The emergence of case matching in discontinuous DPs

Emily Clem & Virginia Dawson
University of California, San Diego & Western Washington University

This paper explores a distinction between two phenomena that yield multiple realizations of case associated with one nominal. The first is the familiar type of nominal case concord; the second is a new phenomenon we label 'case doubling'. While case concord involves the morphological realization of case on categorially distinct elements via feature sharing, case doubling arises via a separate mechanism and involves the realization of multiple instances of a functional head, which we model as D. Therefore, the case concord/case doubling distinction mirrors the agreement/clitic doubling distinction in the domain of argument-predicate matching. We argue for the existence of case doubling as a separate phenomenon primarily on the basis of novel data from Tiwa (Tibeto-Burman; India). In Tiwa, traditional case concord in continuous DPs is ruled out, but case doubling is obligatory in discontinuous DPs. We also demonstrate that this phenomenon is attested in Amahuaca (Panoan; Peru) and explore related patterns crosslinguistically.

1 Introduction

It is well known that similar surface patterns in natural language can arise via distinct underlying mechanisms. One domain where this has been explored extensively in the recent literature is argument-predicate matching. In this literature, it has been demonstrated that what pretheoretically looks like "agreement" in the verbal domain can actually be divided into two distinct phenomena: agreement and clitic doubling. True agreement arises when a verbal head directly bears the features of one of the nominal arguments of its clause. On the other hand, it is now typically assumed that clitic doubling involves the realization of an instance of the functional head D within the verbal complex. Crucially, agreement does not involve any overt material from the DP being realized on the verb, but clitic doubling does involve an overt instance of D from the nominal argument being realized on the verb.

These two mechanisms – agreement and clitic doubling – account for two distinct patterns that, while similar, have clear empirical differences. For example, Arregi and Nevins (2008) and Nevins (2011) argue that clitics, but not agreement markers, are tense-invariant – they have the same morphophonological form regardless of the tense and aspect marking of the verb on which they surface. Preminger (2009) has argued that agreement and clitic doubling can be distinguished by what happens when the respective operations fail. Failed agreement typically results in default features being spelled out on the verb, while failed clitic doubling results in no morphological realization of ϕ-features on the verb. Additionally, Harizanov (2014), Kramer (2014), and Baker and Kramer (2018) have noted that clitic doubling can change the calculus of binding relationships while agreement cannot. This growing body of work has not only contributed to our theoretical understanding of how agreement and clitic doubling are derived, but also to our empirical understanding of

which properties pattern together in the realm of argument-predicate matching and why. Thus, developing our understanding of this somewhat fine-grained distinction has served to advance both theory and description.

In this paper, we argue that a similar distinction should be made in the domain of nominal concord. Focusing specifically on case, we propose that what pretheoretically looks like case concord is actually derived via two distinct underlying mechanisms. The first mechanism we will continue to refer to as 'case concord'; the second we will label 'case doubling'. These two phenomena yield similar surface patterns, but arise via distinct derivations, resulting in distributional differences. We argue that concord is similar to agreement in that it involves case features being morphologically realized on multiple categorially distinct elements within the DP. This is similar to how agreement results in features of the nominal being realized both on the nominal and the verb. In contrast, case doubling involves the realization of multiple instances of a functional head, which we model as D, similar to how clitic doubling is the result of an instance of D realized in the verbal complex.

We argue for the existence of this separate phenomenon of case doubling primarily on the basis of novel data from original fieldwork on Tiwa (Tibeto-Burman; India). In Tiwa, case can only be realized once in a continuous DP; case concord is impossible. However, in discontinuous DPs, the two pieces of the DP must match in case. This basic contrast is illustrated in (1).[1]

(1) 'Mukton fed rice to a newborn baby.'

a. Mukton mai-go [korkhyá**(*-na)** lurî***(-na)**] chái os-ga.
Mukton rice-ACC child-DAT tender-DAT eat CAUS-PFV

b. Mukton [korkhyá***(-na)**] mai-go [lurî***(-na)**] -lo chái os-ga.
Mukton child-DAT rice-ACC tender-DAT -FOC eat CAUS-PFV

In (1a), dative case surfaces as an enclitic on the adjective *lurî* 'tender', which is the final element of the DP. The noun *korkhyá* 'child' cannot bear dative case. In (1b), however, both the noun and adjective must surface with case when they form a discontinuous DP. We take this concord-like pattern that occurs only under discontiguity to be indicative of the phenomenon of case doubling.

We argue that case doubling does not arise via the mechanisms traditionally assumed to underlie concord. In particular, case doubling is not the morphological realization of case features on categorially distinct elements such as adjectives and nouns. Instead, we propose that case doubling arises when DPs contain nested DP shells, where the head of each DP is spelled out as an instance of case. Thus, in a language like Tiwa, case is only

[1]All Tiwa data are presented in the orthography of Jose's (2014) dictionary. Note that tone on affixes is orthographically marked or unmarked depending on the tone of the preceding morpheme. Alternations of tone marking on case is thus purely orthographic. See Jose 2014 (pp. viii-ix) and Dawson 2020 (pp. 13-14) for discussion. The following abbreviations are used in glossing throughout: 1 = first person, 3 = third person, ACC = accusative, ADD = scalar additive, AUX = auxiliary, C = complementizer, CAUS = causative, CL = classifier, COM = comitative, COND = conditional, DAT = dative, DECL = declarative, DEF = definite, DU = dual, ERG = ergative, EMPH = emphatic, FOC = focus, GEN = genitive, IPFV = imperfective, LG = long form, LOC = locative, MASC = masculine, NEG = negation, NEUT = neutral aspect, NMLZ = nominalizer, NOM = nominative, NPST = non-past, O = object, PART = participial, PFV = perfective, PL = plural, PRES = present, PROP = proprietive, PST = past, S = subject, SG = singular, TOP = topic.

ever realized on D. We argue that this is the key to understanding the empirical differences between a language like Tiwa that allows case doubling only in discontinuous DPs and languages having canonical case concord where concord is possible even within a continuous DP.

In making this argument for case doubling, we first outline the properties of Tiwa discontinuous DPs and the case doubling patterns we find in Section 2. We then briefly consider languages with true concord in Section 3 and outline why theories of concord cannot easily be extended to cover the Tiwa data. In Section 4 we lay out our analysis of case doubling, which involves a DP shell structure and feature sharing between nested instances of D. We illustrate how this analysis can account for the basic Tiwa pattern as well as instances of case stacking and differential object marking. After making our main argument, we then turn our attention to the larger picture beyond Tiwa. In Section 5 we discuss data from original fieldwork on an unrelated language, Amahuaca (Panoan; Peru), and demonstrate that a similar pattern of case doubling in this typologically different language can also be accounted for under our DP-shell analysis. In Section 6 we zoom out even further, considering the crosslinguistic picture of case doubling and other possibly related phenomena. Section 7 offers concluding remarks about the concord/case doubling distinction and the empirical signature of each phenomenon.

2 Case doubling in Tiwa

In this section, we introduce basic information about the morphosyntax of DPs in Tiwa as well as the pattern of case doubling in discontinuous DPs in the language. We demonstrate that a variety of elements can be separated from the noun in a discontinuous DP and that case doubling can occur with various case markers.

Tiwa is a Tibeto-Burman language spoken primarily in Assam, India by approximately 33,900 speakers.[2] Data presented here were collected by the second author through work with two native speakers between 2015 and 2018 in Umswai, Karbi Anglong district, Assam, and in 2020-21 via WhatsApp with one of those speakers. Tiwa is a head-final language with accusative alignment. The basic SOV order can be obscured by scrambling, as seen in (2).

(2) 'Mukton saw Tonbor.'

a. Mukton **Tonbor-go** nú-ga.
Mukton Tonbor-ACC see-PFV

b. **Tonbor-go** Mukton nú-ga.
Tonbor-ACC Mukton see-PFV

In (2a) we see the basic SOV order of the language, but in (2b) the object DP *Tonborgo* scrambles across the subject *Mukton*. The order of elements within a DP is also variable in Tiwa, but case always surfaces as an enclitic on the final element of the DP, as demonstrated in (3) and (4).

[2]This estimate is from the 2011 Indian census, as reported in Ethnologue (Eberhard et al., 2021).

(3) 'I tore down the old house.'

a. Ang [kojâm nó**-gô**] phí hál-ga.
1SG old house-ACC break AUX-PFV

b. Ang [nó kojâm**-go**] phí hál-ga.
1SG house old-ACC break AUX-PFV

(4) 'Mukton gave meat to the red dog.'

a. Mansing [kojá khúgri**-na**] tú han-go os-ga.
Mansing red dog-DAT chicken meat-ACC give-PFV

b. Mansing [khúgri kojá**-na**] tú han-go os-ga.
Mansing dog red-DAT chicken meat-ACC give-PFV

In (3a) the head noun *nó* 'house' is the final element of the DP and the accusative case marker surfaces on it. However, the order of the noun and adjective is switched in (3b) and here the accusative case marker surfaces on the adjective *kojâm* 'old' instead. The same pattern holds for dative case in (4). In (4a) the dative case marker surfaces on the noun *khúgri* 'dog', which is final in the DP, while in (4b) the order is reversed, and dative surfaces on *kojá* 'red'. Like adjectives, numerals, quantifiers, and relative clauses can appear before or after the head noun (Dawson, 2020:45-46). Demonstratives, indefinite articles and possessors must appear before the head noun, but show variable order among themselves and with quantifiers, which can precede these elements. In all instances, case is realized on the right-most element. The consistent DP-final position of case suggests that case is realized in the position of a high functional in the nominal, which we will model as D.

There is no case concord in continuous DP structures in Tiwa, as can be seen in (5a), where it is ungrammatical for the dative marker *-(n)a* to surface twice in the DP.[3] This case marker can only appear on the adjective *lurî* 'tender', which is the final element in the DP, not on the noun *korkhyá* 'child'. However, Tiwa allows various modifiers which are typically DP-internal to surface non-adjacent to the noun of their DP. In such discontinuous DPs, the modifier and noun match in case, as seen in (5b), where both *lurî* and *korkhyá* surface with dative case.[4]

(5) 'Mukton fed rice to a newborn baby.'

a. Mukton mai-go [korkhyá**(*-na)** lurî***(-na)**] chái os-ga.
Mukton rice-ACC child-DAT tender-DAT eat CAUS-PFV

b. Mukton [korkhyá***(-na)**] mai-go [lurî***(-na)**] -lo chái os-ga.
Mukton child-DAT rice-ACC tender-DAT -FOC eat CAUS-PFV

In discontinuous DP structures in Tiwa, both elements behave like independent DPs. As seen in (5b), they can both be case-marked, with the case enclitic surfacing at the end of each element. Additionally, both elements of a discontinuous DP can undergo scrambling

[3]The form of the dative case marker is *-na* when it attaches to a vowel-final element, and *-a* when it attaches to a consonant-final element. The same alternation is found with genitive case *-(n)e*.

[4]We assume a structural definition of discontiguity. We define a discontinuous DP as consisting of multiple elements that together serve as a single syntactic argument but which are not dominated by the same nominal maximal projection within their minimal clause at the level of surface syntactic structure.

independently, as illustrated in (6). In (6a), the adjective *lurî* has scrambled over the subject, while in (6b), the noun has scrambled over the subject. Additionally, (6c) and (6d) show that the two pieces of the discontinuous DP can be separated by more than one constituent.[5]

(6) 'Mukton fed rice to a newborn baby.'

a. [Lurî**-na**] -lo Mukton [korkhyá**-na**] mai-go chái os-ga.
tender-DAT -FOC Mukton child-DAT rice-ACC eat CAUS-PFV

b. [Korkhyá**-na**] Mukton [lurî**-na**] -lo mai-go chái os-ga.
child-DAT Mukton tender-DAT -FOC rice-ACC eat CAUS-PFV

c. [Lurî**-na**] -lo Mukton mai-go [korkhyá**-na**] chái os-ga.
tender-DAT -FOC Mukton rice-ACC child-DAT eat CAUS-PFV

d. [Korkhyá**-na**] Mukton mai-go [lurî**-na**] -lo chái os-ga.
child-DAT Mukton rice-ACC tender-DAT -FOC eat CAUS-PFV

The usual position for the separated modifier in a discontinuous DP is immediately before the verb, structurally lower than the head noun. However, this is a tendency, rather than a requirement. As seen in (6a) and (6c), it is possible for the modifier to scramble to a higher position in the structure.

The pattern of case doubling only under discontiguity is possible with any modifier that can be separated from the head noun in a discontinuous DP. This was illustrated for an adjective by the pair in (5). The same pattern is also found for numerals, (7); quantifiers, (8); relative clauses, (9); demonstratives, (10); indefinite articles, (11); and possessors, (12).

(7) 'I gave money to five priests.'

a. Ang [phas chonâ loró-râw**-a**] phûisa os-ga.
1SG five CL priest-PL-DAT money give-PFV

b. [Phas chonâ**-na**] -lo ang [loró-râw**-a**] phûisa os-ga.
five CL-DAT -FOC 1SG priest-PL-DAT money give-PFV

(8) 'Mansing gave flowers to every woman.'

a. Mansing [sógol margî-raw**-a**] khum-go os-ga.
Mansing every woman-PL-DAT flower-ACC give-PFV

b. Mansing [margî-raw**-a**] khum-go [sógol**-a**] -lô os-ga.
Mansing woman-PL-DAT flower-ACC every-DAT -FOC give-PFV

[5]It is also possible for elements of a discontinuous DP that exhibit case doubling to be linearly adjacent so long as they are structurally discontinuous, as shown in (i).

(i) Saldi [kholom**-gô**] [thin-tha**-go**] (-lo) khol lá-ya-m.
Saldi pen-ACC three-CL-ACC -FOC pick.up AUX-NEG-PST
'Saldi didn't take three pens.'

Evidence from prosody suggests that such structures involve structurally discontinuous elements. Both linearly adjacent case-marked pieces in a structure that involves case doubling display a pitch rise at the right edge. Such a pitch rise is characteristic of the right edge of a DP but does not typically mark the right edge of a DP-internal modifier.

(9) 'My mother gave water to the man that was running.'

a. Ái má ti-go [cholói lí-wa libíng**-a**] os-ga.
my mother water-ACC run AUX-NMLZ person-DAT give-PFV

b. [Cholói lí-wa**-na**] -lô ái má ti-go [líbing**-a**]
run AUX-NMLZ-DAT -FOC my mother water-ACC person-DAT
os-ga.
give-PFV

(10) 'Mukton gave money to this person.'

a. Mukton [hêbe líbing**-a**] phûisa-go os-ga.
Mukton this person-DAT money-ACC give-PFV

b. Mukton [líbing**-a**] phûisa-go [hêbe**-na**] -lo os-ga.
Mukton person-DAT money-ACC this-DAT -FOC give-PFV

(11) 'Mukton gave money to some priest.'

a. Mukton [sharkhí loró**-na**] phûisa-go os-ga.
Mukton some priest-DAT money-ACC give-PFV

b. Mukton [loró**-na**] phûisa-go [sharkhí**-na**] -lo os-ga.
Mukton priest-DAT money-ACC some-DAT -FOC give-PFV

(12) 'Monbor saw Sonali's cat yesterday.'

a. Monbor [Sonali-ne miyâw**-go**] khóna nú-ga.
Monbor Sonali-GEN cat-ACC yesterday see-PFV

b. Monbor [miyâw**-go**] khóna [Sonali-ne**-go**] -lo nú-ga.
Monbor cat-ACC yesterday Sonali-GEN-ACC -FOC see-PFV

In (7b), we see that the numeral *phas chonâ* 'five' receives dative case, as does the noun *lorórâw* 'priests'. Likewise, in (8b), the quantifier *sógol* 'every' receives dative case, as does the noun *margîraw* 'women'. The sentence in (9b) contains a relative clause *cholói líwa* 'that ran'.[6] This relative clause receives dative case, as does the head noun *líbing* 'person'. (10b) shows that both the head noun *líbing* 'person' and the demonstrative *hêbe* 'this' receive data case under discontiguity. (11b) likewise shows that the noun *loró* 'priest' and the indefinite article *sharkhí* 'some' receive dative.[7] Finally, in (12b), *Sonali*, which already has genitive case due to the fact that it is a possessor, receives additional accusative case marking, as does the noun *miyâw* 'cat'.[8]

So far, the case doubling examples we have considered have almost all involved the dative case marker *-(n)a*. However, matching in discontinuous DPs occurs with other case markers as well, including nominative, which is unmarked, (13); accusative *-gô*, (14); genitive *-(n)e*, (15); and comitative *-rê*, (16).

[6]Relative clauses in Tiwa are externally-headed nominalized clauses that can appear either to the left or right of the head noun.

[7]On the nature of this indefinite article see Dawson 2018 and 2020.

[8]Possessor matching is illustrated here with accusative case, rather than dative, due to a general ban on genitive-dative sequences in Tiwa. This ban applies in discontinuous DPs, in ellipsis, and in the standard of comparatives (which are assigned dative case). See Section 4.2 for further discussion of discontinuous possessors.

(13) 'Every woman didn't come yesterday.'

a. [Sógol margî-raw] khóna phi-ya-m.
every woman-PL yesterday come-NEG-PST

b. [Margî-raw] khóna [sógol] -lô phi-ya-m.
woman-PL yesterday every -FOC come-NEG-PST

(14) 'Mukton greeted every priest in the market.'

a. Mukton [sógol loró-râw**-go**] hat-o sêwa os-ga.
Mukton every priest-PL-ACC market-LOC greet-PFV

b. Mukton [loró-râw**-go**] hat-o [sógol**-gô**] -lo sêwa os-ga.
Mukton priest-PL-ACC market-LOC every-ACC -FOC greet-PFV

(15) 'Lastoi bought the book that every teacher read yesterday.'

a. Lastoi [$_{DP}$ [$_{RC}$ [sógol sígai kirî-raw**-e**] khóna lekhé-wa] lái-go]
Lastoi every teacher-PL-GEN yesterday read-NMLZ book-ACC
pre-ga.
buy-PFV

b. Lastoi [$_{DP}$ [$_{RC}$ [sígai kirî-raw**-e**] khóna [sógol**-e**] -lô lekhé-wa]
Lastoi teacher-PL-GEN yesterday every-GEN -FOC read-NMLZ
lái-go] pre-ga.
book-ACC buy-PFV

(16) 'Lastoi went to market with every man.'

a. Lastoi [sógol mewâ-raw**-re**] hat-a lí-ga.
Lastoi every man-PL-COM market-DAT go-PFV

b. Lastoi [mewâ-raw**-re**] hat-a [**sógolarê**] -lo lí-ga.
Lastoi man-PL-COM market-DAT every.COM -FOC go-PFV

In (13b), both pieces of the discontinuous DP are unmarked for case. This is expected since the entire DP is nominative, which has no overt phonological realization in Tiwa. In (14b), the noun *lorórâw* 'priests' and the universal quantifier *sógol* both surface with the accusative case marker. The examples in (15) each contain a non-finite relative clause with a genitive-marked subject. In (15b), the subject DP is split within the relative clause so both the noun *sígai kirîraw* 'teachers' and the quantifier *sógol* bear genitive case. Finally, in (16b), the noun *mewâraw* 'men' and the corresponding quantifier both surface with comitative case. Case matching in these configurations is obligatory, except with accusative case, where one piece can appear without any overt case marking in some instances. We discuss these data more fully in Section 4.3 below, showing that they follow a broader pattern of differential object marking in Tiwa and falls out from our analysis.

Finally, as the examples above show, the discontinuous modifier is typically focus-marked, usually with the information focus clitic *-lo*. This feature of discontinuous DPs in Tiwa is not surprising from a crosslinguistic perspective. It has been shown for many languages that discontinuous DPs provide a way of conveying different information structural statuses for different subparts of a single noun phrase (see, e.g., Reinholtz, 1999; De Kuthy, 2002; Fanselow and Féry, 2006, among many others). In Tiwa, focus is marked

with a variety of focus enclitics which attach to the DP, to the right of any case marking. None of the focus clitics can appear on a subconstituent within the DP, even when that subconstituent is narrowly focused. This is shown in (17), with the contrastive focus clitic *-se*, which is often used in corrective contexts. In this example, one speaker states that Mukton bought a new car. Another speaker wishes to correct the first speaker by clarifying that Mukton bought an old car. (17a) shows that the speaker can do this by affixing the contrastive focus clitic to the entire object DP. (17b) shows that it is ungrammatical for this clitic to appear directly on the corrected adjective.

(17) Mukton [karî kodâl-go] pre-ga.
Mukton car new-ACC buy-PFV
'Mukton bought a new car.'
Another person responds:

a. Hyá, Mukton [kojâm karî-go] **-se** pre-ga.
no Mukton old car-ACC -FOC buy-PFV
'No, Mukton bought an OLD car.'

b. * Hyá, Mukton [kojâm**-se** karî-go] pre-ga.
no Mukton old-FOC car-ACC buy-PFV

Discontinuous DPs provide a way of unambiguously signaling which part of the DP is focused. This is shown in (18), which also serves as a corrective response to the speaker's original statement in (17). Here the corrected adjective is separated from the head noun and surfaces with its own case marking. The contrastive focus clitic can now be directly affixed to this constituent.

(18) *As a response to (17):*
Hyá, [kojâm-go] **-se** Mukton [karî-go] pre-ga.
no old-ACC -FOC Mukton car-ACC buy-PFV
'No, Mukton bought an OLD car.'

While focus marking of the discontinuous modifier is typical, it is also possible for the separated modifier to appear without focus marking, as seen in (19) where the numeral *soshátha* 'one hundred' surfaces with dative case marking, but not focus marking.

(19) [Khúgri**-na**] khóna [so-shá-tha**-na**] Lastoi tú han-go
dog-DAT yesterday hundred-one-CL-DAT Lastoi chicken meat-ACC
os-ga.
give-PFV
'Lastoi gave chicken to a hundred dogs yesterday.'

Given this, and the fact that discontinuous DPs are not required in cases of narrow focus, as in (17a), we assume that the mechanism for deriving discontinuous DPs is not directly triggered by focus marking, but is instead generally available. Narrow focus simply provides a frequent functional motivation for this mechanism to be applied.

Summarizing the main empirical observations of this section, we have seen that Tiwa allows discontinuous DPs and that both elements of a discontinuous DP behave like independent DPs. Interestingly, these discontinuous DPs display case doubling even though

this same type of case concord is not possible internal to a continuous DP constituent. Finally, this pattern of case doubling occurs with a variety of case markers and with any element that can be separated from the other DP elements in a discontinuous structure. With these basic facts in mind, we now turn to a discussion of previous proposals for analyzing case concord.

3 Theories of concord

Previous analyses of concord have been primarily concerned with languages that display concord in continuous DPs. The patterns of concord found in these languages are empirically distinct from the type of case doubling found only in discontinuous DPs in Tiwa. We argue that analyses designed to account for DP-internal concord patterns cannot be straightforwardly extended to the Tiwa pattern.

Languages like Warlpiri show concord internal to continuous DPs as well as in discontinuous DPs.[9]

(20) a. [Kurdu-**jarra-rlu** wita-**jarra-rlu**] ka-pala maliki wajili-pi-nyi.
child-DU-ERG small-DU-ERG PRES-3DU.S dog chase-NPST
'The two small children are chasing the dog.'
Simpson 1991:258-259

b. [Kurdu-**jarra-rlu**] ka-pala maliki wajili-pi-nyi [wita-**jarra-rlu**] .
child-DU-ERG PRES-3DU.S dog chase-NPST small-DU-ERG
'Two small children are chasing the dog.'
Simpson 1991:257

As seen in (20), multiple elements of the DP may surface with number and case marking. It is this type of DP-internal concord pattern that has been the subject of a majority of the literature on concord.

An additional pattern that some analyses of concord also attempt to derive arises when elements that originate external to the DP also show concord to match features of the DP. This type of pattern can occur with elements such as predicative adjectives and secondary predicates in languages like Icelandic, Latin, Modern Greek, and Serbo-Croatian (Matushansky, 2008). An example of this pattern with an Icelandic "semi-predicate" is given in (21).

(21) a. [Ólafur] fór [einn] í veisluna.
Olaf.NOM went alone.NOM.MASC.SG to party.the
(no translation given)

b. [Ólaf] vantaði [einan] í veisluna.
Olaf.ACC lacked alone.ACC.MASC.SG in party.the
(no translation given)
Sigurðsson 2008:412

[9]Note that concord in continuous DPs is optional in Warlpiri, while concord in discontinuous DPs is obligatory (Simpson, 1991).

Here we see that the semi-predicate meaning 'alone' surfaces in the nominative, masculine, singular form *einn* to match the nominative subject *Ólafur* in (21a). In (21b) it surfaces in the corresponding accusative form *einan*, showing concord with *Ólaf*. Crucially, Icelandic and other languages that show concord in predication structures also show concord internal to DPs as well, as shown in (22).

(22) um fjór**-a** snigl**-a**
about four-ACC.MASC.PL snail-ACC.MASC.PL
'about four snails'

Norris 2017:4

Various mechanisms for deriving concord internal to DPs as well as in predication have been proposed in the literature. Here we focus on analyses of case concord.[10] Two of the main families of analyses that have been proposed differ in how many instances of case assignment are taken to be involved in structures that show concord. Under one family of analyses, each overt reflex of case is the result of an independent instance of case assignment. Under the second family of analyses we will consider, case is assigned only once, with additional morphological reflexes of case arising due to feature spreading.

The first family of views includes accounts such as that of Brattico (2008) and Matushansky (2008). Brattico (2008) follows Kayne (2002) in assuming that case is assigned to lexical items, not maximal projections. Thus, any lexical item that bears case is assigned case directly. In structures that show concord, multiple elements bear case morphology, and are taken to have been independently assigned case. Under Matushansky's (2008) account, the domain of case assignment is the complement of the case assigner. For example, if v is taken to be the locus of accusative case assignment, the sister of v, that is, VP, will be the domain for accusative case assignment. Each case-bearing element in that domain is then assigned case.

The second family of views is represented by accounts such as that of Babby (1987) and Norris (2014). Babby (1987) argues that case is assigned to nominal maximal projections and percolates down through the nominal to all elements that can bear case and that have not already been assigned a different case internal to the nominal. Norris (2014) adopts a view of concord that is morphological in nature. Case is assigned to nominal maximal projections (KPs) in the syntax, but the realization of case on various DP-internal elements is due to operations that occur in the morphological component. Norris argues that an Agr^0 node (Embick, 1997) is inserted at the site of each concord-bearing element and that the case feature of the Agr^0 node receives the value of the most local case-bearing head that dominates it.

Both families of analyses considered here have in common that they are designed to account for the possibility of multiple realizations of case internal to a continuous DP. This DP-internal case concord is not possible in Tiwa, as demonstrated in Section 2. It is unclear how to straightforwardly rule out case concord in continuous DPs while ensuring that case doubling in discontinuous DPs is obligatory under either type of theory we have considered. If case doubling is derived by assigning case to multiple items in the DP, it is unclear

[10] We do not attempt to provide a comprehensive overview of all analyses of case concord. We refer interested readers to Norris 2017 and sources cited therein for a more complete summary of the analytical landscape.

why this multiple case assignment can only occur in discontinuous structures. Likewise, if case is assigned once and then spread, it is not obvious why case feature spreading only occurs under discontiguity.

If we found the reverse of the Tiwa pattern in a language – case concord in continuous DPs, but a lack of concord in discontinuous DPs – we could easily salvage a traditional concord analysis by appealing to the order of operations. If the operation which results in concord were to apply fairly late in the derivation, the movement that splits a discontinuous DP could bleed concord. If case concord is the result of multiple instances of case assignment, multiple case assignment could be bled if one piece of the DP moved out of the domain where case was assigned prior to case assignment. This would be consistent with a view of case assignment as happening after at least some narrow syntactic operations like movement, perhaps as late as in the morphological component. If, instead, case concord results from case feature spreading throughout a DP, concord could be bled if the DP were to be split prior to this feature spreading. There would be no case in the piece of the DP that did not contain the head to which case was originally assigned. This type of view would be consistent with concord being a morphological operation, as argued for by Norris (2014). Therefore, no matter which type of theory we adopt, we could in principle derive a pattern where movement bleeds concord. The problem is explaining the reverse: the pattern we see in Tiwa would actually be an instance of movement *feeding* concord. This cannot be derived simply by reordering the operations of movement and concord. If the mechanism responsible for concord applied before splitting a DP, this should result in concord in both continuous and discontinuous structures. This is the Warlpiri pattern, but is simply not the pattern we see in Tiwa.

One way we might attempt to salvage a traditional concord analysis for Tiwa is by positing that the pattern of case doubling only in discontinuous structures is a purely morphological pattern. That is, one might assume that the familiar type of DP-internal concord applies across the board in Tiwa but is simply blocked from surfacing in continuous DPs. This could potentially be operationalized as some type of constraint or rule that forbids the pronunciation of more than one instance of case in each structurally continuous portion of a DP (e.g. an impoverishment rule). However, the mechanism for choosing which instances of case to pronounce under such an analysis would need to be constrained. While case concord is ruled out in continuous DPs, as we demonstrated in Section 2, multiple instances of case can surface within a DP, provided that DP contains additional clausal structure. For example, in relative clauses, DPs internal to the relative clause are case-marked, as seen in (23).

(23) Lastoi khónana [$_{DP}$ [$_{RC}$ [líbing-râw**-go**] mokhale [sógol**-gô**] -lo
Lastoi tomorrow person-PL-ACC last.year every-ACC -FOC
chi-wa] khúgri**-gô**] rom man-o.
bite-NMLZ dog-ACC catch AUX-NEUT
'Tomorrow, Lastoi will catch the dog that bit all the people last year.'

Here the entire DP containing the relative clause is assigned accusative case, which is realized on the head noun *khúgri* 'dog'. No accusative case surfaces on the relative clause, even though relative clauses match their head noun in case when they are split from the noun to form a discontinuous DP. However, internal to the relative clause, accusative case

does surface on the object. In fact, since the object of the relative clause is a discontinuous DP, accusative case surfaces on both the noun *líbingrâw* 'people' and the universal quantifier *sógol*. Thus, if the lack of concord in Tiwa is due to non-pronunciation of identical instances of case, this pronunciation algorithm must be able to differentiate between instances of case with different sources, namely case assigned internal to relative clauses versus at the matrix level.

The Tiwa pattern could potentially be captured by assuming that there is traditional concord plus a phase-bound case impoverishment rule that is bled by movement. The deletion rule would target all instances of case that were not final in a DP, and the fact that this rule would be sensitive to phases could account for realizations of case internal to relative clauses. If this rule were post-syntactic, it could be bled by the type of movement that splits discontinuous DPs, accounting for why each portion of the DP surfaces with an instance of case. However, this type of account has some shortcomings. First of all, it is incompatible with the order of operations proposed by Arregi and Nevins (2012). Under their account, impoverishment precedes linearization, but the type of impoverishment rule needed to account for Tiwa would have to identify the linearly final instance of case in a DP in order to spare it from deletion. Second, the fact that case is always realized as a DP enclitic in Tiwa is an accident under this morphological account. It is purely coincidental that the final instance of case is preserved in this strongly head-final language. Third, data from differential subject marking in Amahuaca (the topic of Section 5.3) make it clear that the higher element of a discontinuous DP must be independently eligible for case assignment. As will be discussed, these facts are difficult to capture without assuming that the higher element of the discontinuous structure is a full DP, which is not predicted by the morphological account.

Given these issues, we will not adopt this version of a morphological account here. However, in what follows we will draw on certain of its core ideas; in particular, we will argue that movement indeed creates the conditions for multiple instances of case that are always present to actually be spelled out. Under the account we will develop, movement has this effect not because it bleeds the application of an impoverishment rule, but because it splits apart two layers in a DP shell structure. If these layers were realized in a continuous structure, a morphological operation – haplology – would apply to block the multiple realization of case. (This operation, in contrast to impoverishment, applies only very locally, and may apply post-linearization.) This account improves on the impoverishment account by tying the case doubling behavior of Tiwa to the fact that its case marker is a DP level enclitic, surfacing in a position where we expect to find a head in this head-final language. Crucially, under the account we propose, the pattern of case doubling only under discontiguity that we find in Tiwa is not merely a special instance of the familiar type of case concord, as an impoverishment account assumes. Instead, it reflects an empirically different phenomenon that arises as the result of spelling out multiple instances of D that each bear case.

4 The DP-shell analysis

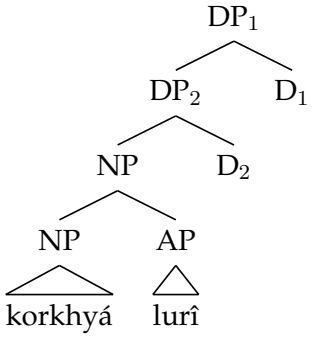
An empirically adequate theory of case doubling in discontinuous DPs in Tiwa should minimally be able to account for two key properties of the pattern. The first is that case

doubling is possible only under discontiguity in Tiwa. Case doubling is entirely ruled out in continuous DPs, which, as we discussed in Section 3, is not predicted by existing theories of case concord. The second aspect of the Tiwa pattern that a theory should be able to account for is the fact that each piece of a discontinuous DP behaves like an independent DP. As discussed in Section 2, each piece of a discontinuous DP can independently undergo the type of scrambling that is available to DPs and each piece can bear case. (We will see in Section 4.3 that there is evidence not only that each piece can bear case but that each piece can be assigned case independently.) We argue that both of these aspects of the Tiwa case doubling pattern can be captured under an account which assumes that DPs contain multiple DP shells, the heads of which are spelled out as case. In the following sections we lay out our analysis and demonstrate how it can be leveraged to account not only for the basic facts in Tiwa, but also more complicated patterns of case stacking and differential object marking.

4.1 Analysis of basic case doubling in Tiwa

The analysis we put forth here assumes nested DP shells. Specifically, we assume that the highest instance of D in the DP can select another DP as its complement in languages like Tiwa.[11] This means that a Tiwa DP like *korkhyá lurî* 'newborn baby' will have the basic structure in (24).[12]

(24)



In (24), D_1 selects DP_2 as its complement. This leads to a structure where DP_1 serves as an outer DP shell to DP_2. The complement of D_2 is an NP. The NP *korkhyá* also has an AP adjunct *lurî*.

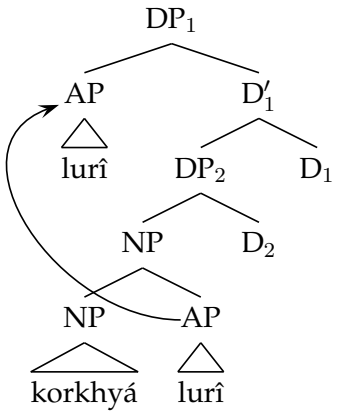
We argue that discontinuous DPs in Tiwa result from the movement of a subconstituent of the lower DP to the specifier of the higher DP, followed by remnant movement of the

[11]This conception of the DP as being able to contain multiple DPs is not unlike big-DP analyses of clitic doubling (Torrego, 1992; Uriagereka, 1995), which take clitic doubling to arise from a structure where a clitic heads a DP that contains the doubling DP in its specifier. Another similar conception of nested DP structure is that proposed by Hankamer and Mikkelsen (2021), who argue that dP takes a DP complement in Danish.

[12]For concreteness we assume that the nested structure is two instances of DP. What is important for the current analysis is that both heads are of the same category and that the category is that to which case is assigned in the language. For example, a very similar account could be given where there are two KP shells and only one DP layer. One advantage of assuming that the relevant nested structure involves multiple DP layers, rather than KP layers, is the possible connection it provides to the phenomenon of polydefiniteness, which we return to briefly in Section 6.

lower DP. First, the element that will be stranded, in this case the AP, undergoes movement to the specifier of the higher DP, as illustrated in (25).[13]

(25)



After the AP has moved to Spec,DP_1, DP_2, which contains the noun, can undergo remnant movement to a position higher in the clausal spine, stranding the AP in DP_1. This remnant movement results in discontinuous DPs like the one in (26).

(26) Mukton [$_{DP_2}$ korkhyá**-na**] mai-go [$_{DP_1}$ lurî t_{DP_2} **-na**] -lo chái os-ga.
Mukton child-DAT rice-ACC tender -DAT -FOC eat CAUS-PFV
'Mukton fed rice to a newborn baby.'

Here, DP_2 contains the NP and an instance of D, and DP_1, which remains lower in the structure, contains the previously moved AP as well as an instance of D. This means that there are two instances of D which are linearly non-adjacent. In this structure, both instances of D expone case and they both surface as the dative marker *-na*, resulting in the pattern of case doubling.

Evidence that the two pieces of a discontinuous DP are related via movement and not via base-generation comes from islands. Relative clauses are syntactic islands in Tiwa. As (27) shows, elements that originate inside a relative clause cannot be scrambled out.

(27) 'I met a woman who loves Tonbor.'

a. Ang [$_{DP}$ sája [$_{RC}$ Tonbor-go hán sha-wa] margî-go] lak mán-ga.
1SG one Tonbor-ACC love-NMLZ woman-ACC meet-PFV

b. * Tonbor-go$_i$ ang [$_{DP}$ sája [$_{RC}$ t_i hán sha-wa] margî-go] lak mán-ga.
Tonbor-ACC 1SG one love-NMLZ woman-ACC meet-PFV

Similarly, in discontinuous DPs, a noun cannot be separated from its modifier across the boundary of a relative clause island, as demonstrated in (28).

[13] If all elements which can be separated from the noun in Tiwa are independent phrases which do not contain the noun, then all discontinuous DP structures will be derived via movement similar to the movement in (25). If some are heads which select the phrase containing the noun, then the structures would involve long-distance head movement of the head to a higher specifier position. This view of syntactic head movement has been argued for by Harizanov and Gribanova (2019).

(28) 'Tomorrow, Lastoi will catch the dog that bit all the people (last year).'

a. Lastoi khónana [$_{DP}$ [$_{RC}$ [líbing-râw**-go**] (mokhále) [sógol**-gô**] -lo
Lastoi tomorrow person-PL-ACC last.year every-ACC -FOC
chí-wa] khúgri-gô] róm mán-o.
bite-NMLZ dog-ACC catch AUX-NEUT

b. * Lastoi [líbing-râw**-go**] khónana [$_{DP}$ [$_{RC}$ (mokhále) [sógol**-gô**] -lo
Lastoi person-PL-ACC tomorrow last.year every-ACC -FOC
chí-wa] khúgri-gô] róm mán-o.
bite-NMLZ dog-ACC catch AUX-NEUT

c. * Lastoi khónana [$_{DP}$ [$_{RC}$ (mokhále) [sógol**-gô**] -lo chí-wa]
Lastoi tomorrow last.year every-ACC -FOC bite-NMLZ
khúgri-gô] [líbing-râw**-go**] róm mán-o.
dog-ACC person-PL-ACC catch AUX-NEUT

As seen in (28a), discontinuous DPs can occur inside relative clauses. Here, the modifier *sógol* 'every' is separated from the noun *líbingrâw* 'people'. (28b) and (28c) show that when the noun *líbingrâw* appears outside of the relative clause, the result is ungrammatical. The fact that a quantifier and its restrictor cannot be separated by a relative clause boundary to form a discontinuous DP suggests that discontinuous DPs in Tiwa are derived via movement.

Similar facts hold for conditional islands as well, as shown in (29).

(29) 'If Lastoi sees every man, she'll be happy.'

a. [$_{COND}$ Chidî Lastoi [sógol mewâ-raw**-go**] -lo nú-gai-dô,]
if Lastoi every man-PL-ACC -FOC see-COND-TOP
khâdu-gam.
happy-MODAL

b. * [$_{COND}$ Chidî Lastoi [sógol**-gô**] -lo nú-gai-dô,] [mewâ-raw**-go**]
if Lastoi every-ACC -FOC see-COND-TOP man-PL-ACC
khâdu-gam.
happy-MODAL

In (29b), we see that it is ungrammatical for the head noun *mewâraw* 'men' to be split from the modifier *sógol* 'every' across a conditional island.

Finally, these facts also hold of coordinate structures, as shown in (30). In (30a), two object DPs are coordinated. (30b) and (30c) show that the noun *hadî* 'elephant' from the second conjunct cannot appear outside of the coordinate structure to form a discontinuous DP with its modifier *kiníng* 'two'.

(30) 'Lastoi saw one cat and two elephants.'

a. Lastoi khóna [[miyâw kishá-gô] arô [hadî kiníng**-gô**]]
Lastoi yesterday cat one.CL-ACC and elephant two.CL-ACC
nú-ga.
see-PFV

b. * Lastoi [hadî**-go**] khóna [[miyâw kishá-gô] arô
Lastoi elephant-ACC yesterday cat one.CL-ACC and
[kiníng-gô] (-lo)] nú-ga.
two.CL-ACC -FOC see-PFV

c. * Lastoi [[miyâw kishá-gô] arô [kiníng**-gô**] (-lo)] khóna
Lastoi cat one.CL-ACC and two.CL-ACC -FOC yesterday
[hadî**-go**] nú-ga.
elephant-ACC see-PFV

In summary, then, the pattern is that when the pieces of a discontinuous DP are related across an island boundary, the result is ungrammaticality. This suggests that the pieces of discontinuous DPs in Tiwa are related via movement rather than base generation.[14]

With this understanding of how discontinuous DPs are derived, the question that remains is how to derive case doubling only in discontinuous DPs. How do both instances of D come to bear the same case value and why is case realized only once in continuous DPs? As in theories of DP-internal concord which argue that case is assigned to the highest head in the DP and then spread to other heads, we assume that case is assigned to the outermost D and then spread. However, this operation of feature spreading is significantly more constrained in Tiwa than it is in languages which exhibit concord in continuous DPs. In Tiwa, only elements of category D in a nested DP structure share case features. That is to say, this feature spreading is limited to configurations in which an instance of D selects a DP as its complement. Case cannot be spread to any other DP-internal elements. (This is why case is always realized as a DP enclitic rather than on a consistent element, such as the noun, in the DP.)

In structures where two DPs remain nested, that is, in continuous DPs, case will be assigned to D_1 and spread to D_2. However, in a head-final language like Tiwa, the two instances of D will remain linearly adjacent. Since these adjacent instances of D are featurally identical, a process of morphological haplology ensures that only one instance will be pronounced (see Nevins, 2012, and sources cited therein). This rules out two adjacent instances of case marking at the end of continuous DPs, favoring instead the attested pattern of a single instance of case marking in continuous DPs, as shown in (31).

(31) Mukton mai-go [$_{DP_1}$ [$_{DP_2}$ korkhyá lurî**-na**] **(*-na)**] chái os-ga.
Mukton rice-ACC child tender-DAT -DAT eat CAUS-PFV
'Mukton fed rice to a newborn baby.'

There are two distinct pieces of independent evidence for haplology of featurely identical, linearly adjacent case markers. The first of these comes from NP ellipsis, illustrated in (32).

[14]The island facts considered here contrast with the behavior of spilt DPs in Georgian, which Fuchs (2021) argues should be analyzed as involving base generation of two independent DPs. Fuchs demonstrates that Georgian split DPs are not sensitive to islands, such as a coordinate structures. The fact that base generated splits in Georgian do not show island sensitivity suggests that the island sensitivity in Tiwa reflects a genuine movement derivation rather than a universal constraint on the types of structures that split DPs can be interpreted across.

(32) Context: Everyone's wife made a vegetable curry. Tonbor ate Mukton's wife's curry, Mansing ate Tonbor's wife's curry, and Mukton ate Mansing's wife's curry.

Tonbor [Mukton-e sí-ne ságar-gô] chá-ga, Mansing [Tonbor-e
Tonbor Mukton-GEN wife-GEN curry-ACC eat-PFV Mansing Tonbor-GEN
sí-ne-gô] chá-ga, arô Mukton [**Mansing-e(*-ne)-go**] chá-ga.
wife-GEN-ACC eat-PFV and Mukton Mansing-GEN-GEN-ACC eat-PFV
'Tonbor ate Mukton's wife's curry, Mansing ate Tonbor's wife's (curry), and Mukton ate Mansing's (wife's curry).'

In this sentence, NP ellipsis in the second clause eliminates *ságar* 'curry', leading to a genitive-accusative sequence. In the third clause, NP ellipsis targets both *ságar* 'curry' and *sí* 'wife'. However, the result is not a genitive-genitive-accusative string, as we would expect if no haplology applied, but a genitive-accusative string.

The second piece of evidence for haplology comes from the realization of dative case marking on future-oriented temporal expressions in the standard of a phrasal comparative. In Tiwa, temporal expressions are by default past-oriented, with future-oriented temporal expressions formed by affixing dative case *-(n)a* (Dawson, 2020:30). This process applies generally across the language, as shown for a sample of temporal expressions in (33).

(33) a. *khóna* 'yesterday' → *khóna-na* 'tomorrow'
b. *sóne* 'the day before yesterday' → *sóne-na* 'the day after tomorrow'
c. *mokhále* 'last year' → *mokhále-na* 'next year'
d. *pakhál* 'when (past)' → *pakhál-a* 'when (future)'

Comparatives in Tiwa are phrasal, rather than clausal, with the standard of comparison assigned dative case by the comparative postposition *khúli* 'than' (Dawson, 2020, 2021), as shown in (34). Temporal expressions can serve as the standard of comparison, as shown in (35), with the expected dative case marking.

(34) [Bibiana***(-na)** khúli] Ginny chui-do.
Bibiana-DAT than Ginny tall-IPFV
'Ginny is taller than Bibiana.'

(35) [Khóna**-na** khúli] táw parâ túng-do.
yesterday-DAT than today more hot-IPFV
'Today is hotter than yesterday.'

When a future-oriented temporal expression serves as the standard of comparison, there is only one surface realization of dative case, as shown in (36). If there were no haplology, we would expect a dative-dative string — the first because the temporal expression is future oriented, and the second assigned by the comparative *khúli*.

(36) [Khóna**-na(*-na)** khúli] sóne-na-sê parâ túng-o.
tomorrow-DAT than day.after.tom-FOC more hot-NEUT
'The day after tomorrow will be hotter than tomorrow.'

In continuous DPs, haplology occurs when the two nested instances of D are linearly adjacent, resulting in only one instance of the case marker. In discontinuous DPs, on the other hand, both pieces surface with matching case because the two instances of D are separated by intervening material. In deriving these discontinuous structures, the case feature is shared between both instances of D when the DPs are nested. For example, since both the noun and adjective in (26), repeated as (37), surface with dative case, dative case is assigned when the two DPs are still in a nested configuration.

(37) Mukton [$_{DP_2}$ korkhyá**-na**] mai-go [$_{DP_1}$ lurî t_{DP_2} **-na**] -lo chái os-ga.
Mukton child-DAT rice-ACC tender -DAT -FOC eat CAUS-PFV
'Mukton fed rice to a newborn baby.'

The dative case feature is spread from D_1 to D_2, and when the DP is split via remnant movement, both instances of D surface as the dative case marker, resulting in the pattern of case doubling.

Note that this analysis assumes that case assignment can precede remnant movement of the lower DP in a nested structure. If we assume that remnant movement and subsequent movement operations affecting the two pieces of a discontinuous DP occur in the narrow syntax, there are consequences for a theory of case assignment. Specifically, the major consequence of this type of account is that case assignment, even in a configurational theory of case, must apply in the narrow syntax (Preminger, 2011, pace Bobaljik, 2008). In the discussion surrounding differential case marking in Amahuaca in Section 5.3, we will return to the question of the relative timing of case assignment and movement. We will argue that the ability to order movement before or after case assignment is crucial in deriving two different patterns of case marking found in discontinuous ergative DPs.

Before moving on to consider various extensions of our analysis, it is worth considering briefly another alternative to the DP-shell account we have proposed. The island facts discussed here support a movement derivation of discontinuous DPs. However, an alternative possibility to the view that we argue for here is to assume that the entire DP containing the noun and modifiers undergoes movement and that the appearance of a discontinuous DP arises because different elements of the DP are pronounced at different positions along the path of movement (Fanselow and Cavar, 2001). This type of analysis would not require positing multiple DP shells, but rather would rely on some process like scattered deletion (Nunes, 1999) to derive the surface distribution of elements. Under this type of account, if we assume that case is only realized in D, the correct case doubling results could be derived so long as D could never be targeted for scattered deletion. This is because there would be a single instance of D in each copy in the movement chain, which, if pronounced, would result in a case enclitic on whatever other material was pronounced at that position in the chain.

A major issue for this type of account lies in constraining the deletion operation. An unconstrained deletion operation could, for example, produce the appearance of island violations. As discussed, a modifier cannot be separated from its head noun across a relative clause island. If scattered deletion were allowed to freely apply to any terminal nodes in a copy of a moved DP, a seemingly island-violating string could be derived without any genuine island violations. Consider the example in (38).

(38) * Lastoi [$_{DP}$ [$_{RC}$ ~~mokhále~~ [$_{DP}$ ~~sógol~~ líbing-râw**-go**] ~~-lo~~ ~~chí-wa~~] ~~khúgri-gô~~]
Lastoi last.year every person-PL-ACC -FOC bite-NMLZ dog-ACC
khónana [$_{DP}$ [$_{RC}$ mokhále [$_{DP}$ sógol ~~líbing-râw~~**-gô**] -lo chí-wa]
tomorrow last.year every person-PL-ACC -FOC bite-NMLZ
khúgri-gô] róm mán-o.
dog-ACC catch AUX-NEUT
'Tomorrow, Lastoi will catch the dog that bit all the people last year.'

In this structure, the entire DP containing the relative clause undergoes movement. In the higher copy, all material in the DP and the relative clause it contains is deleted except for the noun *líbingrâw* 'people' and its accusative case marker – an instance of D. In the lower copy, only the restrictor of the quantifier *sógol* inside the relative clause is deleted. This deletion would result in the appearance of an island violation without any true movement out of an island. Such configurations are ungrammatical, suggesting that scattered deletion would have to be constrained so as not to allow such strings to arise. An additional constraint on deletion would have to prevent case markers themselves from being deleted in movement copies. If deletion of D were not ruled out, case doubling would appear to be optional.[15] As we will discuss in Section 4.3, the only place where pieces of discontinuous DPs are allowed to mismatch in case is in differential object marking contexts. Otherwise, case doubling is obligatory.

As outlined here, a scattered deletion account would have to be significantly constrained in order to derive the correct results. The problem is that there is little consensus about how to properly constrain this mechanism, and the Tiwa data conflict with some prominent proposals for how to do so. This is clear, for instance, for constraints along the lines of those put forth by Nunes (1999) and Bošković (2001). They consider scattered deletion to be a last resort option – it is only licensed if full deletion of a lower copy is blocked for PF reasons. The types of patterns found with discontinuous DPs in Tiwa do not seem indicative of a last resort strategy. There is no consistent position that the lower piece of a discontinuous DP must occupy such that its pronunciation appears to be motived by PF considerations. Likewise, structures with continuous DPs in the highest position in the chain are always possible alternatives to their discontinuous counterparts. Thus, it appears that scattered deletion would have little motivation in Tiwa discontinuous DPs, in addition to requiring multiple stipulations to rule out unattested deletion patterns.

The proposal we have sketched here based on DP shells is able to derive the key pattern of case doubling only under discontiguity with fewer stipulations than alternative accounts require. In the following two sections we will discuss how this analysis is able to be straightforwardly extended to derive patterns of case stacking and differential object marking in discontinuous DPs in Tiwa.

[15] If scattered deletion could not target D, the accusative case marker on the head noun *khúgri* 'dog' of the relative clause in (38) could not be deleted by scattered deletion. However, haplology of case markers, which is independently motivated in Tiwa, could result in the deletion of this case marker since it would surface adjacent to the accusative case marker on the noun *líbingrâw* 'people'.

4.2 Case stacking

An interesting facet of the pattern of case doubling we have seen in Tiwa is that it can result in case stacking, as seen in (39) and (40).

(39) Monbor [miyâw**-go**] khóna [Sonali**-ne-go**] -lo nú-ga.
Monbor cat-ACC yesterday Sonali-GEN-ACC -FOC see-PFV
'Monbor saw Sonali's cat yesterday.'

(40) Monbor [miyâw**-re**] payâr-o [Sonali**-ne-re**] -lo omlê-dom.
Monbor cat-COM outside-LOC Sonali-GEN-COM -FOC play-PST
'Monbor played outside with Sonali's cat.'

In (39), the possessor *Sonali* surfaces with genitive case, as we expect since it is a possessor. However, stacked outside of the genitive case marker *-ne* is the accusative case marker *-go*. This accusative case is what we expect since *Sonali* originates within a DP that itself is accusative-marked, as evidenced by the accusative case on the noun *miyâw* 'cat'. The same pattern holds with comitative case, as shown in (40), where the genitive-marked possessor *Sonaline* also takes the comitative marker *-re*.[16]

We propose that the reason discontinuous possessors can exhibit case stacking is because they contain two instances of D that bear different case features. We assume the base structure of a DP with a possessor is as shown in (41) for the DP *Sonaline miyâw* 'Sonali's cat'.

---

[16] Interestingly, case stacking cannot result in genitive-dative sequences.

(ii) 'Mukton gave fish to Sonali's cat yesterday.'

a. Mukton khóna [Sonali**-ne** miyâw**-a**] ngá-gô os-ga.
Mukton yesterday Sonali-GEN cat-DAT fish-ACC give-PFV

b. * Mukton [miyâw-a] khóna [Sonali**-ne(-na)**] -lo ngá-gô os-ga.
Mukton cat-DAT yesterday Sonali-GEN-DAT -FOC fish-ACC give-PFV

This ban is not specific to discontinuous DPs, however, but applies throughout the language as a whole. For example, while NP ellipsis often results in case stacking (e.g. (44) below), NP ellipsis is banned when it would result in a genitive-dative sequence, as shown in (iii).

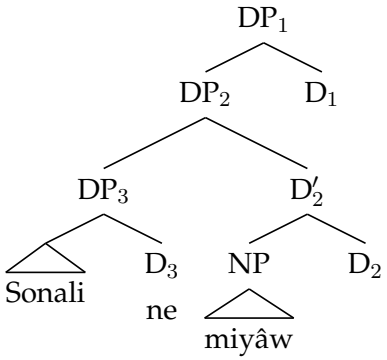
(iii) 'Mukton gave fish to Sonali's cat, and Tonbor to Lastoi's.'

a. Mukton [Sonali-ne miyâw-a] ngá os-ga, arô Tonbor [Lastoi**-ne** miyâw**-a**] ngá os-ga.
Mukton Sonali-GEN cat-DAT fish give-PFV and Tonbor Lastoi-GEN cat-DAT fish give-PFV

b. * Mukton [Sonali-ne miyâw-a] ngá os-ga, arô Tonbor [Lastoi**-ne-na**] ngá os-ga.
Mukton Sonali-GEN cat-DAT fish give-PFV and Tonbor Lastoi-GEN-DAT fish give-PFV

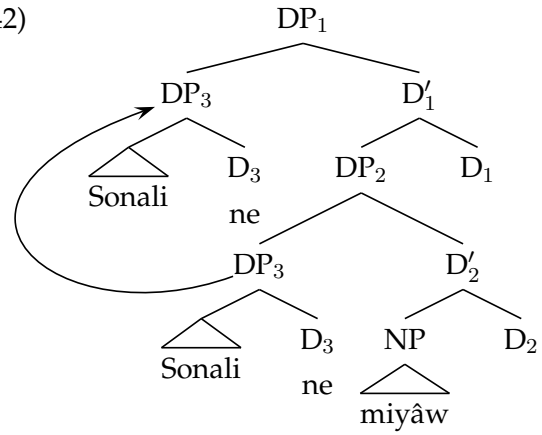
As (iib) also shows, the genitive-dative sequence cannot be repaired by deleting the dative case marker. Instead, such configurations seem to be avoided entirely.

(41)



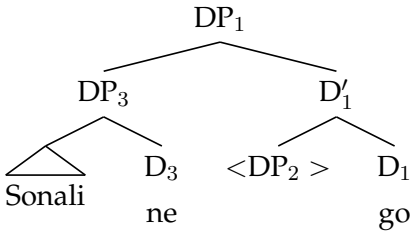
When the possessor *Sonaline* is stranded, it first moves to Spec,DP_1, as shown in (42).

(42)



Accusative case is assigned to DP_1, and case is spread from D_1 to D_2. Finally, DP_2 undergoes remnant movement, stranding DP_1, which contains the possessor. The structure of the stranded element is shown in (43), in which D_1 and D_3, the head of the possessor DP, are adjacent.

(43)



In this structure, D_3 is realized as the genitive case marker *-ne* and D_1 is realized as the accusative case marker *-go*. Since the two instances of D bear different features, haplology does not apply, resulting in surface case stacking.

This configuration of two adjacent, featurally distinct instances of D occurs elsewhere in the language, namely in NP ellipsis. When a possessed noun is elided in Tiwa, the case marker which would typically appear on the noun stacks onto the genitive-marked possessor. This is shown in (44).

(44) Milton-e [Monbor-e thílu-gô] chá-wa-ne khélango,
Milton-GEN Monbor-GEN banana-ACC eat-NMLZ-GEN after
Monbor-bo [**Milton-e-go**] chá-ga.
Monbor-ADD **Milton-GEN-ACC** eat-PFV
'After Milton ate Monbor's banana, Monbor ate Milton's.'

In the DP *Miltonego* 'Milton's' in (44), the noun *thílu* 'banana' is elided under identity with the previous instance of the noun in the phrase *Monbore thílugô* 'Monbor's banana'. Even though the NP is elided, the accusative case marker that would otherwise surface on the noun remains: it is stacked on the genitive-marked possessor. Just like the structure in (43), the DP *Miltonego* involves two adjacent instances of D – one internal to the possessor DP, and the other in the main DP. We take this parallel as support for the idea that case stacking in discontinuous DPs involves multiple adjacent instances of featurally distinct D.

4.3 Differential object marking

All examples of discontinuous DPs discussed so far have shown case matching between the head noun and stranded modifier. There is a pattern in Tiwa that at first glance appears to be an exception to the generalization that case doubling always occurs under discontiguity: accusative case doubling is seemingly "optional" in some sentences, as in (45).

(45) Lastoi [ngá**-gô**] khóna [mile**(-go)**] -lo pre-ga.
Lastoi fish-ACC yesterday every-ACC -FOC buy-PFV
'Lastoi bought all the fish yesterday.'

In (45), the noun *ngá* 'fish' shows accusative case marking while the stranded quantifier *mile* 'every' can surface without case marking. This apparent optionality is only found with accusative case; case doubling with other case markers, like dative, is obligatory, as shown in (46).

(46) 'Sonali gave milk to three cats.'
a. Sonali [thin-tha miyâw**-a**] kakhîr-go os-ga.
Sonali three-CL cat-DAT milk-ACC give-PFV
b. Sonali [miyâw**-a**] kakhîr-go [thin-tha***(-na)**] os-ga.
Sonali cat-DAT milk-ACC three-CL-DAT give-PFV

That case mismatch is only possible with accusative case is not entirely surprising given that Tiwa exhibits differential object marking (DOM). An example of DOM is given in (47), which shows that the object *ngá* 'fish' can appear either with or without accusative case marking.

(47) Sonali [ngá**(-gô)**] pre-ga.
Sonali fish-ACC buy-PFV
'Sonali bought (the) fish.'

DOM in Tiwa is sensitive to a number of factors including animacy, definiteness, and specificity (see Bossong, 1991; Aissen, 2003, among many others). What is interesting from the perspective of the current discussion is that the patterns of accusative case marking in discontinuous DPs are exactly as we would expect if both pieces of a discontinuous DP are independent DPs eligible for separate case assignment.

Specifically, if a continuous object DP must be marked with accusative case, so too must both pieces of the resulting discontinuous DP if that DP is split. For example, possessed object DPs must always surface with accusative case. This is true for continuous DPs, as in (48), and also for both the noun and possessor when they form a discontinuous DP, as in (49).

(48) Sonali [Tonbor-e ngá***(-gô)**] pre-ga.
Sonali Tonbor-GEN fish-ACC buy-PFV
'Sonali bought Tonbor's fish.'

(49) Monbor [miyâw***(-go)**] khóna [Sonali-ne***(-go)**] -lo nú-ga.
Monbor cat-ACC yesterday Sonali-GEN-ACC -FOC see-PFV
'Monbor saw Sonali's cat yesterday.'

The same pattern holds for demonstratives. (50) shows that objects with demonstratives must be marked accusative. (51) shows that the demonstrative in a discontinuous object DP must likewise surface with accusative case.

(50) Ang [pe kashóng***(-gô)**] kan lái-do-ng.
1SG that dress-ACC wear AUX-IPFV-1SG
'I'm putting on that dress.'

(51) Mukton [líbing-gô] khóna [pe***(-go)**] (-lo) nú-ga.
Mukton person-ACC yesterday that-ACC -FOC see-PFV
'Mukton saw that person yesterday.'

In contrast, DPs that do not require accusative case marking when continuous also do not require accusative case when discontinuous. For instance, continuous DPs objects with quantifiers can appear without accusative case marking, as in (52). The same holds for discontinuous DPs with quantifiers, as shown in (53) and in (45) above.

(52) Pe margî [mile ngá**(-gô)**] pre-ga.
that woman every fish buy-PFV
'That woman bought all the fish.'

(53) [Ngá**(-gô)**] sálang [mile**(-go)**] -lo pre-ga.
fish-ACC quickly every-ACC -FOC buy-PFV
'She quickly bought all the fish.'

The same pattern holds for objects modified by a numeral. (54a) shows that a numeral-modified object can appear without accusative case. (54b) shows that the numeral can be unmarked when discontinuous as well.

(54) 'Mukton gave Lastoi four flowers.'

a. Mukton Lastoi-na [shar-tha khum**(-go)**] os-ga.
Mukton Lastoi-DAT four-CL flower-ACC give-PFV

b. Mukton [khum-go] Lastoi-na [shar-tha**(-go)**] os-ga.
Mukton flower-ACC Lastoi-DAT four-CL-ACC give-PFV

Note that there is a loose correlation between accusative case marking and structural height within the clause. In particular there is a general preference for overt case marking on objects that appear to the left of adverbs or other arguments. This pattern is reflected in discontinuous DPs, where speakers prefer overt case marking on pieces which are higher in the structure.[17]

These patterns show that accusative case mismatching under discontiguity behaves in the same way as the regular pattern of DOM in Tiwa. The interaction of DOM and discontiguity can be captured by the same DP-shell analysis presented in Section 4.1, so long as we assume that there is an interaction between the timing of case assignment and splitting of the DP. When accusative case surfaces on both elements of the discontinuous DP, we assume that this reflects accusative case assignment prior to the splitting of the DP. Accusative case is assigned to D_1 and spread to D_2 in the nested DP configuration and later the DP is split. This leads to the familiar case doubling pattern. What is more interesting is the examples of case mismatches, such as in (45). In such instances, we assume that the DP is split prior to the assignment of accusative case to the higher piece of the discontinuous DP. When case is assigned after the DP is split, the accusative case feature is not spread between instances of D since they are not in the requisite local nested configuration. The mechanisms that give rise to case doubling do not allow the transfer of accusative case to the other DP in the discontinuous structure. Under this type of analysis, the reason that accusative is the only case for which doubling is "optional" is because accusative case is the only morphologically overt case in Tiwa that is not uniformly assigned upon external merge of a DP in a given position.[18]

[17] While accusative case marking in Tiwa is typically associated with DPs that appear in a structurally higher position than unmarked DPs, a purely structural account of DOM in Tiwa faces empirical challenges as unmarked objects can appear higher than the subject in some instances (Dawson, 2020). The DP-shell analysis is, however, able to account for case mismatches that are due to purely movement-based differential case marking, which we will demonstrate for differential subject marking in Amahuaca in Section 5.3.

[18] These data are problematic for concord-based views of case doubling. For the purely morphological view of case doubling considered in Section 3, case doubling would be the result of true concord plus deletion of all but the final instance of case in each continuous portion of DP. It is unclear how case mismatches could be derived in DOM contexts under such a view. If case were always assigned to the entire DP, it should always surface on both pieces of the discontinuous object DP. If, as under our account, case is assigned only to the piece of the discontinuous DP that surfaces with case in DOM contexts, then the highest piece of the DP must be independently eligible for case assignment. This is captured under our account by the fact that the piece of a discontinuous DP that surfaces with case is itself a full DP, eligible for case assignment. At the very least, it seems that a surface-oriented account involving concord plus impoverishment would have to allow each piece of a discontinuous DP to be assigned case independently, requiring something like multiple DP layers – one for each piece of a DP.

Likewise, another possible alternative analysis based on traditional concord would be one in which concord is only possible in certain domains in the DP (Pesetsky, 2013; Bayırlı, 2017). According to this type of view, case concord within the DP would be blocked from applying below a certain layer of structure in the DP. Above this boundary, all elements would be able to participate in the feature sharing necessary for concord,

The DP-shell analysis we have proposed is able to account not only for the pattern of case doubling that we find in discontinuous DPs in Tiwa, but also for instances of case stacking and mismatches in case that arise in DOM contexts. In the following section we show that this DP-shell analysis can also be extended to account for a similar pattern of case doubling in a unrelated and typologically different language, Amahuaca.

5 Extending the DP-shell analysis to Amahuaca

Amahuaca is a Panoan language spoken in the Peruvian and Brazilian Amazon by approximately 500 speakers (Eberhard et al., 2021). The data presented here were collected by the first author through fieldwork with four native speakers carried out in the district of Sepahua in Atalaya Province, Ucayali, Peru between 2015 and 2018. Amahuaca is mixed headed, being mostly head final, but having a head-initial AspP and CP (Clem, 2021b). Scrambling of arguments and adjuncts is largely available. As in Tiwa, DP-internal word order in Amahuaca is flexible (Clem, 2019a:47-50), suggesting the availability of movement operations within the DP. One difference from Tiwa, which displays accusative alignment, is that Amahuaca exhibits a tripartite alignment system with nominative, ergative, and accusative case. Case surfaces as a DP enclitic. Another difference we will see is that Amahuaca has differential subject marking rather than differential object marking, and this differential case marking is clearly structural in nature (Clem, 2019b). Despite these differences between the two languages, we will demonstrate that the DP-shell analysis we have pursued for Tiwa can be easily extended to derive the Amahuaca patterns.

5.1 Case doubling in Amahuaca

As in Tiwa, there is no case concord in continuous DP structures in Amahuaca. In matrix declarative clauses, a second position clitic *=mun* surfaces with exactly one syntactic constituent preceding it (Clem, 2019b). It is ungrammatical for a DP with multiple instances of case marking to appear in the initial position before this clitic, as shown in (55).[19]

but below this boundary, feature sharing would be blocked completely. Under this type of account, nouns and modifiers in Tiwa would typically be too low in the DP to undergo case feature sharing with D. However, if discontinuous DPs were formed by moving an element out of DP and if this movement out of DP were preceded by a step of movement higher in the DP, specifically to Spec,DP, this intermediate movement step would allow the moving element to enter domain in which concord was active and thus show concord. The DOM data prove challenging for this type of account. If case were assigned prior to the DP splitting, it is unclear how a case mismatch could be derived. Both D and the element that moved through its specifier should bear case. If case were assigned after the DP was split, the higher, case-bearing piece of the DP would need to be independently eligible for case assignment. As with the impoverishment that was just discussed, this would still require an appeal to multiple DP layers. For another argument against this type of account based on constituency of moving elements, see footnote 22.

[19]Some DP-internal elements, such as the emphatic marker *=vi* appear in a form with an extra syllable when they precede a case marker, as seen in (iv).

(iv) [joni kiyoo**=vini**=n] =mun jono rutu=hi=ki=nu
man all=EMPH.LG=ERG =C peccary kill=IPFV=3.PRES=DECL
'All the men are killing a peccary.'

See Clem 2019a (pp. 11-14) for further discussion.

(55) [kiyoo {=vi / *=vini**=n**} joni***(=n)**] =mun jono
all =EMPH / =EMPH.LG=ERG man=ERG =C peccary
rutu=hi=ki=nu
kill=IPFV=3.PRES=DECL
'All the men are killing a peccary.'

In (55), ergative marking is obligatory at the end of the DP, but it is ungrammatical internal to the DP on the quantifier *kiyoovi(ni)*. From the position of the DP before the second position clitic, we can conclude that the noun and its modifier form a single constituent. Therefore, the ungrammaticality of double case marking demonstrates that when a noun and its modifiers occur as a single continuous constituent, case concord is impossible. Note that this pattern contrasts with that found in a language with true concord like Warlpiri. Warlpiri also has a second position clitic (the auxiliary *ka-pala* in (20) above), and when a DP is clearly a single constituent before the second position clitic, case concord is still possible (Simpson, 1991:257-258).

Also like in Tiwa, case doubling on the noun and its modifiers becomes available when the DP is discontinuous in Amahuaca. Modifiers that are separated from the noun match the noun in case, as seen in (56) with ergative case.

(56) [joni**=n**] =mun jono [kiyoo=vini**=n**] rutu=hi=ki=nu
man=ERG =C peccary all=EMPH.LG=ERG kill=IPFV=3.PRES=DECL
'All the men are killing a peccary.'

We see in (56) that when the noun is separated from the quantifier, both pieces surface with ergative case marking.

In Amahuaca, like in Tiwa, various modifiers can be separated from the head noun to form a discontinuous DP. When they are separated, they match the noun in case. Modifiers displaying this behavior include quantifiers, as was seen in (56), and also numerals, (57), and adjectives, (58).

(57) 'Two men are looking for capybaras.'
a. [ravuu joni**=n**] =mun hamun vuna=hi=ki=nu
two man=ERG =C capybara look.for=IPFV=3.PRES=DECL
b. [ravuuta**=n**] =mun [joni**=n**] hamun vuna=hi=ki=nu
two.LG=ERG =C man=ERG capybara look.for=IPFV=3.PRES=DECL

(58) 'The tall man is looking for a paca.'
a. [joni chaiita**=n**] =mun hano vuna=hi=ki=nu
man tall.LG=ERG =C paca look.for=IPFV=3.PRES=DECL
b. [chaiita**=n**] =mun [joni**=n**] hano vuna=hi=ki=nu
tall.LG=ERG =C man=ERG paca look.for=IPFV=3.PRES=DECL

In (57b), both the numeral *ravuu(ta)* 'two' and the noun *joni* 'man' surface with ergative case. In (58b), the adjective *chaii(ta)* 'tall' and the noun *joni* 'man' both surface with ergative case.

In addition to matching in ergative case, as we have seen in the examples so far, discontinuous DPs can also match in nominative case, as seen in (59). Note that nominative case receives a non-zero realization in Amahuaca.[20]

(59) 'The tall man fell.'

a. [joni chaiita**=x**] =mun pakuu=xo=nu
man tall.LG=NOM =C fall=3.PST=DECL

b. [joni**=x**] =mun [chaiita**=x**] pakuu=xo=nu
man=NOM =C tall.LG=NOM fall=3.PST=DECL

As seen in (59b), when the head noun *joni* 'man' is separated from the adjective *chaii(ta)* 'tall', both pieces can surface with nominative case.

Similar to what was seen for Tiwa, discontinuous DPs in Amahuaca show sensitivity to islands. Relative clauses in Amahuaca are islands for movement (Clem, 2019a:46, 2021a). As shown in (60b), it is impossible for a modifier of a non-head constituent of a relative clause to surface outside of the relative clause despite the fact that DP splits are possible within relative clauses, as seen in (60a).

(60) 'The snake that all the children saw died.'

a. [$_{RC}$ [kiyoo=vini**=n**] [vaku**-vaun**] rono hiin=hato] =x=mun
all=EMPH.LG=ERG child-PL.ERG snake see=PFV.LG =NOM=C
na=xo=nu
die=3.PST=DECL

b. * [kiyoo=vini**=n**] =mun [$_{RC}$ [vaku**-vaun**] rono hiin=hato] =x
all=EMPH.LG=ERG =C child-PL.ERG snake see=PFV.LG =NOM
na=xo=nu
die=3.PST=DECL

In (60a), the subject of the internally-headed relative clause is structurally discontinuous. The modifier *kiyoovinin* 'all' is split from the noun *vakuvaun* 'children' and both surface with ergative case. However, when the modifier *kiyoovinin* is moved out of the relative clause to a position before the second-position clitic *=mun*, as in (60b), the result is ungrammatical. This provides evidence that the two pieces of a discontinuous DP in Amahuaca are related via movement since they cannot be split across a relative clause island.

A final interesting point to consider in terms of the basic patterns of discontinuous DPs in Amahuaca is a restriction on the surface position of nouns and their modifiers. There

[20] Amahuaca accusative case is morphologically null. As with Tiwa nominative DPs, Amahuaca accusative DPs can be split to form discontinuous DPs. In such structures both pieces surface in a morphologically unmarked form.

(v) 'I saw all the peccaries.'

a. [jono kiyoo] =mun hun hiin=ku=nu
peccary all =C 1SG see=1.PST=DECL

b. [kiyoo] =mun hun [jono] hiin=ku=nu
all =C 1SG peccary see=1.PST=DECL

are, in general, few restrictions on the surface position of various pieces of discontinuous DPs in Amahuaca. However, one important generalization emerges. When a subject DP is discontinuous, only the noun may appear in the low base position of the DP. We assume that the externally-merged position of subjects in Amahuaca is in Spec,*v*P (modulo unaccusativity). Head-initial AspP dominates *v*P, meaning that subjects that remain in their externally-merged position linearly appear immediately to the right of aspect marking (Clem, 2019b). Modifiers may not be stranded in this position, as seen in (61) and (62). (The distribution of ergative case in examples like (61)-(63) is the subject of Section 5.3.)

(61) 'All the men are killing a peccary.'

a. jono=mun rutu=hi [**kiyoo=vi joni**] =ki=nu
peccary=C kill=IPFV all=EMPH man =3.PRES=DECL

b. jono=mun [kiyoo=vini=n] rutu=hi [**joni**] =ki=nu
peccary=C all=EMPH.LG=ERG kill=IPFV man =3.PRES=DECL

c. * jono=mun [joni=n] rutu=hi [**kiyoo=vi**] =ki=nu
peccary=C man=ERG kill=IPFV all=EMPH =3.PRES=DECL

(62) 'The black dog is chasing a chicken.'

a. hatapa=mun chivan=hi [**hino chaho**] =ki=nu
chicken=C chase=IPFV dog black =3.PRES=DECL

b. [chaho=n] =mun hatapa chivan=hi [**hino**] =ki=nu
black=ERG =C chicken chase=IPFV dog =3.PRES=DECL

c. * [hinan] =mun hatapa chivan=hi [**chaho**] =ki=nu
dog.ERG =C chicken chase=IPFV black =3.PRES=DECL

In (61a), we see that a continuous DP with a quantifier and noun can appear in the externally-merged position of the subject. The example in (61b) shows that the noun can be stranded in this low position with the quantifier surfacing higher in the structure. However, (61c) demonstrates that it is ungrammatical to strand the quantifier in a similar way, even though quantifiers can, in general, appear lower than their restrictors, as in (56).[21] This ungrammaticality is not remedied by causing the two pieces of the DP to match in case. The same pattern is shown for an adjective in (62) – only the noun, not the adjective that modifies it, can be stranded in the base position of the subject.

Interestingly, when a noun contains more than one modifier, one of the modifiers can be stranded along with the noun in the base position of the subject, as shown in (63).

(63) 'Three black dogs are chasing a chicken.'

a. hatapa=mun chivan=hi [**hino chaho kimisha**] =ki=nu
chicken=C chase=IPFV dog black three =3.PRES=DECL

[21] This pattern provides a further challenge to a scattered deletion account of case doubling. If scattered deletion were responsible for the appearance of discontinuous DPs, the mechanism would have to be constrained so as to only allow deletion of modifiers in the base position of the DP in Amahuaca. It is not obvious how this could be motivated from a PF perspective since a quantifier can freely surface in its externally-merged position when it has no phonologically overt restrictor elsewhere in the sentence.

b. [kimishana=n] =mun hatapa chivan=hi [**hino chaho**] =ki=nu
three.LG=ERG =C chicken chase=IPFV dog black =3.PRES=DECL

c. [chaho kimishana=n] =mun hatapa chivan=hi [**hino**] =ki=nu
black three.LG=ERG =C chicken chase=IPFV dog =3.PRES=DECL

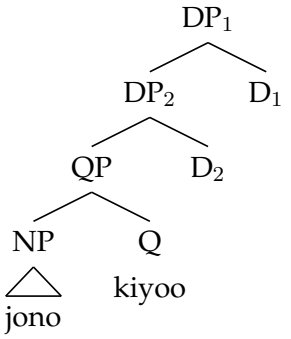
In (63a), we see a DP with a noun, adjective, and numeral in the base subject position. It is possible for the noun *hino* 'dog' and the adjective *chaho* 'black' to remain in this position while the numeral *kimisha(na)* 'three' moves higher, as in (63b). Note that it is also possible for both modifiers to move together to a higher position, stranding only the noun, as seen in (63c).[22] Therefore, the generalization that emerges is that, in a discontinuous subject DP, if any piece remains in the base position, that piece must contain the noun. This generalization will factor into our discussion of the derivation of discontinuous DPs in Amahuaca in the following section.

5.2 Analysis of Amahuaca case doubling

As discussed for Tiwa in Section 4, we assume that case doubling under discontiguity arises in Amahuaca due to the presence of multiple shells in the DP. In this section, we highlight how this analysis is able to to be extended to Amahuaca with minimal additions, despite the differences between Amahuaca and Tiwa.

We assume that there are two DP layers in the Amahuaca DP, with remnant movement of the lower DP in discontinuous structures. This means that a DP like *jono kiyoo* 'all peccaries' will have a structure as in (64).

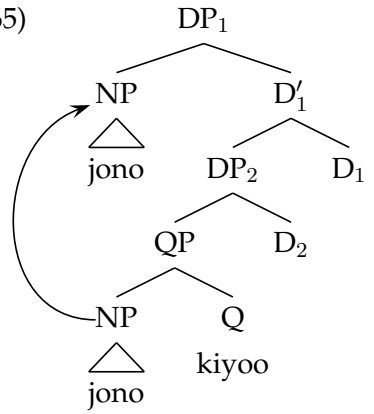
(64)



[22] This type of pattern provides an additional challenge for the type of concord-based analysis involving concord within limited domains that was presented in footnote 18. Under this type of account, discontinuous DPs would be the result of a DP-internal element moving through Spec,DP before moving out of DP. The intermediate step of movement to Spec,DP would result in the moving element being in a sufficiently local relationship to D to undergo the type of feature sharing assumed to underlie traditional concord. What is problematic for this type of account is the fact that the element that can be moved higher in the structure to form a discontinuous DP need not be a constituent, as with *chaho kimisha* 'black three' in (63c). These two modifiers should not form a constituent to the exclusion of the noun given standard assumptions about DP-internal structure. Therefore, they should not be able to move together. If they moved separately, they should each bear case under this alternative type of account. Under our analysis, the reason that these two modifiers can undergo movement together is because they form a remnant DP that the noun has already vacated by moving to the specifier of the higher DP shell.

In the tree in (64) we see that D_1 takes DP_2 as its complement. In turn, the head of this DP selects a QP, which contains the quantifier and NP. Given the noun-stranding data discussed in Section 5.1, we must make one stipulation for Amahuaca that was not necessary for the Tiwa data. As we saw, a piece of a discontinuous DP containing the noun may be stranded in the base position of the DP in Amahuaca, but a piece containing only modifiers may not. We argue that this is due to the fact that, in Amahuaca, the subconstituent that moves to the specifier of the higher DP_1 must contain the noun. This will leave DP_2, which will then contain only modifiers, free to undergo remnant movement and strand the noun. This NP movement to Spec,DP_1 is illustrated in (65).

(65)



Once this movement to Spec,DP_1 occurs, DP_2 which contains the universal quantifier *kiyoo*, is free to undergo remnant movement, stranding the noun in the position occupied by DP_1. This remnant movement results in configurations like those shown in (66).

(66) [$_{DP_2}$ kiyoopa**=n**] =mun [$_{DP_1}$ jono t_{DP_2} **=n**] jiriti
all.LG=ERG =C peccary =ERG food
vuna=hi=ki=nu
look.for=IPFV=3.PRES=DECL
'All the peccaries are looking for food.'

In (66), the quantifier and the noun match in case. This case doubling is derived via feature spreading of the ergative case feature from D_1 to D_2. When the head of DP_1 is assigned ergative case, it passes this feature on to the head of DP_2, which is still nested within DP_1. When DP_2 undergoes remnant movement, both D_1 and D_2 will surface as ergative case.[23]

[23]For Tiwa, we argued that both instances of D did not surface as adjacent case markers in continuous DPs due to haplology. In Amahuaca, the ergative case marker is simply suprasegmental nasality that surfaces on the preceding vowel (orthographically represented as *=n*) and the nominative case marker is a palatal fricative (orthographically represented as *=x*). Given that Amahuaca does not phonologically show more than a two-way nasality contrast for vowels nor a length contrast for fricatives, we assume that there is not a phonologically licit way to realize adjacent case markers at the right edge of a continuous DP in Amahuaca. However, when the DP is split, both case markers can surface.

5.3 Differential subject marking

Having demonstrated how the DP-shell analysis can derive the basic case doubling facts in Amahuaca, we now turn to a slightly more complicated set of data. Like Tiwa, Amahuaca exhibits differential case marking. However, in Amahuaca, it is ergative subjects that can appear in a case-marked or unmarked form, and the marking of ergative case depends strictly on the syntactic position of the transitive subject.[24] Interestingly, this pattern of structural differential case marking interacts with case doubling. This interaction falls out from the architecture of the DP-shell analysis and the assumption that case assignment can be timed before some instances of movement and after others (i.e. the assumption that case assignment can occur in the narrow syntax; Preminger, 2011).

As mentioned in the discussion of noun-stranding, Amahuaca subjects that appear to the right of aspect are those that appear in their base position. In this position, transitive subjects are unmarked for case. Transitive subjects that appear higher in the structure receive ergative case, as demonstrated in (67).[25]

(67) 'The man is killing the peccary.'

a. joni***(=n)**=mun jono rutu=hi=ki=nu
man=ERG=C peccary kill=IPFV=3.PRES=DECL

b. jono=mun rutu=hi joni**(*=n)**=ki=nu
peccary=C kill=IPFV man=ERG=3.PRES=DECL

In (67a), we see that the transitive subject *joni* 'man' is marked with ergative case, as expected. However, in (67b), this subject DP remains low in its externally-merged position and does not receive ergative case marking.

Important for our purposes is the interaction between this pattern of differential subject marking and case doubling. The only types of configurations where the two pieces of an ergative DP mismatch in case is when one piece remains in this low position, where DPs generally lack case. In such instances, the piece of the DP that remains low is not marked ergative, while the piece that moves higher surfaces with ergative case, as demonstrated in (68).

(68) [kiyoo=vini**=n**] =mun jono rutu=hi [joni**(*=n)**] =ki=nu
all=EMPH.LG=ERG =C peccary kill=IPFV man=ERG =3.PRES=DECL
'All the men are killing a peccary.'

In (68), the subject quantifier surfaces with ergative case. However, the corresponding noun remains low and cannot surface with ergative case. Crucially, this pattern is exactly what we would expect given the general pattern of ergative case marking in the language. Thus, as in Tiwa, case doubling reflects the more general patterns of case marking.

[24] Intransitive subjects can also appear in a marked or unmarked form. However, nominative marking is sensitive to focus, not syntactic position (Clem, 2019b). It is possible for discontinuous nominative DPs to mismatch in case when only one piece is focused. The focused piece appears with nominative case, as expected from the general pattern of nominative marking.

[25] For a more thorough discussion of this pattern and an analysis, see Clem 2019b.

The lack of case doubling can be derived by considering the timing of case assignment and movement. Recall that in structures like (69), repeated from (66), case doubling results because D_1 is assigned ergative case prior to the splitting of the DP.

(69) [$_{DP_2}$ kiyoopa**=n**] =mun [$_{DP_1}$ jono t$_{DP_2}$ **=n**] jiriti
all.LG=ERG =C peccary =ERG food
vuna=hi=ki=nu
look.for=IPFV=3.PRES=DECL
'All the peccaries are looking for food.'

In (69), the entire nested DP moves to the higher position associated with ergative case. D_1 is assigned ergative case, and this case is spread to D_2 in the nested configuration. When DP_2 undergoes remnant movement, both D_1 and D_2 are realized with ergative case.

This case doubling derivation can be contrasted with a derivation that results in a mismatch like we see in (70).

(70) [$_{DP_2}$ kiyoopa**=n**] =mun jiriti vuna=hi [$_{DP_1}$ jono t$_{DP_2}$] =ki=nu
all.LG=ERG =C food look.for=IPFV peccary =3.PRES=DECL
'All the peccaries are looking for food.'

In structures like (70), the nested DP never moves high enough to receive ergative case. Instead, DP_2 undergoes remnant movement out of DP_1 to the higher position associated with ergative case. It is only when DP_2 moves into the position where ergative can be assigned that it is assigned ergative case. Because D_1 and D_2 are no longer in a nested configuration at the time of case assignment, feature spreading between the two instances of D does not apply. Thus D_2 is assigned ergative case directly and D_1 does not receive case. This results in the mismatch in case that we find.

We have thus demonstrated that the DP-shell analysis pursued for Tiwa can be straightforwardly extended to Amahuaca, which is typologically quite different in various respects. Amahuaca has a tripartite alignment system and exhibits differential subject marking, while Tiwa shows accusative alignment and differential object marking. However, the shared pattern of case doubling only under discontiguity can be accounted for under the same basic analysis that relies on nested DP shells.

6 Case doubling cross-linguistically

We have argued that case doubling in Tiwa and Amahuaca is an empirically different phenomenon from case concord. In case doubling, multiple instances of D originating in the same DP shell structure spell out the same case features. In case concord, various categorially distinct elements in the DP bear morphological reflexes of case. In this section, we discuss crosslinguistic predictions of the DP-shell account of case doubling we have developed here and its possible connections to the phenomenon of determiner spreading.

Tiwa and Amahuaca are unrelated languages with quite different typological profiles. These languages show similar case doubling patterns because (i) they mark case as an enclitic on the DP, (ii) they allow discontinuous DPs, and (iii) they lack DP-internal case concord. In this section we will discuss two additional languages that show these features.

The first language we will consider is Huallaga (Huánuco) Quechua (Quechuan; Peru). In Huallaga Quechua, case surfaces on the final element of the DP, regardless of whether that element is the head noun or a modifier, as shown in (71).[26]

(71) 'I see the big man.'

a. [Hatun runa**-ta**] rika-:.
big man-OBJ see-1SG

b. [Runa hatun**-ta**] rika-:.
man big-OBJ see-1SG

Weber 1989:250

In (71) object case *-ta* appears on the final DP-internal element, which is *runa* 'man' in (71a) but *hatun* 'big' in (71b) when the modifier appears post-nominally. Note that in these examples we see only one instance of case marking within the DP rather than observing concord.

Discontinuous DPs are also possible in Huallaga Quechua, and when they occur, each element must bear a copy of the appropriate case marker for the DP (Weber, 1989:231, 250). This case doubling pattern is exemplified in (72).

(72) 'I see the big man.'

a. [Hatun**-ta**] rika-: [runa**-ta**].
big-OBJ see-1SG man-OBJ

b. [Runa**-ta**] rika-: [hatun**-ta**].
man-OBJ see-1SG big-OBJ

Weber 1989:250

Here, the modifier and head noun are split across the verb and both must surface with the object case marker *-ta* in this discontinuous configuration.[27]

The second language that appears to show a similar case doubling pattern to the one observed in Tiwa and Amahuaca is Diyari (Pama-Nyungan; South Australia). In Diyari, case is marked as an enclitic on the DP (Austin, 1981; Dench and Evans, 1988), and DP-internal elements do not show case concord, as demonstrated in (73).

[26] The symbol : found in the Huallaga Quechua examples is used by Weber (1989) to indicate that first person singular subject agreement is expressed via lengthening the vowel of the verb root.

[27] Weber (1983:49-55, 1989:231, 250) notes that the two pieces of a discontinuous DP may actually be adjacent, as in (vi). However, he still categorizes these types of examples as involving structural discontiguity. In fact, Weber (1983) explicitly argues against a "case spreading" (p. 53) analysis, which looks like a process of concord, in favor of an analysis that requires movement of a subconstituent out of the nominal in order to result in multiple case markers.

(vi) [Runa**-ta**] [hatun**-ta**] rika-:.
man-OBJ big-OBJ see-1SG
'I see the big man.'

Weber 1989:250

(73) [kaṇa ŋanka-n̪t̪a-li] ŋan̪a ṇanda-yi
man beard-PROP-ERG 1SG.O hit-PRES
'The bearded man is hitting me.'

Austin 1981:42

In (73), ergative case is marked on the final word of the DP, in this case the modifier. There is no case marking on the noun. In contrast, just like in Tiwa and Amahuaca, each element of a discontinuous DP is marked for case in Diyari, as shown in (74).[28]

(74) [mankada-li] ŋan̪a n̪ayi-ṇa wara-yi [paḷpa-li]
girl-ERG 1SG.O see-PART AUX-PRES some-ERG
'Some girls saw me.'

Austin 1981:94

The emergence of similar case doubling patterns in multiple unrelated language leads us to suspect that case matching under discontiguity will ultimately be attested much more broadly.

While the three features listed above (case enclitics, discontinuous DPs, and no case concord) give rise to the pattern of case doubling in Tiwa, Amahuaca, and possibly Huallaga Quechua and Diyari, nothing in our analysis crucially hinges on a language displaying this constellation of properties. For example, it is possible that a language could show both case doubling and case concord: case doubling would arise through the spell out of multiple identical heads, while concord would arise via the mechanisms found in languages like Warlpiri and Icelandic.[29] A possible example of a language that displays both of these phenomena may be Kanum (Papuan; Donohue, 2011). In Kanum, case is marked as an enclitic on the noun (or, if the noun is elided, on a modifier). Modifiers do not show case concord, as illustrated in (75). In contrast, demonstratives, which follow the noun, are separately marked for case, as in (76).

(75) ntaop**(*-ne)** klawo**-ne**
big-DAT child-DAT
'for the big child'

Donohue 2011:503

[28] Austin (1981:94) reports that linearly adjacent DP elements may each be case marked if "there is special emphasis or contrast intended". If such focus constructions involve structural discontiguity with surface adjacency, like we find in Tiwa and as indicated in (vii), the DP-shell analysis straightforwardly extends to Diyari. (Note that, unlike Warlpiri, Diyari does not have a second position clitic which would allow us to determine whether the two pieces in (vii) are a single constituent or not.)

(vii) [kin̪t̪ala-li] [n̪uŋkaṇi-yali] ŋan̪a maṭa-ṇa wara-yi
dog-ERG 3SG.DAT-ERG 1SG.O bite-PART AUX-PRES
'HIS dog bit me.'

Austin 1981:94

[29] It is also possible that both of these processes exist within Warlpiri itself. Recall that concord is optional in continuous DPs but obligatory in discontinous DPs. It is possible that Warlpiri has an optional process of true concord coupled with case doubling in discontinuous DPs.

(76) klawo-**w** pyengkw
child-ERG that.ERG
'that child'

Donohue 2011:503

In discontinuous DPs, each piece of the DP (including modifiers) is marked for case, just like in Tiwa and Amahuaca. This is shown in (77).

(77) [Yrye-**w** pyengkw] sreyerknt [ntaop-**w**.]
man-ERG that.ERG he.will.stalk.it big-ERG
'That big man will stalk it.'

Donohue 2011:505

A possible analysis of Kanum could treat the case marking on the noun and demonstrative as true concord. On the other hand, the case marking that appears on other modifiers in discontinuous DPs could be analyzed as case doubling, arising through the spell out of two identical heads.

We also expect that similar patterns of case doubling could be found in languages with typological profiles that differ more substantially from Tiwa and Amahuaca. For example, this same type of structure could be found in head-initial languages. In such languages, multiple instances of D may be able to be spelled out even in continuous DPs, rather than only discontinuous DPs, so long as the two instances of D are not linearly adjacent. (Recall that multiple instances of D are not spelled out in continuous DPs in Tiwa due to haplology.) There is also no reason, in principle, that the same shell structure could not arise with heads other than D or in languages where some feature other than case is realized in D. For example, languages that have canonical determiners in D could also have nested DP shells.

Here it is worth noting the potential connection between the DP-shell analysis presented here and the phenomenon of polydefiniteness. In some languages, DPs may contain multiple realizations of definiteness. This has been argued to arise via concord involving a [DEF] feature in some instances. For example, Kramer (2010) argues that optional polydefiniteness in Amharic, like that seen in (78), arises via agreement. The obligatory determiner spells out D itself.

(78) k'ondʒo-w tɨllɨk'(-u) k'äyy(-u) kwas
beautiful-DEF big-DEF red-DEF ball
'the beautiful big red ball'

Kramer 2010:200

While some instances of polydefiniteness may arise via concord, Alexiadou (2014) notes that other patterns of polydefiniteness may instead arise via spelling out multiple instances of D. Thus, we see a distinction in the domain of polydefiniteness between feature sharing and the spell out of multiple, featurally identical heads, mirroring the agreement/clitic doubling and concord/case doubling distinctions. Determiner spreading in Modern Greek, illustrated in (79), is one example of what has been argued to be the latter pattern of spelling out multiple instances of D.

(79) **to** vivlio **to** kokkino **to** megalo
the book the red the big
'the big red book'

Alexiadou and Wilder 1998:302

Multiple determiners are possible in Greek DPs that contain predicative adjectives in certain orderings (see Alexiadou and Wilder 1998 for details). Alexiadou and Wilder (1998) analyze determiner spreading in Greek as the spell out of separate instances of D, with each DP layer nested inside a CP that introduces the predicate adjective. (Alexiadou and Wilder follow Kayne (1994) in assuming a reduced relative analysis of these adjectives.) While a reduced relative clause analysis seems fitting for the Greek data, there is substantial variation in the patterns of determiner spreading/polydefiniteness crosslinguistically. On the surface, these patterns often look similar to what we would expect to find if there were DP shells with true determiners, rather than case, in D. Furthermore, the possibility of multiple determiners in a continuous DP would not be unexpected on a DP-shell account if the language in question were head initial, given that haplology would not apply. We therefore leave it an open question whether some patterns of determiner spreading and the case doubling patterns we have discussed here can be unified as a single phenomenon.

7 Conclusion

In this paper, we have argued for the existence of case doubling as an empirically distinct phenomenon from case concord. While both result in similar surface patterns, they show some differences and they arise due to distinct underlying mechanisms. Case concord is the result of the morphological realization of case features on categorially distinct elements within the DP. It typically results in multiple instances of case internal to a continuous DP constituent. We have argued that case doubling, on the other hand, is the result of spelling out multiple instances of D that each realize case. We have demonstrated how this analysis can capture the case doubling pattern that we find in Tiwa, where multiple realizations of case are possible only under discontiguity. This pattern looks empirically different from concord as it does not result in multiple realizations of case in continuous DPs. This analysis of case doubling can be extended to account for a similar pattern in Amahuaca, and possibly related patterns crosslinguistically which appear to be distinct from canonical examples of concord.

As we noted at the outset, the concord/case doubling distinction is analogous to the agreement/clitic doubling distinction found in the verbal domain. It is our hope that illuminating this contrast in the nominal domain will result in a richer understanding of both the theoretical and empirical landscape involving multiple realizations of case. Further, we hope that future descriptive and analytical work will serve to sharpen the contrast between the two phenomena and provide additional diagnostics for distinguishing concord and case doubling.

References

Aissen, Judith. 2003. Differential object marking: Iconicity vs. economy. *Natural Language & Linguistic Theory* 21:435–483.

Alexiadou, Artemis. 2014. *Multiple determiners and the structure of DPs*. Amsterdam: John Benjamins.

Alexiadou, Artemis, and Chris Wilder. 1998. Adjectival modification and multiple determiners. In *Possessors, predicates, and movement in the DP*, ed. Artemis Alexiadou and Chris Wilder, 303–332. Amsterdam: John Benjamins.

Arregi, Karlos, and Andrew Nevins. 2008. Agreement and clitic restrictions in Basque. In *Agreement restrictions*, ed. Roberta D'Alessandro, Susann Fischer, and Gunnar Hrafn Hrafnbjargarson, 49–86. Berlin: Mouton de Gruyter.

Arregi, Karlos, and Andrew Nevins. 2012. *Morphotactics: Basque auxiliaries and the structure of spellout*, volume 86 of *Studies in Natural Language and Linguistic Theory*. Dordrecht: Springer.

Austin, Peter K. 1981. *A grammar of Diyari, South Australia*. Cambridge: Cambridge University Press.

Babby, Leonard H. 1987. Case, prequantifiers, and discontinuous agreement in Russian. *Natural Language & Linguistic Theory* 5:91–138.

Baker, Mark, and Ruth Kramer. 2018. Doubled clitics are pronouns. *Natural Language & Linguistic Theory* 36:1035–1088.

Bayırlı, İsa. 2017. The universality of concord. Doctoral Dissertation, Massachusetts Institute of Technology.

Bobaljik, Jonathan David. 2008. Where's phi? Agreement as a post-syntactic operation. In *Phi-theory: Phi features across interfaces and modules*, ed. Daniel Harbour, David Adger, and Susana Béjar, 295–328. Oxford: Oxford University Press.

Bošković, Željko. 2001. *On the nature of the syntax-phonology interface: Cliticization and related phenomena*. Oxford: Elsevier.

Bossong, Georg. 1991. Differential object marking in Romance and beyond. In *New analyses in Romance linguistics*, ed. Douglas A. Kibbee and Dieter Wanner, 143–170. Amsterdam/Philadelphia: Benjamins.

Brattico, Pauli. 2008. Kayne's model of Case and Finnish nominal phrases. *Nordic Journal of Linguistics* 31:135–160.

Clem, Emily. 2019a. Agreement, case, and switch-reference in Amahuaca. Doctoral Dissertation, University of California, Berkeley.

Clem, Emily. 2019b. Amahuaca ergative as agreement with multiple heads. *Natural Language & Linguistic Theory* 37:785–823.

Clem, Emily. 2021a. Cyclic expansion in Agree: Maximal projections as probes. To appear, *Linguistic Inquiry*.

Clem, Emily. 2021b. Disharmony and the Final-over-Final Condition in Amahuaca. To appear, *Linguistic Inquiry*.

Dawson, Virginia. 2018. A new kind of epistemic indefinite. In *Proceedings of Sinn und Bedeutung 22*, ed. Uli Sauerland and Stephanie Solt, volume 1 of *ZASPiL 60*, 349–366. Berlin: ZAS.

Dawson, Virginia. 2020. Existential quantification in Tiwa: Disjunction and indefinites. Doctoral Dissertation, University of California, Berkeley.

Dawson, Virginia. 2021. Disjunction as alternatives: Evidence from phrasal comparatives. To appear, *WCCFL 38: Proceedings of the 38th West Coast Conference on Formal Linguistics*.

De Kuthy, Kordula. 2002. *Discontinuous NPs in German: A case study of the interaction of syntax, semantics, and pragmatics*. CSLI.

Dench, Alan, and Nicholas Evans. 1988. Multiple case marking in Australian languages. *Australian Journal of Linguistics* 8:1–47.

Donohue, Mark. 2011. Case and configurationality: Scrambling or mapping? *Morphology* 21:499–513.

Eberhard, David M., Gary F. Simons, and Charles D. Fennig, ed. 2021. *Ethnologue: Languages of the world*. Dallas, TX: SIL International, twenty-fourth edition. Online version: http://www.ethnologue.com.

Embick, David. 1997. Voice and the interfaces of syntax. Doctoral Dissertation, University of Pennsylvania.

Fanselow, Gisbert, and Damir Cavar. 2001. Distributed deletion. In *Universal of language: Proceedings of the 1999 GLOW Colloquium*, ed. Artemis Alexiadou. Amsterdam: Benjamins.

Fanselow, Gisbert, and Caroline Féry. 2006. Prosodic and morphosyntactic aspects of discontinuous noun phrases – a comparative perspective. Ms., University of Potsdam.

Fuchs, Zuzanna. 2021. Separating case connectivity and movement: Evidence from Georgian split DPs. Ms., University of Southern California.

Hankamer, Jorge, and Line Mikkelsen. 2021. CP complements to D. *Linguistic Inquiry* 52:473–518.

Harizanov, Boris. 2014. Clitic doubling at the syntax-morphophonology interface: A-movement and morphological merger in Bulgarian. *Natural Language & Linguistic Theory* 32:1033–1088.

Harizanov, Boris, and Vera Gribanova. 2019. Whither head movement? *Natural Language & Linguistic Theory* 37:461–522.

Jose, U. V. 2014. *Tiwa-English dictionary with English-Tiwa index*. Shillong: Don Bosco Centre for Indigenous Cultures. Associate editors: Horsing Kholar, Juliana Maslai, Alfred Maslai, Bibiana Maslai, and Simon Mithi.

Kayne, Richard S. 1994. *The antisymmetry of syntax*. Linguistic Inquiry monographs. Cambridge, MA: MIT Press.

Kayne, Richard S. 2002. On some prepositions that look DP-internal: English *of* and French *de*. *Catalan Journal of Linguistics* 1:71–115.

Kramer, Ruth. 2010. The Amharic definite marker and the syntax-morphology interface. *Syntax* 13:196–240.

Kramer, Ruth. 2014. Clitic doubling or object agreement: The view from Amharic. *Natural Language & Linguistic Theory* 32:593–634.

Matushansky, Ora. 2008. A case study of predication. In *Studies in formal Slavic linguistics. contributions from Formal Description of Slavic Languages 6.5*, ed. Franc Marušič and Rok Žaucer, 213–239. Frankfurt am Main: Peter Lang.

Nevins, Andrew. 2011. Multiple agree with clitics: Person complementarity vs. omnivorous number. *Natural Language & Linguistic Theory* 29:939–971.

Nevins, Andrew. 2012. Haplological dissimilation at distinct stages of exponence. In *The morphology and phonology of exponence*, ed. Jochen Trommer, 84–116. Oxford: Oxford University Press.

Norris, Mark. 2014. A theory of nominal concord. Doctoral Dissertation, University of California, Santa Cruz.

Norris, Mark. 2017. Description and analyses of nominal concord (Pts. I & II). *Language and Linguistics Compass* 11.

Nunes, Jairo. 1999. Linearization of chains and phonetic realization of chain links. In *Working minimalism*, ed. Samuel David Epstein and Norbert Hornstein, 217–249. Cambridge, MA: MIT Press.

Pesetsky, David. 2013. *Russian case morphology and the syntactic categories*. Number 66 in Linguistic Inquiry Monographs. Cambridge, MA: MIT Press.

Preminger, Omer. 2009. Breaking agreements: Distinguishing agreement and clitic doubling by their failures. *Linguistic Inquiry* 40:619–666.

Preminger, Omer. 2011. Agreement as a fallible operation. Doctoral Dissertation, Massachusetts Institute of Technology.

Reinholtz, Charlotte. 1999. On the characterization of discontinuous constituents: Evidence from Swampy Cree. *International Journal of American Linguistics* 65:201–227.

Sigurðsson, Halldór Ármann. 2008. The case of PRO. *Natural Language & Linguistic Theory* 26:403–450.

Simpson, Jane. 1991. *Warlpiri morpho-syntax*, volume 23 of *Studies in Natural Language and Linguistic Theory*. Dordrecht: Springer.

Torrego, Esther. 1992. Case and agreement structure. Ms., UMass Boston.

Uriagereka, Juan. 1995. Aspects of the syntax of clitic placement in Western Romance. *Linguistic Inquiry* 26:79–123.

Weber, David. 1983. *Relativization and nominalized clauses in Huallaga (Huánuco) Quechua*, volume 103 of *University of California Publications in Linguistics*. Berkeley: University of California Press.

Weber, David. 1989. *A grammar of Huallaga (Huánuco) Quechua*, volume 112 of *University of California Publications in Linguistics*. Berkeley: University of California Press.