H}], [3] and [ ], corresponding to humans, animates and inanimates, respectively. In present terms, these entities correspond to sets of features. So far, I have argued that person features grammaticalise referential properties only. This approach can easily be extended to include reference to animacy and humanness, however. Note that first and second person are always animate and human, and only third person makes a distinction between animate and inanimates (see M. Richards 2008 for motivation; for the features used in (46) see Harley & Ritter 2002, McGinnis 2005, Béjar & Rezac 2009). The relevant sets of features are the following:

(46) $$[1] = \left\{\begin{array}{l}\textsc{speaker},\\ \textsc{participant},\\ \textsc{human},\\ \pi\end{array}\right\} \supset [2] = \left\{\begin{array}{l}\textsc{participant},\\ \textsc{human},\\ \pi\end{array}\right\} \supset [3^{H}] = \left\{\begin{array}{l}\textsc{human},\\ \pi\end{array}\right\} \supset [3] = \{\pi\}$$

On the assumption that *v* agrees with direct objects bearing sets of person features, linking humanness and animacy to person features in this way captures that human objects tend to be case-marked (Feldman 1986: 110). Since case-marking is never fully ruled out, it must be possible that the verb assigns Case to the object in all configurations.

To model this, the following assumptions are necessary. First, subjects agree with the verb independently of their animacy.[16] I will assume that since the number of the subject, but not of the object, is represented on the verb, subject agreement in number entails the valuation of the set [3]. Second, since case-marking of human objects is obligatory for proper names and pronouns and there is tendency to case-mark definite, human common nouns, I will simplify by conflating these two categories as [3^{H}].

Third, the verb does not actually express differences in person in verb morphology. This means that *v* and T do not have to be sensitive to the whole range of person features — global case-marking is mostly determined by reference to [3^{H}] and [3] alone. Any proper name or personal pronoun will value [3^{H}] by virtue of having a superset of person features of the set [3^{H}]: first person pronouns, for example, are [1] and therefore value [3^{H}]. Proper names are [3^{H}]. Pronouns and proper names are therefore still accounted for. I assume *v* and T to be specified as follows. *v* only has a person (π) probe, but no number probe, while T has both.

(47) v: $\left[\begin{array}{l} u\pi \quad u3^{H} \\ \qquad\quad u3 \end{array}\right.$, CASE $\left[\mathbf{A}, \mathbf{B}\right]\Big]$ T: $\left[\begin{array}{lll} & u\pi & u3^{H} \\ u\phi & & u3 \\ & u\# & \end{array}\right.$, CASE $\left[\mathbf{A}\right]\Big]$

Since any direct object can be case-marked in Awtuw, it is necessary to assume that *v* can assign object case to *any* kind of object. Case-marking becomes optional when the subject has a superset of the features of the object. In terms of the features used here, such a configuration occurs when the subject is human, [3^{H}] but the object is merely animate, [3]. (48) shows such an example, repeated from (43b) above.

[16] The majority of transitive examples in Feldman (1986) have proper names or pronouns as subjects, but there are also examples with inanimate subjects (see e.g. Feldman 1986: 104).

(48) *tey* *tale* *yaw(-re)* *d-æl-i*
3.F.SG woman pig(-OBJ) FA-bite-PST
'The woman bit the pig.'

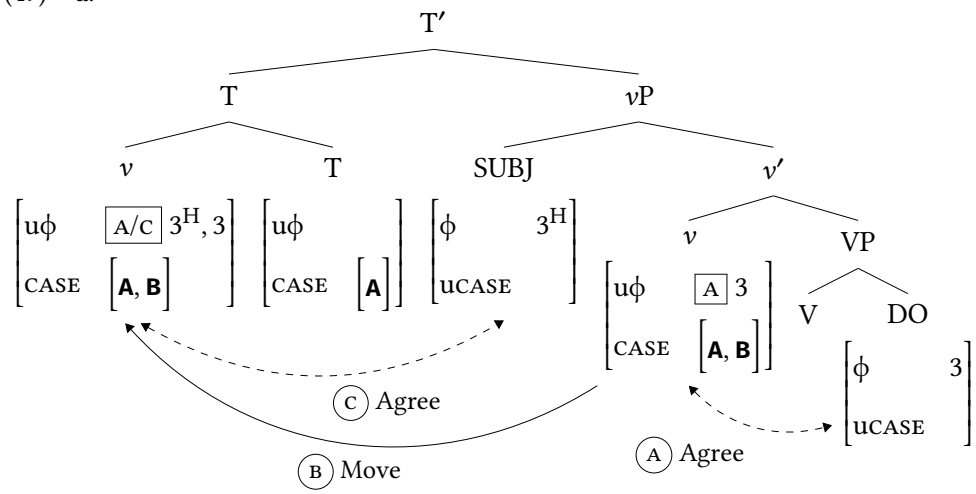
(48) is derived as follows: *v* attempts to enter an Agree relation with the direct object. Unless it is fully valued, it will agree again before assigning object Case to the direct object. After *v* has entered Agree relations with as many arguments as it can, an optional impoverishment rule can delete *v*'s [**B**] feature.

As far as the syntax is concerned, this accounts for the fact that any direct object can be case-marked. The possible values on *v* and T are shown in Table 4.6. The derivation of (48) is shown in (49).

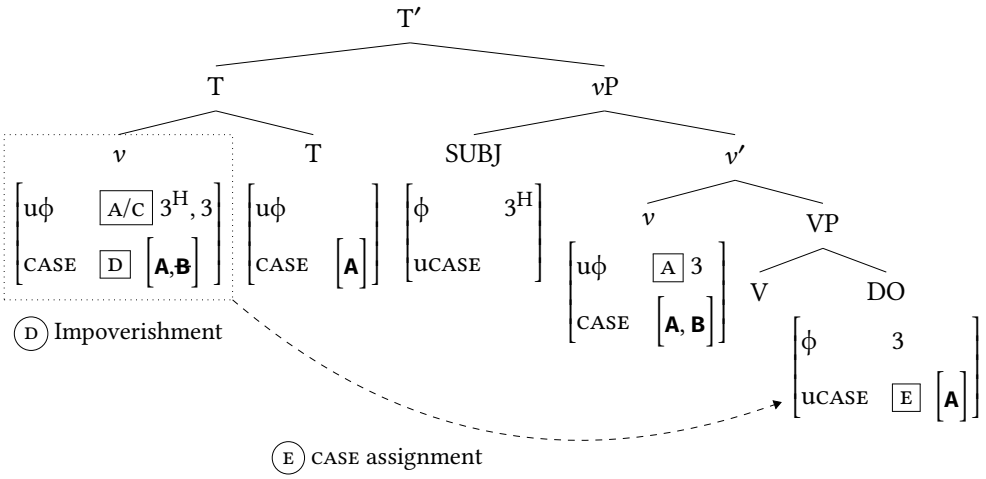
EA→IA	3^{H}	3	[ ]
3^{H}	*v*: [3^{H}], T: [3^{H}]	*v*: [3^{H}, 3], T: [3^{H}]	*v*: [ ], T: [3^{H}]
3	*v*: [3^{H}], T: [3]	*v*: [3], T: [3]	*v*: [ ], T: [3]

Table 4.6 Distribution of person features in Awtuw. Dark shaded cells indicate obligatory case-marking, light shaded cells indicate optional case-marking.

(49) a.



b.



In (49a), *v* first enters an Agree relation with the direct object, which values it as [3] and it gets an additional set of features [3^{H}] from the subject. This gives rise to the context for an impoverishment rule to apply in (49b) and delete *v*'s [**B**] feature. This

rule is shown in (50) (note the similarity to the Kashmiri impoverishment rule in (27) above).

(50) **Impoverishment rule**

$[\mathbf{B}] \longrightarrow \emptyset \; / \; v = [\alpha, \beta]$

This approach successfully captures that object marking is obligatory when both arguments are merely animate, but not human, for example, as shown in (51).

(51) *piyren-re yaw di-k-æl-iy*
dog-OBJ pig FA-IPFV-bite-IPFV
'The pig is biting the dog.' (Feldman 1986: 110, glosses adapted)

In (51), *v* will only be valued by the direct object's [3] feature and therefore the context for the impoverishment rule in (50) will never arise, and Case assignment is forced.

As for inanimate arguments, contrary to Malchukov's (2008) interpretation of the data that case-marking in Awtuw is forced when two arguments are equal in features, (52) suggests that even here, case-marking might be optional:

(52) *stua tawkway urunk-urunk də-kə-kow-ey*
shop tobacco three-three FA-IPFV-give-IPFV
'This shop sells cigarettes in threes/three at a time.'
(Feldman 1986: 189, glosses adapted)

To account for (52), an additional impoverishment rule is needed that can apply when *v* has not been valued at all. This rule would apply before *v* assigns Case and without any input from the subject, deleting [**B**], just like rule (50). This is exactly what the

approach pursued here allows: the final column in Table 4.6 is completely marked as optional, modelled as an optional impoverishment rule.

Apart from this optionality in Awtuw, the system proposed for case splits based on person in Kashmiri and Sahaptin accounts for the same kind of split in the same way, only based on animacy rather than person. If, as hypothesised throughout this book, person is a way of expressing the grammaticalisation of animacy, this is a welcome consequence.

4.4.2.2 Fore

Fore, a Trans-New Guinean language, is spoken in Papua New Guinea, like Awtuw. The data reported here are from Scott (1978) (analyses of the distribution of the nominal marking discussed here can be found in de Hoop & Malchukov 2008, Malchukov 2008, de Swart 2007, Georgi 2012).

Fore has been compared to Awtuw by these authors because the relative properties of the subject and the object seem to determine case-marking on the subject. In this sense, it might be a mirror image of Awtuw in the same way that Sahaptin and Kashmiri mirror each other: Awtuw assigns case to the object depending on the relative animacy of the subject and the object. In Fore, similar marking can appear on the subject. Consider the data in (53).[17]

(53) a. *másiwa ágaye.*
boy man he.sees.him
'The boy sees the man.', * 'The man sees the boy.'

[17] In the glosses in this section, DLN stands for 'delineator'.

b. *másí wá-má agaye.*
boy man-DLN he.sees.him
'The man sees the boy.' (Scott 1978: 115)

(53a) can only mean 'the boy sees the man' because both arguments are human and in such cases the first argument is interpreted as the subject. However, if the suffix *-má* is added to the second argument, as in (53b), the second linear argument is interpreted as the subject.

Scott (1978) calls this suffix the "delineator".[18] While de Hoop & Malchukov (2008), Malchukov (2008), Georgi (2012) analyse it as a subject case-marker, Scott (1978: 100f.) rather likens its function to a determiner. I will also treat it as a determiner, but the distribution of the delineator provides some evidence for either analysis.

First, it distinguishes arguments similarly to the object case-marker in Awtuw did (as in (53), for example). Second, as Scott (1978: 103) writes, the delineator must appear on inanimate subjects of transitive clauses. Again, this resembles the case-marking patterns discussed above because an inanimate subject will give rise to inverse configurations in a language where person grammaticalises animacy.

However, there are also arguments against analysing this suffix as a case-marker. First, it can appear on the subject of an intransitive, the unaccusative in (54).[19] This is unexpected if the delineator marks that the subject is lower in animacy than the object, since the predicate in (54) has a single argument.

[18] See Höhn (2017) for a cross-linguistic comparison of delineators and similar items.
[19] The delineator surfaces as *-má* on animates and *-wama* on inanimates.

(54) *yaga:-wama kana-y-e.*
pig-DLN come-it-IND
'The pig comes.' (Scott 1978: 102)

Second, the delineator can occur on the transitive *object* as well, even together with the subject, although this is "exceedingly rare" (Scott 1978: 102). (55) shows an example of this.

(55) *yaga:-wama-N a-ka-y-e.*
pig-DLN-OBL it-see-he-IND
'He sees the pig.' (Scott 1978: 102)

Scott (1978) argues that in (55), it is in fact the oblique case suffix on the object *-N* that distinguishes the subject and the object from each other, and suggests that Fore is a "pure nominative-accusative type language" (p. 102). On the object, the semantic contribution of the suffix *-wama* is to express its "agentive potentiality"; Scott (1978: 102) states that this gives rise to a reading of (55) as 'He sees the pig (doing something)'.

The function of the delineator, Scott suggests, is to turn the noun it attaches to into a *potential agent*. The term *potential agent* covers a class of nominal elements including "any proper noun representing an animate being, any personal pronoun, any inalienably-possessed kin term, or any term [with a delineator]" (Scott 1978: 105). Part of the contribution of the delineator seems to be adding common nouns to a morphosyntactic class that they do not belong to without the delineator.

Its use resembles that of a case-marker because it helps with mapping arguments onto grammatical roles. This mapping depends on several factors in Fore, with one of them being the presence of the delineator. Other factors are word order and the

relative animacy of arguments. Scott (1978: 114) suggests that, together with word order, the scales in (56a,b) determine the basic mapping of unmarked arguments onto grammatical roles.

(56) a. Potential Agent > Human > Animate > Inanimate

b. Subject > Indirect object > Direct object

I would like to suggest then that the delineator is in fact a determiner rather than a case-marker, following Scott (1978), and *contra* de Swart (2007), Malchukov (2008), Georgi (2012). Moreover, if it is a determiner that expresses the property of being a potential agent, this can be taken to be an abstract, formal counterpart of the semantic property [+human]. As such, Fore is another example of a language in which "person" features do not merely refer to first, second and third person, but where they express the grammaticalisation of certain semantic properties.

While in Hungarian this property was referentiality, in Awtuw and Fore it is humanness. In Hungarian, verb morphology is sensitive to this property on the direct object, and I have argued in much detail in Chapter 3 that this property is connected to the D position as several determiners and quantifiers in Hungarian trigger object agreement.

Fore can be seen as exhibiting a similar phenomenon: the delineator is a D-like element that is the formal expression of a semantic property related to humanness and agentivity. As such, it can be used to "add" these properties to arguments that lack them, much like a definite determiner "adds" definiteness to a noun phrase that is indefinite.

Seen in this light, the distribution of the delineator is arguably more natural than if it were a case-marker. It is not restricted to subjects or objects, and can appear on either. Proper names and pronouns, however, never take a delineator (cf. the behaviour

of proper names and pronouns and the definite determiner in English). Finally, the obligatory occurrence of a delineator on an inanimate transitive subject could be the animacy-based analogue of a *definiteness effect*. Some languages, for example Malagasy, only allow definite subjects (see e.g. Keenan 2008). The restriction to animate subjects in Fore might be an analogous type of *animacy effect*, then.[20] A inanimate transitive subject can be made to conform to the restriction by adding a delineator to it. Again, this resembles the contribution of a definite determiner. This view of the delineator provides further evidence for the idea that D expresses person which can grammaticalise different referential and semantic properties across languages (M. Richards 2008, Longobardi 2008; cf. also Höhn 2015).

Summing up, the distribution of the delineator *-má/-wama* in Fore matches that of an ergative case-marker like the one in Sahaptin to some degree, seemingly suggesting that there is a global case split in Fore that mirrors the one in Awtuw. However, the fact that this suffix also appears on intransitive subjects as well as transitive objects casts doubt on its analysis as an ergative marker.

I have followed Scott (1978) in suggesting instead that it is a determiner and I have sketched how this is compatible on the perspective taken in this book: person features grammaticalise semantic properties. In Fore, the formal property coded by the delineator corresponds to humanness or agentivity but it is expressed as a determiner, and not in case morphology (as in Awtuw) or on the verb (as in Hungarian).

[20] See, for example, Kuno (1973), Palmer (1994: 29), Hasegawa (2014: 146) on restrictions on inanimate subjects in Japanese. De Swart (2007: 79) also mentions that Jacaltec and Lakhota only allow animate subjects.

4.4.3 Crossing the divide between direct and inverse

In this section, I want to discuss two further languages that have case and agreement systems resembling the ones discussed so far. First, I will turn to Chukchi, discussing data from Bobaljik & Branigan (2006). In the variety of Chukch they study, some verbs appear in a form they call the "spurious antipassive", i.e. the verb shows an antipassive marker even though it is transitive. This spurious antipassive is triggered in a subset of inverse configurations.

In the second language I discuss in this section, Kolyma Yukaghir, there are several allomorphs of accusative that are assigned depending on the person features of both the subject and the direct object. What distinguishes Kolyma Yukaghir from the languages discussed so far, however, is that these allomorphs cut across the direct/inverse divide.

4.4.3.1 Chukchi

Chukchi has an inverse pattern in agreement (Comrie 1980, Bobaljik & Branigan 2006). Somewhat similarly to Hungarian, certain inverse configurations in this language give rise to what Bobaljik & Branigan (2006) call the "spurious antipassive" (SAP). Verb forms in the SAP look like antipassives, as indicated by the infix *-ine-*, but they are semantically transitive and not antipassive. An example is given in (57b).

(57) a. *ərɣə-nan ɣəm ne-ɬʔu-ɣəm*
3PL.ERG me.ABS 3.SBJ-see-1SG.OBJ
'They saw me.' (Skorik 1977: 45, *via* Bobaljik & Branigan 2006: 48)

b. *ə-nan yəm ∅-ine-ɬʔu-ɣʔi*
he-ERG me.ABS 3SG.SBJ-**ANTIP**-see-3SG.SBJ
'He saw me.' (Skorik 1977: 44, *via* Bobaljik & Branigan 2006: 49)

Note that both sentences in (57) have a third person subject and a first person singular object, yet only (57b) shows the spurious antipassive. Bobaljik & Branigan (2006) write that not all inverse configurations trigger the SAP, that it does not appear in all tenses and that exponents differ across dialects. Table 4.7 shows the configurations in which the SAP appears in the variety discussed by Bobaljik & Branigan (2006).

EA→IA	1	2	3
1	—		
2	SAP	—	
3	SAP (sg.)		

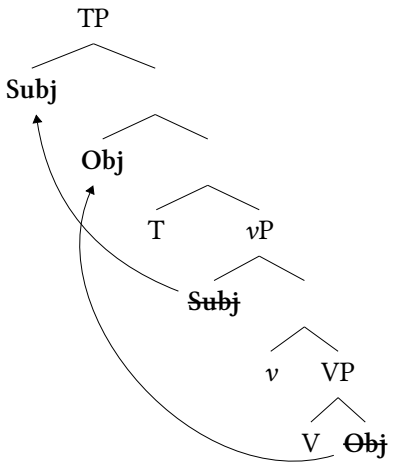
Table 4.7 Distribution of the SAP in Chukchi (Bobaljik & Branigan 2006)

Bobaljik & Branigan (2006) propose an analysis in which T licenses both the subject and the object. Certain configurations of features (the ones shown in Table 4.7) give rise to conflicting features on T which are resolved by deleting the object's features post-syntactically.

The "intransitive" nature of the SAP verb forms is explained by this deletion: the only ϕ-features available on T are those of the subject. Bobaljik & Branigan (2006) tie the appearance of the antipassive marker *-ine-* to the fact that the resulting structure resembles that of a true antipassive:

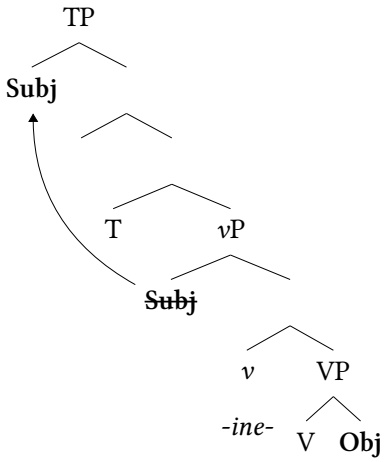
(58) a. Transitive clause (active)

(Bobaljik & Branigan 2006: 50)



b. True Antipassive clause

(Bobaljik & Branigan 2006: 50)

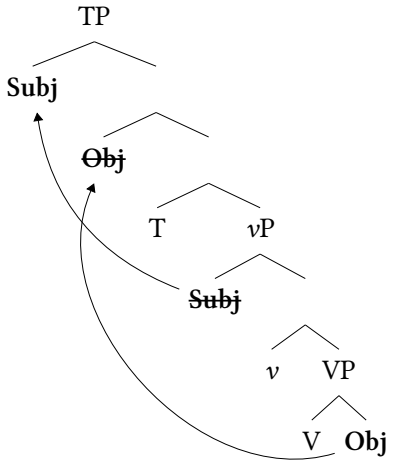


In a true antipassive, the marker *-ine-* is inserted because the object remains inside the VP (Bobaljik & Branigan 2006: 66). The SAP arises when the object's features are deleted on T, as shown in (59). Bobaljik & Branigan (2006) interpret this kind of

structure as essentially the same as in (58), with the low position of **Obj** giving rise to SAP morphology.

(59) Spurious Antipassive

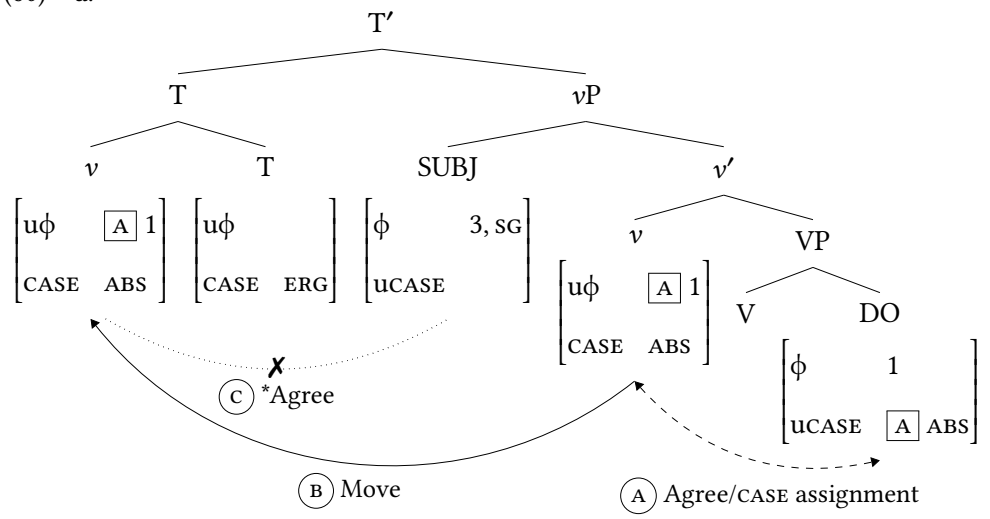
(Bobaljik & Branigan 2006: 51)



Bobaljik & Branigan's (2006) analysis can be restated in the terms of the analysis proposed here. I interpret their suggestion that the object's features move up to T as movement of *v* to T. The conflicting configurations that Bobaljik & Branigan argue are deleted can be removed by impoverishment rules targeting *v* and T. (60) shows a derivation that illustrates this.

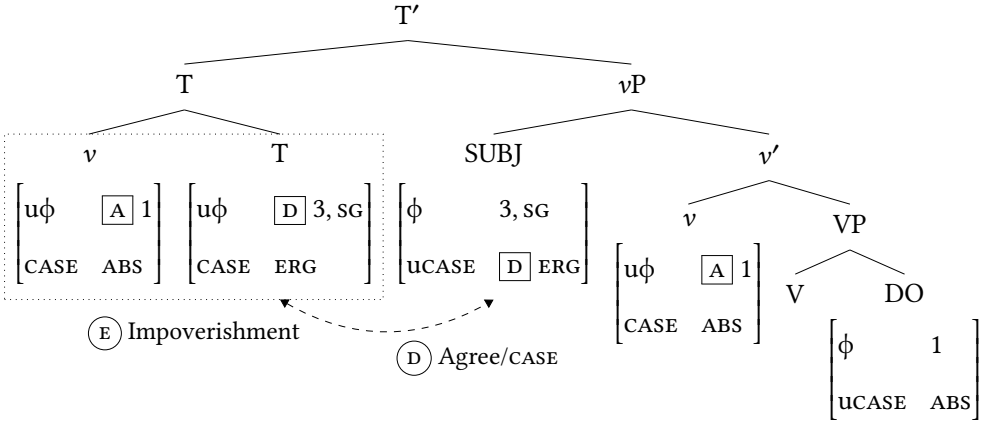
In (60), the subject is third person singular, and the object is first person, a configuration that gives rise to the SAP. (60a) shows *v* agreeing with the object before moving up to T. For simplicity, I am ignoring number features on the object and *v*. *v* cannot agree with the the subject again, since it is fully valued. Since Case does not play a role in the following examples, I'm using the labels ERG and ABS for ease of illustration.

(60) a.



In (60b), T agrees with the subject, has its ϕ-features valued and assigns ergative to the subject. As sisters, *v* and T are local enough to create the context of an impoverishment rule that deletes *v*'s features, giving rise to the spurious antipassive. The impoverishment rule that achieves this is shown in (61b).

(61) b.



(62) **Impoverishment rules**

a. $v \longrightarrow \emptyset$ / v = [α]

b. $v \longrightarrow \emptyset$ / v = [1], T = [3, SG]

Note that rule (62a) would give rise to the SAP in all inverse contexts: those in which v has a single set of ϕ-features. But the SAP in Chukchi is more restricted and requires more specific rules like the one in (62b). In varieties in which the SAP also appears in some direct contexts, spell-out rules can target v that has more than one set of ϕ-features, as in (62c):

(62) **Impoverishment rules** (continued)

c. $v \longrightarrow \emptyset$ / v = [α, β]

The purpose of this brief discussion of Chukchi was to show that the analysis developed above for both accusative and ergative languages straightforwardly provides the means to capture the idiosyncratic distribution of the spurious antipassive in Chukchi. This phenomenon is also of interest for the discussion of Hungarian in Chapter 3, because Chukchi is another language in which (some) inverse configurations are characterised by seemingly intransitive verb forms, while retaining their transitive semantics. This connection was made by É. Kiss (2003, 2005, 2013) who suggests that these similarities might be due to a *sprachbund* between certain languages spoken or originating in parts of Siberia, including Chukchi and Hungarian. The range of languages discussed in this chapter, and the common analysis I have proposed for them, suggest that the phenomenon is more wide-spread.

4.4.3.2 Kolyma Yukaghir

Kolyma Yukaghir is a Yukaghir language spoken in Eastern Russia, linked to the Uralic family by (Maslova 2003: 1). It has a complex set of ACC suffixes whose distribution depends on the ϕ-features of the arguments, and some of which are syncretic with other cases (Maslova 2003: 20f.). What makes Kolyma Yukaghir similar to Chukchi is that the suffixes cut across the direct/inverse distinction.

Considering third person objects first, they get the accusative suffix *-gele*[21] when they are pronouns, proper names, possessive or definite noun phrases (Maslova 2003: 93). Indefinite noun phrases take instrumental case, *-le* (Maslova 2003: 104).

This only holds when the subject is third person, however. When the subject is first or second person (i.e. [PARTICIPANT]), third person objects are zero-marked, while first and second person objects bear what Maslova calls "pronominal accusative" case, *-ul* (Maslova 2003: 94f.). The distribution of case suffixes is shown in Table 4.8.

EA→IA	1	2	3	[ ]
1	*-ul*		*-∅*	
2				
3	*-gele*			*-le*

Table 4.8 Objective case suffixes in Yukaghir (Maslova 2003, cf. also Keine 2010: 146).

As Table 4.8 shows, the suffix *-ul* cannot be analysed as a suffix that appears in inverse contexts only, but it is restricted to configurations involving [PARTICIPANT] arguments.

[21] Also *-kele* or *-jle*.

The suffix *-gele* is more "regular": it only appears in inverse contexts. Third person objects are not case-marked when the external argument is first or second person, and indefinite objects have the suffix *-le* when the external argument is *not* first or second person. Note that this last characteristic is similar to Hungarian where object agreement differs from subject agreement in that it divides "third" person into two subclasses. The following examples illustrate the four suffixes.[22]

(63) a. *met tet-ul kudede-t.*
I you-ACC kill-FUT(TR.1SG)
'I will kill you.'

b. *met-ul amde-l-get polde-mek.*
me-ACC die-PFV-ANR-ABL save-TR.2SG
'You have saved me from death.' (Maslova 2003: 95)

c. *tet kimnī met-kele kudede-m.*
your whip me-ACC kill-TR.3SG
'Your whip has killed me.' (Maslova 2003: 93)

d. *čolhoro-le tudel šinel'-e ningō ik-čī-m.*
hare-INS he snare-INS many get.caught-CAUS.ITER-TR.3SG
'He caught lots of hares with his snare.' (Maslova 2003: 104)

e. *met mēmē iŋī.*
I bear be.afraid(TR.1SG)
'I am afraid of the bear.' (Maslova 2003: 89)

[22] The special glosses used in this section are ITER "iterative" and ANR "action nominaliser".

(63a,b) show that first and second person pronouns get the same suffix when the subject is also a participant. (63b,c) show the alternation in case marking on a first person pronoun object, depending on the person of the subject. (63d) shows an indefinite noun phrase that surfaces with the instrumental suffix, and (63e) shows a bare noun object, unmarked because the subject is first person.

Kolyma Yukaghir poses a problem for the analysis of global case splits and inverse agreement proposed so far. This problem is the timing of Case assignment. Even with a first person object, case-marking on the object depends on the person of the subject. This was not the case in Kashmiri, where objects in inverse contexts are assigned dative across the board, or in Awtuw, where inverse case-marking on objects is also consistent. In these languages, a first person object would be assigned Case by *v* after a first cycle of Agree since *v* cannot be valued any further.

A crucial difference between Kashmiri, Sahaptin and Awtuw, on the one hand, and Yukaghir, on the other hand, is that object case-markers in the latter cut across the inverse/direct divide. This suggests that a different analysis is called for.

One way of characterising Yukaghir is that T plays a bigger role in Yukaghir. Keine (2010: 145ff.) suggests that in this language, T can assign Case to two arguments, so *v* is not involved in licensing object Case at all. Rather, T agrees with the subject, and possibly feeds impoverishment rules applying to the set of CASE features that T assigns to the object. This set of CASE features can be impoverished again on the direct object itself.

I will adopt Keine's suggestion that T assigns two Cases in Kolyma Yukaghir, but I depart from his analysis of the role of *v*. Notice that the verbs in (63) have suffixes from what Maslova (2003) calls the transitive paradigm, glossed as TR. Maslova (2003: 141) relates the exponent *-m(e)-*, seen in (63b,c,d), to transitivity, contrasting with *-j(e)-*

in the corresponding intransitive paradigm. Since transitivity is expressed on the verb, it is possible that there is a kind of object agreement, which does not reflect ϕ-features, however.

To derive the case-marking pattern, I will assume that this exponent of transitivity is in fact a ϕ-probe that can agree with the direct object but cannot assign it Case. When *v* moves up to T, impoverishment can apply to the features on *v* and T and determine the Case assigned to the object. An advantage of this approach could lie in providing a context for a second set of CASE features on T to become active. Rather than suggesting that there are two types of T head, one transitive and one intransitive, there is a single one. While it can assign two Cases, it only does this when *v* adjoins to it.

(64) shows the CASE features I assume for Kolyma Yukaghir and (65) shows the impoverishment rules needed to derive the case splits.[23]

(64) NOM: $\left[\textbf{A}\right]$ ACC: $\left[\textbf{A}, \textbf{B}, \textbf{C}\right]$

(65) **Impoverishment rules**

a. $[\textbf{C}] \longrightarrow \emptyset$ / *v* = [+PART], T = [+PART]

b. $[\textbf{A}, \textbf{C}] \longrightarrow \emptyset$ / *v* = [+PART], T = [−PART]

c. $[\textbf{B}, \textbf{C}] \longrightarrow \emptyset$ / *v* = [−PART], T = [+PART]

Finally, (66) shows the vocabulary insertion rules that determine the spell-out of the CASE features.

[23] Recall that one of the allomorphs of accusative, *-le*, is also the instrumental case. This fact, as well as the number of splits, leads me to assume the CASE features in (64). As shown in the derivations below, the sets [**A**, **B**] and [**B**] are only ACC, and not syncretic with other cases. See Keine (2010: 148) for a different analysis.

(66) **Vocabulary insertion rules**

a. $\left[\textbf{A}\right]$ ↔ -Ø

b. $\left[\textbf{B}\right]$ ↔ *-gele*

c. $\left[\textbf{A}, \textbf{B}\right]$ ↔ *-ul*

d. $\left[\textbf{A}, \textbf{B}, \textbf{C}\right]$ ↔ *-le*

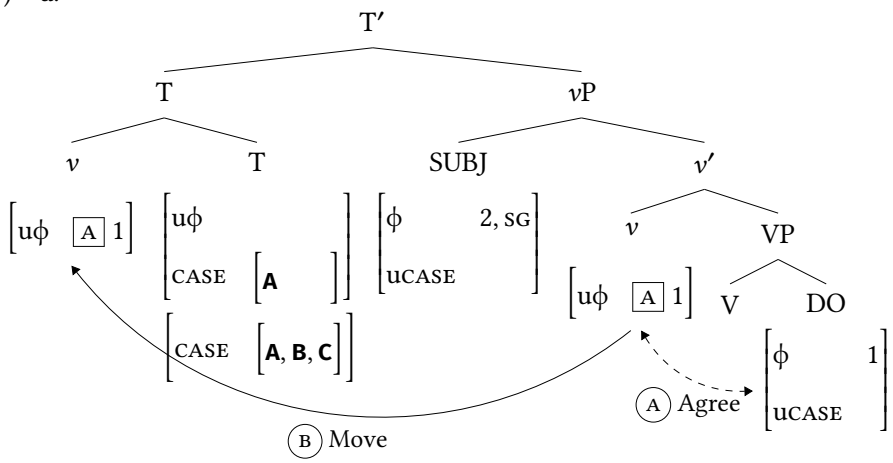
(67) and (68) illustrate two derivations with first person objects (cf. (63b) and (63c), repeated here). The derivations illustrate how the difference in the person of the subject influences the case-marker on the object.

(63) b. *met-ul amde-l-get polde-mek.*
me-ACC die-PFV-ANR-ABL save-TR.2SG
'You have saved me from death.'

c. *tet kimnī met-kele kudede-m.*
your whip me-ACC kill-TR.3SG
'Your whip has killed me.'

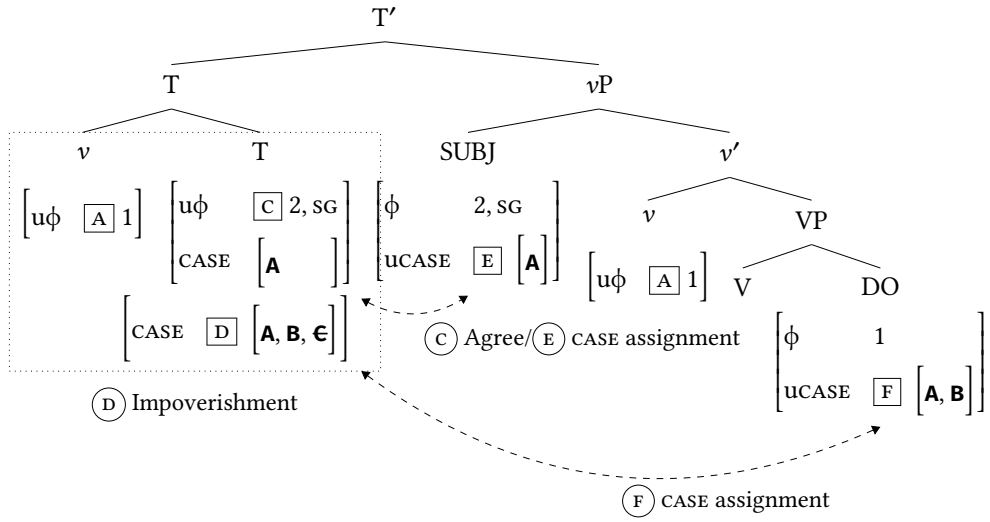
(67a) shows an Agree relation between *v*, which by assumption agrees but cannot assign accusative Case. After agreement, *v* moves to T.

(67) a.



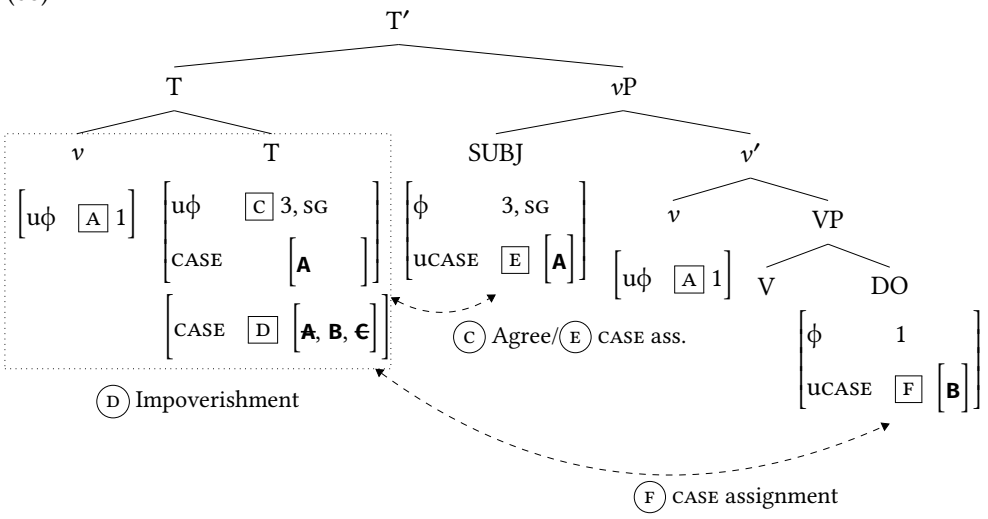
v is fully valued after agreeing with a first person object and does not probe again. In (67b), T probes and agrees with the subject in (C) but does not assign it Case yet. Since *v* has moved to T, impoverishment can apply in (D). The presence of two PARTICIPANT features on *v* and T triggers the rule in (65a), deleting [**C**] from T's (second) set of CASE features. The reduced set of features is assigned to the direct object in (F), spelled out as *-ul*, as shown in (66b).

b.



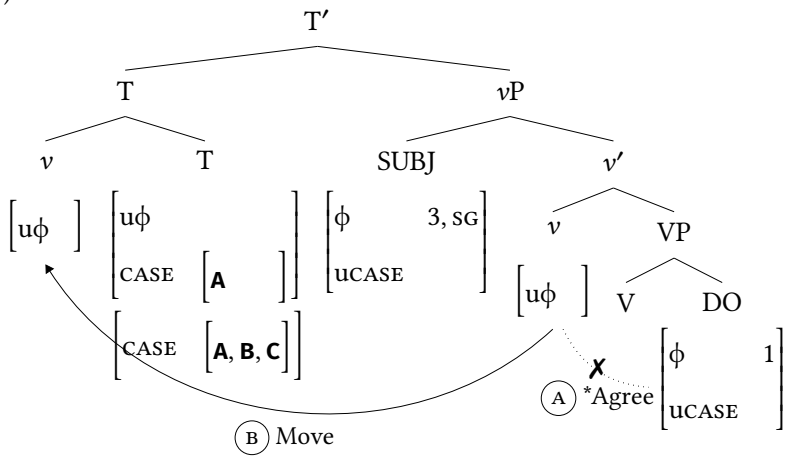
The derivation of (63c) only differs from (67) in the operations shown in (67b) — (68) illustrates. In (68), the subject is third person. The features on *v* and T therefore provide the context for rule (65b) to apply, which deletes [**A**, **C**] in step (D). T thus assigns **B** to the direct object in (E). This is spelled out as *-gele*, as shown in (66b).

(68)

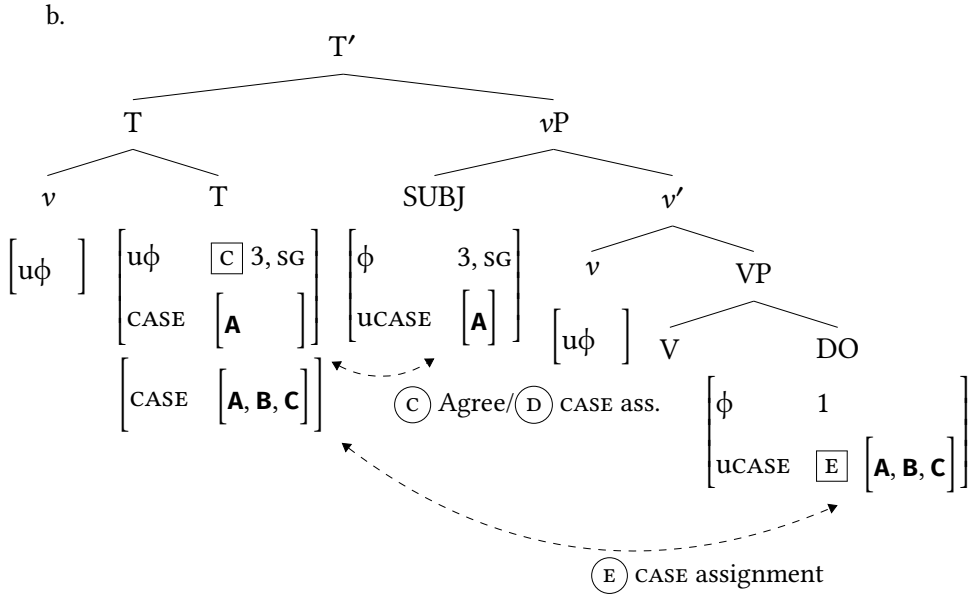


Finally, consider the derivation of (63d), shown in (69). Here, the subject and object are both third person, and the object is indefinite, represented as an empty set of person features.

(69) a.



Since the direct object lacks person features, *v* will not be valued, and none of the impoverishment rules in (65) apply. T assigns the full set of ACC features, [**A**, **B**, **C**], to the object.



Other derivations work analogously. Note that like in Hungarian, the relation between *v* and third person objects distinguishes between definite and indefinite direct objects. Again, I assume that Yukaghir person features grammaticalise definiteness. In Table 4.8, this difference is represented as [3] and [ ], respectively. Moreover, the subject agrees with the verb in number, not just person. As above, I take this asymmetry lead to T's ϕ-features being valued as [3] when agreeing with the subject, independently of the subject's definiteness.

To summarise, the distribution of accusative in Kolyma Yukaghir cannot be derived in the same way as suggested for Kashmiri and Awtuw in previous sections. The difference lies in the fact that the same person on the object can give rise to different accusative suffixes, depending on the person of the subject. Crucially, while a first person object in Kashmiri is always spelled out as dative, the case of first person objects in Yukaghir still depends on the person of the subject.

This means that if accusative Case is assigned by *v*, it has to delay Case assignment until *after* T has agreed with the subject. It is not clear how this could be implemented as a property of *v*. I do not, however, take this to be a disadvantage of the analysis I proposed in the previous sections. The reason is that the distribution of case-marking in Kolyma Yukaghir does not correlate with direct and inverse configurations. To a certain degree, then, this language shows a slightly different phenomenon than Kashmiri and Awtuw.

I have, following Keine (2010), suggested that T can assign two Cases in Yukaghir. My analysis diverges from Keine's, however, in the role of *v*. I have taken the existence of a transitive verb paradigm as suggestive of *v* agreeing with the direct object and moving to T where it makes Case assignment to the direct object possible. This analysis exploits the different distribution of probes on functional heads in Kolyma Yukaghir to derive a distribution of case-suffixes that differs from the one found in Awtuw and Kashmiri.

4.5 Discussion and conclusions

In this concluding section, I return to questions regarding the distribution of ϕ-probes and CASE features on the heads T and *v*, discuss the necessary ingredients of analyses of global case splits and relate my analysis to other proposals in the literature.

4.5.1 Other approaches to global case splits

A first ingredient relates to the **locality of ϕ-features**. Since global case splits are defined by being sensitive to the properties of the subject and the object, there must

be a way of comparing these features before determining which Case to assign. This is where approaches to global case splits vary strongly.[24]

Deal (2010), discussing Nez Perce, but extending her analysis to Sahaptin, suggests that the locus of comparison of the features of the subject and the object is the subject itself. She argues that the object's ϕ-features are transmitted to the subject by *v*; it therefore has two ϕ-features. In Sahaptin, the inverse ergative is only assigned when the subject's own ϕ-features are third person, and the object's ϕ-features are first or second person.

While this provides the correct results, it seems to be difficult to extend this analysis to similar splits on the object (as in Kashmiri or Awtuw) since there does not seem to be a way of transmitting the subject's ϕ-features to the object, in analogy to Deal's (2010) suggestion. In addition, the motivation to assigning inverse ergative in inverse situations does not follow from her analysis — in principle, any combination of features could give rise to case-marking. While this is not necessarily a problem, it might be missing a generalisation about direct and inverse configurations.

Keine (2010) and Georgi (2012) assume that the locality of the ϕ-features of the subject and the object is simply due to two ϕ-probes on a single functional head that agree with both arguments in turn. Georgi (2012) suggests that *v* carries language-specific probes that are co-indexed with the subject and the object. These probes have certain expectations about what kinds of arguments they encounter, e.g. a third person direct object, and they are specified as such: if *v* encounters a second person argument, it will need an extra feature to agree with it. Georgi suggests that this extra feature comes

[24] I am discussing analyses in a framework comparable to the one in this chapter. Other approaches include de Swart (2007), de Hoop & Malchukov (2008), Malchukov (2008). I am focusing on the syntactic derivation of case splits here and I have referenced the analyses mentioned when discussing the specific languages in this chapter.

from the probe that is co-indexed with the subject: it is *marauded*, so that *v* can agree with the object. She suggests that Case assignment to the subject or the object indicates that *Maraudage* has happened. While very powerful, this approach relies on very specific unvalued features on probes for a given language and raises questions about the role of T in determining agreement.

Keine (2010) also suggests that a single functional head can carry several probes that are co-indexed with their relevant arguments. On his approach, though, the probes are equal, and once they have been valued, impoverishment rules can modify the sets of CASE features on the probes. This approach also raises questions about the role of functional heads in Case assignment and Agree: if T agrees with both the subject and the object, and assigns both arguments Case, what is the role of *v*?

In this chapter, I have argued that it is possible to maintain the perspective that T agrees with and assigns Case to the subject, and *v* agrees with and assigns Case to the object. The ϕ-features of moren than one argument can be represented on a single head, however, because I have assumed that a probe can agree as long as it is not fully valued.

An advantage of this approach is that direct and inverse configurations fall out as natural classes: in direct configurations, *v* will be valued by both arguments and have two values, and in inverse configurations, it will only have a single value.

A second aspect of describing global case splits relates to the **evaluation of the ϕ-features**. How do the ϕ-features on a functional head determine Case assignment or verb morphology? In Georgi's (2012) approach, *Maraudage* is restricted to contexts in which the object's features are a superset of the subject's features — in a similar way to the present proposal, but arguably involving more machinery. Keine (2010) invokes person and animacy hierarchies to determine which features are targeted

by impoverishment rules. This approach to hierarchies and how they motivate constraints against atypical configurations can also be found in Aissen (1999, 2003), de Swart (2007), Malchukov (2008), de Hoop & Malchukov (2008), Keine & Müller (2008).

These authors adopt Optimality Theory (OT, A. Prince & Smolensky 2004) to derive the relevant splits from markedness hierarchies. In brief, the system works as follows: markedness hierarchies are assumed to be theoretical primitives, valid for all languages. These hierarchies give rise to constraint rankings which indicate that certain syntactic configurations are typologically marked: first person *objects*, for example, are more marked than first person *subjects* — constraints against such configurations are ranked higher than constraints against less marked configurations. Keine (2010), in particular, uses constraint hierarchies to derive impoverishment rules that determine which Case is assigned to an argument.

As I briefly pointed out in Chapter 1, this type of approach has been met with some criticism. Some authors argue that typological hierarchies have a questionable role in syntax (Carnie 2005b,a, Jelinek & Carnie 2003, M. Richards 2008). Haspelmath (2008) also suggests that locating such hierarchies in UG is not the right approach since their effects can be derived from functional considerations.

My position is different. I acknowledge the existence of hierarchical effects but I have implemented these effects as a consequence of several factors. First, person features are sets of features such that a set corresponding to first person is a proper superset of a set corresponding to second person.[25] Second, subjects are higher in the

[25] But note that this does not have to be the case. In some languages, second person is said to be more prominent than first, e.g. in Ojibwe (or Nishnaabemwin; Valentine 2001, Lochbihler 2008, 2012, Béjar & Rezac 2009). In Ojibwe, 1 > 2 counts as inverse, rather than direct, as shown in (70).

(i) *g-waabm-in*
2-see-INV(local)
'I see you.' (Valentine 2001: 270)

structure of the clause than objects. Third, *v* agrees with the direct object first, and whether it can also Agree with the subject depends on the sets of features of the two arguments. These assumptions derive the contexts in which impoverishment can apply in a language like Kashmiri: only when *v* is valued by the sets of person features of two arguments. Therefore, hierarchical effects are a "built-in" feature of the analysis of person.

Finally, a third aspect of analysing global case splits is the **timing of Case assignment**: Case must not be assigned too early, i.e. before the ϕ-features of both arguments have been evaluated. For approaches involving a single head that can assign several Cases, this is simply a matter of specifying the order of operations on that head (Keine 2010, Georgi 2012). Deal (2010) argues that the presence of ϕ-features of both the subject and the object on the subject determine the spell-out of its Case. In this sense, Case assignment is not delayed, but it is merely the spell-out of Case that is influenced by features. As mentioned above, it would be difficult to adapt this approach to object case-marking.[26]

In the present proposal, this question is solved by the possibility of probes agreeing as long as their ϕ-features are not fully valued. If a probe comes with an ordering statement like [ϕ ≺ CASE], meaning that Agree has to take place before the probe

This can be modelled by assigning the sets corresponding to [1] and [2] different contents than in the languages discussed in this chapter: if [2] includes ADDRESSEE and [1] lacks SPEAKER, the entailment relations among these sets change. This makes it possible for children to learn different "hierarchies" like 1 > 2 vs. 2 > 1 by positing different sets of features. A universal, UG-internal hierarchy 1 > 2 > 3 might be less flexible. See Harley & Ritter (2002), McGinnis (2005), Lochbihler (2008, 2012) for further discussion.

[26] Again, a detailed comparison to Silverstein (1976), de Hoop & Malchukov (2008), Malchukov (2008), de Swart (2007) would take us too far afield — obviously, the question of timing Case assignment also arises in these approaches. Since these authors do not assume as tight a connection between agreement and case in their formalism as is done here, I again focus on analyses that are comparable to the one presented here. The possible functions of case-marking, e.g. ease of identifying and distinguishing arguments, that these authors discuss may answer the question of *why* we find global case splits; the present chapter implements an answer to the question of *how* such splits are realised.

assigns Case, Case assignment is simply delayed as long as the probe can still enter Agree relations. This makes it possible to assign different Cases depending on whether the subject and object are in a direct or an inverse configuration: if a probe fails to agree with a second argument, the configuration is inverse. This solution maintains that T and *v* are separate heads that have ϕ-probes and can assign Case when case-marking is distributed along the lines of direct and inverse configurations.

The present approach combines these three aspects of global case splits, i.e. the locality of ϕ-features, their comparison and their evaluation, in a simple way: a single head can agree more than once; it can be read off its ϕ-features whether the subject and object are in a direct or an inverse configuration; and, finally, Case assignment follows these two steps as specified by an ordering statement on a functional head.

4.5.2 Functional heads and probes

An advantage of maintaining the separate roles of T and *v* in determining inverse agreement and global case splits is the potential to explain a cross-linguistic tendency about the relation of subject agreement and object agreement.

Consider languages in which a verb agrees with a single argument in a transitive clause. According to Siewierska (2013), in a large majority of languages, this argument is the subject.[27] One way of implementing this generalisation in the present

[27] Some of the exceptions are ergative languages. Here, "object" agreement can arise as the sole agreement relation in a clause if the subject's case-marking blocks agreement with the verb. This is the case in Hindi, for example. The finite verb agrees with the highest unmarked argument. Because of Hindi's split-ergative system based on aspect, in imperfective aspects, the verb agrees with the subject. In perfective aspects, which are ergative, the verb agrees with the object *if* it is also unmarked.

It follows that in a language that is consistently ergative, the verb might agree with the object because the subject cannot Agree. In the technical terms that are relevant for the present discussion, this kind of language could still have a single ϕ-probe on T, just like a language that lacks object agreement altogether. That ϕ-probe will simply agree with the most local accessible argument, which would be the internal argument in a transitive clause, if the subject is not accessible because of its Case marking. See Chapter 5 for further discussion.

framework is to make the presence of ϕ-features on *v* dependent on the presence of ϕ-features on T. This means that no languages would only have ϕ-probes on *v* but not on T. These assumptions restrict the number of possible grammars in line with what we find empirically: T can have a single ϕ-probe while *v* lacks one, or two ϕ-probes can be distributed between T and *v*.[28] I discuss the distribution of ϕ-probes across functional heads in more detail in Chapter 5.

This kind of dependency between the feature content of different functional heads is in line with the approach to parametric variation suggested by Roberts (2012) (see also Sheehan 2014, 2017 on variation in alignment across languages), to which I will return in Chapter 6.

Restricting the variation in the distribution of probes across functional heads, while maintaining an empirically adequate analysis of distinct agreement and case assignment patterns is a welcome consequence of the analysis in this chapter.

4.5.3 Conclusions

The aim of this chapter was to provide further evidence for the hypotheses made in the previous chapters. First, in Chapter 2, I adopted M. Richards's (2008) proposal that person features do not only encode "person" but can encode semantic properties like definiteness or animacy as formal features that affect the syntax. After having seen evidence for the role of referential properties as well as person in the agreement system of Hungarian in Chapter 3, in this chapter I showed how animacy can lead

[28] The analysis I proposed for Yukaghir is compatible with this suggestion; the peculiarity of this language compared to the other languages discussed in this chapter lies in the distribution of accusative case. I have modelled this by suggesting that T can assign two Cases, but *v* nevertheless agrees with the object. The distribution of case in Yukaghir differs from that the other languages and thus motivates a different analysis.

to the same kinds of morphosyntactic phenomena in case-marking that "pure" person does, e.g. in the analysis of Awtuw compared to Sahaptin and Kashmiri.

Both reference and animacy give rise to similar kinds of splits in case-marking and agreement across languages, which is exactly what we expect if they are expressed as person features. The case of Fore arguably also provides an interesting argument in favour of locating these features on D: its "delineator" seems to serve the purpose of an animate determiner, similar to a definite determiner in other languages.

Second, this chapter provided further evidence for the specific analysis of representing person as sets of person features and the implementation of Agree. I adopted Béjar & Rezac's (2009) suggestion that a probe can agree more than once, but I embedded this in a system that does not invoke *repair strategies* in the way they suggest.

Rather, once *v* cannot agree any further, T agrees and assigns Case; the two functional heads simply show their "natural" behaviour. This system, worked out in detail for Hungarian in Chapter 3, extends straightforwardly to a number of unrelated languages discussed in this chapter.

While this aspect of person links the current chapter the previous one, the specific implementation of CASE features used above links it to the next one, where I discuss the interaction of agreement and case in syntax and embed the analysis developed so far in the architecture of the grammar.