# Unmarked and distantly assigned case in ATB movement*

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## 1. Introduction

Across-the-Board (ATB) movement is subject to case-matching requirements that are alleviated by syncretism (Dyła 1984, Franks 1993, Citko 2005, Hein and Murphy 2020). An example from Polish is shown in (1): Movement out of mismatched accusative and genitive gaps is unacceptable when the two gaps correspond to distinct forms (1a). However, the same accusative-genitive mismatch is tolerated when the forms are syncretic (1b).

(1)  a. *dziewcyzna, {**którą/której**}     [Janek lubi __ ACC] a  [Jerzy nienawidzi
         girl          who.FEM.ACC/GEN Janek  likes           and Jerzy  hates
         __ GEN]

       'the girl who Janek likes and Jerzy hates'  (Dyła 1984:703; Franks 1993:510)

     b. chłopiec, **którego**        [M. lubi  __ ACC] a  [E. nienawidzi __ GEN]
         boy        who.MASC.ACC/GEN M.  likes         and E.  hates
         'the boy who Maria likes and Ewa hates'              (Dyła 1984:703)

The pattern exemplified by (1) generalizes cross-linguistically (though see fn. 1) to the Identity of Form (IoF) condition in (2).

(2)  *Identity of Form (IoF) condition on ATB movement*

     ATB movement is possible only if the items corresponding to both positions targeted by the movement are identical in form.

Existing accounts of the IoF have assumed a traditional view of case, in which every case that a DP can receive behaves the same way. However, it has been recently been argued (e.g., Preminger 2014, Baker 2015) that case assignment is not all equal; a DP can acquire case in several different ways. In this paper, I show that two kinds of case — *unmarked case*, and what I call *distantly assigned case* — pose issues for certain existing analyses of case syncretism effects in ATB movement.
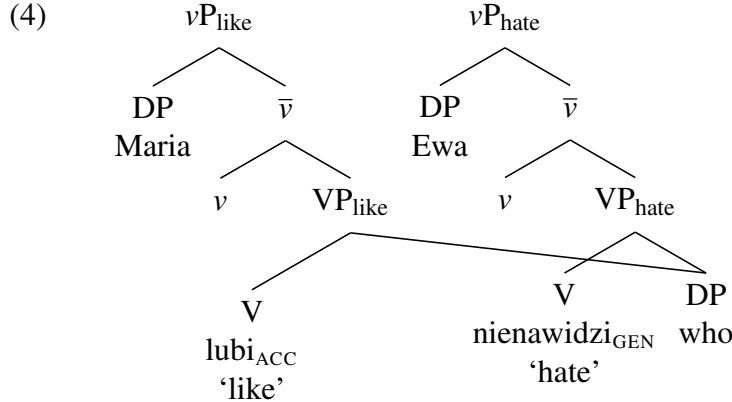
Several families of analyses have been proposed for ATB movement. For concreteness, I orient the discussion around *sharing* (or multidominance)-based approaches to ATB movement (McCawley 1982, Citko 2005, Citko and Gračanin-Yuksek 2021). However, the findings presented here and method of inquiry are meant to generalize. Indeed, the takeaway for this paper should be that in *any* analysis of phenomena that are sensitive to case syncretism, attention must be paid to what is independently known about the case system of the language(s) under study.

## 2.    IoF in sharing analysis of ATB phenomena

A *sharing* structure for (1b) is shown in (3). The ATB-movement target 'who' is present in both $VP_{like}$ and $VP_{hate}$, which results from application of Parallel Merge (Citko 2005). Movement is depicted with an arrow, though it should be noted that movement in multidominance systems occurs by addition of a dominance relation. Throughout the paper, I omit the coordinator *and* when depicting and discussing coordination structures. I remain agnostic as to the (a)symmetry of coordination.

(3)
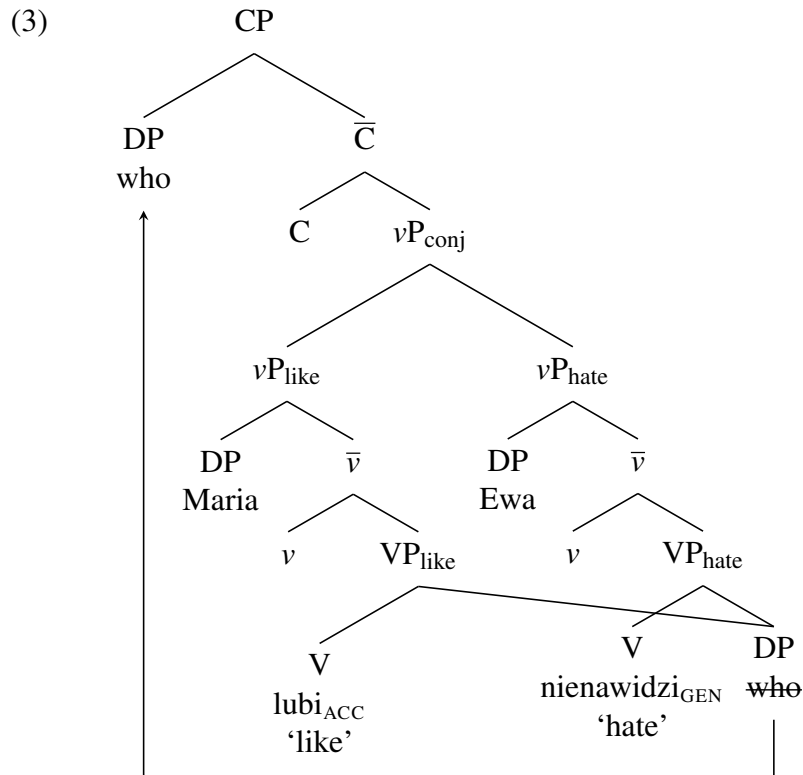
In Citko (2005) and Citko and Gračanin-Yuksek (2021)'s system, the IoF requirement arises in ATB-movement constructions — but not in other constructions such as raising — because ATB-movement constructions pass through derivational stages where the syntactic tree has no unique root (in the graph-theory sense). This condition can be seen to hold in (4), which depicts the structure immediately before conjunction. Neither $v\text{P}_{\text{like}}$ nor $v\text{P}_{\text{hate}}$ dominates the other. It is in this kind of structure, according to Citko (2005:481) and Citko and Gračanin-Yuksek (2021:21–22), that a DP may receive multiple case values.

(4)

$$v\text{P}_{\text{like}} \qquad\qquad v\text{P}_{\text{hate}}$$

DP $\quad$ $\bar{v}$ $\qquad$ DP $\quad$ $\bar{v}$
Maria $\qquad\qquad$ Ewa

$v \qquad$ VP$_{\text{like}}$ $\qquad$ $v \qquad$ VP$_{\text{hate}}$

V $\qquad\qquad\qquad$ V $\qquad$ DP
lubi$_{\text{ACC}}$ $\qquad$ nienawidzi$_{\text{GEN}}$ $\quad$ who
'like' $\qquad\qquad$ 'hate'

The two case studies presented in the sections to follow — unmarked case and distantly assigned case — pull on this idea that the IoF in sharing derivations results from a DP receiving two case values prior to conjunction.

## 3. Unmarked case

Unmarked case (Marantz 1991) has been formulated several ways in the literature. Preminger (2014) analyzes unmarked case as the realization of an unvalued case feature. Alternatively, Baker (2015) analyzes unmarked case as being assigned as a last resort at Spellout to a DP with no other case. For this paper, the following generalization suffices: A DP surfaces with unmarked case *only if* that DP is assigned no other case over the course of a derivation.

It follows, then, that until relatively late in a syntactic derivation, it cannot be determined whether a DP will be realized with unmarked case; only after the DP is sure to receive no other case does unmarked case apply. Suppose that a language has unmarked case and some other case, F. Since sharing approaches attribute the IoF condition to multiple cases being assigned to the ATB-movement target *prior* to conjunction, they predict that when ATB movement targets coordinated positions corresponding with unmarked case and case-F, the target DP will only receive one case: case F. Thus, a coordination with unmarked case and case F ought to be exempt from the IoF condition; such a coordination is predicted to be gramamtical with a non-syncretic vocabulary item that is compatible with case F but not with unmarked case. To the contrary, I show in this section that in German, unmarked case — just like any other case — is subject to the IoF condition.

Following argumentation in Schütze (2001), I assume that that nominative case is unmarked in German. German ATB topicalization can target gaps that mismatch in case (te Velde 2005:229f.);[1] Example (5a) shows topicalization out of coordinated nominative and accusative gaps. The ATB target *die Milch* 'the milk' in (5a) is syncretic between nominative and accusative. When syncretism does not apply — such as when the feminine *Milch* is replaced with the masculine *Käse* 'cheese', (5b) — the ATB movement is unacceptable. The minimal pair in (5) demonstrates that the unacceptability of (5b) owes to a sensitivity to form, and this pattern holds if conjunct ordering is switched, with the nominative gap preceding the accusative gap.

(5)    a.   **Die** **Milch** [mag ich nicht __ ACC] und [ist __ NOM auch
            the.FEM.ACC/NOM milk like I.NOM not and is also
            nicht gut für mich].
            not good for me
            'I don't like the milk and it is also not good for me.'

    b.   *{**Den** / **Der**} **Käse** [mag ich nicht __ ACC] und [ist
            the.MASC.ACC the.MASC.NOM cheese like I.NOM not and is
            __ NOM auch nicht gut für mich].
                also not good for me
            'I don't like the cheese and it is also not good for me.'

Thus in German, case-mismatched ATB topicalization involving unmarked case is not exempt from the IoF — contrary to what existing sharing approaches predict.

## 4.    Distantly assigned case

For our purposes, what is important about unmarked case is that it is not assigned prior to conjunction. The idea with distantly assigned case, defined in (6), is similar: Distantly assigned case is case whose value is not determined until after conjunction occurs.

(6)    *Distantly assigned case*

      A DP targeted by ATB movement has *distantly assigned case* if the case that the DP receives depends on elements above the conjunction site.

For example, consider ATB movement out of coordinated embedded clauses, where in one conjunct, the case of the DP depends on material in the matrix clause. Since this matrix clause material is above the conjunction site, the DP is said to have distantly assigned case.

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[1]The judgment that (5a) is acceptable runs counter to Hartmann et al. (2016)'s experimental finding that case syncretism does not alleviate case mismatches in German ATB topicalizations. However, (5a) is very similar to another sentence — *Milch [mag ich nicht __ ] und [ist __ auch nicht gut für mich]* — that is reported as acceptable in te Velde (2005:229f.). My German consultant agrees that the sentences tested in Hartmann et al. (2016) are unaccepatble, and observes that animate DPs — such as those tested in Hartmann et al.'s study — seem to be less amenable to ATB topicalization under case mismatch. Further investigation is warranted into the factors affecting the acceptability of German ATB topicalizations.

As in Section 3, sharing approaches predict that ATB movement out of case-mismatched positions will be exempt from the IoF condition if distantly assigned case is involved. Recall that in sharing approaches, the IoF is derived from case being assigned twice prior to conjunction. Distantly assigned case specifically eliminates this possibility.

Dative and accusative case are syncretic (*-ko*) in Hindi-Urdu (HU). The two cases are differentiable by their behavior with respect to optionality: Dative is obligatory in active voice, whereas accusative is sometimes optional (depending on semantic and discourse factors). In passive voice, accusative is always optional irrespective of semantic and discourse factors, whereas dative remains obligatory (Agarwal 2022 and references therein).

In the HU permissive construction (Butt 1995, Davison 2014), a TP is embedded under the matrix verb *dena* 'give/let'. Embedded transitive subjects bear dative case (7a), while embedded intransitive subjects bear optional accusative case (7b).

(7)    a.    Anu=ne  [**aag\*(=ko)** fasal jalaane] dii.
                 Anu=ERG fire\*(=DAT) crops burn.INF let
                 'Anu let the fire burn down the crops.'         (Keine and Dash 2022)

        b.    Sita=ne  [**fasal(=ko)** jalne]     dii/diiyaa.
                 Sita=ERG crop(=ACC) burn.UNACC let
                 'Sita let the crops burn.'

As shown by Davison (2014), the dative case of the embedded transitive subject in (7a) remains if the matrix clause is passivized (8a). Dative case disappears if the embedded predicate is used standalone in a matrix clause (8b).

(8)    a.    **aag\*(=ko)** fasal jalaane  diyaa gayaa.
                 fire=DAT    crops burn.INF let    PASS
                 'The fire was allowed to burn down the crops.'     (Agarwal 2022:51)

        b.    **aag{=ne/\*=ko}** fasal jalaayii.
                 fire=ERG/=DAT crops burned
                 'The fire burned down the crops.'         (Agarwal 2022:55)

In this way, the behavior of dative case in the HU permissive mirrors the behavior of dative case in the Sakha causative construction (Baker 2015, and references therein). Following Agarwal (2022), I therefore adopt for HU Baker (2015)'s dependent case rule (9).

(9)    *Dependent-case rule for* DAT (Baker 2015:131)
        If DP$_1$ c-commands DP$_2$ in VP, assign DAT to DP$_1$.

We now turn to ATB movement under the permissive. Of interest are sentences such as (10), where embedded TPs are coordinated under *dena* 'let'. I analyze (10) as involving ATB movement from the subject positions of the two coordinated TPs. An alternative analysis in which the embedded subject merges higher, above the conjunction site, is untenable because transitive and unaccusative subjects first-merge at different levels. In (10), ATB

movement targets an accusative embedded subject in the left conjunct and a dative embedded subject in the right conjunct. The acceptability of (10) shows that under syncretism, ATB movement can target embedded subjects in the permissive construction.

(10)    **aag=ko**        Sita=ne    [[__ ACC failne] aur [__ DAT fasal  jalaane]] diiyaa.
          fire=DAT/ACC Sita=ERG          spread and        crops burn     let
          'Sita let the fire burn the crops and spread.'

The dative case corresponding with the left conjunct's subject position in (10) is distantly assigned. In particular, dependent dative case is conditioned on the matrix VP domain, which properly contains the TP conjunction. Example (11a) shows the TP coordination structure prior to merger of matrix V. At this point, the condition 'in VP' from (9) is not satisfied, so dative case valuation cannot occur. It is not until merger of matrix V (11b) that the conditions (9) for dative case valuation are satisfied.

(11)    a.    $[_{TP} [_{TP_1}$ Subj$_1$ V$_1$ ] and $[_{TP_2}$ Subj$_2$ Obj V$_2$ ] ]
          b.    $[_{VP} [_{TP} [_{TP_1}$ Subj$_1$ V$_1$ ] and $[_{TP_2}$ Subj-DAT$_2$ **Obj** V$_2$ ] ] V ]

To complete the argument that the IoF holds for distantly assigned case, we require a sentence where the ATB target moves out of coordinated positions whose corresponding forms are *not* syncretic, and where one of the targeted positions is a distantly assigned case position. The critical example is (12). Although intransitive embedded subjects typically allow both nominative and accusative in the permissive (7b), certain DPs — such as the non-referential DP *zalzalaa* 'earthquake' in the left conjunct of (12) — require nominative case (Bhatt 2007). In (12), ATB movement targets an obligatorily nominative subject DP in the left conjunct and a DP subject in the right conjunct, where dative case is distantly assigned via (9). The judgments in (10) and (12) hold irrespective of conjunct ordering.

(12)    *{**Zalzalaa**       / **Zalzalee=ko**}    bhagwaan=ne [[__ NOM hone]    aur [__ DAT
          earthquake.NOM   earthquake=DAT God=ERG              happen and
          shahar ukhaadne]] diiyaa
          city    uproot      let
          'God let the earthquake occur and destroy the city'

The expected forms for the left gap (*zalzalaa*) and right gap (*zalzaleeko*) are not syncretic, and the attempted ATB-movement construction is unacceptable. Thus, (10) and (12) together demonstrate that distantly assigned case is subject to the IoF condition in HU.

## 5.    ATB sharing structures via superimposition

I have shown that both unmarked case and distantly assigned case adhere to the IoF condition. That is, if ATB movement targets case-mismatched positions where one of the ATB targets is a DP with unmarked or distantly assigned case, then the DP targeted by movement must be syncretic between unmarked/distantly assigned case and the case corresponding

with the other position. Since neither unmarked case nor distantly assigned case is assigned prior to conjunction, the data presented in Sections 3 and 4 thus pose an issue for existing sharing approaches that aim to derive the IoF condition on ATB movement. In this section, I show how a multidominance sharing analysis to ATB movement can be maintained.

To derive the dual case requirement, I propose that ATB-movement sharing structures are formed by two previously independent DPs — each with their own case feature — combining into a single DP that becomes shared between the conjuncts. This 'combining' operation can be conceptualized as the two DPs being superimposed on top of each other. When the two DPs are superimposed, the product DP inherits the properties of each of its predecessors. These inherited properties include dominance relations — possibly causing the DP to become multiply dominated — and features, including case.

Superimposition follows naturally from the ideas that syntactic objects are built up via workspaces and that elements in syntactic derivations are drawn from a numeration or lexical array. In each workspace, a DP has features, which can be valued (or not) by other elements in that workspace. Superimposition can occur when elements from previously disjoint workspaces are brought together — which is independently necessary in order for those elements to be merged. When elements from two workspaces are brought into a single workspace in order to merge, it may be that both workspaces have an common element (as drawn from the numeration). Under the assumption that a given syntactic element may occur only once in a given workspace — recall that in multidominance systems, movement is implemented via sharing — superimposition serves to relieve this tension.

Formally, I define Merge as in (13). Condition (13a) gives the familiar definition of Merge: Merging two nodes creates a new node that dominates them both. Condition (13b) yields the multidominance aspect of sharing structures. Condition (13c) ensures that no features or feature values are lost when superimposition occurs.
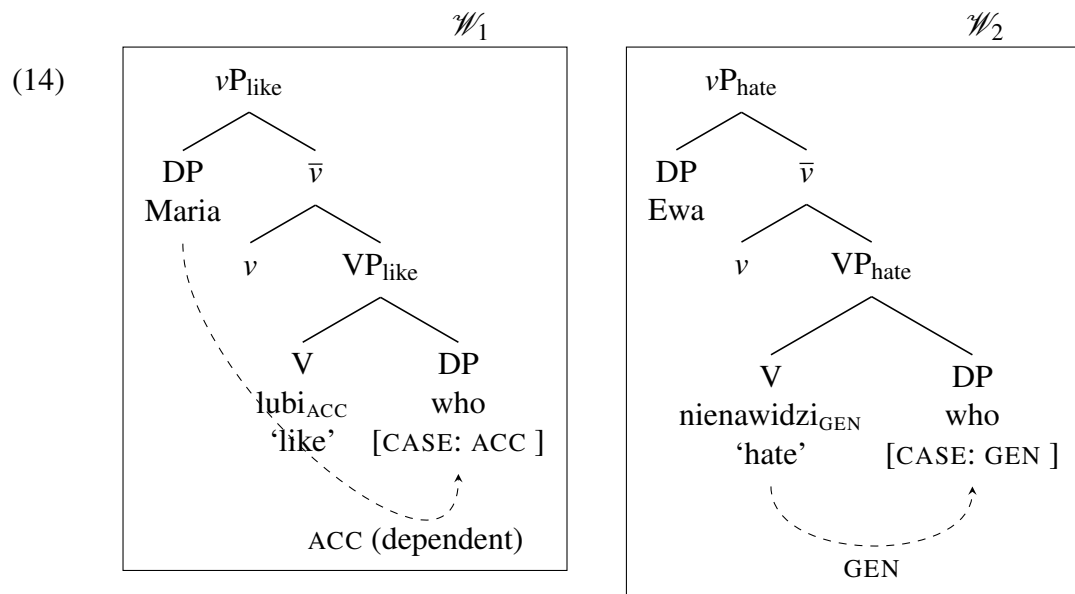
(13)    *Merge*

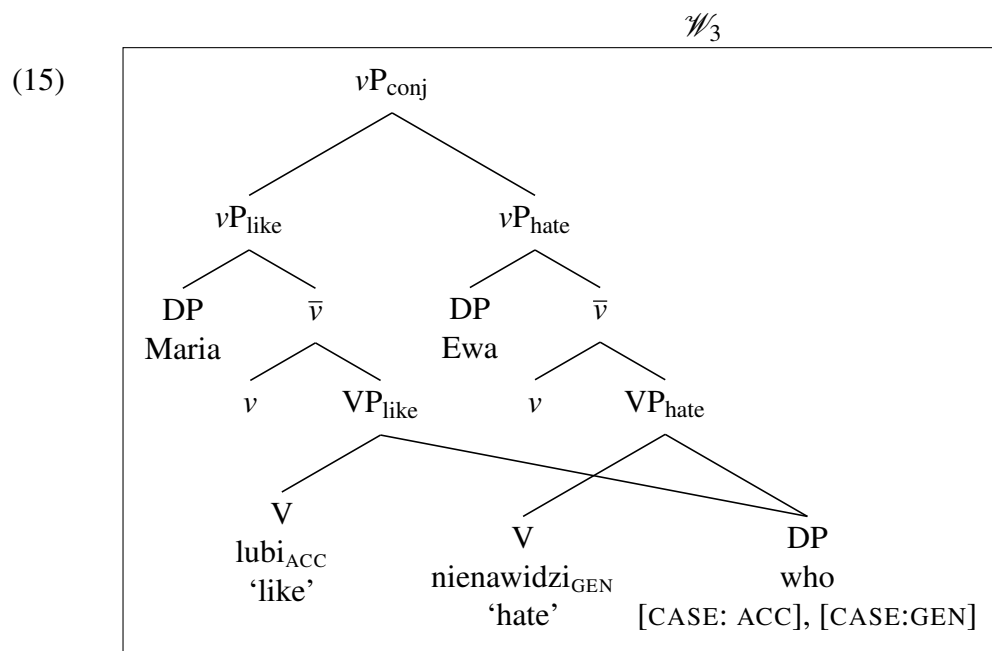Let *A* and *B* be syntactic elements. Then the product of Merge(*A*, *B*) is the minimal C such that:

a.    C dominates *A* and *B*;
b.    All dominance relations from *A* and *B* are maintained in *C*; and
c.    All feature bundles from *A* and *B* are maintained in *C*.

To illustrate how superimposition creates sharing structures like those created by Parallel Merge, I now sketch the derivation of the *v*P conjunct in (3). Recall that under existing sharing approaches, the derivation unfolds in a single workspace: The sharing configuration in (3) is produced merging 'who' twice — first with 'like' via External Merge, then with 'hate' via Parallel Merge (or in the opposite order, alternatively).

In a derivation with superimposition, the two conjuncts are instead built up in separate workspaces, $\mathcal{W}_1$ and $\mathcal{W}_2$ (14). The syntactic element 'who' is drawn from the numeration into each workspace. In $\mathcal{W}_1$, 'who' receives accusative case, and in $\mathcal{W}_2$, 'who' recieves genitive case. Accusative case is depicted in (14) as a dependent case, but the discussion generalizes if accusative is instead analyzed as being assigned by a head in Polish.

(14)

$\mathscr{W}_1$

```
            vP_like
           /      \
         DP        v̄
        Maria     / \
                 v   VP_like
                    /      \
                   V        DP
               lubi_ACC     who
                'like'   [CASE: ACC ]

              ACC (dependent)
```

$\mathscr{W}_2$

```
            vP_hate
           /      \
         DP        v̄
        Ewa       / \
                 v   VP_hate
                    /       \
                   V         DP
            nienawidzi_GEN   who
               'hate'     [CASE: GEN ]

                    GEN
```

Applying Merge($v\text{P}_1$ , $v\text{P}_2$) produces the structure in (15). When $v\text{P}_1$ and $v\text{P}_2$ are merged, they become part of the same workspace, labeled $\mathscr{W}_3$. Merging $v\text{P}_1$ and $v\text{P}_2$ thus forces superimposition of the two 'who's, since a single element from the numeration cannot occur twice within a given workspace. In (15), 'who' is therefore dominated by both $\text{VP}_{\text{like}}$ and $\text{VP}_{\text{hate}}$, and has case features [CASE: ACC] and [CASE: GEN]. The syncretism requirement follows because 'who' must be spelled out with a vocabulary item compatible with both case features; see Bjorkman (2016) and citations therein for further discussion.

(15)

$\mathscr{W}_3$

```
                        vP_conj
                      /          \
                 vP_like          vP_hate
                /     \           /      \
              DP       v̄        DP        v̄
             Maria    / \      Ewa       / \
                     v  VP_like         v   VP_hate
                        /    \              /    \
                       V      \            V      DP
                   lubi_ACC    \      nienawidzi_GEN   who
                    'like'      \         'hate'    [CASE: ACC], [CASE:GEN]
```

Comparing (15) with the *v*P in (3), we see that superimposition and Parallel Merge lead to the same structural shape; only the derivational pathway differs. Yet, this alternative derivational pathway allows us to derive the behavior of unmarked and distantly assigned case with the respect to the IoF condition on ATB movement. For unmarked case, the derivation proceeds as follows: Immediately prior to conjunction, one conjunct will have a DP with an unvalued case feature [CASE: □] and the other conjunct will have some other case feature [CASE: F]. Conjunction causes superimposition, which results in a DP with two case features — [CASE: □] and [CASE: F] — one of which is unvalued. If no future operation values the yet-unvalued case feature, then it will remain unvalued until Spellout, when it must be realized as unmarked case. Since the DP also has another case value — case F, from the other conjunct — the IoF condition will result, and thus a syncretic form will be required. For distantly assigned case, the story is much the same: The DP in the distantly assigned-case conjunct will, at the time of conjunction (and thus superimposition), have an unvalued case feature, which is preserved. This case feature can then be targeted by a subsequent case valuation operation; thus the DP will have case features for *both* distantly assigned case and some other case.

I have shown in this section how a superimposition derivation of (3)/(15) creates sharing structures that are sensitive to unmarked or distantly assigned case *along with* a second. To derive the IoF condition, I must make a stronger claim: Not only are superimposition derivations of ATB sharing structures available — but also Parallel Merge derviations of ATB sharing structures are *not* available. If both kinds of derivations were available to the grammar, IoF-violating sentences with unmarked and distantly assigned case would still be predicted to be acceptable, as argued in Sections 3 and 4. Since such sentences are not found, I argue that superimposition must be the *only* derivational pathway available for the sharing structures that have been argued to be present in ATB movement.

## 6.     Discussion

Our discussion of unmarked case has led us to an interesting observation: Under certain circumstances, a DP must be spelled out with both unmarked case *and* another case. This observation is at odds with a typical understanding of unmarked case, in which unmarked case as analyzed as the 'elsewhere' case. I have pursued an analysis of ATB movement that allows us to retain standard assumptions regarding unmarked case; but the data could also be used to argue for re-evaluating our theory of unmarked case.

Finally, though the discussion has focused on sharing analyses of ATB movement, the findings regarding the IoF condition generalize. Indeed, any successful analysis — sharing or otherwise — of ATB movement must account for the observed behavior of unmarked and distantly assigned case. This constrains the space of possible analyses. For example, parallel movement accounts of ATB movement (e.g., Blümel 2017, Hein and Murphy 2020) tend to derive the IoF condition through whatever mechanism is proposed to responsible for the parallel movement. Case might by used to differentiate various proposals. Beyond ATB movement, future research into the range of syncretism-sensitive constructions should incorporate our understanding of different sources of case.

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