Case stacking

Pavel Caha
Department of Czech Language
Masarykova univerzita
pavel.caha@phil.muni.cz

Abstract

In the broadest possible sense, case stacking can be defined as a phenomenon where a noun (or a pronoun, adjective) is followed by two or more adjacent case markers. This chapter focuses on two central issues related to case stacking. The first issue is under what morphosyntactic conditions case stacking arises (e.g., agreement, ellipsis, phrasal case marking; multiple case assignment). The second issue is what the morphosyntactic consequences of case stacking are (the appearance of 'dummy' morphemes; deletion of case morphemes; the fusion of consecutive case morphemes).

Word count: 14.447

Keywords: Case; ligatives; morpheme deletion; portmanteau

1 Introduction

In the broadest possible sense, case stacking can be defined as a phenomenon where a noun (or some other part of speech) is followed by two or more adjacent case markers. As an example, consider the sentence in (1) from Lardil, a Tangkic language spoken in Australia (Richards 2013:43). In this example, the noun 'boy' is marked by the genitive, because it is the possessor of the 'spear.' It is also marked instrumental, because it shows concord with the head noun 'spear' (which is in the instrumental).

(1) Lardil (Tangkic, Australia, Richards 2013:43)

Ngada latha karnjin-i [marun -**ngan** -**ku** maarn-ku]
I spear wallaby-ACC boy -GEN -INS spear-INS
'I speared the wallaby with the boys spear.'

The main point of the chapter is to show that case stacking (understood as the sequence of two or more case affixes) arises in grammars under different circumstances and for a variety of reasons. At the theoretical level, such a situation makes it unclear whether case stacking (i.e., all surface sequences of multiple case suffixes) should be treated as a unified phenomenon. While the ultimate answer to this question is probably negative, it is still useful to consider the question which instance of case stacking should or could be treated as related to one another. Asking such questions leads us to look more closely at the grammatical mechanisms that give rise to this interesting empirical phenomenon.

The structure of the chapter is as follows. Sections 2 and 3 are dedicated to describing a variety of conditions that give rise to case stacking. The focus is mainly on the syntactic conditions that give rise to case stacking. Section 4 discusses the consequences of case stacking. Specifically, when case stacking occurs, various types of interactions between the two case affixes can be observed. The types of interactions we find are known also from other domains where affixes meet (i.e., not only case affixes), yet they are worth looking at in detail. The specific phenomena to be considered are the following: the emergence of various types of linking morphemes between the two case markers (the so-called ligatives), the morphological reduction of the consecutive case markers, their fusion or complete elimination of one of the affixes.

2 Case stacking: the causes

This section provides an overview of the different reasons that give rise to case stacking, i.e., the sequence of multiple case markers. Let me begin by defining what a case marker is. For the purpose of this chapter, case markers will be defined by their function, which is useful for cross-linguistic comparison (see, e.g., Haspelmath 2010). Specifically, I treat as a case marker any morpheme that expresses the grammatical or semantic role of a noun phrase (Moravcsik 2009). By grammatical role are meant notions such (transitive/intransitive) subject, object or indirect object. By semantic role are meant notions such as instrument, beneficiary, experiencer, accompaniment, means, etc. The latter group of notions also includes spatial and temporal locations, goals and sources.

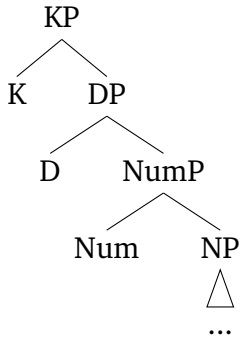
There are alternative definitions that may be used to pick out comparable set of markers; for example, Blake (2001) defines case as a morpheme that marks the type of dependency that the noun has with respect to the head (where the head is prototypically a verb, and the dependency is one of subject, object, ...).

It's worth making it explicit that under the definition(s) given above, the preposition *to* in the English sentence *He gave the book **to** John* classifies as a case marker. This is so because it satisfies the definition of a case marker by being a morpheme that expresses a semantic role: it conveys the fact that *John* is a recipient. This apparently clashes with the fact that *to* is standardly classified as a preposition. However, there is no contradiction here. This is because the notion of a preposition is not functional, but formal: preposition is a free-standing phrasal marker that precedes the noun phrase. Clearly, it is possible to be both a free-standing morpheme that precedes the noun phrase and, at the same time, to have the function of expressing the semantic/grammatical role of a noun phrase. Moreover, this state of affairs is hardly surprising from a comparative perspective, since any grammatical category (e.g., definiteness or tense) can be expressed by either a suffix or by a free-standing morpheme (auxiliary).

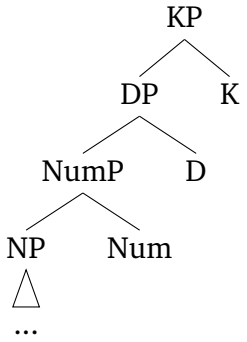
Many researchers adopt a narrower definition of a case marker such that case markers must be suffixal. In some approaches, this is further reinforced by the requirement that case suffixes are so tightly integrated with the stem that they show allomorphy based on an arbitrary declension class of the noun (see, e.g., Spencer and Otoguro 2005). As obvious, I am not adopting these form-based definitions here. The main reason is not to miss instances of case stacking due to of adopting too narrow a definition of a case marker. At the same time, to make sure that possible terminological differences do not get in the way of content, the chapter uses indeed mainly case *suffixes* to illustrate the relevant facts, though adpositional case markers will be mentioned where relevant.

With the definition of a case marker in place, the following sections discuss the reasons why case markers may stack one on top of the other. It turns out that different types of case stacking are distinguished by the type of a structural relation that the various case markers have with respect to each other. The classification of the different kinds of case-stacking examples is much helped if case markers are represented as occupying a dedicated position in the morphosyntactic structure. Following Bittner and Hale (1996), Bayer et al. (2001), Caha (2009), I shall therefore adopt structures where case markers occupy a dedicated position in the syntactic tree, along with other nominal categories such as number or definiteness. The general shape of the trees I will be using is depicted in (2), where the NP (hosting the root) is dominated by the projections of number, definiteness and case. Suffixes will be captured simply by using a different directionality of branching, as in (3).

(2) *Case is an independent node*

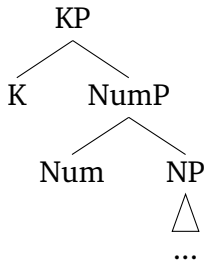


(3) *Suffixes*

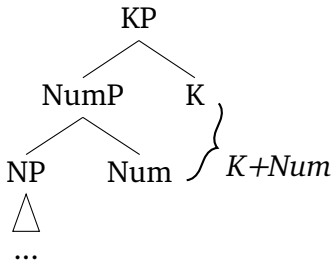


In languages that lack definiteness marking, I shall assume that the relevant D projection is missing, as in (4). In languages where case is coded jointly with other categories (e.g., with number, as in Latin), I shall mark that informally by using a brace, see (5). This is intended to be a framework-neutral representation of the fact that a single morpheme may realize multiple positions in the morphosyntactic structure.[1]

(4) *A structure without definiteness*



(5) *Portmanteau suffix*



With the relevant assumption clarified, let me move on to the relevant empirical cases.

2.1 Compound case marking

The first type of case stacking to be distinguished here can be referred to as compound case marking (Schweiger 2000). It occurs when the marking of a particular semantic role uses two independently existing case markers. An example can be provided from Waris, a Papuan language of New Guinea (Brown 1988), see (6).

[1] See, e.g., Halle and Vaux (1998), Taraldsen (2010), Svenonius (2012), Caha (2021) for various types of approaches to portmanteau morphology in the nominal domain.

(6) Waris N-LOC-DAT (Brown 1988:44,46,55)

a. Him-ba buku ka-**m** vrahoi
he-TOP book I-DAT gave
'He just gave me a book.'

b. Ovla deuv-**ra** ka-**ina** dihel-v
knife house-LOC I-LOC exist-PRES
'The knife is at my house.' (lit. at the house at me)

c. Deuv-**ra-m** Luk-**ina-m** ka-va ga-v
house-LOC-DAT Luke-LOC-DAT I-TOP go-PRES
'I go to Luke's house.'

The example (6c) demonstrates that the marking of a spatial goal in Waris (the allative) stacks two case markers one on top of the other, namely the marking for dative seen in (6a) appears on top of the marker for the locative, as seen in (6b). An analysis where the allative case is monomorphemic is unlikely because Waris has two different locative markers: *-ra* for inanimate locations and *-ina* for animate locations, see (6b). The marking that appears on the nouns in (6c) preserves this allomorphy. The dative marker *-m* simply attaches on top of the appropriate locative allomorph (whichever allomorph this happens to be).

Spatial cases are particularly prone to this kind of case stacking (i.e., to case compounding). Another example is provided here for the ablative case (source of motion). The example comes from the Caucasian language Khwarshi, spoken in Daghestan. The example shows that the marking for the ablative case in (7c) is composed of the marker for the superessive and the instrumental, see (7a,b) respectively.

(7) Khwarshi (Caucassian, Khalilova 2009:75, 71, 89)

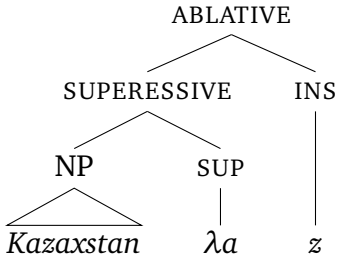
a. Manduriya-**λa**
Manchuria-SUP
'in Manchuria'

b. sapuno-**z**
soap.OBL-INS
'with soap'

c. Kazaxstan-**λa-z**
Kazakhstan-SUP-ABL
'from Kazakhstan'

The rationale for this type of case stacking is quite likely related to the semantics of these cases. Specifically, the idea is that the meaning of these cases is complex, and the morphological complexity tracks the complexity of the meaning. In simplest terms, the analysis says that the meaning of the ablative in (7c) is literally composed of the meanings expressed by the superessive and the instrumental. I depict this idea in (8), where the case affixes attach to the noun one after the other, and they jointly specify the meaning of the ablative.

(8) *Compound case marking*



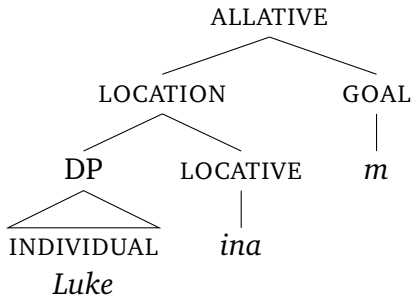
The semantic complexity of the ablative is consonant with research on the encoding of motion (Jackendoff 1983, van Riemsdijk and Huybregts 2002, Zwarts 2005, Svenonius 2010), where it is generally agreed that motion in language tends to be described relative to a particular location. In (8), the location ***in*** *Kazakhstan* corresponds to the superessive node. In semantic terms, the denotation of the superessive corresponds to a set of points in space, such that each point satisfies the condition of being 'in Kazakhstan.' The ablative then adds a trajectory (path), such that the initial point of the trajectory coincides with one of those points, while the endpoint does not. This correctly yields the meaning of 'from Kazakhstan:' it is a path that starts in Kazakhstan, and ends outside of it.

In sum, the (most likely) reason for compound case marking is that the semantics of the relevant case is complex, and it can be decomposed into at least two meaning components, where each such component is expressed by one of the morphological pieces that make up the case. The only remaining question is to what extent it is plausible to assign to the instrumental marker the role it has, namely to indicate that the location denoted by its complement is the starting point of motion.

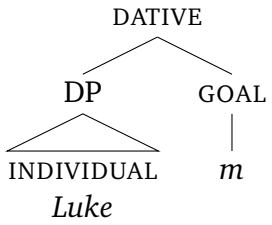
The answer to this question links to the work on case syncretism (the identity of marking). For example, Creissels (2009) in his overview of spatial case marking noted that "ablative-instrumental [... is] among the most common case syncretisms." It is therefore likely that the instrumental has the right semantics to perform this task (whatever that semantics happens to be). One of the explanations for this syncretism has been noted in Foley (1986:99), who claims that "the grouping [of ablative and instrumental] is semantically comprehensible, albeit in an inexplicit way, in that they [both] express something from which the action proceeds, either the place (ablative) [...] or the manipulated object used to cause the change in state (instrumental)."

Similarly in the case of the allative-dative syncretism discussed in (6), the literature (including Blansitt 1988, Rice and Kabata 2007, Caha 2017) notes that the outer dative case marker always has an abstract meaning of goal, and the same abstract meaning is applied to different domains. When the abstract 'goal' meaning is applied to a location, the location is the goal of motion and it is interpreted as the place to which an object moves. When the same goal marker attaches to a noun denoting an individual, as in (6a), the individual is interpreted as a goal to which an object moves, which yields the relevant recipient semantics. The structures that Caha (2017) proposes for the allative and dative are given in (9) and (10), respectively.

(9)



(10)



Case-compounding can be differentiated from other types of case stacking (to be discussed below) in that we have a single case relation (allative, ablative) that is expressed by the combination of two morphemes, each of them a case marker. The remaining instances of case-stacking are going to be different in that they all involve two different case relations. From this perspective, compound case marking is an outlier. However, case compounding shares with other instances of case stacking the property that the two consecutive case markers interact in ways that are reminiscent of what happens in other instances of case stacking. For example, the two morphemes may require that an additional linking morpheme (apparently unmotivated by the morphosyntax) appears in between them. Dench and Evans (1988:37) call such a phenomenon 'case spacing' and refer to the extra linking morpheme as a 'ligative.'

As an example, consider case compounding in Malayalam, a Dravidian language. In this language, the dative is marked by the suffix *kk*ə, see (11a). The locative suffix is *-il*, see (11b). The allative is formed by affixing the dative after the locative, see (11c).

(11) Malayalam (Dravidian, Asher and Kumari 1997:107,113)

a. Hanipha eni-**kk**ə ii pustakan tannu
Hanifa I-DAT this book gave
'Hanifa gave me this book.'

b. Viiʈʈ-**il** aarokke uɳʈə
house-LOC who all be-PRES
'Who are there at home?'

c. kiḷihaḷ kunʈʈ-**il**-ee-**kk**ə parannu pookunnu
birds nest-LOC-LIG-DAT fly-PP go.PRES
'The birds fly to their nests.'

Interestingly, there is an additional *ee* that appears in between the locative and the dative. Such linking morphemes often accompany case stacking for reasons that are not well understood. In the case at hand, *ee* "can be suffixed to major constituents of the sentence – NPs, AdvPs, PostPs and verbs – to emphasise the constituent in question" (Asher and Kumari 1997:178). However, it is not clear that such focussing function could unify all cases where a linking morpheme appears (we shall discuss more relevant cases later).

2.2 Phrasal case stacking

A different type of case stacking arises in languages that have phrasal case marking. It is going to be relevant that this type of case marking has also been recognized as a special type in WALS (Dryer 2013b). Dryer refers to it as a marking by a 'postpositional case clitic.' Such clitics "attach phonologically to some word," but "the word they attach to need not be a noun." The specific "word they attach to is determined syntactically," namely as "the

last word in a noun phrase."

As we shall see, phrasal case marking interacts with other properties of languages in a way that case stacking may arise. An example is provided from Sumerian in (12) (Plank 1995).

(12) Sumerian (extinct, isolate, Plank 1995:40-1)

a. *é* *lugal-ak*
house king-GEN
'house of the king'

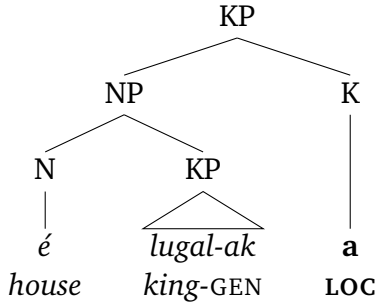
b. [*é* *lugal-ak*]-**a**
house king-GEN-LOC
'in the house of the king'

(12a) gives the nominative of the phrase 'the house of the king.' When this whole phrase is in a different case than in the nominative, this is signaled by suffixing a case marker to the whole phrase. In (12b), the relevant NP is in square brackets and the locative case marker *-a* follows the whole phrase. This has the effect of producing a contiguous sequence of two case suffixes, namely the genitive, which marks the complement of the noun 'house,' and the locative, which marks the fact that the whole NP is to be interpreted as a location.

Note that this type of case stacking is very different form compound case marking. In compound case marking, we had a single semantic role (ablative), which was expressed by two case markers. In (12), we have two different case relations (possessor, location), each belonging to a different noun. It just happens to be the case that the two markers are linearized one next to the other.

This has been clearly noted by Plank (1995:41), who correctly points out that as exotic as this pattern may look, it "differ[s] only superficially from Latin, insofar as [...] all [...] case marking occur[s] at the end of the whole phrase of which they are part rather than being bound to their nominals." In order to depict the phrasal-case hypothesis in structural terms, I include here the tree in (13). In this tree, the noun 'house' takes the genitive-marked noun as its complement. The case suffix *-a* (heading a KP) attaches to the whole phrase.

(13)



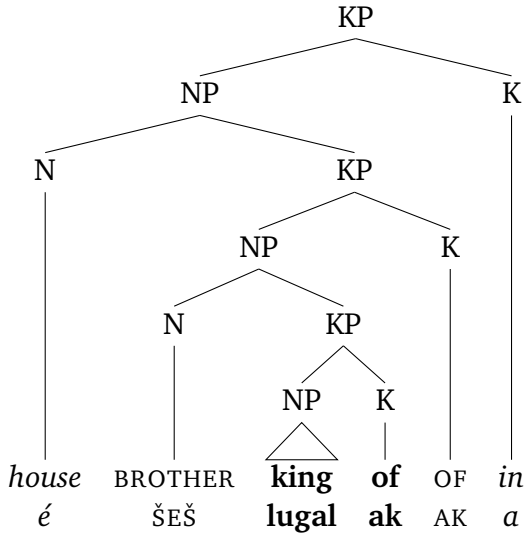
In Sumerian, phrasal case markers may stack even further, producing examples like (14).

(14) [*é* [***šeš*** ***lugal-ak***]-*ak*]-A
house brother king-GEN-GEN-LOC
'in the house of the brother of the king'

In this example, we have the most deeply embedded phrase (in bold) *brother king*-GEN 'the brother of the king.' 'The brother of the king' is the possessor of a house, and so the whole phrase is marked for genitive again (this is the second in the sequence of case markers).

Finally, 'the house of the brother of the king' is marked as a location, and so the final locative marker appears. The tree (15) shows the phrase structure of the example (14). We have here three different noun phrases, each with its own case suffix. Due to the specific linearization properties of Sumerian, the case markers end up adjacent.

(15)



Such type of case stacking also occurs in languages that mark cases by prepositions. As an example, consider the Bulgarian equivalent of the Sumerian example (12).

(16) Bulgarian

a. [**na** Misha] stajata
of Misha room
'Misha's room'

b. **v** [**na** Misha stajata]
in of Misha room
'in Misha's room'

Let me now introduce an interesting fact that pertains to the case stacking of postpositional case clitics. Specifically, according to the tree in (15), the phenomenon arises simply as a result of combining two independent features of languages, namely the order NOUN>GEN and the property of having postpositional case clitics. However, things are not that simple, because the two features very rarely combine, and one would like to understand why.

Consider the facts first. According to WALS (Dryer 2013a), the order NOUN>GEN is attested in 468 languages. The opposite order GEN>NOUN is attested in 685 languages.[2] In sum, there is a slight prevalence of prenominal genitives with the ratio about 1,5:1.

However, when we only look at languages that have postpositional case clitics, the facts are very different. Namely, for the 100 languages that have postpositional case clitics, 97 of them have the order GEN>NOUN, and only 3 have NOUN>GEN. So in languages with postpositional case clitics, prenominal genitives outnumber postnominal ones in the ratio about 32:1. The conclusion therefore is that the combination of the two properties that yields phrasal case stacking is exceedingly rare.[3]

The point I want to make in the remainder of the section is that facts like these can be

[2]Additional 96 languages have both orders.

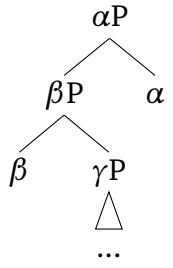
[3]It is also the case that languages with prepositional case clitics strongly favor the order NOUN>GEN, i.e., languages like Bulgarian (recall (16)) are also rare.

related to an ongoing independent research into the linearization of syntactic structures. This strand of research independently concludes that trees with the geometry in (15) are rather rare in languages. As one example of such an approach, consider the Final-over-Final Constraint (FOFC), proposed in Biberauer et al. (2014:171). I reproduce it in (17).

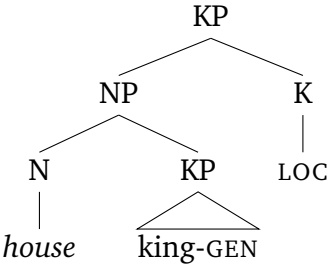
(17) The Final-over-Final Constraint (FOFC) (informal statement)
A head-final phrase αP cannot dominate a head-initial phrase βP, where α and β are heads in the same extended projection.

This constraint rules out a structure like (18), where αP is a head-final phrase, and dominates a head-initial phrase βP (i.e., a phrase where β precedes its complement). It is further obvious that the illicit phrase (18) has the same abstract geometry as the tree depicting phrasal case stacking in (19).

(18) *A structure ruled out by FOFC*



(19) *The structure of case stacking*

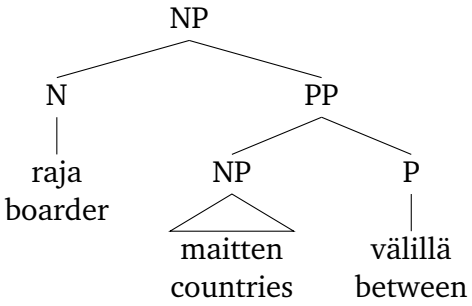


Biberauer et al. (2014) motivate the constraint by a number of considerations, among others by an intriguing dataset from Finnish, which is directly related to our discussion of case stacking in Sumerian. The starting point is the observation that in Finnish, a noun like *raja* 'boarder' may have a PP complement 'between countries,' with the structure as in (20b).

(20) Finnish (Ugro-Finnic, Biberauer et al. 2014:187)

a. raja maitten välillä
border countries between
'the/a border between the countries

b.



Biberauer et al. (2014) further point out that some Finnish adpositions can be either prepositions or postpositions, exemplifying this with *yli* 'across,' see (21).

(21) Finnish (Ugro-Finnic, Biberauer et al. 2014:187)

a. yli rajan
across border

b. rajan yli
border across
Both: 'across the border'

Interestingly, when *yli* combines with a phrase like the one in (20a), it can only be used as a preposition, see (22a). The postpositional option is ungrammatical, see (22b).

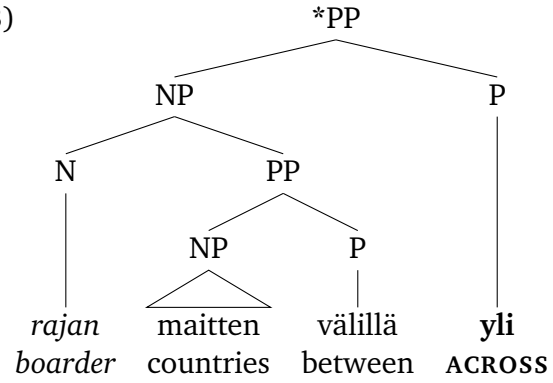
(22) Finnish (Ugro-Finnic, Biberauer et al. 2014:187)

a. yli [rajan maitten välillä]
across border countries between
across the border between the countries

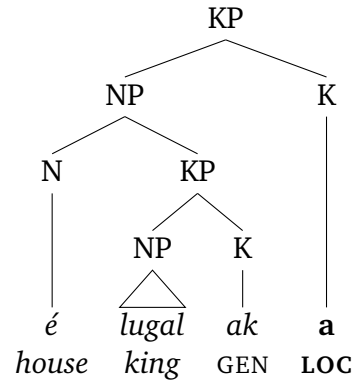
b. *[rajan maitten välillä] yli
border countries between across

The explanation for the ungrammaticality of (22b) is FOFC (17): in the structure (23), we have a head-initial NP and a head final PP, where PP dominates NP. Therefore, the order in (22b) is correctly predicted to be ungrammatical because the structure violates FOFC.

(23)



(24)



Nothing else said, FOFC will also rule out the case stacking examples such as the found in Sumerian; the structure of the original example in (12) is repeated in (24). It can be easily observed that the abstract structure of the trees is identical, except that the example in (23) has P where (24) has K. The point here is not to speculate whether FOFC should be weakened from a universal to a tendency (cf. Cinque 2005), or whether there are some orthogonal factors at play that cause the difference between the two examples. The main point I want to make is that languages tend to avoid structural configurations like (24), as the Finnish example demonstrates. And since phrasal case stacking instantiates such a structure, we expect it to be rare (which it is).

My final point about phrasal case stacking is that just like compound case marking, it may also require linkers. As a case in point, consider the following example from Oromo, a Cushitic language of Ethiopia.

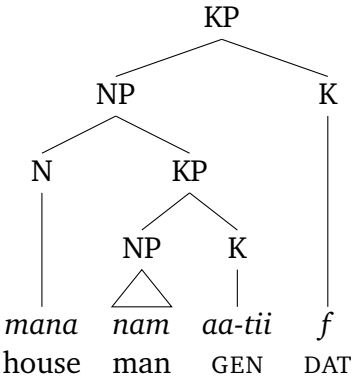
(25) Oromo (Cushitic, Gragg 1976:183)

a. mana, nama
house.ABS man.ABS
'a house, a man'

b. mana nam-aa
house.ABS man-GEN
'a man's house'

c. mana nam-aa-tii-f
house.ABS man-GEN-LINK-DAT
'for a man's house'

(26) Phrasal case stacking in Oromo



In the example (26a), we see the citation forms of the nouns 'house' and 'man.' The citation form is the absolutive case, which is morphologically unmarked and functions as the direct object case (and also as a complement of postpositions). In (26b), we see the phrase 'a man's house.' The noun 'house' remains in the absolutive, the noun 'man' is in the genitive. The genitive case is marked by the lengthening of the final vowel.

The example (26c) shows the shape of the phrase 'a man's house' in the dative case. The dative case marker *-f* occurs only once in the whole phrase, following the post-nominal genitive. The head noun 'house' remains uninflected. The structure is depicted in (26).

We can see that the genitive has a special allomorph in this case, namely one where the genitive is augmented by *tii* (underlyingly *ti*, lengthened by the suffix *-f*). This *tii* is analogous to the linker that we noted in Malayalam, recall (11).

In Oromo, this linker *-ti* shows up whenever the genitive is followed by another clitic or affix, e.g., before the (silent lengthening-triggering) copula, see (27a). (*-ti* also follows the genitive before the conjunction 'and.')

(27) Oromo (Cushitic, Gragg 1976:183)

a. mana nam-aa-tii-Ø
house.ABS man-GEN-LIG-COPULA
'It's a man's house.'

b. namaa-f
man-DAT
'for a man'

(27b) is given here for completeness' sake. It shows an example where the dative attaches to the noun 'man,' which illustrates the fact that the dative is just an *-f* (without the *ti*). We can also see that *-f* lengthens the final vowel of the stem. All in all, the conclusion is that Oromo phrasal case stacking leads to the emergence of a ligative *-ti*.

To conclude, in this section, we have seen a new type of case stacking, called phrasal case stacking. It arises as a combination of two properties: the first one is phrasal case marking, and the second property is the order Noun>Genitive. I have provided some data from WALS showing that while this combination is attested, it is exceedingly rare. The reason for this can be linked to independent findings about the linearization of structures (FOFC). Finally, we saw that just like compound case marking, phrasal case marking may give rise to an apparently unmotivated linking morpheme showing up between the two case markers.

2.3 Ellipsis-triggered case stacking

In languages with phrasal case marking, case stacking may further arise as a result of ellipsis (broadly understood). As an example, consider the data in (28a,b) from Huallaga Quechua.

(28) Huallaga Quechua (Quechua, Blake 2001:103)

a. Hwan-**pa** wasi-n-**ta** rika-a
John-GEN house-3.SG-ACC see-1.SG
'I see Johns house.'

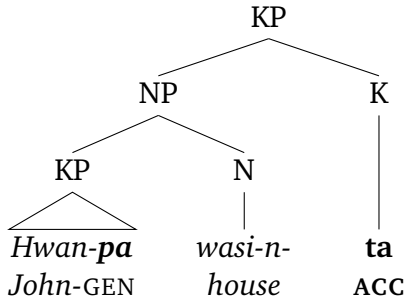
b. Hwan-**pa**-**ta** rika-a
John-GEN-ACC see-1.SG
'I see John's (house).'

In (28a), we see that Huallaga Quechua has prenominal possessors. The possessor is marked by the genitive case, see the boldfaced *-pa*. The head noun 'house' has a possessedness marker *-n* and it is followed by the accusative case marker.

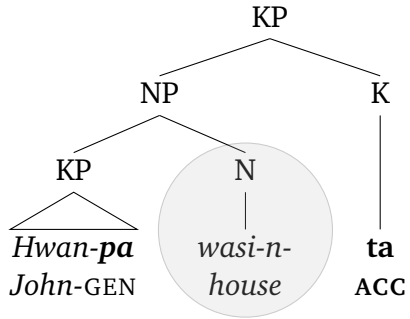
In (28b), the head noun 'house' is elided (i.e., absent, but interpreted in a given context). The ellipsis, however, does not eliminate the case marker of the missing noun, i.e., the accusative *-ta* remains in the string. However, due to the absence of the head noun, it now directly follows the genitive. The result is a sequence of two case suffixes: *-pa-ta*.

The precise analysis of such examples depends (obviously) on one's assumptions about the morphosyntactic structure and also on one's ideas about how ellipsis works. One attractive analytical possibility is that elliptical and non-elliptical examples have basically the same structure, with the only difference that a constituent containing the noun is unpronounced (possibly as a result of leftward movement as in Cinque 2012). Suppose, then, that we assign the structure (29) to the non-elliptical example (28a). The structure is simplified because the noun is morphologically complex, and cannot therefore correspond to a single node in the morphosyntactic structure. However, despite the fact that the structure is rather coarse, it correctly captures the scope relations between the case markers and the respective nouns. The elliptical example can then be depicted as in (30), with shading (indicating ellipsis) placed over the relevant node that is elided (not pronounced).

(29)



(30)



It is obvious from (30) that under this approach, ellipsis-triggered case stacking is a purely linear phenomenon: as a consequence of ellipsis, the case marker happens to be in a position such that it follows another case marker. This analysis thus puts ellipsis-driven case stacking on a par with phrasal case stacking, since in both cases, stacking is a matter of pure linearity, rather than a dedicated grammatical process of marking an element twice for case.

As in the previous cases of case stacking, we see ligatives appearing in between the two case markers. In the case of ellipsis-induced case stacking, such ligatives can be analyzed as pronouns that actually replace the missing noun. Such an analysis has been proposed for instance by Bošković and Şener (2014) for Turkish, with a relevant example in (31). (31a) is a non-elliptical example that has a genitive to the left of the head noun. The head noun is marked accusative. In the elliptical (31b), a ligative *-ki* appears in between the two case markers, even though the *-ki* has no counterpart in the non-elliptical structure.

(31) Turkish (Turkic, Bošković and Şener 2014:ex. 70)

a. [Pamuk-**un** kitab-ı-**nı**] oku-du-m,
Pamuk-GEN book-3SG.POSS-ACC read-PAST-1SG
'I read Pamuk's book, ...'

b. ama [Oe-**nin**-ki-**ni**] oku-ma-dı-m.
but Oe-GEN-KI-ACC read-NEG-PAST-1SG
'... but didnt read the one by Oe.'

Bošković and Şener (2014) argue that the ligative is a pronominal realization of the head, and call it a 'pronominal *-ki*.' The function of *-ki* is to nominalize the genitive noun so that it can be subject to further inflection.

It is interesting to note that in some languages, the morpheme analogous to the pronominal *-ki* is identical to the possessedness marker. A language like that is Udmurt (Winkler 2001). The relevant data is in (32). In (32a), there is a non-elliptical phrase. Its relevance is that it shows the shape of the 3.SG possessedness marker *-ez*. In elliptical examples (see (32b)), a morpheme glossed as nominalizer by Winkler (2001) shows up. Interestingly, it has the same form as the 3.SG possessedness marker in (32a).

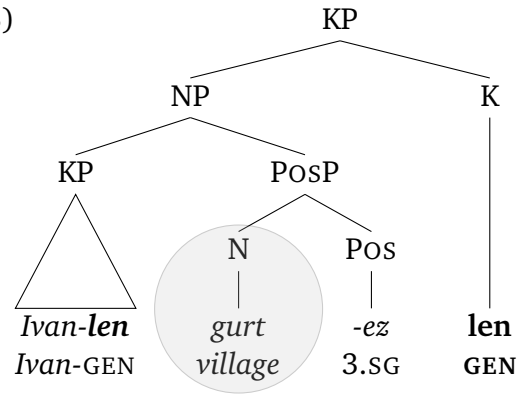
(32) Udmurt (Winkler 2001:43)

a. Ivan-len gurt-ez
   Ivan-GEN village-3.SG
   'village of Ivan'

b. Ivan-len-ez
   Ivan-GEN-EZ
   'that of Ivan'

c. Ivan-len-ez-len l'ipet-ez
   Ivan-GEN-EZ-GEN roof-3.SG
   'roof of that of Ivan'

(33)



(32c) shows that the 'nominalized' form seen in (32b) can be followed by further case suffixes. The example is interesting, because it is apparently parallel to the Turkish (31b), yet it is clearly compatible with a purely linear account of ellipsis, as shown in (33). In this tree, the ellipsis only eliminates the noun, but it does not elide the possessedness marker, which therefore remains in the string. Under this approach, the difference between languages with and without ligatives could be stated in terms of the elided constituent.

Let me now turn to Hungarian. In this language, we find an interesting case of ellipsis-triggered case stacking that challenges the simple account in (30) or (33). The challenge is that Hungarian apparently exhibits allomorphic variation of the inner genitive, conditioned by the higher case. This idea has been explored in Dékány (2015).

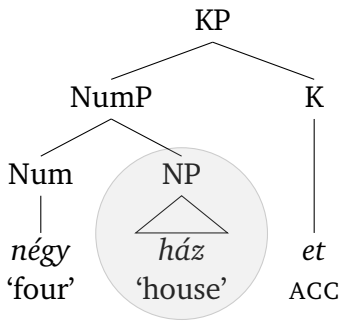
In order to present the data in the relevant context, let me first establish that Hungarian is a language with 'postpositional case clitics.' This is shown in (34a), where the accusative case marker *-at* follows the phrase 'one house.' The numeral is uninflected, and adjectives (were they present) would have been uninflected too.

(34) Hungarian (Saab and Lipták 2016:84)

a. Mari [egy ház] -at látott.
   Mari one house -ACC saw
   'Mari saw one house.'

b. En négy[__]-et.
   I four-ACC
   'I saw four (ones).'

c.



In the example (34b), the noun is elided, and the case suffix attaches to an element immediately to its left, i.e., the numeral. Dékány (2015) analyzes this type of ellipsis the same way as suggested in (30), see (34c). To repeat the essence: according to this analysis, case

morphemes occupy the head of a structurally high case projection, K. If NP ellipsis eliminates the noun, the case marker simply ends up adjacent to the rightmost material of the elliptical residue, the numeral in (34c).

With the background in place, let me turn to what happens in cases when the case marker attaches to a possessor, rather than a numeral as in (34c). Famously, Hungarian has two different ways of expressing the possessor (Szabolcsi 1983), see (35). In (35a), the possessor is unmarked. In (35b), it is marked by the dative case. Both noun phrases in (35) are in the nominative, which is unmarked in Hungarian.

(35) Hungarian (Dékány 2015:1129)

a. János kard-ja
John sword-POSS
'John's sword'

b. János-nak a kard-ja
John-DAT the sword-POSS
'John's sword

What we would now expect is that when the head noun is elided, the possessor ends up last in the string and the affixes, if any, end up adjacent to the possessor. However, ellipsis yields an unexpected result, because the possessor is followed by an additional *-é*, which has no counterpart in the non-elliptical structure, see (36).

(36) Hungarian (Dékány 2015:1130)

a. Whose sword is this?

b. János-é
John-é
'John's'

Disregarding the unexpected ending *-é*, the possessor behaves as expected regarding the fact that it can precede case markers, see (37). The fact that the possessor is followed by another case marker is analogous to the Quechua example (51b).

(37) Hungarian (Éva Dékány, p.c.)

a. Whose sword did you see?

b. János-é-t
John-é-ACC
'John's' (accusative)

The relevance of these facts for case stacking is that Dékány (2015) analyzes *-é* as a case marker, an allomorph of the dative *-nak* seen in (35b). We get to the reason for this analysis shortly, for now, I want to note that if this analysis is correct, Hungarian represents a case where ellipsis-triggered case stacking leads to the emergence of a special allomorph of the inner (possessor) case, which is at least partly unexpected under a purely linear approach to ellipsis-triggered case stacking.

One of the main reasons why Dékány proposes that *-é* in (37) is a case marker is the following. As we have seen, Hungarian case markers show the behavior of Dryer's postpositional case clitics in that they follow the whole noun phrase. There is one exception to this, and this is the demonstrative, which agrees with the head noun in number and case, see (38).

(38) Hungarian (Dékány 2015:1124,1130)(39) Hungarian (Dékány 2015:1148)

a. ez-**t** a csont-**ot**
this-ACC the bone-ACC
'this bone'

b. ez-**ek-et** a fiú-**k-at**
this-PL-ACC the boy-PL-ACC
these boys

a. ez-**é** a fiú-**é**
this-é the boy-é
'this boy's (one)'

b. ez-**ek-é** a fiú-**k-é**
this-PL-é the boy-PL-é
'these boys' (one)'

Interestingly, the behavior of *-é* on the anaphoric possessor mirrors this behavior perfectly, see (39). Specifically, when the possessor marked by *-é* is preceded by a demonstrative, this *-é* also appears on the demonstrative, which is exactly the same pattern as exhibited by the accusative *-t*.

As Dékány points out, this pattern is hard to explain if *-é* is not analyzed as a case marker, a point she discusses in detail. Specifically, she points out that the presence of *-é* on the demonstrative (leading effectively to its doubling) is hard to explain if *-é* would be analyzed as a pronominal stand-in for the elided noun, which, recall, is the analysis proposed for Turkish *-ki* by Bošković and Şener (2014).

In sum, if *-é* indeed is a case marker, it is one that only emerges in examples with noun ellipsis, representing a special allomorph of the genitive case on top of which additional case suffixes are allowed to stack. As to what exactly this means for the analysis of ellipsis-driven case stacking is, however, unclear, since the conclusions depend in part on the locality constraints that are placed on allomorphy (if any). For example, if allomorphy requires structural adjacency (an idea going back at least to Siegel 1977), then the simple picture in (30) cannot be maintained, since in this structure, the two case markers are not structurally adjacent (in fact, they occupy different extended projections).

Another point worth making is that some of the facts discussed earlier may provide us with other ways of thinking about this special *-é*. Recall, for instance, our previous observations that case stacking may lead to the emergence of special ligatives. If we juxtapose the Hungarian facts to those found in Malayalam (11) and Oromo (25), we may also consider the option that *-é* could be analyzed as a ligative, appearing in between the unmarked possessor and the following case marker (recall from (35a) that Hungarian also has unmarked possessors). If that was so, the Hungarian situation would perhaps still be compatible with the simple analysis of ellipsis-induced case stacking in (30).[4]

The final case of ellipsis-triggered stacking to be discussed comes from Moksha (Uralic) as discussed by Privizentseva (2021). The main point of discussing this example is that it provides a different analytical perspective on ellipsis-driven case stacking. Specifically, some of the data found in Moksha suggest that ellipsis-driven case stacking may be analyzed as a special instance of agreement-driven case stacking, which we turn to in the following section.

Let me start by introducing the relevant data. The example (40a) illustrates the fact that case marking in Moksha is generally phrase final. When the head noun is elided, the

[4]Ligatives are indeed also found on modifiers under agreement (Aristar 1995).

(i) Hurrian (Aristar 1995:433)
sen(a)-iffu -ue-ne-z asti-z
brother-my -GEN-LIG-ERG wife-ERG
'my brother's wife'

phrase-final suffixes attach to the rightmost overt element in the elliptical remnant, see (40b).

(40) Moksha (Uralic, Privizentseva 2021:3, 5)

a. [kaftə pinjə]-**n**^{j}**d**^{j}**i**
two dog -DAT
'to two dogs'

b. Paka zvon^{j}-c^{j}ə-s^{j} an^{j}c^{j}ək [kaft]-n^{j}ə-**n**^{j}**d**^{j}**i**.
yet call-FREQ-PST.3.SG only two -DEF.PL-DAT
'{Context: My mom is calling to her friends.} By now she called only to the two [friends]'

When the rightmost member of the elliptical NP happens to be a case-marked noun, suffixes attach to this noun, yielding case stacking. In (41), we see two examples where different case markers attach on top of an indefinite genitive. In (41a), it is the ablative case (required on the object of a verb like 'eat'). In (41b), it is the definite genitive.

(41) Moksha (Uralic, Privizentseva 2021:8)

a. Mon jaṛc-an [sas^{j}edn^{j}ɛj vir^{j}-ən^{j}n^{j}ə] **-d**ə.
I eat-NPST.1SG next forest-GEN -ABL
'{Which mushrooms are you eating?} I am eating [mushrooms] from the next forest.'

b. Min^{j} rama-s^{j}k [pona-n^{j}n^{j}ə] **-t**^{j}.
we buy-PST.3.O.3PL.S wool-GEN -DEF.SG.GEN
'{Context: Which hat did you buy?} We bought the woolen [hat].'

What makes Moksha interestingly different is that the stranded inflection does not always end up on the linearly rightmost element. This is illustrated in (42). In (42a), we see a non-elliptical phrase, where the head noun 'liquor' has the definite genitive to its right and a participial modifier on its left. The participial modifier (in square brackets) consists of the participle 'made' and the elative marked modifier. When the noun 'liquor' is elided, as in (42b), the inflection does not stack on top of the elative (even though this is the rightmost element), but attaches to the participle instead.

(42) Moksha (Uralic, Privizentseva 2021:6)

a. Mon rama-jn^{j}ə [ti-f keluv-ən^{j} lopa-stə] nastojka-**t**^{j}.
I buy-PST.3.O.1SG.S make-PTCP.RES birch-GEN leaf-EL liquor-DEF.SG.GEN
'I bought the liquor made from birch leafs.'

b. Mon rama-jn^{j}ə [ti-f-**t**^{j} keluv-ən^{j} lopa-stə]
I buy-PST.3.O.1SG.S make-PTCP.RES-DEF.SG.GEN birch-GEN leaf-EL
'{Context: Which liquor did you buy?} I bought the [liquor] made from birch leafs.'

The position of the case marker inside the participle-headed constituent is difficult to reconcile with the simple view on ellipsis in (30), since this view does not allow the stranded case marker to be linearized *inside* the modifier of the elided noun. This is one of the reasons why Privizentseva suggests that the case marker in (42b) must be actually a part of the modifier, and she suggests that it gets there via agreement. More specifically, she suggests that all relevant modifiers in Moksha agree with the head in case, but only the case marker on the right-most member of the extended NP is realized.

It is not my goal to introduce here all the relevant details of such a proposal, but it is worth pointing out that this kind of analysis does not group ellipsis-triggered case stacking with phrasal case-marking. Rather, it groups it with a type of case stacking that we shall turn to in the next section, one which will be called agreement-triggered case stacking.

To summarize, this section has discussed cases of case stacking that arises due to the ellipsis of the head noun. One way of looking at this phenomenon is to see it as related to phrasal case stacking, i.e., as a purely linear phenomenon where a phrasal case marker simply follows a case marked modifier of the elided noun. However, such elliptical structures sometimes feature morphemes that are not found in the non-elliptical examples, and these suggest that a different account may be required. A set of facts from Moksha has been discussed that provides some evidence for the conclusion that case marking on modifiers of elided nouns may result from agreement.

2.4 Agreement-induced case stacking

Agreement-induced case stacking arises (as the name suggests) due to agreement. An example of the relevant construction is given in (43). The sentence comes from the Australian language Jiwarli.

(43) Jiwarli (Austin 2015:61)

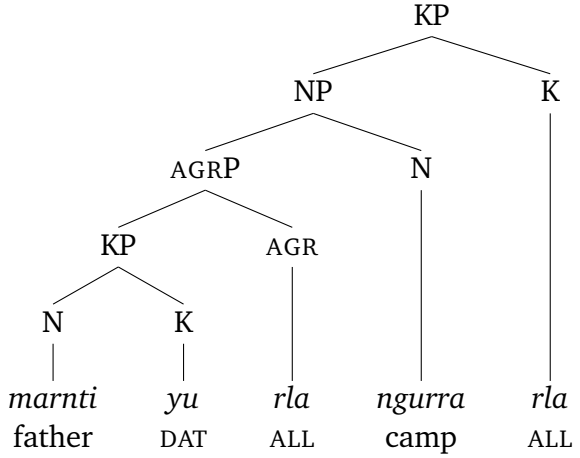
Ngunha yana-nyja nganaju-rla marnti-yu-rla ngurra-rla
that.NOM go-PAST 1SG.DAT-ALL father-DAT-ALL camp-ALL
'He went to my father's camp.'

The relevant part of the sentence is the phrase *marnti-yu-**rla** ngurra-**rla*** seen at its very end, meaning 'to father's camp.' In this phrase, the possessor of the noun 'camp,' i.e., the noun 'father,' is marked for case twice. The first case marker (the one closer to the root), indicates its possessor function. This case would be 'normally' called the genitive, but in Jiwarli, possessors are marked the same as recipients and so the case which indicates the possessor function is (somewhat arbitrarily) called the dative.[5] Crucially, following the possessive DAT marker, the noun *marnti-yu-rla* 'father' has an additional case marker, namely *-rla*. This is an allative marker, and its presence on the noun 'father' is due to the fact that the noun is a possessor of the noun 'camp,' which is in the allative. In other words, the possessor 'father' agrees with the head noun in case, and, as a consequence, ends up followed by two case markers: one expressing its own role, and the second one due to agreement.

One possible structural representation of such examples is offered in (44). In the tree, I am assuming that agreement is represented on the possessor as an independent morphosyntactic node, and I leave it open as to how exactly this node is created. (Current theories offer a multitude of options.)

[5] GEN—DAT syncretism is a relatively common syncretism in the languages of the world.

(44) *Agreement-induced stacking (Jiwarli); the structure of (43)*



The interesting point about this structure is that the two case markers are structurally adjacent. If correct, this makes agreement-induced agreement unique, since this type of structural relation is absent with phrasal and ellipsis-induced case stacking. Current theories of morphology all agree that under such local relation, a possibility of various types of interactions between the suffixes arise. This issue is discussed in Section 4, where we shall see an example of the two case markers fusing into a single portmanteau. As far as I am aware, such examples are attested only for agreement-induced case marking, and the structure (44) may provide an explanation for this.

Let me now turn to the general question of which noun modifiers are (or can be) doubly case marked under agreement. While agreement prototypically targets genitive modifiers, it may also target nouns in a different case than in the genitive. In (45), there is an example of this phenomenon from Martuthunira (Australian, Dench 1995). (45a) contains no stacking, it only shows that Martuthunira has a productive process of concord, where case suffixes (the locative in (45a)) appear on every member of the extended NP.

(45) Martuthunira (Australian, Dench 1995:386,391)

a. purra-l.yarra parla-marta [yarta-**ngka** pilyi-**ngka** parla-**ngka**].
hit-RELss stone-PROP other-LOC flat-LOC stone-LOC
'... and hit it with a stone on another flat stone.'

b. ngali [[panyu-**ngka-a** warra kalyaran-**ta-a**] thuur.ta-a] manku-layi
l.DU=INCL good-LOC-ACC ASP tree-LOC-ACC fruit-ACC get-FUT
'We'll get fruit that's in a better tree'

Case stacking is demonstrated in (45b), where the direct object 'fruit' is preceded by a modifier [**in** a better tree]. The modifier contains the noun 'tree' in the locative case. Since agreement in Martuthunira applies also to such modifiers, we get the accusative case stacking on top of the locative, so we have the sequence tree-LOC-ACC.' The same case stack is repeated on the adjective 'better' modifying the noun, a fact that we shall return to.

The analytical point that Dench (1995) makes based on these examples is the following. Sometimes, when we have a genitive modifier followed by agreement, it may be tempting to think of the genitive as 'derivational' in some sense, e.g., as deriving a possessive adjective. Once the genitive is analyzed as a derivational morpheme, it fails to be a case marker and so there is no case stacking to speak of. However, the fact that case stacking in Martuthunira occurs also on locatives and other cases makes it counterintuitive to analyze the inner case as derivational, since then basically any case would have to be derivational. Therefore,

Dench (1995) concludes from this that we must acknowledge instances of case stacking where the inner case does not serve an adjectivizing function.[6]

Despite the general possibility of case stacking applying to other cases than the genitive, it should be kept in mind that case stacking is indeed often possible only on genitives. In fact, there seems to be an implicational generalization (noted in Moravcsik 1995) to the effect that if modifiers other than the genitive allow for agreement-induced case stacking, so do genitive modifiers (with the potential counterexample of Evenki).

(46) *Case stacking on obliques ⇒ case stacking on genitives* (Moravcsik 1995:471)
In almost all languages, if the internal case involved in Suffixaufnahme is a case other than that of the possessor, the case of the possessor may also be involved in Suffixaufnahme.[7]

Another point worth noting concerns the possibility of stacking more than two case affixes. Consider again the example in (45b) (repeated for convenience in (47a)). An aspect of the data that we shall now look at in more detail is that the adjectival modifier 'better' agrees with the head noun by copying both case markers, so we have a doubly marked adjective 'good-LOC-ACC.' This raises the possibility that if a doubly marked noun like 'tree' in (47a) had a 'second-level' possessor in the genitive, then adding on top of it the two case markers (via agreement) would yield a sequence of three case suffixes (the possessor's genitive plus two more affixes copied by agreement). Such an example is provided in (47b).

(47) Martuthunira (Dench 1995:391; Dench and Evans 1988:7)
a. ngali [[panyu-**ngka-a** warra kalyaran-**ta-a**] thuur.ta-a] manku-layi
l.DU=INCL good-LOC-ACC ASP tree-LOC-ACC fruit-ACC get-FUT
'We'll get fruit that's in a better tree'
b. ngayu nhuwa-lalha [tharnta-**a** [kupuyu-**marta-a** [thara-**ngka-marta-a**]]]
1.SG.NOM spear-PAST euro-ACC little-PROP-ACC pouch-LOC-PROP-ACC
'I speared a euro with a little (one) in its pouch.'

In (47b), the object of the verb 'spear' is 'a euro with a little (one) in its pouch,' with structure roughly as in (48).

(48) [a euro [**with** a little one [**in** its pouch]]]

In this structure, the noun 'euro' is marked accusative (because it is the direct object of the verb). Its modifier 'with a little one' is marked by the proprietive case (proprietive = *with*). Expectedly, since the proprietive modifies a head that is in the accusative, we get the sequence -PROP-ACC on the element 'little one.' Finally, the doubly marked element 'little one' is modified by the locative 'in the pouch.' The modifier 'in the pouch' is first marked locative (as semantically appropriate), and it is further marked by agreement as a modifier of its head. Since the head has two case suffixes, both are also found on the most deeply embedded locative modifier, so we have the sequence 'pouch-LOC-PROP-ACC.'

Not all languages work like this. For instance, in Lardil (Tangkic, Australian, Richards 2013), agreement never reproduces two-case sequences on top of a case-marked noun. As a starting point, see (49a), where the genitive-marked possessor 'boy' is followed by the

[6]Dench (1995) also discusses cases of ellipsis-induced case stacking in Martuthunira and argues against a nominalization analysis of the relevant forms; recall the nominalization function proposed for the Turkish *-ki* in Bošković and Şener (2014).

[7]Suffixaufnahme is a term Moravcsik uses for agreement-induced case stacking.

accusative case due to agreement with the head.

(49) Lardil (Australian, Richards 2013:50)

a. gada derlde marun-**ngan-i** wangalk-i.
I break boy-GEN-ACC boomerang-ACC
'I broke the boy's boomerang.'

b. Ngada derlde marun-**ngan** thabuji-**kan-i** wangalk-i.
I break boy-GEN older.brother-GEN-ACC boomerang-ACC
'I broke the boy's older brother's boomerang.'

However, when a doubly-case-marked noun has a possessor, a difference appears. Specifically, in Lardil, case-stacking fails to apply to second-level possessor. This is shown in (49b), where a doubly case-marked noun 'older brother' has a genitive modifier, 'the boy.' In Martuthunira, such a possessor would receive two additional markers as found on the head noun. However, in Lardil, the second-level possessor remains uninflected. This shows that in some languages, there is apparently a limit on how many case suffixes can stack one on top of the other, even though the comparison suggests that such constraints are language-specific. Moravcsik (1995:469) notes the following generalization:

(50) In all languages, if Suffixaufnahme occurs in multi-level possessive constructions, it also occurs in single-level ones.

The final case of case stacking to be discussed arises in discontinuous noun phrases. Specifically, in some languages, splitting an NP leads to the emergence of inflection on both parts of the split phrase, even though multiple marking is not found when the phrase is not split. As an example, let us come back to Quechua introduced in (28). Recall that Quechua does not generally allow for agreement between the head noun and the possessor, see (51a). Therefore, the example in (51b) has been analyzed as an instance of ellipsis-induced stacking.

(51) Huallaga Quechua (Quechua, Blake 2001:103)

a. Hwan-**pa** wasi-n-**ta** rika-a
John-GEN house-3.SG-ACC see-1.SG
'I see Johns house.'

b. Hwan-**pa**-**ta** rika-a
John-GEN-ACC see-1.SG
'I see John's (house).'

However, as the example (52) shows, the possessor agrees with the head when the phrase is discontinuous, and so we have two case markers on the noun 'John' again.

(52) Huallaga Quechua (Blake 2001:103)

Hipash-nin-**ta** kuya-a Hwan-**pa-ta**
daughter-3.SG-ACC love-1.SG John-GEN-ACC
'I love Johns daughter.'

It is *apriori* unclear whether to analyze (52) as akin to agreement (since the accusative case marker is doubled) or whether the correct analysis is one where the split phrase actually corresponds to two complete noun phrases, with one noun elided (as if the structure was similar to: *I want an apple, a green one*). Here I treat the construction (52) as an instance

of agreement-induced case stacking, but the proper analysis is open to debate.[8]

Another type of agreement-induced case stacking – similar to agreement in split phrases – is found with secondary predicates, sometimes also called small clauses (broadly understood). An example from Warlpiri (Australian) is provided in (54). The examples (54a) and (54b) contrast in the marking found on the noun 'camp,' see the markers in bold.

(54) Warlpiri (Hale 1982:267)

a. Kurdu-ngku ka maliki ngurra-**kurra** wajili-pi-nyi
child-ERG PRES dog camp-ALL run-VERB-NONPAST
'The child is chasing the dog to the camp.'

b. Kurdu-ngku ka maliki ngurra-**kurra-rlu** wajili-pi-nyi
child-ERG PRES dog camp-ALL-ERG run-VERB-NONPAST
'The child is chasing the dog (all the way) to the camp.'

The allative 'to the camp' conveys the information that the goal of motion conveyed by the main verb ('chase') is 'the camp.' However, it is in principle left open as to which entity moves along the path described by the allative 'into the camp:' it could be either 'the child' or 'the dog.' And this is what the agreement on the allative tracks, i.e., it cross-references the subject of the PP (secondary) predicate.

In (54a), the noun 'camp' is only marked allative, presumably due to the fact that absolutive is unmarked in Warlpiri. As a result, the moving entity is understood to be the absolutive argument 'dog;' therefore, it is the dog who necessarily ends up in the camp as a result of the event.

However, in (54b), the allative is followed by an ergative marker. This leads to the interpretation that the moving entity is the ergative argument ('the boy'), which means that in (54b), it is the boy who ends up 'in the camp' as a result of the event. In sum, the role of the case marker that follows the allative is to identify the argument that moves along the path denoted by the allative.

It is not clear whether the two cases of discontinuous (NP-external) agreement should be treated as analogous to NP-internal agreement; nevertheless, what unifies these two cases is that in the sequence of stacked cases, the outer case tracks a case of an independently expressed nominal argument. The difference is in whether the noun forms a constituent with the agreeing element or not.

The final point I want to make is that agreement-induced case stacking is not different from other types of case stacking seen up to now in requiring ligatives in some languages, see (55), repeated from footnote 4.

(55) Hurrian (Aristar 1995:433)

sen(a)-iffu -ue-ne-z asti-z
brother-my -GEN-LIG-ERG wife-ERG
'my brother's wife'

[8] An interesting fact related to that debate is the following universal observed in Moravcsik (1995:469):

(53) In all languages, if [case stacking] occurs with head present, it also occurs with head missing.

This means that in all languages with agreement-induced case stacking, we also find ellipsis-induced case stacking. If all agreement-induced case stacking was due to noun ellipsis (*an apple, a green-one*, where a reduced *one* would be the agreement marker), the generalization would follow. However, it is not clear that this is the only way in which the generalization could be derived.

2.5 Interim summary

To summarize, the previous four subsections have introduced various types of case stacking; I summarize them in (56). The basic division is between compound case marking and the rest. The dividing line is the number of different case relations that we need to consider. In compound case marking, there is just a single case relation (ablative, allative, etc.), it just happens to be the case that this single case relation is expressed by multiple suffixes (56a). In all other cases (56b), there are two different case relations (and usually two different nouns) involved, and each case marker expresses one such relation.

(56) The typology of double case (cf. Moravcsik 1995:453)
- a. Single case, multiple markers: Compound case marking
- b. Multiple case relations
  - (i) phrasal
  - (ii) ellipsis-induced
  - (iii) agreement-induced
    - within NP
    - split phrases

In phrasal case stacking, the case markers are similar to postposition and they accumulate at the end of the whole phrase. In ellipsis-induced case stacking, the two case markers end up adjacent because of ellipsis. Both types are primarily due to linear ordering and there is not much evidence that any special grammatical mechanism for the sole purpose of implementing case stacking must be assumed.

In agreement-induced case stacking, it is again unclear whether a dedicated mechanism for case stacking is needed. It seems that whatever mechanism we have for agreement can be simply extended to cover these cases as a special instance of agreement, one where agreement attaches to nouns (or other phrases) that are already case marked. I have also distinguished two different types of agreement-induced case stacking. The distinction is based on whether agreement happens NP-internally or NP-externally.

In the next section, I turn to an additional type of case stacking that may perhaps be different from the types discussed up to now in that it seems to require a mechanism that allows for multiple case marking.

3 Multiple case assignment

As the final type of case stacking, I would like to briefly introduce a phenomenon that I shall label multiple case assignment. If real, this type of case stacking would be one where a single noun (phrase) reflects multiple dependencies on various verbal elements, a different verbal element for each case. Multiple case assignment is a boarder-line category and it is not clear (to the present author at least) whether it should be included into the core phenomena surrounding case stacking or not. The reason for the uncertainty is that it is not clear whether the 'case markers' that participate in this process are actual case markers or just morphemes homophonous with them, but really marking something else than case.

The phenomenon that I label here multiple case assignment has been relatively widely discussed for several insular Tangkic languages of Australia, where noun phrases are marked by suffixes "to indicate tense, aspect and mood on non-subject NPs" (Evans 1995:2). Richards (2013:46) describes the phenomenon for one of the languages, Lardil, as follows: "When

the verb is inflected for Tense, Tense morphology appears on all the constituents of the verb phrase."

Let us now look at Lardil in more detail. According to Richards (2013:46), there are two possible tense inflections, one for future and another for certain nonfuture adjunct clauses. The future marker *-r* is illustrated in (57b), which should be compared to the present tense in (57a).[9]

(57) Lardil (Tangkic, Australia Richards 2013:46)

a. Ngada nguthungu warnawu dulnhuka-n beerr-u nyith-u.
I slowly cook month.fish-ACC ti.tree-INSTR fire-INSTR
'I slowly cooked the month fish on a fire of ti-tree wood.'

b. Ngada nguthunguthu-**r** warnawu-**thur** dulnhuka-**r** beerr-uru-**r** nyith-uru-**r**.
I slowly-FUT cook-FUT month.fish-FUT ti.tree-INS-FUT fire-INS-FUT
'I will slowly cook the month fish on a fire of ti-tree wood.'

As is apparent from the glosses, Richards does not consider *-r* a case suffix, but rather a realization of tense on all members of the clause (except for the subject). He notes, though, that when the future *-r* attaches to the direct object, marked by *-n* in the present tense, it makes the suffix *-n* disappear, a fact that cannot be interpreted as a regular phonological process. Richards proposes an explanation for the disappearance of *-n* that I shall not describe here, but rather point to an alternative solution, which is that the complementary distribution between these two affixes may indicate that both *-n* and *-r* are indeed case suffixes, and that is why they are in complementary distribution. If that was so, than the form of the noun 'fire' (fire-INS-FUT) would qualify as case stacking, where the 'future' case marker stacks on top of the instrumental.

The idea of analyzing such 'tense suffixes' on nouns as cases is supported by the fact that these markers are homophonous to case suffixes and diachronically originate from them. To see the homophony, consider the following example from Kayardild, a language closely related to Lardil. In the first example, I give a sentence in the present tense. The object 'dugong' bears the suffix *-y*, which is the equivalent of the Lardil *-n* in (57a), i.e., it is found on the object in the present tense (also called 'instantiated' modality by Evans 1995).

(58) Kayardild (Tangkic, Australia Evans 1995:2,143)

a. angka-a raa-ja bijarrba-**y** wumburu-nguni.
man-NOM spear-ACT dugong-M.LOC spear-INS
'The man speared the dugong with a spear.'

b. kabnan-da wirdi-ja bilthurrka-naba-ya daru-**y**
sleepy snake-NOM stay-ACT bloodwood-ABL-LOC hole-LOC
'The sleepy snake lives in the holes of bloodwood trees.'

The example (58b) is here to show that the same morpheme also functions as a locative, see the noun 'hole' at the very end of the example. On account of this syncretism, the morpheme *-y* in (58a) is glossed as a 'modal locative,' a term which conveys the fact that it is homophonous to the locative case, but it is used to express tense/modality.

The example (59) shows a similar thing for the past tense suffix *-na*, which appears on the object in (59a). The example (59b) shows that the same morpheme can also be used as an ablative, see again the last word in (59b) meaning 'person.'

[9]There is some allomorphy going on which I am ignoring, see Richards 2013 for a detailed discussion.

(59) Kayardild (Tangkic, Australia Evans 1995:2,143)

a. Dangka-a raa-jarra bijarrba-**na** wumburu-**nguni-na**
man-NOM spear-M.ABL dugong-M.ABL spear-INS-M.ABL
'The man speared the dugong with a spear.'

b. nga-l-da marri-ja kang-ki jungarra-na dangka-**na**
1-PL-NOM hear-ACT story-M.LOC big-ABL person-ABL
'We heard the story from the old people.'

If we recognize the ablative nature of *-na* at face value, we must analyze the noun 'spear' in (59a) as showing case stacking of ablative on top of the instrumental. In sum, Kayardild has tense morphemes that lead an independent life as case markers and stack on top of oblique cases, producing case stacking of a different sort than we have seen up to now.

Interestingly, the modal cases in Kayardild are also reproduced on nominal modifiers under NP-internal agreement. This leads to the fact that if a noun that already has multiple cases also has a possessor, all the various cases will also be found on the possessor, thereby increasing the number of cases stacked by (at least) one. An example is provided in (60). We can see that the noun 'net' is marked both by the instrumental (reflecting its semantic role) and also by the modal ablative, reflecting past tense. The noun 'net' has a possessor, namely the noun 'man,' which is marked by genitive (since it is a possessor). As a result of agreement, the noun 'man' also carries the same two suffixes as the head noun 'net,' yielding a sequence of three case suffixes in total.

(60) Kayardild (Tangkic, Australia Evans 1995:4)

maku-wa yalawu-jarra yakuri-na dangka-**karra-nguni-na** mijil-**nguni-na**
woman-NOM catch-PST fish-M.ABL man-GEN-INS-M.ABL net-INS-M.ABL
'The woman caught fish in the man's net.'

Another potential example of case stacking comes from Korean (Gerdts and Youn 1988, Schütze 2001). In this language, certain verbs allow for the subject to be marked either nominative (61a), dative (61b) or both (61c).

(61) Korean (Schütze 2001:194)

a. Nay-**ka** paym-i mwusepta.
I-NOM snake-NOM fearful

b. Na-**eykey** paym-i mwusepta.
I-DAT snake-NOM fearful

c. Na-**eykey-ka** paym-i mwusepta.
I-DAT-NOM snake-NOM fearful
I am afraid of snakes.

One of the ideas that has been explored for the analysis of (61c) is that the 1.SG pronoun is marked dative at an underlying level, and receives the nominative case as the second case. However, Schütze (2001) provides multiple reasons that the *-ka* in (61c) as a focus marker, distinct from the nominative in (61a). Thus, once again, it is not clear whether this construction actually involves case stacking or not.

Theoretically, these examples are interesting in that they support a view that permits a single noun to be assigned multiple cases in the course of the derivation (Bejar and Massam 1999, Merchant 2006, Pesetsky 2013, Richards 2013, Levin 2017). This is something that goes against the traditional Case Filter proposed in the Government & Binding literature

(Chomsky 1981), which stated that each argument (chain) be assigned one and exactly one case. To the extent that the data discussed in this section represent genuine cases of multiple case assignment, they represent a challenge for the traditional Case Filter.

4 Case stacking: the consequences

This section investigates the types of interactions that arise when two case morphemes are stacked one on top of the other. So far, we have looked at patterns where the two case markers are preserved. More specifically, we considered two types of scenarios. The first scenario is one where the two case markers directly follow one another, as in (62a). The second scenario we considered featured a ligative in between the two case markers, as in (62b). Both of these scenarios are attested for all types of case stacking discussed up to now.

(62)

STACKING PRESERVED	a.	No change	N -K1 -K2
	b.	Ligative	N -K1 -**LIG** -K2
STACKING	c.	Deletion	N -K2
SIMPLIFIED	d.	Fusion	N -[K1+K2]

This section considers in detail the last two rows of this table. The patterns here are rather abstract instances of case stacking because we only see one case marker in the surface string of morphemes. However, even in such languages, there are reasons to think that the single case marker arises as a result of case stacking, followed by an additional operation that simplifies the underlying sequence of two cases into a single marker. In (62c), an assumed morphosyntactic sequence of two case markers is simplified by deletion to yield just one marker.[10] In (62d), the assumed morphosyntactic sequence of two cases is rendered opaque by the fact that a single morpheme realizes this sequence.

4.1 Case deletion

In order to illustrate case deletion, let me return to Jiwarli, a language with agreement-induced case stacking. We already saw an example in (43); in (63), I give another one. In the example, the possessor 'my' is followed by an accusative marker. The presence of this marker is triggered by the fact that the head noun 'camp' is in the accusative case in (63).

(63) Jiwarli (Austin 1995:372)

warn **nganaju-nha** ngurra panyi-ma
not I.DAT-ACC camp.ACC disturb-IMP
'Don't disturb my camp!'

There is, however, one exception to the rule that the possessor is always followed by an agreement marker. The exception arises when the agreement marker would be identical to the possessive marker. In such case, only one marker is found and the other presumably

[10] In the table, I depict the scenario where the case marker closer to the noun is deleted. In principle, the converse case could also exist, but in actual fact, it is not clear that it does. This is so for reasons that will be discussed in the next section.

deleted (Dench and Evans 1988:36-7). As a consequence, there are never two identical markers one after the other. The following example shows this:

(64) Jiwarli (Dench and Evans 1988:36-7)

thuthu-wu **purrarti-yi(*-yi)**
dog-DAT woman-DAT(*-DAT)
'(of/to) the woman's dog'

The reason why this is disallowed is not that agreement is impossible when the head noun is in the dative. The following example shows that such agreement is in fact possible, as long as the two datives are realized differently. The relevant phrase to look at in (65) is the phrase *thuthu-**wu** yakan-ku-**wu*** 'of (my) wife's dog', where the possessor of the noun 'dog' (which itself is in the GEN/DAT case) is marked for DAT twice:

(65) Jiwarli (Austin 1995:373)

juma jirrilarri-a [thuthu-**wu** [nganaju-wu **yakan-ku-wu**]]
child.ABS be.afraid-PRES dog-DAT I.DAT-DAT spouse-DAT-DAT
'The child is afraid of my wife's dog.'

Given the existence of such examples, what seems to block the two datives in (64) is that they would be identical (a conclusion that I take over from the literature cited). One of them is therefore deleted due to 'haplology,' which is nothing but deletion under identity.[11]

As another example, consider Panyjima (Dench and Evans 1988:36). This is an interesting case because Panyjima belongs among the multiple-case-assignment languages. Recall that in this type of language, all non-subject arguments are marked by a modal case indicating tense/modality. The modal locative in (66) indeed attaches to all such arguments, with the exception of the locative, since that would lead to haplology.

(66) Panyjima (Dench and Evans 1988:36)

ngatha yana-rta papa-ngka ngarri-jangu-la yirtiya-la(*-la) papa-ngka yarta-ngka
1.SG.NOM go-FUT water-LOC lie-REL-LOC road-LOC(*-LOC) water-LOC much-LOC
'I'll go when there's a lot of water lying by the road.'

The existence of cases such as (66) shows that modal cases and regular cases interact in the same way as other case markers, which in turn supports the idea that modal cases are relevant for the study of case stacking (since they interact with other cases as a case marker would).

Let me now move on to a new type of case deletions, which happen in the sequence of non-identical cases (Dench and Evans 1988:36). As an example, consider (67). In (67a), we see the possessor followed by the dative marker. In (67b), the dative disappears and it is replaced by the stacked locative, presumably as an effect of deletion.[12]

(67) Kungarakany (Dench and Evans 1988:36)

a. lok ngirrpa-kini
place 1.SG-DAT
'my place'

[11] Austin (1995) describes the distribution of allomorphs of the DAT case as partly governed by morphology and partly by phonology.

[12] It is also worth pointing out that this is not only a new type of deletion, but also a new type of language, since case stacking in Kungarakany is due to phrasal case marking (notice the head 'place' is uninflected).

b. lok ngirrpa(*-kini)-wu
place 1.SG-(DAT)-LOC
'to my place'

Similar deletions apply also in case prefixing languages. An example from Amharic is provided in (68). To set the stage, (68a) shows that in Amharic, the possessor is preceded by the possessive marker *yä*. This marker gets deleted when the whole noun phrase is preceded by the dative marker *lä* in (68b). (It gets deleted after other oblique markers as well.)

(68) Amharic (Semitic, Leslau 1995:192-3)

a. yä-tamari mäşhaf
GEN-student book
'a student's book'

b. lä-~~yä~~-tamari-w ənnat
DAT-GEN-student-DEF mother
'to the student's mother'

The possibility of such deletions (if real) lead to two kinds of questions. The first kind of questions is empirical. Suppose that we admit deletions in a sequence of non-identical cases into our theory quite generally: what kind of constructions will such deletions give rise to? Are such example attested, or will assuming the possibility of such deletions lead us to expect examples that are never found? The second question is theoretical: if the relevant constructions are found, what is the motivation for deletions?

Let me start from the first question. The point that has been long recognized in the literature is that the combination of stacking followed by deletion leads to a natural explanation for a construction that has been called case attraction. Case attraction is a phenomenon that appears, for instance, in Classical Armenian. According to the traditional description, case attraction in Armenian replaces the ordinary genitive on possessors with the case of the head, by the ablative or instrumental in particular (Plank 1995:20). An example is provided in (69).[13]

(69) Armenian (Plank 1995:20)

i knoǰ-**ê** t'agawor-**ê**-n
by wife-**ABL** king-**ABL**.SG-DEF
'by the wife of the king'

An interesting piece of evidence for this kind of analysis is provided by case marking in Iron Ossetic numeral phrases (Caha to appear). A relevant set of examples with numerals is provided in (70) below.

(70) Iron Ossetic (Abaev 1964:22)

a. dæs bon-y
ten day-GEN.SG
'ten days' (nominative/accusative)

b. dæs bon-æn
ten day-DAT.SG

[13] Plank (1995:21) notes that "Vogt (1932) recognized Classical Armenian case attractions as functionally analogous to [case stacking...], the sole difference was that Armenian attributive nouns dropped their original genitive when resuming the case of the head." See Caha (2013) for a recent analysis along these lines.

'for ten days' (dative)

c. dæs bon-æj
ten day-INS.SG
'with ten days' (instrumental)

In (70a), we see that when the full numerical phrase functions as a subject or object, the noun following the numeral is marked by the genitive case. However, when the numerical phrase appears in the dative case (70b) or in the instrumental cases (70c), the genitive is replaced by the case relevant for the marking of the full phrase. Caha (to appear) proposes to analyze this as phrasal cas sacking followed by deletion, see (71).

(71) *Case attraction in Ossetic as phrasal case stacking plus deletion*
a. underlying: [NUMERAL N-GEN]-OBL
b. surface: [NUMERAL N-]-OBL

The evidence for analyzing this type of pattern as a deletion of the genitive triggered by the presence of an additional case comes from a construction referred to as suspended affixation. To see how suspended affixation works in Ossetic, consider the data in (72).

(72) Iron Ossetic (Erschler 2012:165)
a. bæx-t-imæ æmæ gæl-t-imæ
horse-PL-COM and ox-PL-COM
b. bæx-tæ æmæ gæl-t-imæ
horse-PL and ox-PL-COM
'with horses and oxen'

What we see in (72a) is an ordinary coordination of two phrases, each marked by a plural marker and a case marker. Suspended affixation is then illustrated in (72b). It is a type of coordination where the comitative case marker is located only on the second conjunct, with no apparent change in interpretation. The first conjunct simply bears no case marker in such cases. Let me now turn to the issue of how suspended affixation plays out with numerical phrases. The relevant data is presented in (73).

(73) Iron Ossetic (Erschler 2018:25)
a. ærtæ læppu-jyl æmæ yzg-yl
three boy-ADE and girl-ADE
'three boys and a girl' (adessive)
b. ærtæ læppu-jy æmæ yzg-yl
three boy-GEN and girl-ADE
'three boys and a girl (adessive)

(73a) is an ordinary coordination with the adessive case marker present on each conjunct. (73b) is the suspended affixation construction, where the adessive case marker is present only on the second conjunct. Importantly, when this happens, the noun following the numeral in the first conjunct surfaces in the genitive. This shows that when the adessive marker is removed from the counted noun (though it still scopes over the whole coordination), the genitive resurfaces, and we see both case markers simultaneously.

Under the idea that only one case is assigned in numerical constructions, the appearance of the genitive on the first conjunct is surprising. If the adessive in (73a) was the only case that the noun in the first conjunct has, we would expect that under suspended affixation,

a bare noun will emerge. On the other hand, an account where the numeral always marks the counted noun by the genitive can easily account for this. It is enough to make sure that the genitive is eliminated only when immediately followed by another case marker. When it is not immediately before another case marker, it remains in place.

In sum, there are reasons to think that case attraction involves case stacking followed by the deletion of the inner case.

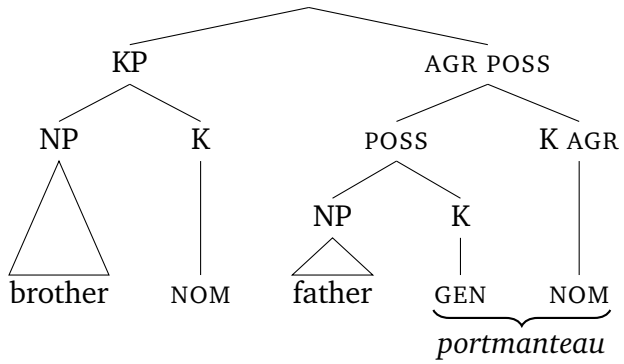
Let me now briefly mention how such deletions can be motivated. In some current approaches such as Pesetsky (2013), this has been linked to a derivational timing: it is always the case that is assigned last that surfaces on the noun (cf. Norris 2018 for a critique based on data from Estonian). In other approaches (Caha 2013, to appear, Bergsma 2021), this has been linked to case decomposition. The idea behind these approaches is the observation that one needs to distinguish between cases that trigger the deletion (like the dative and ablative in (70)), and cases that don't (like the nominative and accusative in (70)). The strategy for differentiation is to say that oblique cases (which license the deletion of the inner genitive) have many case features, including all the features of the genitive, and that is why they can license its deletion. Structural cases, on the other hand, have only few features and cannot license the ellipsis because they do not contain all the features of the genitive. Ultimately, this latter approach strives to reinterpret these deletions as deletions under identity, which is what we started from in Jiwarli, recall (64).

Summarizing, this section has discussed cases where we have reasons to believe that case stacking is operative in the grammar, yet on the surface we only see one of the case markers, specifically the outer one. This can be analyzed as a deletion of the inner case. In the literature, two kinds of motivations have been proposed, either a general rule that always deletes the inner case (Pesetsky 2013) or an approach that relies on feature decomposition (Caha to appear).

4.2 Portmanteau marking

The current section continues the overview of the variation in the realization of multiple-case structures. The possibility to be discussed in the current section is that a single morpheme realizes the features of both the inner genitive and the outer case. The idea is depicted abstractly in (74). The tree shows the structure of the hypothetical phrase 'the brother of my father.' The head noun 'brother' is in the nominative, which is also represented on the possessor, leading to case stacking. However, the two stacked cases are realized by a single (non-divisible) marker.

(74) *Agreement + portmanteau*



In this section, I argue that a system like this is attested as one of the relevant patterns in

Bezhta (Caucasian; Kibrik 1995, Plank 1995, Comrie et al. 2015). The relevant examples are in (75).

(75) Bezhta (Plank 1995:71)

a. abo-s is
father-GEN.DIRECT brother
fathers brother'

b. abo-la is-ti-l
father-GEN.OBL brother-OBL-DAT
to fathers brother'

In (75a), we have a head noun in the absolutive (*is* 'brother'). The possessor 'father' has the suffix *-s*. The suffix *-s* is glossed by the source as the so-called 'direct genitive' ('genitive 1' in Comrie et al. 2015). The term 'direct genitive' is used because the possessor has a different shape when it modifies a noun in an oblique case, as in (75b). Here, the head noun *is-ti-l* 'brother' is in the dative case.[14] When a possessor is added to such a non-absolutive noun, the possessor noun has to have the so-called oblique genitive marker *-la*, and so we get *abo-la* 'father's' in (75b). These examples show that the shape of the genitive marker differs depending on the case of the head noun, which is reminiscent of concord.

It is relevant to point out that the two-way distinction between agreement with the absolutive (direct genitive) vs. the rest (the oblique genitive) is typical for concord in Bezhta more generally. This is shown in Table (76), where we can see that also adjectives have only two different shapes, depending on whether they modify a noun in the absolutive or in an oblique case. The agreement is signaled by changing the final vowel of the adjective.

(76) Bezhta declension of 'cloudy day' (Comrie et al. 2015:288)

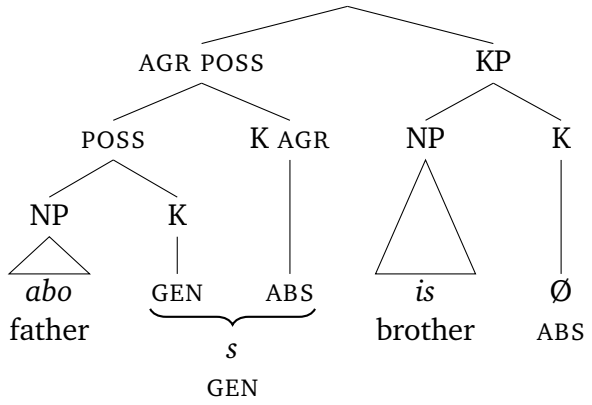
	cloudy, SG.	day, SG.
NOM	kh'imaj-**o**	vod-o
ERG	kh'imaj-**a**	vod-i
GEN1	kh'imaj-**a**	vod-i-s
GEN2	kh'imaj-**a**	vod-i-la
DAT	kh'imaj-**a**	vod-i-l
INS	kh'imaj-**a**	vod-i-d

Given that both adjectives and possessors make the same two way distinction depending on the case of the head (absolutive vs. the rest), it is tempting to think that the distinction between the direct genitive and the oblique genitive boils down to agreement (which is the same conclusion as in Plank 1995).

Let us now consider in more detail how agreement is expressed. If the system was agglutinative (as in Jiwarli), we would find an invariant genitive followed by an additional morpheme. Obviously, this is not what we find in Bezhta: the combination of the genitive case plus absolutive agreement is a non-decomposable *-s*. The combination of a genitive plus an oblique agreement is realized as *-la*, which shows no relation to the *-s* used in the direct genitive. Therefore, the morphology of Bezhta suggests that the genitive marker *-s* is the realization of the genitive case plus the absolutive concord, as in (77).

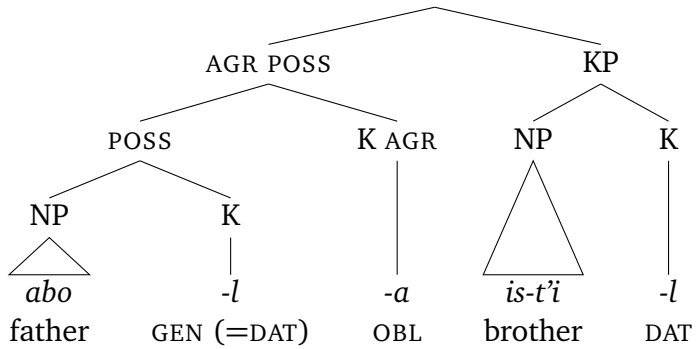
[14] The final *-l* is an invariant marker of the dative for all nouns, the preceding morpheme, *-ti*, is a marker of the oblique stem.

(77) *Agreement + portmenteau (Bezhta); the structure of the direct genitive in (76a)*



The bi-componential structure of the direct genitive is supported by the interesting possibility that the oblique genitive *-la* actually decomposes into a case marker *-l*, homophonous with the dative, and the oblique agreement marker *-a*, seen on the oblique adjectives in Table (76). Under this analysis, the oblique genitive in Bezhta would be agglutinative, with a pure case marker *-l* (which exhibits genitive-dative syncretism) followed by the oblique agreement marker, see (78).

(78) *Agreement as stacking (Bezhta); the structure of the oblique genitive in (75b)*



If this analysis is correct, it shows that Bezhta has a 'regular' agreeing case-stacking structure (i.e., the one in (78)), which is just like in Jiwarli (44). The only novelty is the fact that the direct genitive is a portmanteau marker (which is indeed the main point).

To conclude, the direct vs. oblique genitive distinction in Bezhta leads naturally to an analysis that Bezhta has agreeing possessors. Agreement is realized as a separate morpheme in the oblique gentive, but as a portmanteau in the direct genitive.

5 Conclusions

The goal of the chapter was twofold. The first goal was to provide an overview of the causes that give rise to case stacking (Sections 2-3). The second goal was to highlight the morphological processes that case-stacking configurations lead to (Section 4).

Regarding the first point, we end up with at least five different ways how case stacking may arise. These are summarized in (79) (in part repeated from (56)). I have enriched this original summary by multiple case assignment.

(79) The typology of double case

a. Single case, multiple markers: Compound case marking
b. Multiple case relations
   (i) multiple assignment
   (ii) phrasal
   (iii) ellipsis-induced
   (iv) agreement-induced
      within NP
      split phrases

In Section 4, I have provided am overview of four different ways as to how case stacking structures can be realized.

(80)

STACKING	a.	No change	N -K1	-K2
PRESERVED	b.	Ligative	N -K1 -LIG	-K2
STACKING	c.	Deletion	N	-K2
SIMPLIFIED	d.	Fusion	N -	K1+K2

The non-trivial part of Table (80) is depicted on the last two rows. Admitting these two types of morphological realizations into our theory significantly expands the analytical potential of case stacking. Specifically, I have provided some reasons to think that case deletions lead to an insightful analysis of case attraction structures. Similarly, allowing for portmanteau realization leads to an interesting analysis of the Bezhta direct genitive.

There are, as always, many questions that remain for future research. One question is whether all different morphological realizations are available for all types of stacking. For example, I have catalogued plain stacking and ligatives for essentially all types of case stacking. On the other hand, portmanteau realization is somewhat restricted, and, to the best of my knowledge, attested only for agreement-induced case stacking. This may be related to the type of structure underlying the different types of stacking; for instance, in phrasal case stacking or ellipsis-induced case stacking, the case markers are not in a local structural relation and this may prevent their fusion. Needless to say, such and similar questions remain open for future investigation.

References

Abaev, Vasilij Ivanovich. 1964. *A grammatical sketch of Ossetic*. Indiana University, Bloomington.

Aristar, Anthony R. 1995. Binder-anaphors and the diachrony of case-displacement. In *Double Case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 431–450. OUP, Oxford.

Asher, R. E. and T. C. Kumari. 1997. *Malayalam*. Descriptive Grammars. Routledge, London.

Austin, Peter. 1995. Double case marking in Kanyara and Mantharta languages, Western Australia. In *Double case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 363 – 379. Oxford University Press, New York.

Austin, Peter K. 2015. A reference grammar of the Mantharta languages, Western Australia. Ms., SOAS, University of London.

Bayer, Joseph, Markus Bader, and Michael Meng. 2001. Morphological underspecification meets oblique case: Syntactic and processing effects in German. *Lingua* 111: 465–514.
Bejar, Susana and Diane Massam. 1999. Multiple case checking. *Lingua* 103: 65 –79.
Bergsma, Fenna. 2021. *Case competition in headless relatives*. Ph.D. thesis, Johann Wolfgang Goethe-Universität zu Frankfurt am Main.
Biberauer, Theresa, Anders Holmberg, and Ian Roberts. 2014. A syntactic universal and its consequences. *Linguistic Inquiry* 45 2: 169–225.
Bittner, Maria and Ken Hale. 1996. The structural determination of case and agreement. *Linguistic Inquiry* 27 1: 1–68.
Blake, Barry J. 2001. *Case*. Cambridge University Press, Cambridge, second edn.
Blansitt, Edward L. 1988. Datives and allatives. In *Studies in Syntactic Typology*, edited by Michael Hammond, Edith Moravcsik, and Jessika R. Wirth, vol. 17 of *Studies in Languages*, pp. 173–191. John Benjamins, Amsterdam/Philadelphia.
Bošković, Željko and Serkan Şener. 2014. The Turkish NP. In *Crosslinguistic Studies on Noun Phrase Structure and Reference*, edited by Patricia Cabredo Hofherr and Anne Zribi-Hertz, pp. 102 – 140. Brill, Leiden, The Netherlands.
Brown, Robert. 1988. Waris case system and verb classification. *Language and linguistics in Melanesia* 19 1-2: 37–80.
Caha, Pavel. 2009. *The Nanosyntax of Case*. Ph.D. thesis, CASTL, University of Tromsø.
Caha, Pavel. 2013. Explaining the structure of case paradigms through the mechanisms of Nanosyntax. *Natural Language and Linguistic Theory* 31: 1015–1066.
Caha, Pavel. 2017. How (not) to derive a *ABA: The case of Blansitts generalisation. *Glossa: a journal of general linguistics* 2 1: 84.
Caha, Pavel. 2021. Modeling declensions without declension features. The case of Russian. *Acta Linguistica Academica* 67: 385425.
Caha, Pavel. to appear. *The Nanosyntax of Case Competition*. Language Science Press, Berlin.
Chomsky, Noam. 1981. *Lectures on government and binding*. Foris, Dordrecht.
Cinque, Guglielmo. 2005. Deriving Greenberg's universal 20 and its exceptions. *Linguistic Inquiry* 36: 315 – 332.
Cinque, Guglielmo. 2012. A generalization concerning DP-internal ellipsis. *Iberia: An International Journal of Theoretical Linguistics* 4 1: 174–193.
Comrie, Bernard, Madzhid Khalilov, and Zaira Khalilova. 2015. *A Grammar of Bezhta*. Max Planck Institute for Evolutionary Anthropology and Gamzat Tsadasa Institute for Language, Literature and Arts of the Daghestan Scientific Centre of the Russian Academy of Science, Leipzig-Makhachkala.
Creissels, Denis. 2009. Spatial cases. In *The Oxford Handbook of Case*, edited by Andrej Malchukov and Andrew Spencer, pp. 609–625. OUP, Oxford.
Dékány, Éva. 2015. The syntax of anaphoric possessives in hungarian. *Natural Language & Linguistic Theory* 33 4: 1121–1168.
Dench, Alan. 1995. Suffixaufnahme and apparent ellipsis in Martuthunira. In *Double Case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 380–395. OUP, Oxford.
Dench, Alan and Nicholas Evans. 1988. Multiple case-marking in australian languages. *Australian journal of linguistics* 8 1: 1–47.
Dryer, Matthew S. 2013a. Order of genitive and noun. In *The World Atlas of Language Structures Online*, edited by Matthew S. Dryer and Martin Haspelmath. Max Planck Institute for Evolutionary Anthropology, Leipzig.

Dryer, Matthew S. 2013b. Position of case affixes. In *The World Atlas of Language Structures Online*, edited by Matthew S. Dryer and Martin Haspelmath. Max Planck Institute for Evolutionary Anthropology, Leipzig.

Erschler, David. 2012. Suspended affixation in Ossetic and the structure of the syntaxmorphology interface. *Acta Linguistica Hungaricae* 59 1-2: 153–175.

Erschler, David. 2018. Suspended affixation as morpheme ellipsis: Evidence from Ossetic alternative questions. *Glossa* 3 1: 12.

Evans, Nicholas D. 1995. *A grammar of Kayardild: With historical-comparative notes on Tangkic. Part I*. Walter de Gruyter, Berlin, New York.

Foley, William A. 1986. *The papuan languages of New Guinea*. Cambridge University Press.

Gerdts, Donna B. and Cheong Youn. 1988. Korean psych constructions: Advancement or retreat? In *Papers from the 24th Annual Regional Meeting of the Chicago Linguistic Society, Part One: The General Session*, edited by Lynn MacLeod, Gary Larson, and Diane Brentari, pp. 155–175. University of Chicago, Chicago.

Gragg, Gene. 1976. Oromo of Wellegga. In *The non-Semitic languages of Ethiopia*, edited by Lionel M. Bender, pp. 361–373. African Studies Center, Michigan State University.

Hale, Kenneth. 1982. Some essential features of Warlpiri verbal clauses. In *Papers in Warlpiri grammar: in memory of Lothar Jagst*, edited by S. Swartz, pp. 217–315. SIL-AAB, Darwin.

Halle, Morris and Bert Vaux. 1998. Theoretical aspects of Indo-European nominal morphology: The nominal declensions of Latin and Armenian. In *Mir Curad: Studies in Honor of Clavert Watkins*, edited by Jay Jasanoff, H. Craig Melchert, and Lisi Olivier, Innsbrucker Beiträge zur Sprachwissenschaft, pp. 223–240. Institut für Sprachwissenschaft der Universität Innsbruck, Innsbruck.

Haspelmath, Martin. 2010. Comparative concepts and descriptive categories in cross-linguistic studies. *Language* 86: 663–687.

Jackendoff, Ray. 1983. *Semantics and Cognition*. MIT Press, Cambridge, Ma.

Khalilova, Zaira. 2009. *A grammar of Khwarshi*. Ph.D. thesis, Leiden University.

Kibrik, Aleksandr E. 1995. Direct-oblique agreement of attributes in Daghestanian. In *Double Case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 216–229. OUP, Oxford.

Leslau, Wolf. 1995. *Reference grammar of Amharic*. Otto Harrassowitz Verlag, Wiesbaden.

Levin, Theodore. 2017. Successive-cyclic case assignment: Korean nominative-nominative case-stacking. *Natural Language & Linguistic Theory* 35 2: 447–498.

Merchant, Jason. 2006. Polyvalent case, geometric hierarchies, and split ergativity. In *Proceedings of the 42nd annual meeting of the Chicago Linguistics Society*, edited by Jackie Bunting, Sapna Desai, Robert Peachey, Chris Straughn, and Zuzana Tomkova, p. 5776. University of Chicago, Chicago.

Moravcsik, Edith A. 2009. The distribution of case. In *The Oxford Handbook of Case*, edited by Andrej Malchukov and Andrew Spencer, pp. 231–245. OUP, Oxford.

Moravcsik, Edith E. 1995. Summing up Suffixaufnahme. In *Double Case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 451–484. OUP, Oxford.

Norris, Mark. 2018. Unmarked case in estonian nominals. *Natural Language & Linguistic Theory* 36 2: 523–562.

Pesetsky, David. 2013. *Russian case morphology and the syntactic categories*. MIT Press, Cambridge, MA.

Plank, Frans. 1995. (Re-)introducing suffixaufnahme. In *Double Case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 3–112. OUP, Oxford.

Privizentseva, Mariia. 2021. Nominal ellipsis reveals concord in Moksha Mordvin. Ms., Leipzig, https://ling.auf.net/lingbuzz/004998.
Rice, Sally and Kaori Kabata. 2007. Crosslinguistic grammaticalization patterns of the allative. *Linguistic Typology* 11 3: 451–514.
Richards, Norvin. 2013. Lardil case stacking and the timing of case assignment. *Syntax* 16 1: 42–76.
van Riemsdijk, Henk and Riny Huybregts. 2002. Location and locality. In *Progress in Grammar: Articles at the 20th Anniversary of the Comparison of Grammatical Models Group in Tilburg*, edited by Marc van Oostendorp and Elena Anagnostopoulou, pp. 1–23. Meertens Instituut, Amsterdam.
Saab, Andrés and Anikó Lipták. 2016. Movement and deletion after syntax: Licensing by inflection reconsidered. *Studia Linguistica* 70 1: 66–108.
Schütze, Carson. 2001. On Korean "Case stacking": The varied functions of the particles 'ka' and 'lul'. *The Linguistic Review* 3: 193–232.
Schweiger, Fritz. 2000. Compound case markers in australian languages. *Oceanic linguistics* pp. 256–284.
Siegel, Dorothy. 1977. The adjacency constraint and the theory of morphology. *Proceedings of NELS* 8: 189–197.
Spencer, Andrew and Ryo Otoguro. 2005. Limits to case – a critical survey of the notion. In *Competition and variation in natural languages: the case for case*, edited by Mengistu Amberber and Helen de Hoop, pp. 119–145. Elsevier Publishers, Dordrecht.
Svenonius, Peter. 2010. Spatial P in English. In *The Cartography of Syntactic Structure, vol.6*, edited by Guglielmo Cinque and Luigi Rizzi, pp. 127 – 160. Oxford University Press, Oxford.
Svenonius, Peter. 2012. Spanning. Ms., CASTL, https://ling.auf.net/lingbuzz/001501.
Szabolcsi, Anna. 1983. The possessor that ran away from home. *The Linguistic Review* 3: 89–102.
Taraldsen, Tarald. 2010. The nanosyntax of Nguni noun class prefixes and concords. *Lingua* 120 6: 1522 – 1548.
Vogt, Hans. 1932. Les groupes nominaux en armenien et en georgien anciens. *Norsk Tidsskrift for Sprogvidenskap* 5: 57–81.
Winkler, Eberhard. 2001. *Udmurt*. LINCOM, München.
Zwarts, Joost. 2005. Prepositional aspect and the algebra of paths. *Linguistics and Philosophy* 28: 739 – 779.