Challenges for dependent case

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This chapter discusses challenges to dependent case theory. Dependent case theory, in its strongest form, holds that morphological case is never assigned by functional heads but always based on the syntactic configuration of a predicate's arguments. This contribution investigates certain phenomena such as transitivity-sensitive case in Romance causatives and global case splits, which challenge the strongest interpretation of dependent case. In both Romance causatives and global case splits, the structural configuration of the predicate's nominal arguments does not suffice to explain morphological case marking patterns. Rather, both phenomena are better modelled as consequences of Agree relations between functional heads and the relevant arguments.

Keywords Dependent case theory, Agree, Global case splits, Causatives, Romance

1 Introduction

1.1 Dependent case

Dependent case (DC) theory, in its strongest form, claims that (morphological) case is never assigned to NPs by functional heads, but always in particular syntactic configurations (hence also 'configurational' case).

(1) Dependent case theory
Morphologically marked cases (ACC/ERG/DAT) result from **a relation between two NPs** rather than from a relation between a head and a NP.

This strong position is held by Levin & Preminger (2015), for example, who suggest that dependent case is the only modality of case assignment in grammar. Others, for example Baker & Vinokurova (2010) and Baker (2015), suggest that dependent case coexists with case assignment by functional heads (see also Preminger, this volume, for a discussion of lexical cases in relation to this strong position).

There is a rich literature on configurational case assignment (e.g. Anderson 1976, Yip *et al.* 1987, Marantz 1991, Bittner & Hale 1996, McFadden 2004, Baker & Vinokurova 2010, Preminger 2011, 2014, 2019, Baker 2015, Levin & Preminger 2015, Nash 2017, Poole 2015, Yuan 2018), but we will focus on recent developments and discussions, in particular proposals by Baker & Vinokurova (2010), Levin & Preminger (2015), Baker (2015) and Baker & Bobaljik (2017).

Currently, the most commonly adopted version of dependent case takes the relation between NPs mentioned in (1) to be c-command.

(2) Dependent case by c-command (Baker 2015: 48–49)

a. If there are two distinct NPs in the same spell out domain such that NP1 c-commands NP2, then value the case feature of NP2 as accusative unless NP1 has already been marked for case.

b. If there are two distinct NPs in the same spell out domain such that NP1 c-commands NP2, then value the case feature of NP1 as ergative unless NP2 has already been marked for case.

The following examples from the Turkic language Sakha illustrate one aspect of the logic behind (2). According to Baker & Vinokurova (2010), the spell out domain for dependent accusative is the *v*P phase in Sakha; VP counts as a distinct domain. This means in configurations in which the object remains inside VP, the two relevant NPs, the subject and the object, are not in the same spell out domain and the object does not act as a 'case competitor' for the subject. This is shown in (3a).

(3) Dependent case in Sakha (Baker & Vinokurova 2010: 602)

a. [$_{v\text{P}}$ *Masha* *türgennik* [$_{\text{VP}}$ *salamaat-(#y)* *sie-te*]].
Masha quickly porridge-ACC eat-PST.3SG.SBJ
'Masha ate porridge quickly.' (ACC on 'porridge' only if it has contrastive focus)

b. [$_{v\text{P}}$ *Masha* ***salamaat-*(y)*** *türgennik* [$_{\text{VP}}$ ~~*salamaat*~~ *sie-te*]].
Masha porridge-ACC quickly eat-PST.3SG.SBJ
'Masha ate the porridge quickly.'

When the object moves to a position outside of VP, however, the condition in (2a) is met: two NPs, the subject and the object, are in the same spell out domain, the subject c-commands the object, and the object is therefore assigned accusative case. Baker & Vinokurova (2010) argue that dependent case provides a straightforward analysis of differential marking patterns involving movement, such as that found in Sakha.

The workings of (2b) are illustrated by examples from the ergative language Shipibo (Panoan). Transitive subjects in Shipibo are marked with ergative case, while intransitive subjects and objects of transitive verbs are morphologically unmarked (ABS). Example (4a) shows an unaccusative predicate that takes an ABS argument. Since there is a single NP in the whole clause, no ergative is assigned. In (4b), the predicate has an applicative suffix which introduces another argument, *Rosa*. This argument now acts as a case competitor for the subject which is assigned ergative in accordance with (2b).

(4) Shipibo (Baker 2015: 55, citing Valenzuela 2003: 691, 694 for (4b))

a. *Kotoki-ra* *joshin-ke.*
fruit.ABS-PTCL ripen-PFV
'The fruit ripened.'

b. ***Bimi-n-ra*** *Rosa* *joshin-xon-ke.*
fruit-ERG-PTCL Rosa.ABS ripen-APPL-PFV
'The fruit ripened for Rosa.'

These examples show that it does not matter for the dependent case rules shown in (2) *how* two NPs end up in the same spell out domain, whether by movement or by base-generation; dependent case rules simply evaluate the configurational relation between the two NPs.

Dependent case theory naturally captures the observation that the single argument of an intransitive is generally morphologically unmarked in nearly all languages (NOM in NOM–ACC languages, ABS in ERG–ABS languages), while one of the two arguments in transitive clauses is often morphologically marked (the subject in ERG–ABS languages, the object in NOM–ACC languages). Another motivation for configurational case assignment rather than case assignment involving functional heads comes from evidence that case and agreement are often dissociated (see e.g. R. Bhatt 2005, Baker 2008, 2012, Bobaljik 2008, Preminger 2014, Georgi 2014, Bárány 2017). In Amharic and Hungarian, for example, not all accusative objects can control object agreement: case-marking and agreement are independent of each other to some degree.

These observations go against the view put forward by Chomsky (2000, 2001) that Case assignment and agreement are two aspects of a single operation called *Agree*. The mismatches just mentioned instead point to Case assignment and agreement happening independently of one another in some languages, at least. In this context, dependent case theory provides an alternative means of assigning (morphological) case that

is independent of Agree relations between functional heads and NPs. Agree relations are in fact restricted by whether a nominal with a particular (morphological) case is accessible for agreement or not, a point of considerable, but regular, cross-linguistic variation (see e.g. R. Bhatt 2005, Anand & Nevins 2006, Bobaljik 2008, Legate 2008, Preminger 2014).

However, as briefly mentioned above, there is also considerable disagreement as to whether all case assignment is due to dependent case or not. Baker & Vinokurova (2010) argue for Sakha that nominative and genitive are assigned by a functional head, that is, via an Agree relation that values Case on the NP goal and φ-features on the probe at the same time. Accusative, in contrast, is assigned as a dependent case (cf. (3) above). Levin & Preminger (2015) go one step further, however, and propose that all cases in Sakha result from dependent case rules, suggesting that in the absence of 'further evidence to the contrary, [...] configurational case assignment, rather than being one parametric option, may be the only case assignment mechanism employed by natural language' (Levin & Preminger 2015: 249, see also Preminger, this volume).

The goal of this chapter is to engage critically with the extreme position taken by Levin & Preminger (2015) whereby dependent case is the only mode of case assignment, rather than discussing whether dependent case exists in other domains (e.g. languages with morphological case but no agreement; see Baker 2015: 35). It is our contention that this strongest position is incorrect and that even certain cases which are descriptively 'dependent', in that case assignment is clearly sensitive to the presence of another argument, are actually better modelled by Agree. We briefly introduce our specific challenges in the next subsection before expanding on them in the remainder of this chapter.

1.2 Challenges for dependent case

There are existing arguments in the literature that challenge dependent case theory. Deal (2010) argues, for example, that ergative and accusative case-marking in Nez Perce is tied not to just to transitivity, but to the presence of subject and object agreement. Deal (2010: 89–90) also shows that movement of the object into a particular position need not trigger agreement or the presence of case-marking. Similarly, Clem (2019) shows that while ergative case in the Panoan language Amahuaca is sensitive to the movement of the subject, the subject's case is independent of the position of the object and that the ergative therefore cannot be triggered by a dependent case rule.

Another potential issue for dependent case theory concerns the existence of 'split intransitive case', that is case splits on subjects of intransitive clauses. Baker & Bobaljik (2017) argue that true alternations of absolutive vs. ergative case on intransitive subjects do not exist and that aspect and null cognate objects can account for such apparent patterns. However, Preminger (2012) argues that while dependent case might account for light verb constructions in Basque, there are also unergative verbs in Basque which

lack a cognate object and nevertheless require an ergative subject, so this matter is less than clear cut.

In this chapter, we discuss in some detail additional phenomena that challenge aspects of dependent case theory. The first of these concerns the nature of case competitors. In Baker's (2015) formulation in (2), case competitors are described as NPs (as a cover term for NPs proper and DPs; we will henceforth use 'DP'). Baker (2015: 197) explicitly suggests that 'true CPs', that is finite clauses introduced by a complementiser, should not participate in dependent case assignment, while non-finite complement clauses, which show nominal properties, can do so (based on data from Vinokurova 2005). Prepositional phrases, likewise, are not expected to function as case competitors inasmuch as they never undergo case marking.

In Section 2, we discuss evidence from transitivity-sensitive dative in Romance causatives, showing that CPs and PPs can function as case competitors in addition to DPs. Across Romance languages we find 'dependent' dative triggered by CP and, in some cases, PP arguments. This suggests that (2) needs to be stated in more flexible terms if it is to be extended to case alternations of this kind. This calls into question one of the most attractive aspects of dependent case: the claim that only categories which are case undergoers can be case triggers (Baker 2015). In fact, one attractive rationale for the existence of morphological case is that it exists in order to render XPs of the same category distinct at the point of spell-out, to meet a distinctness requirement (N. Richards 2010). Baker (2015) is sympathetic to this view, noting that it is both compatible with the dependent case approach and similar to it. If the categorial specification of the two XPs in a dependent case configuration can be distinct, however, then this suggests that the need for distinctness cannot be the underlying motivation for dependent case. We further argue, in Section 2, that there are advantages to modelling the assignment of dative in Romance causatives via Cyclic Agree (Béjar & Rezac 2009), paving the way for our discussion of global case splits in Section 3.

Section 3 remains focused on the question of whether case-marking is ever the result of Agree relations between functional heads and their arguments. We discuss so-called 'global case splits', case alternations that depend on the fine-grained properties of more than one argument. We make a detailed argument that such splits are good candidates for Case assignment by functional heads because the properties that determine the case-marking of the alternating argument are typically the φ-features of both of the predicate's arguments. In most languages with global case splits, these φ-features are spelled out overtly as agreement relations between the predicate and its arguments, which, we suggest, feeds Case assignment. We implement an analysis of global case splits and show that dependent case rules would need to diverge strongly from the schema in (2) to capture such splits, weakening the appeal of a dependent case approach to this phenomenon.

2 Transitivity-sensitive dative in Romance causatives

In this section, we consider a potential instance of dependent case in Romance languages, focusing on French for concreteness. Although French, like most modern Romance languages, has impoverished case morphology in which case distinctions are now only visible on pronominals, there is an area of French grammar where case assignment is clearly transitivity-sensitive and where full DPs also receive case morphology, namely periphrastic causatives (Kayne 1975). In the so-called *faire-infinitif*, causees are realised as dative where the embedded clause is transitive and accusative otherwise. This is reflected in the choice of clitics or the presence or absence of *à* with full DP causees:

(5) French

a. *Elle* ***lui*** / * *l'=a* *fait* [*manger les épinards*]
3SG.F 3SG.DAT 3SG.ACC=has made eat.INF the.PL spinach.PL
'She made him/her eat the spinach.'

b. *Il* ***l'*** / * *lui=a* *fait* [*partir*].
3SG.M 3SG.ACC 3SG.DAT=has made leave.INF
'He made him/her leave.'

Parallel patterns can be found in Italian (Burzio 1986), European Portuguese (Gonçalves 1999), Catalan (Alsina 1996) and Rioplatense Spanish (Bordelois 1974). The dative in the parallel pattern in Italian has been analysed as a dependent case by Pitteroff & Campanini (2013), whereby dative is assigned to the higher of two DPs in a phase (see also Folli & Harley 2007 for an earlier version of this idea). The first thing that is potentially challenging for a dependent case approach, however, is the fact that not only DPs count for transitivity in this context. Both finite and non-finite CP complements also trigger dative, as do PP complements (in some contexts). The fact that finite CPs trigger dative on the causee was noted by Kayne (1975):

(6) French (Kayne 1975: 210)

Elle a fait admettre à Jean [*qu'il avait tort*].
3SG.F has made admit.INF DAT Jean that=3SG.M had wrong
'She made Jean admit that he was wrong.'

The presence of the CP complement of *admettre* 'admit' means that the causee (*Jean*) must be introduced by *à*, the dative marker. The behaviour of non-finite CPs is more opaque because there is a difference between restructuring and non-restructuring predicates. Where the complement of *faire* is a non-restructuring predicate, we find that

causees are obligatorily dative in the presence of a non-finite CP complement, and that this is true regardless of the transitivity of the verb embedded inside the non-finite complement of non-restructuring verbs like *promettre*:

(7) French

a. *Marie lui / * l'=a fait promettre de faire quelque chose.*
Marie 3SG.DAT 3SG.ACC=has made promise DE do some thing

b. *Marie lui / * l'=a fait promettre de partir.*
Marie 3SG.DAT 3SG.ACC=has made promise DE leave

The implication appears to be that it is the non-finite CP itself which triggers dative in such contexts. Where the complement of *faire* is a restructuring predicate, however, for some speakers at least, the result is optional restructuring for transitivity so that the case of the causee can be dative only if the complement of the restructuring verb is transitive. As noted by Burzio (1986) for Italian and Pineda & Sheehan (forthcoming) for Catalan, this pattern is more stable across speakers in these other languages:

(8) French

a. *Sa détermination ?? lui / l'=a fait finir de*
his.F determination 3SG.DAT 3SG.M.ACC=has made finish.INF of
parler.
speak.INF
'His determination made him finish speaking.'

b. *Sa détermination lui / l'=a fait finir de faire*
his.F determination 3SG.DAT 3SG.ACC=has made finish.INF of make.INF
sa remarque.
his remark
'His determination made him finish making his remark.'

Note that Modern French lacks clitic climbing of accusative/dative clitics with restructuring verbs. However, as Cinque (2002) shows, French nonetheless retains clitic climbing of locative and partitive clitics in restructuring contexts, as well as other restructuring diagnostics. In this context too, then, some French speakers allow restructuring for transitivity-sensitive dative case. Where *faire* selects a restructuring verb, then, transitivity is potentially still determined by the presence of a second DP in a local domain in French, assuming that restructuring involves the lack of a phasal boundary between the causee and the most embedded object (but see Pineda & Sheehan forthcoming for complications for this view in Catalan). In (6)–(7), however, what appear to be CP complements seem to function as case competitors, triggering dative on a full

DP or pronominal causee. This is unexpected from the perspective of dependent case theory.

One possible analysis of this pattern is that CPs in French are nominal in some way so that they count as DPs for case purposes. There is reason to reject the idea that these bare French CPs are nominalised, however. The distribution of (finite) CPs and DPs is well known to be different in French. Consider, for example, the cases discussed by Zaring (1992). Where a reflexive verb surfaces with a DP complement, the latter must be introduced by a preposition *à*/*de*, whereas CP complements cannot be unless they are explicitly nominalised through the presence of *ce* 'that':

(9) French (Zaring 1992: 72)

*Je m'habitue à *(ce) qu'elle fasse la vaisselle à la main.*
I 1SG=accustom to that=she does the dishes to the hand
'I'm getting used to her doing the dishes by hand.'

This is a recurrent pattern observed with verbs such as *s'apercevoir* 'to realise', *s'attendre* 'to expect', *s'habituer* 'to get used to', *se plaindre* 'to complain', *se méfier* 'to mistrust'. It would appear, then, that in French, at least, DPs and CPs remain distinct but CPs like DPs can count as case competitors triggering dependent dative.

Note, moreover, that it has been argued that CPs in French can trigger agreement. Davies & Dubinsky (2001) show that finite and non-finite CPs can trigger plural agreement in French when co-ordinated:

(10) French (Davies & Dubinsky 2001: 259–260)

a. [*Que le défilé continue*] *ou* [*qu'il soit annulé*
that the march continue.3SG or that=it be.3SG.SBJ cancelled
] *a* / ***ont*** *été discuté par les mêmes gens à*
have.3SG **have.3PL** been discussed by the same people at
différentes occasions.
different times
'That the march should go ahead or that it should be cancelled has/have been argued by the same people at different times.'

b. [*Séjourner dans les montagnes*] *et* [*longer la côte*] *me*
stay.INF in the mountains and go.along the coast 1SG.ACC
paraissent *une façon admirable pour connaître la vraie*
seem.3PL a way admirable for get to know.INF the true
France.
France
'Traveling through the mountains and going along the coast appear to me an admirable way to get to know the real France.'

This means that, in French, CPs can both agree and trigger dependent case without being a DP or even the kind of CP that can receive case. One possible account of the pattern is therefore that CPs agree with a Voice/*v* probe and that it is this Agree relation which gives rise to dative case on the causee. This is precisely the analysis proposed by Pineda & Sheehan (to appear) for Catalan, as discussed shortly.

Before considering the potential advantages of an Agree-mediated account however, let us consider the behaviour of PP objects. As Kayne (1975) also notes, some PP objects can count for transitivity in the French *faire-infinitif* as well, (optionally) triggering dative:

(11) French (Kayne 1975: 210, fn. 9)

a. *Cela le / lui fait penser à sa mère.*
that 3SG.ACC 3SG.DAT makes think.INF to his.F mother
'That makes him think of his mother'

b. *Cela fera changer Jean d'=avis.*
that make.FUT.3SG change.INF Jean of=opinion

c. *Cela fera changer d'=avis à Jean.*
that make.FUT.3SG change.INF of=opinion DAT Jean
'That will make Jean change his mind.'

What these examples show is that PP complements of the embedded verb can also count for transitivity. In fact, the contrast in (11b,c) suggests that they do so in the specific contexts where they intervene linearly between the causative verb and the causee. This is despite the fact, again, that PPs are never case undergoers, that is they are not morphologically marked for case themselves. Again, this raises a challenge for a dependent case approach to transitivity-sensitive dative as PPs are not expected to function as case competitors. Of course one possibility is that these PPs are not actually PPs but rather inherently marked DPs. This proposal seems especially promising for DPs introduced by *à*, as this element is known to be ambiguous between a dative marker and a preposition in French (see Fournier 2010, Sheehan 2020 for discussion).

In examples like (11a), however, the inherent DP analysis is problematic, because *à sa mère* in (11a) would cliticise as a locative clitic *y* suggesting that it is a PP (Baker 2015: 188). Inherently marked DPs would cliticise with the dative clitic *lui*.

An important question, at this point, is whether the Agree-based analysis of case fares any better than the dependent case approach in accounting for such patterns. Space precludes a full discussion here, but Pineda & Sheehan (to appear) propose a Cyclic Agree account of the Romance *faire-infinitif*, whereby dative arises as an effect of secondary Agree. This kind of approach offers an explanation, they claim, for the fact that CPs, which do not require Case, nonetheless trigger dative, as do PPs in some Romance languages (French, Catalan). Essentially, the idea is that after VP-fronting, both the causee and any complements inside the fronted VP become visible to a higher probe, permitting two cycles of downwards Agree. The object of V, whether it is a DP, CP or PP is closer to the probe and so must be probed first, potentially defectively. Where this object lacks φ-features, either because it is a PP/CP or because it is has a non-local person, the probe can enter into a second Agree cycle resulting in dative case. Under this approach, the contrast in (11b,c) can be attributed to the fact that a PP will only be visible to the higher probe if it remains inside VP and is fronted with it. In contexts like (11b), the PP raises to a low Focus position below the position of the causee and so fails to participate in Cyclic Agree.

As Pineda & Sheehan (2020) note, there is independent evidence that Cyclic Agree takes place in the *faire-infinitif* from the behaviour of first and second person objects. As noted by Postal (1981, 1989), where the object of the complement of *faire*/*laisser* is first or second person, it is not possible for the causee to be dative, and this is true whether the causee is a clitic or a full DP:

(12) French (Postal 1989: 2)

Marcel l' / **vous* *a* *fait* *épouser* *au* *médecin.*
Marcel 3SG.ACC you.ACC has made marry.INF to.the doctor
'Marcel had the doctor marry her / *you.'

(13) French (Rezac 2008: 66, citing Postal 1981: 312, Quicoli 1984: 67)

**Je* *vous* *lui* *laisserai* *voir.*
I 3PL.ACC 3SG.DAT let.1SG.FUT see.INF
intended: 'I will let her see you.'

In (12), the example becomes ungrammatical where the direct object of *épouser* 'marry' is second person. This effect, Pineda & Sheehan (to appear) note, strongly suggests that both the causee and the theme agree with the same functional head (see Anagnostopoulou 2003, 2005, Nevins 2007 and Rezac 2008). Given this, it is attractive to try to model dative case as a side effect of Cyclic Agree, rather than an

independently assigned dependent case. In fact, the French (and broader Romance) patterns have much in common with the global case splits discussed in Section 3. In both contexts, there is independent evidence that a single heads agrees with multiple DPs, either from verbal morphology and/or person hierarchy effects. For both phenomena, it is therefore tempting to the cases which arise as a side effect of Cyclic Agree.

Summarising, we have shown in this section that CPs and PPs can count as case competitors in French (as in other Romance languages), even though they differ from DPs in their distribution and syntactic properties. At the same time, these CPs/PPs do not surface with (overt) morphological case. As noted above, the data discussed in this section suggest that N. Richards's (2010: 131) notion of *distinctness* cannot lie at the heart of case-marking: N. Richards (2010) argues that one of two DPs in a local domain can become a KP and surface with morphological case in order to facilitate linearisation of a given structure. But distinctness cannot motivate case-marking triggered by CPs/PPs as they are already categorially syntactically distinct from the DPs that end up with case-marking (see also Baker 2015: 59 on distinctness and dependent case). These patterns thereby pose a potential challenge for dependent case theory, particularly the strongest possible version of it whereby all case morphology arises from the competition between DPs, unmediated by Agree.

3 Global case splits

Many case splits discussed as differential argument marking (DAM) involve *local* splits: the properties of a single argument are enough to determine its case-marking. These properties often involve information structural properties like topicality, referential properties like definiteness and person, and/or semantic properties like animacy. A typical example from Spanish is shown in (14) (see Jaeggli 1982, Suñer 1988, Leonetti 2004, 2008, López 2012 among others on differential object marking, or DOM, in Spanish).

(14) Spanish

a. *Veo* *la* *mesa.*
see.1SG the table
'I see the table.'

b. *Veo* *a* *la* *mujer.*
see.1SG DOM the woman
'I see the woman.'

In contrast, in *global* case splits, the case-marking of an argument depends on properties of more than one argument, for example the subject *and* the object (see e.g.

Silverstein 1976, de Hoop & Malchukov 2008, Malchukov 2008, Aissen 1999, Keine 2010, Georgi 2012, Bárány 2015, 2017). The properties triggering global splits tend to be the same as those triggering local splits. Haspelmath (2021: 144) writes that global case splits 'are not common, but they have been found in languages all over the world'. These include Ngalkbun (or Dalabon; Gunwinyguan) in Silverstein (1976), Kashmiri (Indo-European) in Wali & Koul (1997), Malchukov (2008) and Georgi (2012), Sahaptin (Sahaptian), Tauya (Trans-New Guinea), Yurok (Algic), and Yukaghir (Yukaghiric) in Keine (2010) and Georgi (2012), who also discusses Arizona Tewa (Kiowa-Tanoan) and Awtuw (Sepik) (but not Tauya), Hyow (Sino-Tibetan) in Peterson (2003), and Wampis (Jivaroan) in Peña (2015).

In this section, we discuss three examples of global case splits, from Kashmiri, Sahaptin, and Wampis. We consider two potential dependent case accounts: one based on movement and one based on an elaborate DP-periphery involving different layers for different person features. We argue that the movement account fails to derive the correct case-marking patterns: whether an argument moves does not depend on that argument's properties, but on properties of another argument as well. The layered-DP approach, while potentially workable, requires a considerable complication of the dependent case approach.

An alternative analysis, whereby Agree relations precede case assignment following Keine (2010) and Bárány (2017), has the advantage that the φ-features that are argued to feed case-marking in the global split are overtly spelled out in most languages with such splits. On a movement approach, in particular, this reflection of φ-features in case-marking and agreement would have two independent sources, just as we saw above with French. We first present the relevant data, then move on to the dependent case analyses to be dismissed and finally present our own Agree-based proposal.

3.1 Kashmiri

In the imperfective in Kashmiri, direct objects can appear in a morphologically unmarked form, glossed as NOM, or a morphologically marked form, glossed as DAT. The morphologically marked form appears on both direct and indirect objects, and is analysed as a syncretic marker of both ACC and DAT by Wali & Koul (1997), Béjar & Rezac (2009) and Bárány (2018). Kashmiri also has a local case split for DPs (see R. M. Bhatt 1999; cf. (14)), which we leave aside.

Our focus is on the case-marking of pronominal objects in the imperfective. Their case, NOM or DAT, depends on the person of the subject as well as the person of the object. DAT appears when the person of the object matches or outranks the person of the subject, based on the hierarchy in (15a) (Wali & Koul 1997).

(15) a. Person hierarchy in Kashmiri
$1 > 2 > 3$

b. Global case split in Kashmiri
In the imperfective aspect, a pronominal direct object is DAT if its person is on the same level as or higher on (15a) than that of the subject.

Arguments are cross-referenced by verbal morphology that has been analysed as agreement or clitics (see Verbeke 2018 for discussion). Since the form of the verb and its agreement markers correlates with the case-marking of the object, a natural analysis is that agreement feeds case assignment.

Examples (16)–(18) illustrate the distribution of case-marking, which is also summarised in Table 1. In each Kashmiri example, the direct object is boxed and its gloss is set in bold. The global nature of the case split is particularly clear from comparing sentences in which the object has the same properties but which have different subjects, such as (16a) and (17b). In (16a), the subject's person is higher than the object's on (15a), and the object appears in its NOM form. In (17b), the *object*'s person is higher than the subject's on (15a), and the object appears in its DAT form. Since the sentences only differ in the properties of the subject, the case split does not depend on the (local) properties of the object.

(16) Kashmiri (Wali & Koul 1997: 155)

a. **1st person SBJ, 2nd person OBJ → NOM OBJ**

bi *chu-s-ath* *tsi* *parina:va:n*
I.NOM be.M.SG-1SG.SBJ-2SG.OBJ **you.NOM** teach.PTCP.PRS
'I am teaching you.'

b. **2nd person SBJ, 1st person OBJ → DAT OBJ**

tsi *chu-kh* *me* *parina:va:n*
you.NOM be.M.SG-2SG.SBJ **I.DAT** teach.PTCP.PRS
'You are teaching me.'

(17) Kashmiri (Wali & Koul 1997: 156)

a. **2nd person SBJ, 3rd person OBJ → NOM OBJ**

tsi *chi-h-an* *su* *parina:va:n*
you.NOM be-2SG.SBJ-3SG.OBJ **he.NOM** teach.PTCP.PRS
'You are teaching him.'

Table 1 NOM and DAT on direct objects (DOs) in the Kashmiri imperfective

↓ SBJ / ⟶ OBJ	1	2	3
1	—	NOM	NOM
2	**DAT**	—	NOM
3	**DAT**	**DAT**	**DAT**

b. **3rd person SBJ, 2nd person OBJ → DAT OBJ**

su *chu-y* *tse* *parɨna:va:n*
he.NOM be.M.SG-2SG.OBJ **you.DAT** teach.PTCP.PRS
'He is teaching you.'

(18) Kashmiri (Wali & Koul 1997: 156)
3rd person SBJ, 3rd person OBJ → OBJ.DAT

su *vuch-i* *təmis*.
he see-3SG **he.DAT**
'He will see him.'

The cells marked by '—' in Table 1 denote reflexive configurations. The distribution of DAT case in Kashmiri resembles the distribution of DAT case in French, discussed in Section 2, in that DAT is usually limited to contexts where one of the arguments is third person, with the exception that Kashmiri allows the combination of a second person subject with a first person object. It also resembles even more closely so-called 'inverse' agreement patterns in many languages, something that we will return to below. As noted above, person sensitive effects of this kind are a hallmark of Cyclic Agree, whereby a single probe agrees with multiple goals.

3.2 Sahaptin

Sahaptin (Sahaptian, USA; Rigsby & Rude 1996, Rude 2009, 2011, Zúñiga 2006, Deal 2010, Keine 2010) has several allomorphs of (structural) ergative that depend on the properties of the subject and the object and that correlate with different inverse markers. Sahaptin has an obviation system in which proximate noun phrases (PROX) are treated as topical while obviative noun phrases (OBV) are not (Rigsby & Rude 1996, Zúñiga 2006). Obviation is primarily marked by the obviative ergative marker *-in* on the subject (in contrast to other Native American languages, which mark obviation more widely; see e.g. Aissen 1997, Zúñiga 2006, 2014). In the following examples from Sahaptin, the subject is boxed.

(19) Sahaptin (Rigsby & Rude 1996: 673, 676, 677)

a. **PROX 3rd person SBJ, OBV 3rd person OBJ → NOM SBJ**

ɨwínš *i-ɋínun-a* *yáamaš-na.*
man 3.NOM-see-PST mule deer-OBJ
'The man saw a/the mule deer.'

b. **PROX 3rd person SBJ, 2nd person OBJ → INV.ERG SBJ**

ɨwínš-nɨm=*nam* *i-ɋínu-ša.*
man-INV.ERG=2SG 3.NOM-see-IPFV
'The man sees you.'

c. **OBV 3rd person SBJ, PROX 3rd person OBJ → OBV.ERG SBJ**

ɨwínš-in *pá-tuχnana* *yáamaš-na.*
man-OBV.ERG 3.INV-shot mule deer-OBJ
'The man shot a mule deer.'

The obviative ergative marker *-in* differs from the inverse ergative marker *-nɨm* (Rigsby & Rude 1996). As shown in (19b) and Tables 2 and 3, the inverse ergative marker appears when the subject of a transitive predicate is third person and its object is first or second person. The obviative ergative marker appears on obviative third person subjects of predicates with (proximate) third person objects, that is in contexts where the third person object is deemed more topical than the subject (obviation in Sahaptin is restricted to third person noun phrases; Rude 2009, 2011). The verbal prefix *pá-* is an inverse marker that can indicates that the object outranks the subject in person (with a second person subject and first person object) or in obviation, with a third person obviative subject and a third person proximate subject, as in (19c). The marker *i-*, glossed as '3.NOM' by Rigsby & Rude (1996) and Rude (2009, 2011), marks third person singular subjects otherwise, as in (19b). These markers suffice for present purposes; for a more complete picture of Sahaptin verbal morphology, see Rigsby & Rude (1996), Rude (2009, 2011) and Zúñiga (2006).

Table 2 Distribution of inverse and obviative ERG suffixes in Sahaptin (Rigsby & Rude 1996)

↓ SBJ / ⟶ OBJ	1	2	3.PROX	3.OBV
1	—			
2		—		
3.PROX	*-nɨm*		—	
3.OBV			*-in*	—

Table 3 Some Sahaptin verbal prefixes (cf. Rigsby & Rude 1996: 676, Zúñiga 2006: 147)

↓ SBJ / ⟶ OBJ	1	2	3.PROX	3.OBV
1	—			
2	*pá-*	—		
3SG.PROX	*i-*		—	*i-*
3SG.OBV			*pá-*	—

While the case of one of the transitive predicate's arguments is determined by the person features of the subject and the object in both languages, the global case splits of Kashmiri and Sahaptin differ from each other. First, and most obviously, Sahaptin has a case split on its subject. Furthermore, the ergative does not appear in all inverse contexts as it does in Kashmiri. The most interesting difference, however, is arguably the fact that the ergative marker in Sahaptin has two allomorphs which also depend on the person features of the arguments involved in the split. We suggest in Section 3.4 that in a potential dependent case analysis of this pattern, the allomorphy of ergative cases would require several, person-sensitive dependent case rules.

3.3 Wampis

While the global case splits in Kashmiri and Sahaptin involve inverse patterns (to some degree), other types of global splits are also found. The Jivaroan language Wampis (Peña 2015) has an idiosyncratic global case split on the object. In Wampis, the subject and the object can agree with the verb (Peña 2015: Sec. 14.3.3), but the accusative marker *=na* is not spelled out on third person objects if the subject is first person plural or second person — in all other cases, the object is marked with *=na* (Peña 2015: 715–720). This is illustrated in (20), with the direct object boxed.

(20) Wampis (Peña 2015: 718)

a. **1SG SBJ, 3rd person object → ACC OBJ**

iauãa=na *mã-á-ma-ha-i*
jaguar=ACC kill-HIAF-REC.PST-1SG.SBJ-DECL
'I killed a jaguar.'

b. **2SG SBJ, 3rd person object → NOM OBJ**

am~~i~~ *iauãa* *mã-á-ma-m~~i~~*
2SG **jaguar** kill-HIAF-REC.PST-2SG.SBJ.DECL
'You killed a jaguar.'

c. **1PL SBJ, 3rd person object → NOM OBJ**

iauãa *mã-á-ma-hi*
jaguar kill-HIAF-REC.PST-1PL.SBJ.DECL
'We killed a jaguar.'

The distribution of *=na* is shown in Table 4. It is clear *=na* is not distributed along the direct/inverse divide — in other words, *=na* is not restricted to configurations in which the object's person is higher than the subject's (or vice versa).

Table 4 Distribution of ACC *=na* in Wampis

↓ SBJ / ⟶ OBJ	1SG	1PL	2	3
1SG	—	*=na*	*=na*	*=na*
1PL	—	—	*=na*	
2	*=na*	*=na*	—	
3	*=na*	*=na*	*=na*	*=na*

Having illustrated the basic phenomenon of global case splits, we discuss potential analyses of these patterns in the next section.

3.4 Potential dependent case analyses

We will consider two types of dependent case analyses and conclude that neither of them straightforwardly captures the global case splits illustrated in the previous section. The first of these relies on movement: the basic idea is that an NP only sometimes moves into the relevant domain where dependent case rules can apply. The second type of analysis involves c-command not between NPs proper but between layers of φ-features on top of NPs, allowing for fine-grained c-command relations reflecting person features.

3.4.1 Movement and global case splits

In Baker's (2015) definition of dependent case, (2), the two NPs in a dependent case relation have to be in the same spell out domain. In Baker & Vinokurova's (2010) analysis of data like (3) from Sakha, this means that when the object leaves the VP, it will be in the same spell out domain as the subject and dependent case rules can apply (see also Jelinek & Carnie 2003, Merchant 2006, Coon & Preminger 2012: see Kalin

& Weisser 2019 for arguments against movement analyses of some languages with DOM).[1]

It is well-known that properties like specificity or definiteness can affect the position of objects (see e.g. Diesing 1992, Bhatt & Anagnostopoulou 1996, Sportiche 1996, Alexiadou & Anagnostopoulou 1997, Aissen 2003, Dayal 2003, Karimi 2003, Jelinek & Carnie 2003, Hallman 2004, M. Richards 2004, López 2012). Such movement can feed the application of dependent case rules: a specific object, for example, can move out of VP and create the right context for a dependent case rule to apply, assigning case to the subject or the object (or both). However, the literature on such movement generally addresses only properties of a single argument, that is local properties (of the object, mostly). It is these local properties which trigger movement of the argument in question.

In instances of global splits, however, case marking cannot simply result from locally-triggered movement. Recall the situation in Kashmiri: case-marking of a second person object depends on the person of the subject. This means that if the object were to move to derive the case split in Kashmiri, this movement could not be triggered by properties of the object itself — it would have to be triggered by properties of both the object and the subject. This in turn would require a relation between the two arguments that determines whether movement applies or not, for example an Agree relation.

To illustrate this problem in more detail, consider the following scenarios, abstractly illustrating the Kashmiri case split. Recall that the object is DAT when its person is as high or higher than the subject's. In terms of movement, a straightforward option is that DAT is assigned to the object when it is in the same domain as the subject.

[1] Baker (2015: 9) suggests that in Eastern Khanty (or Ostyak; Uralic), an ergative marker *-nə* is triggered when an object moves into the same domain as the subject (a differential subject marking, or DSM, pattern analogous to DOM in (3)). However, this 'ergative' on the subject appears with objects in various positions, rather than one specific domain, as shown in (i). It is thus not clear whether *-nə* really marks ergative rather than information structural properties (Nikolett F. Gulyás, p.c.; F. Gulyás 2018). A reviewer suggests that Niuean (Massam 2001) is a better example of a language in which movement of the object triggers ERG.

(i) Eastern Khanty (Kulonen 1991: 185, 197)

a. *kan-nə kittä jeɣilwəl kasi iwänä-ti*
tsar-**nə** send.INF begin.SBJ.3SG man.NOM Iwan-LAT
'The tsar sends a man to Iwan.'

b. *ni-nə jöɣä pämillə-tə kujəl palta*
woman-**nə** he-DAT show.SBJ.3SG>SG.OBJ man.POSS.SG.3SG coat.NOM
'The woman shows him her husband's coat'

In movement scenario 1, the subject is in a high position in domain α and the object originates in domain β. We assume that the object is assigned DAT when it moves to α. The structures in (21) and (22) illustrate the relevant patterns.

Movement scenario 1 Structurally high SBJ, low/high OBJ: DAT when both are in same domain.

(21) NOM–NOM

a. $[_{\alpha}$ 1.SBJ.NOM $[_{\beta}$ 2/3.OBJ.NOM]] cf. (16a)

b. $[_{\alpha}$ 2.SBJ.NOM $[_{\beta}$ 3.OBJ.NOM]] cf. (17a)

(22) NOM–DAT

a. $[_{\alpha}$ 2/3.SBJ.NOM 1.OBJ.DAT $[_{\beta}$ t_{OBJ}]] cf. (16b)

b. $[_{\alpha}$ 3.SBJ.NOM 2.OBJ.DAT $[_{\beta}$ t_{OBJ}]] cf. (17b)

c. $[_{\alpha}$ 3.SBJ.NOM 3.OBJ.DAT $[_{\beta}$ t_{OBJ}]] cf. (18)

What makes the second person object move in (22b) but not in (21a) (and, analogously, the third person object in (22c) and (21a))? Since this is a global split, the properties of the object itself cannot be the movement trigger. A relationship between the two NPs is necessary so that the person of the subject in (22b) can attract the object to domain α.

It is also possible that the two arguments originate in the same domain, and the object's NOM case is a result of movement of the subject. This is illustrated in (23) and (24). In (23), the subject moves out of the lower domain β and bleeds the application of a dependent case rule. The object stays in situ. In (24), in contrast, the subject remains in β and the dependent case can apply.

Movement scenario 2 Structurally low/high SBJ, low OBJ: DAT when both are in same domain.

(23) NOM–NOM

a. $[_{\alpha}$ 1.SBJ.NOM $[_{\beta}$ t_{SBJ} [2/3.OBJ.NOM]]] cf. (16a)

b. $[_{\alpha}$ 2.SBJ.NOM $[_{\beta}$ t_{SBJ} [3.OBJ.NOM]]] cf. (17a)

(24) NOM–DAT

a. [$_{\alpha}$ … [$_{\beta}$ 2/3.SBJ.NOM [1.OBJ.DAT]]] cf. (16b)

b. [$_{\alpha}$ … [$_{\beta}$ 3.SBJ.NOM [2.OBJ.DAT]]] cf. (17b)

c. [$_{\alpha}$ … [$_{\beta}$ 3.SBJ.NOM [3.OBJ.DAT]]] cf. (18)

This second scenario raises a similar question as the first one: why would the second person subject move in (23b), but not in (24a)?

Independently of whether it is the case-marked DP or the other argument that moves to feed or bleed a dependent case rule, the problem remains that the trigger of movement needs to be sensitive to properties of *two* arguments. Such a 'complex' movement trigger could arise as a consequence of an Agree relation between the two arguments, but it is far from clear how such an approach could work.

Note, finally, that the relative order of the subject and the object does not seem to affect the case-marking behaviour (but our data is very limited in this respect). For Wampis, Jaime Peña (p.c.) confirmed that different orders cannot affect the distribution of the accusative marker *=na*.

(25) illustrates this point for Kashmiri. Independently of whether the subject precedes the object or vice versa, the object appears in DAT. Since Kashmiri is a verb-second language, it is of course possible that the movement deriving the surface order happens after dependent case assignment has occurred. But R. M. Bhatt (1999: 181) points out that scope in Kashmiri matches the surface order of arguments; this means that case-marking cannot be an indicator of inverse scope, unlike in, for example, Passamaquoddy, where inverse marking on the verb indicates changes in scope between the verb's arguments (Bruening 2001). If scope depends (at least in part) on c-command, this might have consequences for the timing of dependent case assignment. It cannot happen at PF, as different orders of arguments do not affect their case-marking. But since different orders reflect different scope, they are also relevant for LF, suggesting that dependent case assignment would need to depend on a certain configuration in narrow syntax that is later modified, still in narrow syntax. While this is possible, intricacies of this type once again complicate the formulation of dependent case rules.

(25) Kashmiri (Wali & Koul 1997: 156; Shafi Shauq, p.c.)

a. **SBJ V OBJ**

su	*chu-y*	*tse*	*parɨna:va:n*
he.NOM	be.M.SG-2SG.OBJ	you.DAT	teach.PTCP.PRS

'He is teaching you.'

b. **OBJ V SBJ**

tse *chu-y* *su* *parɨna:va:n*
you.DAT be.M.SG-2SG.OBJ he.NOM teach.PTCP.PRS
'He is teaching you.'

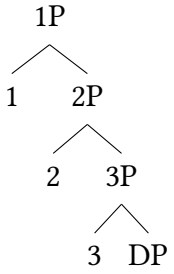
We conclude that movement cannot straightforwardly account for the global case splits illustrated here.[2]

3.4.2 Fine-grained c-command

Since the most widespread definition of dependent case relies only on the c-command relation between two DPs, it is not clear how case assignment that is sensitive to particular properties of those DPs can be modelled. In Kashmiri, Sahaptin, and Wampis, the relative person of the subject and the object is crucial to determining whether one of the arguments is case-marked, however. A set of rules like those in (2) cannot account for these patterns.

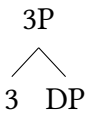
Thomas McFadden (p.c.) suggests a way of capturing the role of person features in Kashmiri using only c-command, however. The idea is that the person features are not (only) represented as features on a head or the phrase, but that each person feature projects a layer on top of a DP such that a first person DP would be 'bigger' than a third person DP:

(26) First person DP



[2] A reviewer raises the possibility that there are three projections each for subjects and objects, respectively, e.g. 1S>2S>3S>1O>2O>3O, that the arguments move to. They suggest that DAT on the object could be a consequence of two or fewer projections between the two arguments, e.g. one in 2S>1O and 3S>2O or zero in 3S>1O. This would require relativised domain of application for dependent case rules, it seems, that would need to vary from language to language (Baker, this volume).

(27) Third person DP



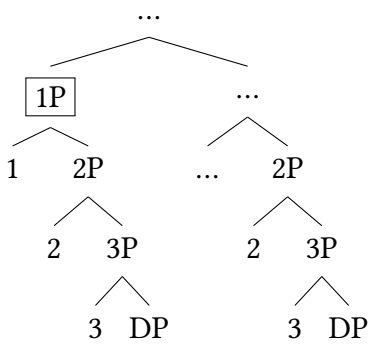
A consequence of this structure is that only the highest layer can c-command, meaning that the phrase in (26) c-commands as a first person DP, while the phrase in (27) c-commands as a third person DP.

With this proviso, the rule in (28) then correctly derives when the object appears in DAT, as indicated in (29).

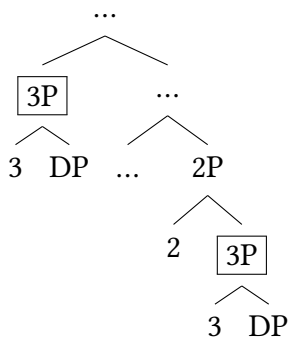
(28) Dependent case rule for Kashmiri imperfective
If person feature *N* on DP_1 c-commands person feature *N* on DP_2, assign DAT to DP_2.

In (29a), the subject is first person and the object is second person, a configuration in which the object surfaces as NOM. Since, the first person layer of the subject DP does *not* c-command the same layer on the object, the rule in (28) is not applied and the object surfaces as NOM. In contrast, the third person layer of the subject c-commands the third person layer of the object in (29b) and the rule in (28) is correctly applied: the object surfaces as DAT.

(29) a. 1P SBJ, 2P OBJ → NOM OBJ



b. 3P SBJ, 2P OBJ → DAT OBJ



McFadden's proposed relation between layers of DPs relies on c-command, only augmented by a mechanism that recognises whether the same types of phrases are involved in a c-command relation (possibly an Agree relation, if each layer is interpreted as a probe). Nevertheless, the rule in (28) does not work in the same way for Wampis or Sahaptin. For Wampis, the rule in (28) (correctly) predicts ACC on third person objects

with third person subjects and ACC on second person objects with first person subjects, but fails to predict ACC on third person objects when the subject is first person.

(30) Dependent case rule for Wampis
Unless a 1PL or 2nd person DP_1 c-commands a 3rd person DP_2, assign DP_2 ACC.

(31) Dependent case rules for Sahaptin (ProxP = $[_{ProxP}$ Prox $[_{3P}$ 3 DP]])

a. If $ProxP_1$ c-commands $ProxP_2$, assign $ProxP_1$ INV.ERG.

b. If $3P_1$ c-commands **a 3rd person** $3P_2$, assign $3P_1$ OBV.ERG.

While the rules in (30) and (31) can describe the Wampis and Sahaptin patterns, they are not as general as (28) or Baker's (2015) rules in (2). (30) and (31) are less general in that they reference *features* of DPs or even particular projections of DPs, rather than just referring to the configuration that two DPs are in.

Note also that splitting up DPs into more fine-grained projections involving features might make these rules incompatible with N. Richards's (2010) idea that 'distinctness' feeds dependent case assignment. As mentioned briefly in Section 2, N. Richards (2010: 131–132) discusses that one of two DPs, with one c-commanding the other, can be modified, for example by adding case, or a KP, or by removing the D layer, to allow for linearisation and spell-out. N. Richards (2010) does not discuss any additional layers in the DP, so it is difficult to evaluate whether the rules in (30) and (31) would be compatible with his system. As a reviewer points out, if φ-layers dominating the noun instantiate the category DP, rather than NP, distinctness could still apply.

We conclude that general dependent case rules for global case splits based on c-command cannot be formulated for the kinds of languages discussed in this section. In the next section, we describe an analysis that derives global case splits as a consequence of Agree. While this analysis also requires different rules for different languages, we argue that it captures this variation more naturally than the rules in (30) and (31).

3.5 Deriving global case splits with Agree

Global case splits pose a challenge not only for for dependent case but also for 'classic' versions of Agree based on Chomsky (2000, 2001). Nevertheless, we argue in this section that the additional assumptions that are necessary for an analysis of global case splits using Agree are independently motivated. One of the main advantages of an Agree-based analysis of global case splits is that this closely links them with direct/inverse splits in verbal agreement systems (e.g. in Sahaptin), which is both conceptually and empirically motivated. In other words, global case splits are analysed as a dependent-marking version of (head-marking) direct/inverse splits (Rezac 2011, Georgi 2012, Bárány 2017, Verbeke 2018).

The main theoretical challenge for analysing global case splits using Agree is that case assignment by a functional head has to be 'delayed' until enough information about the arguments involved in the split is available (Béjar & Rezac 2009, Keine 2010, Georgi 2012, Bárány 2015, 2017). In this section, we follow the analysis in Bárány (2017), which is heavily influenced by Keine (2010).

We start with the assumption that φ- and Case valuation are separate processes, as assumed by Keine (2010) and Georgi (2014), but unlike in Chomsky (2000, 2001). This separation makes it possible for these operations to happen in different orders: if φ-valuation happens before Case assignment, φ-features can determine Case. We treat this as a matter of cross-linguistic variation, in that certain languages have Case valuation before φ-valuation (Case $\prec$ φ) and others have φ-valuation before Case valuation (φ $\prec$ Case). Only in the latter type do we find global case splits.

A reviewer worries that this nonstandard approach might introduce redundancy as there are two relations between a head and a DP. The main difference to a classic, 'monolithic' version of Agree is that φ- and Case valuation can influence each other or, in fact, be independent of each other. Much recent literature stresses that agreement can be sensitive to morphological case (see e.g. Bobaljik 2008, Preminger 2014) and that Case need not depend on Agree at all (see e.g. Baker 2008, 2012), also establishing φ-valuation and Case assignment as two distinct processes (albeit not necessarily from the same head; see also Baker & Vinokurova 2010). Global case splits, we argue, simply provide empirical motivation for another logically possible type of interaction between φ-valuation and Case assignment: that the former feeds the latter.

We further assume that case and person are not represented by single features, but that both are *sets* of features (see e.g. Harley & Ritter 2002 and (32) for person; see Caha 2009, Harðarson 2016, Smith *et al.* 2019 for case). Three persons can be represented by the feature sets in (32). Note that the feature set [1] is a proper superset of [2], which in turn is a proper superset of [3].

(32) Person features (Harley & Ritter 2002, Béjar & Rezac 2009)

$$[1] = \left\{\begin{matrix}\textsc{speaker},\\ \textsc{participant},\\ \pi\end{matrix}\right\} \supset [2] = \left\{\begin{matrix}\textsc{participant},\\ \pi\end{matrix}\right\} \supset [3] = \{\pi\}$$

The complex probes in the following structures have unvalued feature sets corresponding to each of these (corresponding to segments Béjar & Rezac 2009): *u*1 can be valued by the set [1] consisting of {SPEAKER, PARTICIPANT, π}. In addition, when a feature set values a (segment of a) probe, any unvalued sets of features that are a subset of the valuing feature set are valued by entailment. In the structures below, this is indicated by a grey value (e.g. '3' on v in (33)).

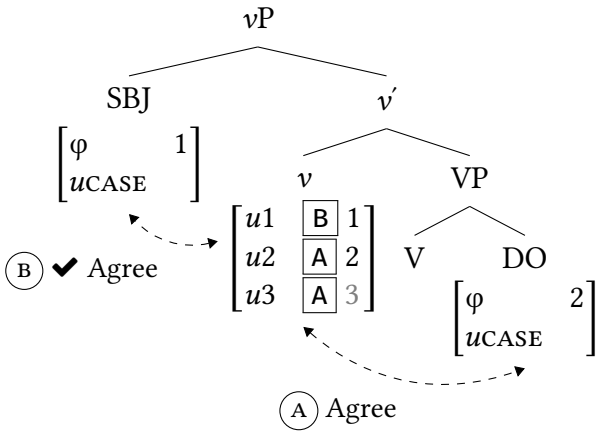
When probes interact with sets of person features, they are not necessarily valued right away, but can probe again if they have remaining unvalued features and stop if

they are fully valued (Cyclic Agree; as discussed in Section 2 and Béjar & Rezac 2009). This is the case for both *v* and T.[3] Examples (33) and (34) from Kashmiri illustrate this (ignoring case for now). In (33a), the direct object is second person, while the subject is first person. In a configuration like this, *v* will probe the object (step (A) in (33b)). Since the object is second person, its [2] set will value the probe's *u*2 and *u*3 feature sets, while *u*1 remains unvalued. This allows *v* to probe again (step (B) in (33b)) and be valued by the first person subject.

(33) Kashmiri

a. *bi̱* *chu-s-ath* *tsi̱* *pari̱na:va:n*
I.NOM be.M.SG-1SG.SBJ-2SG.OBJ **you.NOM** teach.PTCP.PRS
'I am teaching you.'

b. ✔ [1] ⊃ [2]: *v* valued by SBJ and OBJ



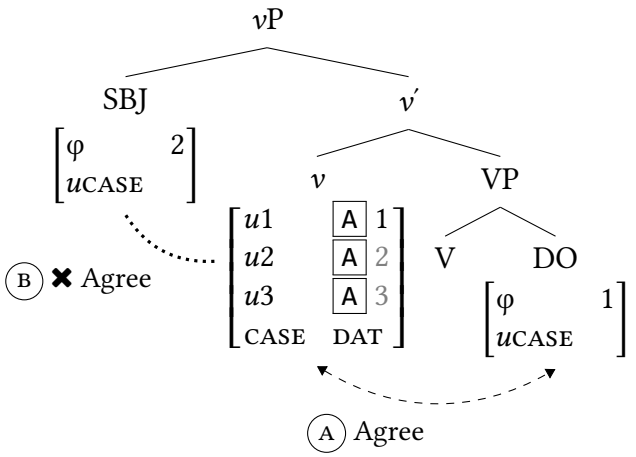
In contrast, when the object's person features are a superset of the subject's, as in (34b), *v* will agree only once. In (34b), *v* probes the object. The object is first person, so its [1] set values all of the probe's unvalued feature sets in step (A). As *v* is fully valued, it cannot enter an Agree relation with the subject.

(34) Kashmiri

a. *tsi̱* *chu-kh* *me* *pari̱na:va:n*
you.NOM be.M.SG-2SG.SBJ **I.DAT** teach.PTCP.PRS
'You are teaching me.'

[3] A reviewer wonders whether *v* can agree downwards repeatedly, suggesting that this would lead to direct/inverse effects in ditransitive constructions. Such effects are in fact found in a number of languages, for example in the Northern Chukotko-Kamchatkan genus. See Mel′čuk (1988) and Bárány (2021) for discussion.

b. ✖ [2] ⊂ [1]: *v* valued by OBJ only



Finally, we assume with Keine (2010) that impoverishment operations can take place in syntax, strictly locally on a (complex) head (see also Section 3.6).

These assumptions give rise to two possible types of derivations in the languages in question. We illustrate the relevant parts of the derivations for Kashmiri and provide additional information on Wampis and Sahaptin below.

In *direct* configurations, that is when the subject's person outranks that of the object, *v* can be valued by two sets of person features from two arguments, the subject and the object. For example, in (33), *v* receives values from the first person subject as well as the second person object. We represent this as {1, 2}, which is a shorthand for a set of sets of features, namely {{SPEAKER, PARTICIPANT, *π*}, {PARTICIPANT, *π*}}. A probe can only agree with two arguments if the second argument's features are a superset of the first. Since *v* starts by probing downwards, the first argument it encounters will be the object, and the second one will be the subject (as in (33) and (34)). This means that possible values for *v* agreeing with both the subject and the object are {1, 3}, {2, 3}, and {1, 2}, with the subject's features being a superset of the object's in each case.

These sets of feature sets represent all the configurations in which the object is NOM rather than DAT. In other words, the object is NOM when *v* is valued by both the subject and the object. Since the particular values do not matter, only the fact that the sets have a cardinality of two, they can be represented as {α, β}, where α represents the subject's feature set and β the object's feature set. In contrast, the object is DAT when *v* has only agreed with one of its arguments (as in (34)). Again, the person of the object only matters to the degree that it must be a superset of the subject's. Thus, configurations in which the object is DAT in Kashmiri are characterised by a single feature set on *v* (more precisely, the set of feature sets has a cardinality of one).

The case split can now be derived as a consequence of the features of *v*: the basic idea is that *v* generally assigns DAT to the direct object unless it has been valued by more

than one argument, in which case it assigns NOM. This can be formalised as follows. Recall that as for person, we assume that case represents sets of (abstract) features. The relevant inventory of cases in Kashmiri is shown in (35). NOM is represented by single case feature; DAT is represented by two case features (see Caha 2009: 17–22 and Bárány 2017: 159–160 for discussion). The structure in (36) indicates that *v* has unvalued φ-features and generally assigns DAT.

(35) (Relevant) Case features in Kashmiri

NOM: [**A**] DAT: [**A**, **B**]

(36) *v* in Kashmiri

$$\begin{matrix} v \\ \begin{bmatrix} u\phi & \\ \text{CASE} & \mathbf{A}, \mathbf{B} \end{bmatrix} \end{matrix}$$

Finally, the impoverishment rule in (37) states that when *v* is valued by two arguments, represented as {α, β}, the case feature **B** is deleted. This happens before *v* assigns the remaining case features to the object, resulting in a singleton set [**A**] on the object, spelled out as NOM.

(37) Impoverishment rule

CASE: [**B**] → ∅ / *v*[α, β]

Putting everything together, the following derivations illustrate how this system derives case-marking in a direct and an inverse configuration. First, in (38), the subject is second person while the object is third person (a direct configuration).

(38) **2nd person SBJ, 3rd person OBJ → OBJ.NOM**

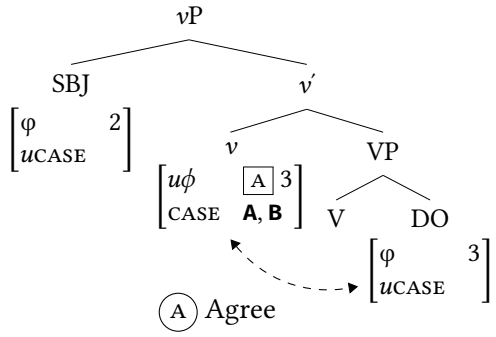
tsɨ	*chi-h-an*	*su*	*parɨna:va:n*
you.NOM	be-2SG.SBJ-3SG.OBJ	**he.NOM**	teach.PTCP.PRS

'You are teaching him.'

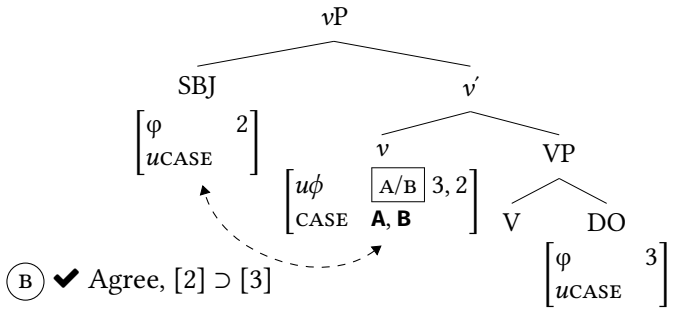
In analogy to (33b), the derivation proceeds as follows. In (39a), *v* probes downwards and is valued by the direct object (step (A)). *v* probes again, since it has not been fully valued (step (B)). It establishes an Agree relation with the subject and is valued again.

(39) Derivation of (38)

a.

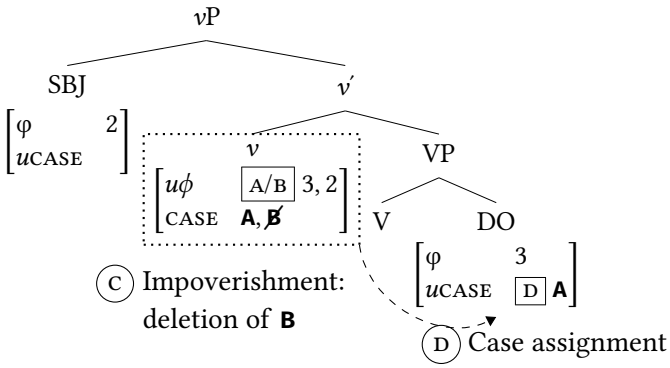


b.



At this stage, *v* has been valued by two arguments and its features correspond to the set {2, 3}. This set is the right context for the impoverishment rule in (37) to apply. In step (C) in (39c) the case feature **B** is deleted from *v*. When *v* assigns Case to the direct object (step (D)), it will only assign the remaining feature [**A**] which is spelled out as NOM.[4]

(39) c.



[4]Case assignment in (39c), (41c) is in accordance with the PIC2, discussed in Chomsky (2001: 14).

Inverse derivations, in which the object's person is equal to or outranks the subject's person, differ from direct ones only in that *v* cannot be valued by two arguments. This means that the impoverishment rule in (37) cannot apply and *v* will assign DAT to its object. The relevant steps of deriving (40) are shown in (41).

(40) **3rd person SBJ, 2nd person OBJ → OBJ.DAT**

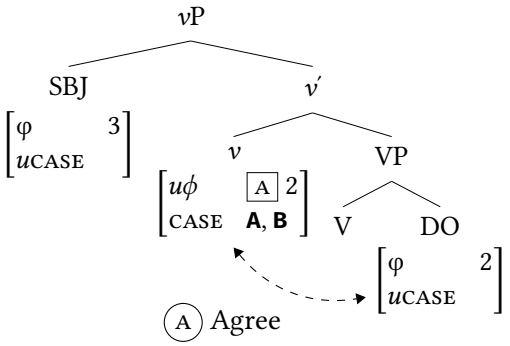
su	*chu-y*	*tse*	*parina:va:n*
he.NOM	be.M.SG-2SG.OBJ	**you.DAT**	teach.PTCP.PRS

'He is teaching you.'

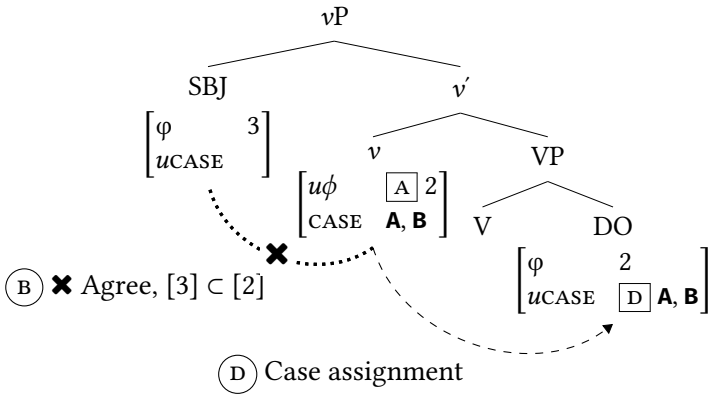
The crucial difference to (39) lies in step (B) in (41b). While *v* has unvalued features left, the subject's [3] feature set cannot value *v* (only a [1] feature set could). *v* ends up with a single feature set [2] and thus the context for impoverishment is not met: in step (C), *v* assigns [**A**, **B**] to the direct object which is spelled out as DAT.

(41) Derivation of (40)

a.



b.



For both types of derivations, we assume that the subject gets NOM from T after *v* has probed and assigned Case to the direct object. T also carries a φ-probe and can spell out subject agreement when *v* has only been valued by the object.

The system works in analogous ways for Wampis and Sahaptin. Recall that in Wampis, the direct object is ACC unless it is third person and the subject is first person plural or second person (Table 5). As was the case for Kashmiri, we assume for Wampis that *v* assigns case to the object when it can no longer probe. Thus *v* assigns ACC unless the rules in (43) apply. As before, '1' is a shorthand for the feature set {SPEAKER, PARTICIPANT, *π*} (analogously for '2' and '3'; see (32)). The difference between Kashmiri and Wampis is that the rules for Wampis are much more specific, explicitly referring to particular sets of person features rather than just the presence of any two such sets. A rule only applies if the exact feature set specified in the rule is present on *v*, but not if *v* is valued by a proper superset or subset of the sets specified in the rule. Thus *v* valued by [1] and [2] does not trigger the rule in (43b).

Table 5 Distribution of ACC *=na* in Wampis (repeated)

↓ SBJ / ⟶ OBJ	1SG	1PL	2	3
1SG	—	*=na*	*=na*	*=na*
1PL	—	—	*=na*	
2	*=na*	*=na*	—	
3	*=na*	*=na*	*=na*	*=na*

Table 6 Distribution of inverse and obviative ERG suffixes in Sahaptin (repeated)

↓ SBJ / ⟶ OBJ	1	2	3.PROX	3.OBV
1	—			
2		—		
3.PROX	*-nim*		—	
3.OBV			*-in*	—

(42) Case features in Wampis
NOM = [**A**] ACC = [**A**, **B**]

(43) Impoverishment rules for Wampis

a. CASE: [**B**] → ∅ / *v*[1PL, 3]

b. CASE: [**B**] → ∅ / *v*[2, 3]

(44) Vocabulary insertion rules for Wampis

a. [**A**] ↔ -∅ (NOM)

b. [**A**, **B**] ↔ *=na* (ACC)

Finally we turn to Sahaptin (building on Keine 2010 and Bárány 2017 again), with some relevant examples repeated in (45). In this language, the global case split affects the subject, which can appear without a case-marker, (45a), with the inverse ergative marker *-nɨm*, (45b) or the obviative ergative marker *-in*, (45c).

(45) Sahaptin

a. **PROX 3rd person SBJ, OBV 3rd person OBJ → NOM SBJ**

ɨwínš *i-ɺ́ínun-a* *yáamaš-na.*
man 3.NOM-see-PST mule deer-OBJ
'The man saw a/the mule deer.'

b. **PROX 3rd person SBJ, 2nd person OBJ → INV.ERG SBJ**

ɨwínš-nɨm=nam *i-ɺ́ínu-ša.*
man-INV.ERG=2SG 3.NOM-see-IPFV
'The man sees you.'

c. **OBV 3rd person SBJ, PROX 3rd person OBJ → OBV.ERG SBJ**

ɨwínš-in *pá-tuxnana* *yáamaš-na.*
man-OBV.ERG 3.INV-shot mule deer-OBJ
'The man shot a mule deer.'

The global case split affects the subject and we assume that ergative is assigned to the subject by T. This is supported by the fact that non-agentive, inanimate noun phrases can appear as subjects in Sahaptin, suggesting that ergative cannot be an inherent theta-related case (see Deal 2010 for arguments that T assigns ergative in related Nez Perce). While the logic behind the case split in Sahaptin is the same as in Kashmiri and Wampis, it differs in a few respects.

First, since the split is on the subject, impoverishment rules in Sahaptin affect Case assignment by T, not *v* as before. Second, to account for the difference between proximate and obviative third person, we assume that the feature sets making up first, second and proximate third person include an additional feature PROX, while obviative third person is represented as in the other languages. This means that proximate third person represents a proper superset of obviative third person ($[3^{\text{PROX}} = \{\pi, \text{PROX}\} \supset [3^{\text{OBV}}] = \{\pi\}$). Finally, as in Wampis, there are two impoverishment rules, not just one as in

Kashmiri, since there is a three-way split between the obviative ergative, the inverse ergative, and a zero marker in Sahaptin. Case features, impoverishment rules, and vocabulary insertion rules are shown in (46)–(48).

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

(47) Impoverishment rules

a. $[\mathbf{A}] \rightarrow \emptyset$ / T = [3^{PROX}, 3^{OBV}]

b. $[\mathbf{A}, \mathbf{B}] \rightarrow \emptyset$ / T = [α] (where α is 1, 2, 3^{PROX} or 3^{OBV})

(48) Vocabulary insertion rules

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

b. $[\mathbf{B}]$ ↔ *-in* (OBV.ERG)

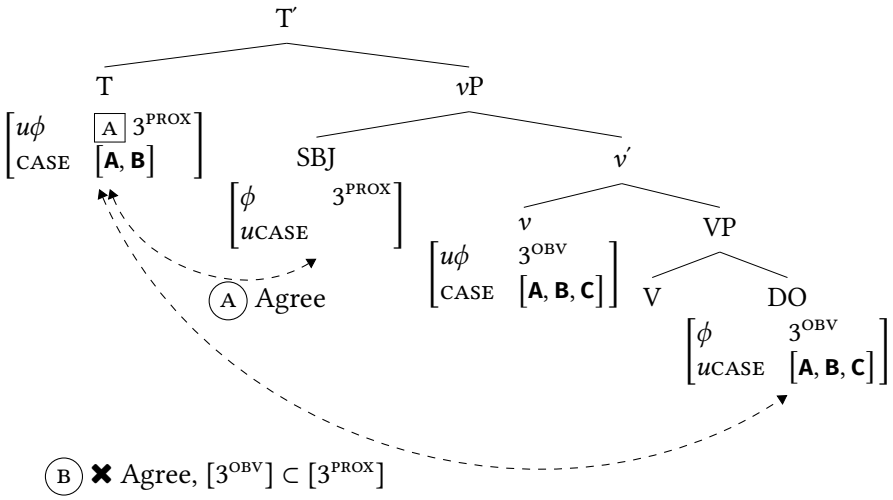
c. $[\mathbf{A}, \mathbf{B}, \mathbf{C}]$ ↔ *-na* (OBJ)

d. [ ] ↔ −∅

We will illustrate how this system works for (45a,b). Both of these examples have a third person subject, but (45a) has a third person object, while (45b) has a second person object. In the partial derivations in (49a) and (50a) we show only the relevant Agree relations between T, the subject, and the object (at the stage shown, *v* has already assigned Case to and agreed with the object).

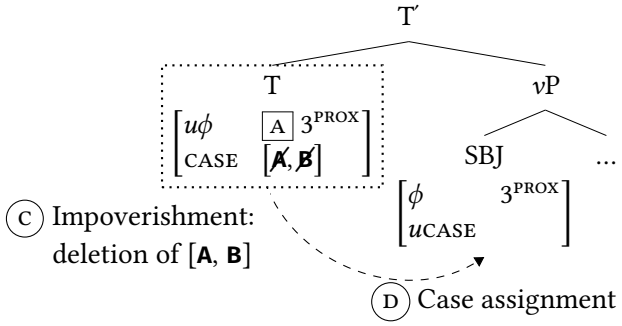
(49) Derivation of (45a)

a.



In (49a), T first probes and agrees with the subject in Spec*v*P which values it as 3^{PROX} (step (A)). Since T is not fully valued, it will probe again — but the direct object's 3^{OBV} feature cannot value T because it is a proper subset of the subject's 3^{PROX} (step (B)). T ends up with a single feature set, which feeds the impoverishment rule in (47b). This is shown in (49b), where impoverishment applies in step (C).[5] This leaves T with an empty set of case features which it assigns to the subject (step (D)). This is spelled out as zero.

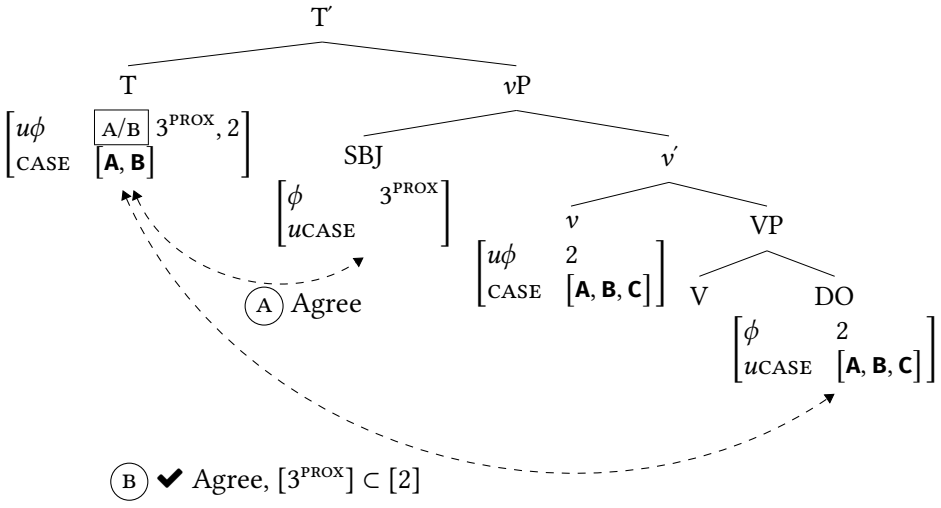
(49) b.



The partial derivation of (45b) is shown in (50).

(50) Derivation of (45b)

a.

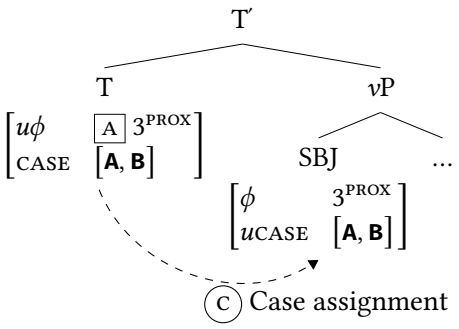


[5] One caveat, pointed out by Johanna Benz (p.c.), is that (47b) must not apply too early — we assume that the rules apply when T has stopped probing. This can arguably be implemented by adopting Deal's (2015) notion of interaction and satisfaction features.

The derivation starts as before. In (50a), T first probes and agrees with the subject in Spec$v$P which values it as 3^{PROX} (step (A)). Since T is not fully valued, it will probe again. The direct object is second person, so its feature set can value T (step (B)).

T now has two sets of person features, {3^{PROX}, 2}. None of the impoverishment rules for Sahaptin fit this context, and so T assigns [**A**, **B**] to the subject (step (C) in (50b)) which is spelled out as the inverse ergative *-nɨm*.

(50) b.



In the derivation of (45c), T is valued with a 3^{PROX} feature (from the object) and a 3^{OBV} feature (from the subject). This feeds the impoverishment rule in (47b), meaning that the subject is assigned [**B**] which is spelled out as the obviative ergative *-in*.

3.6 Does Agree fare better than dependent case?

Global case splits pose a challenge for dependent case because case-marking is not determined by simple c-command relations but by the relative person features of different arguments. Comparing these person features requires some mechanism that is sensitive to φ-features. We suggest that this mechanism is Agree. In the languages we have discussed in this section, Kashmiri, Sahaptin, and Wampis, the verb shows agreement in φ-features with the subject and the object, providing independent support for Agree relations between the verb and its arguments.

As discussed in the context of (30) and (31) above, dependent case rules *can* be formulated for global case splits, too, but they differ more strongly from language to language than the impoverishment rules discussed in Section 3.5. We mean by this that our analysis deriving global case splits involves rules of the exact same format for different languages, with differences in which case features are impoverished. As impoverishment rules are independently motivated in Distributed Morphology (DM) (see e.g. Halle & Marantz 1993, 1994, Harley & Noyer 2003, Keine & Müller 2020), their role in deriving global case splits is far less stipulative than rules (30) and (31) that would be necessary to derive global case splits in Wampis and Sahaptin. These latter rules must reference properties of the DPs involved as well as their syntactic configuration in contrast to Baker's (2) which is only sensitive to the syntactic configuration of two

DPs. This added complexity could simply indicate that global case splits represent a different phenomenon from the one covered by Baker's (2015) rules in (2), one that we suggest is better analysed via Agree.

It should be noted, however, that locating impoverishment in syntax rather than a post-syntactic morphology is not standard. We follow Keine (2010) in this respect, who argues that by interleaving impoverishment and Agree relations, the former can feed the latter. He illustrates this, for example, with case-sensitive agreement in Punjabi DSM (see also Keine & Müller 2015, 2020) as well as agreement-sensitive case, as we do in this chapter. Note that while the timing of impoverishment is non-standard, the impoverishment rules themselves are not exceptional in any way. First, even though they apply in narrow syntax, they only target Case features which do not carry meaning, that is, they do not have consequences for LF. Second, they instantiate what Halle & Marantz (1994: 279) characterise as the 'retreat to the general case' because their application leads to the assignment of a morphologically less marked case that is wider in its distribution, generally NOM. This can be compared to Deal's (2010) analysis of Nez Perce and Sahaptin ergative case. Deal (2010: 107–114) suggests that ergative in these languages is the spell-out of two sets of φ-features: the subject's own φ-features and the object's φ-features which *v* shares with the subject. In a way this reflects iconicity, as ergative is only spelled out when there are more features than usual on the subject. The same approach cannot be extended to the other languages we discussed, however, because arguments agree independently of their case-marking. Moreover, on our analysis of Kashmiri, when the object is DAT, *v* has not agreed with the subject, therefore this DAT could not be the consequence of *v* sharing the subject's features with the object. In contrast, when the object is NOM, *v* has agreed with both the subject and the object, so feature sharing could in principle take place. However, applying Deal's (2010) logic for Nez Perce and Sahaptin to Kashmiri, in this scenario the subject's and the object's φ-features on the object would spell out NOM, a morphologically unmarked case that also appears on intransitive subjects.[6]

If, however, impoverishment applies as described earlier, a morphologically unmarked case will always represent the deletion of particular Case features, ultimately leading to the insertion of a more general vocabulary item for a particular case. In sum, we do agree with a reviewer that locating impoverishment in syntax is a trade-off, just like formulating more complex dependent case rules is one. However, the trade-off on our analysis only concerns the timing of impoverishment: the rules we propose are completely standard and they do not affect semantic interpretation.

We have also argued that an analysis of global case splits based on Agree gains support from the similarities they display with direct/inverse marking. This is partic-

[6]Note that Deal (2010) does not discuss Kashmiri in any way. We are merely exploring an analogous account of Kashmiri for the sake of the argument, rather than criticising her account of Nez Perce and Sahaptin.

ularly clear in Sahaptin, where inverse marking on the verb and inverse and obviative ergative suffixes reflect both head- and dependent-marking exponents of underlying φ-feature configurations of subjects and objects. This conceptual parallelism between inverse agreement and global case splits is not reflected in the same way in the putative dependent case analyses of the same patterns that we have discussed.[7]

4 Conclusions

In this chapter, we have discussed challenges for the strong claim that structural Case is never assigned by a functional head and that dependent case is the only means of structural case assignment.

The fact that CPs and PPs can count as case competitors in French causatives weakens the appealing claim that only case undergoers act as case triggers. We noted, moreover, that while there is no evidence that finite CPs require case in French, there is some evidence that they can agree. Given this fact and the observed Person Case Constraint effects in this domain, we have argued that it is attractive to model dative case as a side effect of secondary Agree, making it, in many ways, parallel to global case splits. We then considered three different global case splits and highlighted the challenges that they pose for the dependent case approach: Case assignment depends on the features of not one but two arguments. While it is possible to formulate intricate dependent case rules which can handle these facts, we argued that an analysis based on Agree and impoverishment rules is more parsimonious, especially given the independent evidence for agreement in verbal inflection. Finally, we reviewed data from the existing literature which challenge the predictions of strongest version of dependent case theory.

For the phenomena we have discussed, at least, we suggest that Case assignment by functional heads under Agree is necessary, although our analysis of global case splits necessarily treats Case assignment and Agree as two distinct processes such that the latter can feed the former. What does this mean for Case assignment more generally? Are there multiple modes of assigning Case? We leave this matter open to future debate, but note that it is not possible to give up the idea that Agree mediates some instances of structural Case.

[7] Malchukov (2008: 212) and Bárány (2017: 126–132) discuss the Sepik language Awtuw, which has a global case split based on animacy (see also de Swart 2007, Georgi 2012). What makes Awtuw different from the languages discussed in this section is that it does not show overt reflexes of agreement between the verb and its arguments. Awtuw thus arguably represents a purely dependent-marking φ-feature-based global case split. Assuming that φ-agreement takes place in this language without direct evidence for agreement itself is not unlike assuming agreement to enable clitic doubling even when agreement itself is not spelled out, as argued by Preminger (2019).

Abbreviations

1 = first person, 2 = second person, 3 = third person, ABS = absolutive, ACC = accusative, APPL = applicative, DAM = differential argument marking, DAT = dative, DC = dependent case, DECL = declarative, DM = Distributed Morphology, DO = direct object, DOM = differential object marking, DSM = differential subject marking, ERG = ergative, F = feminine, FUT = future, HIAF = high affectedness aktionsart, INF = infinitive, INV = inverse, IPFV = imperfective, LAT = lative, M = masculine, NOM = nominative, OBJ = object, OBV = obviative, PFV = perfective, PIC = phase impenetrability condition, PL = plural, POSS = possessive, PROX = proximate, PRS = present, PST = past, PTCL = particle, PTCP = participle, REC = recent, SBJ = subject, SG = singular.

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