

## Markedness and morphotactics in Kadiwéu [+participant] agreement

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**Abstract** We examine the realization of subject and object agreement in Kadiwéu, where there is only one prefixal position, and neither subject nor object can consistently be said to win—rather, the person and number of the arguments matters. We argue for an analysis in terms of the markedness of the 1st person compared to the second, dispreferring 1st person realization. This analysis is complicated by the fact that 1st person plural does in fact win over 2nd person, but only when it is an object. This turns out to be a consequence of the fact that the 1st plural object prefix is a portmanteau fusing person and number. The properties of the exponent inventory, combined with the morphological resources of Kadiwéu (understood here in terms of Trommer’s (2008) Coherence constraints) and its independent need for inverse marking thus conspire to yield the particular set of argument realization combinations. We argue that factoring out the analysis into feature-sensitive realization of the feature [+participant] and [+plural], dispreferred realization of marked [+author], and these morphotactic coherence constraints, provides a better analysis of crosslinguistic variation and language-internal facts than positing an autonomous language-specific hierarchy to encode the facts.

**Keywords** Kadiwéu · Person hierarchies · Markedness · Portmanteau agreement

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## 1 Overview

Languages that exhibit agreement with multiple arguments often exhibit preferences for which argument to agree with based on person (Béjar and Rezac 2009). Kadiwéu is a language that shows agreement with multiple arguments, and seems to exhibit a “2nd person over First” effect in the agreement morphology. Such a ‘reversal’ for the traditionally understood  $1 > 2 > 3$  hierarchy would challenge any notion of a universal hierarchy of dedicated person projections, and would only further raise the question of why there should be a 2nd person projection, and when it is active.

We argue that, upon closer look at both the language-internal facts and consideration of crosslinguistic patterns of a similar type, what actually turns out to be the case is that, if anything, it is the 1st person that is special. With respect to the morphology, the reason that 1st person disappears in the presence of 2nd person objects is because 1st person undergoes a morphological rule of deletion. The proposal in this paper, therefore, is not that 2nd person “trumps” 1st person, nor that specific argument combinations need particular pairwise statements of which one wins. Rather, a context-free markedness statement banning the expression of [+author] kicks in when there are two [+participant] arguments; both cannot remain, and the more marked of the two loses. This same process is shown to be at work in Georgian as well (see also Calabrese (2009) for a similar investigation of “disappearance of the marked” with 1st person).

The general argument, then, will be that a hierarchy-based explanation for the conceptually (and arguably typologically) unexpected  $2 > 1$  pattern is insufficient, and that an explanation is to be found instead in terms of the inventory of exponents in Kadiwéu (see also Harbour (2009) for a discussion of how hierarchies can be replaced by featural inventories). In a larger sense, this relates to the point made in the work on phonology by Calabrese (2005) that many syntagmatic properties of a language’s combinatorics can be derived or understood from its paradigmatic inventory. This idea has not been explored very much in discussions of agreement realization, where work such as Béjar and Rezac (2009), as insightful as it may be, is conducted entirely within the syntax: since the syntax is “phonology-free”, effects of exponent inventory can play no role in such accounts.

The essential point against hierarchies as primitive modes of explanation is made clearer by the fact that 1sg, 1pl and 2 cannot be ranked in a consistent hierarchy for Kadiwéu, as it is  $1pl > 2 > 1sg$  with objects, but  $2 > 1pl = 1sg$  with subjects. This differential behavior of 1sg and 1pl undermines a straight person-based hierarchy, and the differential interaction based on object vs. subject role casts doubt on a more complicated number + person hierarchy. In fact the simplest generalization can be sought in the properties of the affixes themselves. The decision of the winner in each pairwise combination is partly a form-based effect—which interfaces with abstract morphosyntactic features—but in which the “portmanteau” form of 1pobj agreement plays a decisive role in the resolution of morphotactics.

Thus, an approach that takes into account the form of morphemes in coherence constraints (Trommer 2008) that ban adjacent distinct coindexation in agreement forms, is preferable to appealing to abstract scales or markedness hierarchies in the

absence of their form, as coherence constraints allow one to understand the interaction of the inverse infix with the circumfixal pattern of agreement found in 2nd person and with the portmanteau agreement found in 1st plural. The realization of multiple agreement in Kadiwéu, then, arises from the interaction of markedness and morphotactics.

The structure of this paper is as follows. In Sect. 2, we present an overview of the argument encoding across verb types in Kadiwéu, including unaccusative, unergative, transitive, and ditransitive verbs. Section 3 summarizes the basic explanandum of the pattern of transitive verbs: the disappearance of the 1st person in the presence of 2nd, whether subject or object. Section 4 introduces the role of Coherence constraints in deriving the apparent one-argument restriction in prefixal position. Section 5 introduces the Vocabulary Items crucial for exponence in transitive verbs and derivations of the argument combinations encountered thus far. However, all of the discussion in Sects. 4 and 5 holds out the data with 1st person plural, in order to present the basic ingredients of the analysis more clearly step by step. Section 6 introduces the 1st person plural interactions and presents an analysis in terms of the interaction coherence, markedness, and plural marking, all of which resolve in favor of 1st plural objects, in part due to their portmanteau exponence. Section 7 then turns to independent evidence for the markedness of 1st person in Kadiwéu from a wholly independent domain: restrictions on ditransitive verbs that force antipassivization of direct objects in the presence of 1st person indirect objects.

We then turn to crosslinguistic and more general implications of the present study. Section 8 proposes an extension of the analysis to Georgian. Section 9 discusses the consequences of morphosyntactic markedness being mapped to dispreferred exponence, concluding that this is an “Anti-Exhibitionist” effect, and that abstract and material markedness are to be kept distinct and not iconically related to one another. Section 10 concludes.

## 2 Kadiwéu argument encoding

We turn to an exemplification of argument-encoding patterns for intransitive, transitive, ditransitive, and alternating verbs.<sup>1</sup> Importantly, in what follows, the reader will notice that the 2nd person is always plural (as perhaps is also the case in contemporary English). Thus, the plural suffix *-i* always occurs with second person arguments, suggesting honorification, perhaps implemented as obligatory morphological *enrichment* (Müller 2006).<sup>2</sup> The following phonological rules will also be relevant for what follows:

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<sup>1</sup> For a general introduction to Kadiwéu (Waikurúan), see Sandalo (1995), also distributed as Sandalo (1997). All data here were verified by both authors during fieldwork in Serra da Bodoquena, Mato Grosso do Sul, Brazil in February 2007.

<sup>2</sup> There are two important reasons to think that 2nd person *-i* is a plural suffix. First, it appears in the same position as other plural suffixes (i.e. those for 1st and 3rd person). Second, it triggers the same morphophonological rule of devoicing the final obstruent of a verb stem that is triggered by other plural suffixes, regardless of their phonology.

- (1) Phonological rules:
  - a. Vowels delete before vowels across morpheme boundaries (Braggio 1981, p. 23).
  - b. Sonorants delete in coda position.
  - c. Epenthetic *-i-* occurs to separate two consonants at morpheme boundaries.

As will be seen below, Kadiwéu is an ergative language: the object of transitives is marked the same as the subject of unaccusatives, and the subject of unergatives is marked the same as the agent of transitives.<sup>3</sup> However, 3rd person arguments show a three-way ‘tripartite’ split in Kadiwéu, where unaccusatives are marked by  $\emptyset$  (sg.) and *n- -aGa* (pl.), unergatives are marked by *y-/w-* (sg.) and *n- -aGa* (pl.), and transitive agents by *y-/w-* (sg.) and *o-y-* (pl.). In other words, 3rd person singular marking groups together unergative subjects and transitive agents, and 3rd person plural marking groups together both types of intransitives. In addition, all third person transitive objects are  $\emptyset$ , regardless of their number. We assume that a set of case features that refer to the presence of higher or lower arguments and theta-roles can distinguish these; see also note 7.

## 2.1 Unergative verbs

We illustrate first with the verb roots *aloqon* ‘swim’, and *gaan* ‘sing’.<sup>4</sup>

- (2) *j-aloqo*  
1-swim  
“I swam”
- (3) *a-loqon-i*  
2-swim-2Pl  
“You swam”
- (4) *w-aloqo*  
3-swim  
“He swam”
- (5) *j-aloqon-aGa*  
1-swim-Pl  
“We swam”

<sup>3</sup> A reviewer has raised the question of whether Kadiwéu is better classified as an ‘active/split-S’ language, rather than as ergative (cf. Kibrik (1990) for a general discussion of this question). This classification may be accurate, but the presence of an antipassive in Kadiwéu seems to indicate an ergative system.

<sup>4</sup> In the transcription that follows, *y* is used for the palatal glide, and *j* is used for the voiced affricate [dʒ]. *G* is used for the uvular plosive/fricative [g,ʁ], which is arguably an underlying plosive with the fricative found intervocalically. Long vowels are written as doubled vowels. The subject prefix *a-* deletes before other vowels as a consequence of (1a); we notate this below with an underline.

- (6) n-aloqon-aGa  
3-swim-Pl  
“They swam”
  
- (7) j-i-gaa  
1-ep-sing  
“I sang”
  
- (8) a-gaan-i  
2-sing-2Pl  
“You sang”
  
- (9) y-i-gaa  
3-ep-sing  
“He sang”
  
- (10) j-i-gaan-aGa  
1-ep-sing-Pl  
“We sang”
  
- (11) n-i-gaan-aGa  
3-ep-sing-Pl  
“They sang”

The unergative agreement markers are summarized below<sup>5</sup>:

- (12) Unergative agreement:
- |   | sg    | pl      |
|---|-------|---------|
| 1 | j-    | j- -aGa |
| 2 | a- -i | a- -i   |
| 3 | y/w-  | n- -aGa |

## 2.2 Unaccusatives

We exemplify with the unaccusative verb *ikil* ‘to drown’. The inverse marker *-d:-* below is in fact a marker of a [+participant] (e.g. 1st or 2nd person) internal argument.

- (13) i-            d:-    iki  
1Obj-    Inv-    heal  
“I healed”

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<sup>5</sup> We have not yet determined whether the *y-/w-/∅* alternation with 3rd person prefixes is fully phonologically conditioned or may be partly morphologically conditioned.

- (14) Ga- d:- ikil- i  
 2Obj- Inv- heal- 2Pl  
 “You healed”
- (15) Go- d:- iki  
 1plObj- Inv- heal  
 “We healed”
- (16) iki  
 heal  
 “He/she healed”
- (17) n- ikil- aGa  
 3- heal- Pl  
 “They healed”

Unaccusative agreement can be summarized in (18). Notice that the number distinction in 1pl is expressed in a portmanteau, rather than circumfixally, as it was in the unergative agreement pattern.

- (18) Unaccusative agreement:
- |   |              |              |
|---|--------------|--------------|
|   | sg           | pl           |
| 1 | i-           | Go-          |
| 2 | Ga- <u>i</u> | Ga- <u>i</u> |
| 3 | ∅            | n- -aGa      |

### 2.3 Transitive verbs

We exemplify with the verb *emaan* ‘love’. Pronouns occur under the canonical *pro-drop* conditions; we indicate this information-structural dependence by parentheses around the pronominal arguments, indicating their optionality. 1st and 2nd person arguments are obligatorily preverbal, while 3rd person arguments are preverbal only under certain information-structural conditions. We take the morpheme *-d:-*, an inverse marker, to be *v* agreement with a [+participant] object. (This may be related to the obligatory fronting of 1st/2nd person arguments out of the verb phrase.) In other words, it is not really an “inverse” marker, but rather a marker of object agreement of a certain type on *v*. Underline indicates an underlying but deleted vowel. In what follows, the object prefixes are drawn from the same set as the unaccusative prefixes, and the agent prefixes from the same set as the unergative prefixes, with the exception of 3rd person agents, which have the *y-* prefix of unergative agreement but an additional number prefix *o-*, for plural agents. However, as we will see below, these 3rd person agent prefixes only occur when the object is also 3rd person.

- (19) (ee) j- emaa (naGada)  
 (I) 1Ag- love (her)  
 “I love her”

(20) (aqaami) a-      emaan-    i      (naGada)  
 (You)    2Ag-    love-    2Pl    (her)  
 “You love her”

(21) (naGada) y-      emaa    (naGada)  
 (She)    3Ag-    love    (her)  
 “She loves her”

(22) (naGada) (ee) i-      d:-      emaa  
 (She)    (I)    1Obj-    inv-    love  
 “She loves me”

(23) (aqaami) (ee) a-      d:-      emaan-    i  
 (You)    (me) 2Ag-    Inv-    love-    2Pl  
 “You love me”

In (23), notice that the 1st person object prefix *i-* does not show up; instead, the 2nd person agent prefix “prevails”. This is one of the central agreement patterns we will attempt to explain in this paper.

(24) (naGada) (aqaami) Ga-      d:-      emaan-    i  
 (She)    (you)    2Obj-    Inv-    love-    2Pl  
 “She loves you”

Notice, in addition, that the 1st person agent prefix does not show up in (25):

(25) (ee) (aqaami) Ga-      d:-      emaan-    i  
 (I)    (you)    2Obj-    inv-    love-    2Pl  
 “I love you”

The fact that (24) and (25) are (besides pronouns) homophonous indicates that 1st person agents are “missing” in the presence of 2nd person objects. Coupled with (23), this shows that 1st person, whether agent or object, is not expressed in prefix position when there is a 2nd person object or agent.

We repeat the pattern with similar examples with the verb root *gidi* ‘to answer’, which is consonant initial, to show some phonological processes, namely *-i-* epenthesis (glossed as *ep*), before the verb stem when preceded by a consonant. Note that this verb root shows an additional morphophonological process of devoicing the stem-final consonant when followed by a plural affix, which supports the claim that the 2nd person plural *-i* is indeed a plural suffix.

(26) (naGada) y-      i-      gidi  
 (She)    3Ag-    ep-    answer  
 “She answers him/her/them”

- (27) (eti) o- y- i- gidi  
 (they) Pl- 3Ag- ep- answered  
 “They answered him/her/them”
- (28) (ee) (naGada) j- i- gidi  
 (I) (her) 1Ag- ep- answer  
 “I answer her”
- (29) (oqo) (naGada) j- i- git- aGa  
 (We) (her) 1Ag- ep- answer- Pl  
 “We answer her”

Notice vowel deletion in the verb stem in (29) and (30), and that both plural *-i* and plural-*aGa* cause morphophonologically conditioned devoicing of the verb stem.

- (30) (aqaami) (naGada) a- git- i  
 (You) (her) 2Ag- answer- 2Pl  
 “You answer her”
- (31) (naGada) (ee) i- d:- i- gidi  
 (She) (I) 1Obj- Inv- ep- answer  
 “She answers me”
- (32) (aqaami) (ee) a- d:- i- git- i  
 (You) (me) 2Ag- Inv- ep- answer- 2Pl  
 “You answer me”

Notice that the 1st person object prefix *i-* does not show up in (32); instead, the 2nd person subject prefix “prevails”.

- (33) (naGada) (aqaami) Ga- d:- i- git- i  
 (She) (you) 2Obj- Inv- ep- answer- 2Pl  
 “She answers you”
- (34) (ee) (aqaami) Ga- d:- i- git- i  
 (I) (you) 2Obj- Inv- ep- answer- 2Pl  
 “I answer you”
- (35) (oqo) (aqaami) Ga- d:- i- git- i  
 (we) (you) 2Obj- Inv- ep- answer- 2Pl  
 “We answer you”

Notice that (34) and (35) show identical forms of the verb, providing evidence that 2nd person object agreement is all that is realized: no prefixal distinctions are made for 1st vs. 3rd agent in the presence of 2nd person objects. Example (36) shows that

1st plural objects are not marked with the *-aGa* suffix, but rather a portmanteau prefix.

- (36) (aqaami) (oqo) Go- d:- i- gidi  
 (you) (us) 1PlObj- Inv- ep- answer  
 You answer us

#### 2.4 Unaccusative-transitive alternating verbs

Interestingly there are a few verbs, like *igeen* ‘to dream’, which can be either unaccusative or transitive. When intransitive, the subject is crossreferenced by object agreement, an unaccusative structure. This is also made evident by the presence of the inverse marker *d:-*, which, recall, indicates the presence of a 1/2 person internal argument (that has fronted out of the verb phrase). Interestingly, notice that this verb has a transitive form as well.<sup>6</sup>

- (37) (ee) i- d:- ige  
 (I) 1Obj- Inv- dream  
 “I dreamt”
- (38) (naGada) (ee) i- d:- ige  
 (She) (I) 1Obj- Inv- dream  
 “She dreamt me”
- (39) (aqaami) (ee) a- d:- igeen- i  
 (You) (I) 2Ag- Inv- dream- 2Pl  
 “You dreamt me”
- (40) (naGada) ige (niGida)  
 (she) dream (he)  
 “She dreamt him”
- (41) (ee) (aqaami) Ga- d:- igeen- i  
 (I) (you) 2Obj- Inv- dream- 2Pl  
 “I dreamt you”
- (42) (aqaami) Ga- d:- igeen- i  
 (You) 2Obj- Inv- dream- 2Pl  
 “You dreamt”

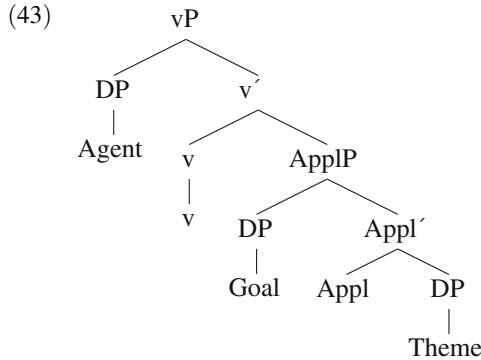
Notice that the verb in (41) and (42) is identical, and hence that *Gad:igeeni* is ambiguous between “You dreamt”, with a 2nd person object marker and a second person suffix, and “I dreamt you”, with a second person object marker and a 2nd

<sup>6</sup> The form with a 3rd person agent in (40) does not appear with the expected prefix *y-*. We do not know if this is due to a phonotactic bias against *yi* sequences (Kawasaki 1982), or perhaps due to a third person object not counting enough to yield the transitive version of this verb.

person suffix. This is again a prime example of “2nd person winning”: agent agreement is not marked at all in (41).

## 2.5 Ditransitives

Before proceeding with the illustration of agreement in ditransitives we will offer a few remarks on the argument structure of such verbs. We assume configurational theta-role assignment, mediated by an Applicative head for double-object constructions (Marantz 1993).



In Kadiwéu ditransitives, the Applicative head is overly marked by a morpheme *-ta-*, and a second “inverse” marker, *-wa*, indicating agreement with 1/2 person goal arguments, is found as well. This morpheme is unimaginatively called  $\text{Inv}_2$  in what follows.

As the examples below show, with the verb roots *eloGodi* ‘tell’, and *iqeen* ‘introduce’, agents and patients are marked as in transitive verbs, and goals are marked after the applicative head.

(44) j-        eloGodi-    ta  
 1Ag-    tell-            Appl  
 “I tell it to him”

(45) j-        eloGodi-    ta-        Ga-        wa  
 1Ag-    tell-            Appl-    2Obj-     $\text{Inv}_2$   
 “I tell it to you”

(46) Ga-        d:-        iqeen-        i-        ta  
 2Obj-    Inv-    introduce-    2Pl-    Appl  
 I introduce you to him

(47) (aqामी) (ee) a-        d:-        iqeen-        i-        ta  
 (You)    (I)    2Ag-    Inv-    introduce-    2Pl-    Appl  
 You introduce me to him

- (48) (aqaami) a- iqeen- i- ta (naGada)  
 (You) 2Ag- introduce- 2Pl- Appl (her)  
 You introduce her to him

### 3 Markedness of the first person

We first present the paradigm corresponding to the pattern shown, concentrating on transitive verbs, such as *eman* ‘love’. Notice that 2nd person is always plural, as indicated by the suffix *-i*. We hold out 1pl forms altogether until later.

- (49) Argument combinations for transitive verb *eman* ‘love’
- |                |                |                |                |
|----------------|----------------|----------------|----------------|
|                | 1 <sub>A</sub> | 2 <sub>A</sub> | 3 <sub>A</sub> |
| 1 <sub>O</sub> | -              | ad:emani       | id:ema:        |
| 2 <sub>O</sub> | Gad:emani      | -              | Gad:emani      |
| 3 <sub>O</sub> | jema:          | emani:         | yema:, oyema:  |

Our main focus of attention will be the transitive verbs, as the intransitive verbs show a single prefix, which either will be one of the object prefixes in the case of unaccusatives or will be an agent prefix in the case of unergatives. We assume that 1st person agreement nodes are created in the syntax, but disappear in the specific context of co-occurring within the same complex morphological word as a 2nd person. Thus, the absence of 1st person prefixes in the presence of 2nd person prefixes must be determined postsyntactically, within a local domain.

In fact, we know that 1st person agreement *has* occurred in the syntax, because 1st person agreement is detectable on the [+part] inverse marker *-d:-*, even when the 1st person prefix itself is absent, in forms such as (50), repeated from (23):

- (50) (aqaami) (ee) a- d:- emaan- i  
 (You) (me) 2Ag- Inv- love- 2Pl  
 “You love me”

Below, we present the binary features that we assume underlie the categories of 1st, 2nd, and 3rd person (Halle 1997).

- (51) a. [+author, +participant] = 1st person  
 b. [-author, +participant] = 2nd person  
 c. [-author, -participant] = 3rd person  
 d. [+author, -participant] = logically impossible

Central to the binary decomposition of person into features is the asymmetric treatment of different values of a feature. In particular, markedness refers to the fact that for features such as [ $\pm$ participant] and [ $\pm$ author], the positive value is *marked*. Harley and Ritter (2002) and Nevins (2007) provide two recent overviews of what it means for person features to be marked, in terms of typological inventories,

morphological expression of orthogonal categories, and singling-out for syntagmatic processes.

(52) Marked value = + for both [ $\pm$ participant] and [ $\pm$ author]

As a result of the marking statement in (52), both 1st and 2nd person will be marked for [+participant], and 1st person will be marked for [+author] as well. Languages may differ in how much markedness they tolerate within the same Morphological word (M-Word), and in particular within the very local environment of adjacent prefixal positions.

Having 1st person and 2nd person on same T node (due to Multiple Agree in the syntax) causes a “double whammy” of markedness. Moreover, as is known from the work of Ito and Mester (2003) on the phonology of laryngeal co-occurrence restrictions, in many cases one instance of a marked feature is tolerated within a domain, but two instances (in separate arguments) are not. In Kadiwéu, two instances of [+participant] are banned by a dissimilatory “OCP” of two identical marked morphosyntactic feature values within the same domain. In order to resolve the constraint, the more marked of these two agreement nodes is targeted for deletion in Kadiwéu.

Under impoverishment, the proposal is that when there are two [+part] terminals under same  $X^0$  node, the result is a dissimilative deletion operation:

(53) **Banned configuration,**

where  $j \neq k$  and  $j, k \in \text{same } X^0$

[+participant] <sub>Arg<sub>j</sub></sub>	[+participant] <sub>Arg<sub>k</sub></sub>
[+author, (+pl)]	[-author]

From a different point of view, the fact that 1st person disappears in the presence of 2nd can be captured by the intuition that there is only one prefix position. But why does 1st person lose? This intuition, that the 1st person loses to the 2nd not because the 2nd is special, but rather because the 1st is dispreferred by a context-free markedness statement, is at the core of the analysis that will follow.

However, why is 3rd person not realized in the presence of 1st or 2nd? Here it becomes necessary to understand the restriction to a single person prefix. While a templatic approach that stipulates the presence of a single position could work in principle, it turns out that employing a specific implementation, namely Trommer’s Coherence constraints (Trommer 2008), will derive the preference for objects winning over subjects when the objects are independently agreed with by an inverse marker. The formulation of the ‘templatic’ effect with this particular morphotactic constraint thus derives independent facts of Kadiwéu in need of a solution. Before we turn to this result, however, let us focus on the basic effects of Coherence.

The claim in this paper is that both subject and object in Kadiwéu are agreed with via Multiple Agree (Hiraiwa 2001; Nevins 2007; among others), and that the realization of agreement on T cannot support both sets of features, due to a constraint COHERENCE that bans expression of distinct argumental indices by the same head. In other words, the claim is that Kadiwéu has a syntax of Multiple Agree like other languages but not the morphological means to support it. In what follows,

we depart from Trommer's use of devices that refer to specific pairwise argument combinations, as it is arguably better to derive the effects that occur in combinations from context-free properties when possible. In addition, we assume that all Agreement is syntactic. In what follows, therefore, is a model in which the operation of Vocabulary Insertion of Distributed Morphology is followed by a stage of constraint evaluation that has the limited power to delete the exponent(s) of an argument under morphotactic pressures that interact with featural markedness.

#### 4 Analysis in terms of coherence

The model adopted here is one with a clear division of labor between syntactic and post-syntactic operations. The post-syntactic operations are themselves ordered. Specifically, after T has syntactically agreed with both arguments of a transitive verb and Vocabulary Insertion has initially provided exponent(s) for *both* arguments, the result is then submitted to a language-specific morphotactic optimization. COHERENCE is a constraint that bans two adjacent agreement affixes (e.g. two person affixes, or two number affixes) with argumental reference indices  $i$  and  $j$  where  $i \neq j$ . Thus, while multiple affixes are allowed (e.g. a person prefix and number suffix that refer to the same argument, or two distinct person affixes referring to the same argument), what is banned is switching to a different argument among person affixes or number affixes. Adjacency is not strictly linear, but relativized to pairs of person-expressing or number-expressing affixes.

This basic interaction of markedness constraints with the parsing of [+participant] is shown in the following six tableaux. These tableaux represent a parallel evaluation of different Vocabulary Insertion possibilities at a single syntactic node, jointly considered along with factors of morphotactic optimization and markedness. Following Trommer's work, it should be clear that markedness constraints leading to non-realization of features are equivalent to impoverishment rules in traditional Distributed Morphology, and that the computation below is post-syntactic and involves determining the exponence for a single syntactic node and its component features. The tableaux illustrate a function whose input is Vocabulary Items (pairings of phonological material and morphosyntactic features) and whose output is also Vocabulary Items, always a subset of those that were in the input.

The combinations shown above in (49) can be understood through the interaction of three constraints: COHERENCE, which bans a sequence of two agreement affixes of the same type (person or number) with different argumental reference indices, PARSE [+PART], requiring that a T node that has syntactically valued a [+part] feature must retain an instance of [+part] in the output, and a lower-ranked markedness constraint \*[+AUTH], that asserts its effects in 1/2 combinations. [ $\pm a$ ] is short for [ $\pm$ author], and [ $\pm p$ ] is short for [ $\pm$ participant]. (Recall, incidentally, that [ $+a$ ]  $\rightarrow$  [ $+p$ ] and [ $-p$ ]  $\rightarrow$  [ $-a$ ] due to (51)). In the tableaux below, three candidates will generally be shown: those that delete the Vocabulary Item(s) exponing the subject (whose features are indicated with a subscript *A*), those that delete Vocabulary Item(s) exponing the object (whose features are indicated with a subscript *O*), and those that delete neither.

(54) 1>3: 1 wins

/[+a, +p] <sub>A</sub> , [-p] <sub>O</sub> /	PARSE [+PART]	COHERENCE	*[+AUTH]
a. <sup>ESP</sup> [+a, +p] <sub>A</sub>			*
b. [-p] <sub>O</sub>	*!		
c. [+a, +p] <sub>A</sub> , [-p] <sub>O</sub>		*!	

(55) 3>1: 1 wins

/[+a, +p] <sub>O</sub> , [-p] <sub>A</sub> /	PARSE [+PART]	COHERENCE	*[+AUTH]
a. <sup>ESP</sup> [+a, +p] <sub>O</sub>			*
b. [-p] <sub>A</sub>	*!		
c. [+a, +p] <sub>O</sub> , [-p] <sub>A</sub>		*!	

(56) 2>3: 2 wins

/[-a, +p] <sub>A</sub> , [-p] <sub>O</sub> /	PARSE [+PART]	COHERENCE	*[+AUTH]
a. <sup>ESP</sup> [-a, +p] <sub>A</sub>			
b. [-p] <sub>O</sub>	*!		
c. [-a, +p] <sub>A</sub> , [-p] <sub>O</sub>		*!	

(57) 3>2: 2 wins

/[-a, +p] <sub>O</sub> , [-p] <sub>A</sub> /	PARSE [+PART]	COHERENCE	*[+AUTH]
a. <sup>ESP</sup> [-a, +p] <sub>O</sub>			
b. [-p] <sub>A</sub>	*!		
c. [-a, +p] <sub>O</sub> , [-p] <sub>A</sub>		*!	

(58) 1>2: 2 wins

/[+a, +p] <sub>A</sub> , [-a, +p] <sub>O</sub> /	PARSE [+PART]	COHERENCE	*[+AUTH]
a. [+a, +p] <sub>A</sub>			*!
b. <sup>ESP</sup> [-a, +p] <sub>O</sub>			
c. [+a, +p] <sub>A</sub> , [-a, +p] <sub>O</sub>		*!	

(59) 2>1: 2 wins

/[+a, +p] <sub>O</sub> , [-a, +p] <sub>A</sub> /	PARSE [+PART]	COHERENCE	*[+AUTH]
a. [+a, +p] <sub>O</sub>			*!
b. <sup>ESP</sup> [-a, +p] <sub>A</sub>			
c. [+a, +p] <sub>O</sub> , [-a, +p] <sub>A</sub>		*!	

(58) and (59) show the crucial activity of \*[+AUTH]. The apparent hierarchy effect here results from the involvement of a markedness constraint on 1st person. Formulating the competition in terms of deletion of the 1st person must be the case, because even formalizing a rule of “2nd person wins” in the morphology turns out to be extremely difficult using standard Paninian principles of realization within a “morphous” procedure of realization at specific terminal nodes. This deletion operation is postsyntactic, with evidence that 1st person actually is agreeing in the syntax coming from the distribution of the inverse marker.

The simple picture illustrated in the six tableaux above encounters two complications. One is the presence of the “inverse” marker, argued to be an instance of object agreement located on *v*. While the tableaux above relate to the realization of agreement features on T, the expression of features on another head may affect them, because Coherence constraints are evaluated across whole word forms, and inverse markers are person affixes. The second complication is the fact that 1st plural and 1st singular do not pattern alike when objects. We turn to both of these issues in the following sections.

Summarizing the core of the above analysis, the results of Multiple Agree on T cannot receive full morphological realization. A morphotactic constraint bans the appearance of two affixes that cross-reference different arguments, and a markedness constraint decides in favor of 2nd person over 1st. In Sect. 7 of the paper, independent evidence that 1st person is marked in Kadiwéu comes from the surprising rule of obligatory antipassivization when there is a 1st person Goal (i.e. Indirect Object).

## 5 Markers of agreement, vocabulary items and vocabulary insertion

As mentioned in the introduction, a large part of the analysis of the asymmetry between 1st sg and 1st pl follows from the structure of the exponent inventory. Let us therefore begin by providing a partial list of the Vocabulary Items.<sup>7</sup> The subscripts A and O are a shorthand for the features differentiating these cases. We assume these are present along with the agreement matrices on T, and that the  $\phi$ -features of agent and object are kept distinct under T, under subnodes of T that we call for convenience  $agr_A$  and  $agr_O$ —though these are crucially not independent clausal positions, and they undergo Vocabulary Insertion at the same time.

<sup>7</sup> As shown in Sect. 2.1, 3rd person plural has distinct affixes for transitive agents and unergative subjects. We do not enter into this complication here; for a discussion of features that would distinguish agent and subject in a potentially “tripartite”, rather than ergative/absolutive system, see Wunderlich (1997) and Kiparsky (2001).

- (60) Vocabulary Items on T:
- a. /j-/  $\Leftrightarrow$  [+a, +p]<sub>A</sub>
  - b. /a-/  $\Leftrightarrow$  [-a, +p]<sub>A</sub>
  - c. /-i/  $\Leftrightarrow$  [+pl] / \_ [-a, +p]
  - d. /y-/  $\Leftrightarrow$  [-p]<sub>A</sub>
  - e. /o-/  $\Leftrightarrow$  [+pl]<sub>A</sub> / \_ [-p]
  - f. /i-/  $\Leftrightarrow$  [+a, +p]<sub>O</sub>
  - g. /Ga-/  $\Leftrightarrow$  [-a, +p]<sub>O</sub>

- (61) Vocabulary Item on v:  
 /-d:-/  $\Leftrightarrow$  [+p]

Since the results of Vocabulary Insertion are evaluated by a morphotactic optimization component, it is important to clarify the interaction of the “generation” component of the optimization procedure with the constraint evaluation itself. We assume that Vocabulary Insertion works in the standard DM manner (Halle and Marantz 1994), and thus only operates in a manner consistent with the Elsewhere Principle (Halle 1997). As a result, the more highly specialized plural suffix *-i*, conditioned by the context of 2nd person, blocks insertion of the general purpose plural suffix *-aGa*, seen above and discussed further in Sect. 6.

Both the feature matrixes  $\text{agr}_A$  and  $\text{agr}_O$  undergo Vocabulary Insertion at T together. We assume that realization of agreement with an argument in person requires realization of agreement with that same argument in number, and vice versa. In other words, 1st plural agents must be realized by the “circumfixal” combination *j- ...-Ga*, and 2nd plural agents by “circumfixal” *a- ...-i*.<sup>8</sup> Whatever the mechanism for their insertion (including the possibility that they are true circumfixes), the important point is that the tableaux throughout this paper can only choose between total Vocabulary Insertion Realization of the A agreement node, total Vocabulary Insertion Realization of the O agreement node, or total Vocabulary Insertion Realization of both. The morphotactic optimization can only operate at the level of choosing between  $\text{agr}_A$  and  $\text{agr}_O$ , but cannot “mix and match” subparts of these, freakishly combining person exponents of A with number exponents of O. Such candidates are not only not considered, they are not generated, as they cannot result from total Vocabulary Insertion of  $\text{agr}_A$  and  $\text{agr}_O$ .

It is thus important to clarify the exact interaction of Vocabulary Insertion with the morphotactic optimization illustrated in these tableaux. We assume that Vocabulary Insertion *initially inserts the exponents for both arguments* in transitive verbs. The stage of morphotactic optimization on T, then *can only delete* Vocabulary Items (in fact, can only delete  $\text{agr}_A$  or  $\text{agr}_O$ ) that have been inserted. It is thus very limited in its operations, essentially able only to obliterate entire exponences

<sup>8</sup> If circumfixes are not possible exponents, then this obligatory co-occurrence of the prefix and suffix may be analyzable in terms of fission of a single node (Noyer 1992).

(circumfixal, or otherwise) of an argument. The tableaux provide a function from Vocabulary Items to Vocabulary Items.

Let's return now to the eight forms in (49). Their derivations involve the ordered modular operations of syntactic agreement, Vocabulary Insertion of both sets of exponents on T, followed by morphotactic optimization, and finally the phonological rules of (1), as shown below:

(62) Vocabulary Items and Phonology with verb *eman*:

	VI(T)	VI(v)	phonological rules	
2 <sub>A</sub> , 1 <sub>O</sub>	<i>a,-i</i> : [-a, +p, +pl] <sub>A</sub>	<i>d</i> : [+p] <sub>O</sub>		<i>ad:emani</i>
3 <sub>A</sub> , 1 <sub>O</sub>	<i>i</i> : [+a, +p] <sub>A</sub>	<i>d</i> : [+p] <sub>O</sub>	n → ∅/-#	<i>id:ema</i>
1 <sub>A</sub> , 2 <sub>O</sub>	<i>Ga,-i</i> : [-a, +p, +pl] <sub>O</sub>	<i>d</i> : [+p] <sub>O</sub>		<i>Gad:emani</i>
3 <sub>A</sub> , 2 <sub>O</sub>	<i>Ga,-i</i> : [-a, +p, +pl] <sub>O</sub>	<i>d</i> : [+p] <sub>O</sub>		<i>Gad:emani</i>
1 <sub>A</sub> , 3 <sub>O</sub>	<i>j</i> : [+a, +p] <sub>O</sub>		n → ∅/-#	<i>jema</i>
2 <sub>A</sub> , 3 <sub>O</sub>	<i>a,-i</i> : [-a, +p, +pl] <sub>A</sub>		V → ∅- + V	<i>emani</i>
3 <sub>A</sub> , 3 <sub>O</sub>	<i>y</i> : [-p] <sub>A</sub>		n → ∅/-#	<i>yema</i>
3pl <sub>A</sub> , 3 <sub>O</sub>	<i>o-y</i> : [+pl] <sub>A</sub> [-p] <sub>A</sub>		n → ∅/-#	<i>oyema</i>

For all of the forms above, the tableaux (54) through (59) will not substantially change with the complication of the *d*:- inverse suffix except in the case of 2<sub>A</sub>, 1<sub>O</sub>. In this combination, the prefix and suffix are cross-referencing 2nd person, while the affix *-d*:- crossreferences 1st person. This is thus a coherence violation, but nonetheless the 2nd person still wins. The intuition in this combination is that the obligatory number marking of the 2nd person interacts with the determination made by Coherence. We posit a constraint, PARSE[+PL]/[+P], requiring that a T node that acquires [+p] from a [+part] argument in the syntax must realize [+pl] in its exponence. Like PARSE[+PART], PARSE[+PL]/[+P] is concerned with whether at least one instance of the relevant input feature is preserved.

Recall that all of the tableaux here evaluate realizations of agreement on T. Thus, non-inclusion of the inverse marker on *v* is non-negotiable in them, arguably because Vocabulary Insertion at *v* precedes Vocabulary Insertion at T. In addition, as PARSE[+PART] relates to realization on T, non-expression of a [+part] exponence of T, even if already expressed by *v*, will cause a violation at T. The revised constraint interaction, shown here in tandem with Vocabulary Insertion, is shown below for 2 > 1sg. π and # annotate person and number, as Coherence is relativized within these.

(63) 2>1: 2 wins

	PARSE [+PART]	COHERENCE	*[+AUTH]
a. [+a, +p] <sub>O</sub>			*!
b. <sup>π</sup> [-a, +p] <sub>A</sub>			
c. [+a, +p] <sub>O</sub> , [-a, +p] <sub>A</sub>		*!	

The competition between (63b) and (63c) is thus crucially resolved by the markedness constraint \*[+AUTH].

### 6 Enter first person plural

Before proceeding, it is worth pointing out that all of the realizations of combinations that we have seen thus far would be compatible with an impoverishment rule as stated in (53) above, or a 2 > 1 hierarchy. Nothing in the analysis we have encountered up to this point would be insuperable for such accounts. However, we now turn to the 1st person plural, whose portmanteau realization in its object form reverses/subverts any notion of a purely (morpho-)syntactic hierarchy. The 1pl has an unusual expression. As an agent, it is realized circumfixally, with the additional suffix *-aGa*, and it loses to 2nd person due to Coherence and the markedness of [+author]. But as a plural object, it wins, due to the interaction of coherence constraints with the others. The full gamut of 1pl forms are now presented below:

(64) Previously suppressed 1pl-involving Argument combinations for transitive verb *eman* ‘love’

1pl <sub>O</sub>	1pl <sub>A</sub>	2 <sub>A</sub>	3 <sub>A</sub>
2 <sub>O</sub>	Gad:emani	God:ema	God:ema
3 <sub>O</sub>	jemanaGa		

We now turn to the analysis in terms of Coherence, first illustrating the results with 1pl agents, which pattern like 1sg agents. The relevant vocabulary items are in (65). Assuming the elsewhere principle governs Vocabulary Insertion, (65a) will block insertion of (65b).

- (65) 1pl vocabulary items
- a. /Go-/ ⇔ [+a, +p, +pl]<sub>O</sub>
  - b. /-aGa/ ⇔ [+pl]

The competition with 3pl objects is not very exciting, since 3pl objects have no exponent at all. Candidate (66b), therefore, which would realize only the object, is devoid of exponence, as there are no Vocabulary Items corresponding to these features.

(66)

1pl > 3pl: 1pl wins: *j-eman-aGa*

/[+a,+p,+pl] <sub>A</sub> , [-p,+pl] <sub>O</sub> /	PARSE [+PART]	PARSE[+PL]/[+P]	COH	*[+AUTH]
a. <sup>⊗</sup> [+a,+p] <sub>A</sub> [+pl] <sub>A</sub> /j- -aGa/				*
b.	!*	*		

The competition of 1st plural agents with 2nd person objects is similar to what happens with 1st singular agents:

(67)

1pl > 2: 2 wins: *Ga-d:-eman-i*

	PARSE [+PART]	PARSE[+PL]/[+P]	COH	*[+AUTH]
a. [+a, +p] <sub>A</sub> [+p] <sub>O</sub> [+p] <sub>A</sub> /j- d:- -aGa/			*!(π)	*
b. <sup>ε</sup> [-a, +p] <sub>O</sub> [+p] <sub>O</sub> [+p] <sub>O</sub> /Ga- d:- -i/				
c. [-a, +p] <sub>A</sub> [+a, +p] <sub>O</sub> [+p] <sub>O</sub> [+p] <sub>A</sub> /j- Ga- d:- -i/			*!(π)	*

What is more surprising is the pattern of 1pl as objects. Unlike 1sg objects, 1pl objects involve Parse[+pl]/[+p], and in addition mesh well with the inverse marker. Most importantly, due to its portmanteau realization of person and number, the candidate which realizes both object and subject agreement incurs a second coherence violation, one relativized to number. The vocabulary insertion and morphotactic optimization is shown below:

(68)

2 > 1pl: 1pl wins: *Go-d:-ema*

	PARSE [+PART]	PARSE[+PL]/[+P]	COH	*[+AUTH]
a. [-a, +p] <sub>A</sub> [+p] <sub>O</sub> [+p] <sub>A</sub> /a- d:- -i/			*!(π)	
b. <sup>ε</sup> [+a, +p, +pl] <sub>O</sub> [+p] <sub>O</sub> /Go- d:- /				*
c. [-a, +p] <sub>A</sub> [+a, +p, +pl] <sub>O</sub> [+p] <sub>O</sub> [+p] <sub>A</sub> /a- Go- d:- -i/			**!(π, #)	*

A few remarks on counting of violations of Coherence are in order to remind the reader of its evaluation. In both (68a) and (68c), there is only one “transition” from one index to the other for person. It is only the realization of agent agreement, with its obligatory plural for second person, that adds a second violation (in 68c).

For completeness, we include the interactions of 1pl objects with 3pl agents. The result is similar to (68).

(69)

3pl > 1pl: 1pl wins: *Go-d:-ema*

	PARSE [+PART]	PARSE[+PL]/[+P]	COH	*[+AUTH]
a. [+p] <sub>A</sub> [-p] <sub>πA</sub> [+p] <sub>πO</sub> /o- y- d:- /	!*		*	
b. <sup>ε</sup> [+a, +p, +pl] <sub>O</sub> [+p] <sub>O</sub> /Go- d:- /			*	*
c. [+p] <sub>#A</sub> [-p] <sub>πA</sub> [+a, +p, +pl] <sub>πO, #O</sub> [+p] <sub>πO</sub> /o- y- Go- d:- /			**!(π, #)	*

In short, what is special about 1pl as opposed to 1sg, and specifically 1pl objects as opposed to 1pl subjects, is not anything morphosyntactic, but something squarely morphotactic: their portmanteau realization means that no other plural argument can be realized when they are objects.

Finally, for comparison, the tableau below shows 3pl > 1sg.

(70)

3pl > 1sg: 1sg wins : *i-d:-ema*:

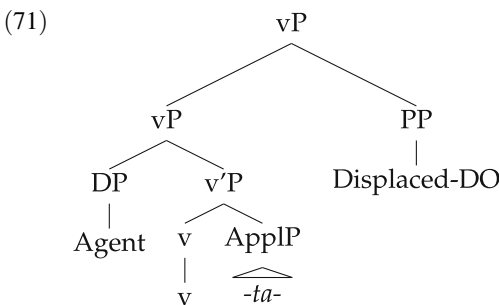
	/[+a,+p] <sub>O</sub> , [-p,+p] <sub>A</sub> /	PARSE [+PART]	PARSE[+PL]/[+P]	COH	*[+AUTH]
a.	[+p] <sub>#A</sub> [-p] <sub>πA</sub> [+p] <sub>πO</sub> /o- y- d:- /	!*		*( $\pi$ )	
b.	<sup>ε</sup> [+a,+p] <sub>O</sub> [+p] <sub>O</sub> /i- d:- /				*
c.	<sup>ε</sup> [+p] <sub>#A</sub> [+a,+p] <sub>πO</sub> [+p] <sub>πO</sub> /o- i- d:- /				*
d.	[+p] <sub>#A</sub> [-p] <sub>πA</sub> [+a,+p] <sub>πO</sub> [+p] <sub>πO</sub> /o- y- i- d:- /			*!( $\pi$ )	*

Both (70b) and (70c) tie for violations. However, the form (70c), as a winner is *o-i-d:-ema*, but the /o/ is deleted by phonological rule (1a), resulting in the surface form *i-d:-ema*. Both winners actually have the same phonological form.<sup>9</sup>

Summarizing, 1sg always loses to 2nd person due to \*[+AUTH]. However, 1pl objects manage to triumph over 2nd agents because of the interaction of the *Go-* prefix with morphotactic Coherence constraints, which favor co-realization with the inverse marker and disfavor co-realization with plural markers of other arguments.

### 7 Obligatory antipassivization with 1stp goals

In this section we provide additional evidence from within Kadiwéu that 1st person is marked. The facts come from Obligatory antipassivization with 1st person goals. Syntactically, we treat antipassivization as a lateral “demotion” of the Direct Object into a vP adjoined PP:



<sup>9</sup> See also Braggio (1981) for a claim that certain two-argument combinations involve elimination of a prefix by phonological rule.

Antipassivization in Kadiwéu has a variety of uses, to be discussed below. Importantly, in terms of its results for argument encoding, antipassivization, as marked by the morpheme *-n-* yields intransitive agreement, because the Agent no longer c-commands the laterally-displaced PP.

One of the uses of the antipassive is to indicate unrealized actions, perhaps somewhat like the conative alternation in English (Hale and Keyser 1993; Coor-eman 1994; Beavers 2006). Notice that antipassivization induces a change in the prefixal markers from the agent set to the intransitive set.

(72) j-        eligo lalanja  
 1Ag- eat orange  
 “I ate the orange”

(73) i-        n-        eligo- ta lalanja  
 1S<sub>int</sub>- Antipass- eat- Obl orange  
 “I ate the orange with my eyes”

This “unrealized” or “incompletely affected object” semantics extends to many verb types. For a number of these verb types, including ditransitives, antipassivization is optional, and when used, carries a “conative” semantics, of action at a distance, or of unaffectedness of the theme argument. In these examples, recall that *-wa* marks agreement with a [+participant] indirect object, and is thus similar to the inverse marker *-d:-* in this respect, hence glossed Inv<sub>2</sub>.

(74) iqee-        ta-        Ga-        wa  
 Introduce- Appl- 2Obj- Inv<sub>2</sub>  
 “She introduced him to you”

(75) j-        iqee-        ta-        Ga-        wa  
 1Ag- introduce- Appl- 2Obj- Inv<sub>2</sub>  
 “I introduced her to you”

(76) i-        n-        iqee-        ta-        Ga-        wa  
 1- antipass- introduce- Appl- 2Obj- Inv<sub>2</sub>  
 “I introduced her to you (from a distance)”

These uses of the antipassive discussed above have parallels in other languages in which antipassive connotes an irrealis reading of an event, and will not be of direct interest here. What is most surprising are “purely formal” uses of the antipassive that have no interpretive consequences. This most directly relevant use of the antipassive is to demote the direct object when the Goal is 1st person. Use of a ditransitive verb with a 1st person indirect object is ungrammatical:

(77) \*iqeen-        i-        t̄a-        i-        wa  
 introduce- Pl- Appl- 1Obj- Inv<sub>2</sub>  
 He introduces them to me

In other words, the verb *iqeen* requires that its object be antipassivized when the goal is 1st person:

- (78) n-            iqeen-        i-    ta-        i-        wa  
 Antipass-    Introduce-    Pl-    Appl-    1Obj-    Inv<sub>2</sub>  
 He introduces them to me

The obligatory antipassivization with 1st person goals does not trigger an “action-at-a-distance” reading. Most interestingly, no such restriction holds for 2nd person goals. Antipassivization with them is optional and when it occurs has interpretive consequences. These conative/unaffectedness intuitions are even clearer with verbs like *oqolen* ‘to throw’. For 1st person singular or plural indirect objects, the antipassive is obligatory.

- (79) \*oqole-    ta-        i-        wa  
 throw-    Appl-    1Obj-    Inv<sub>2</sub>  
 “He threw it to me”

- (80) n-            oqole-    ta-        i-        wa  
 antipass-    throw-    Appl-    1Obj-    Inv<sub>2</sub>  
 “He threw it to me”

- (81) \*oqolen-    to-        Go-        wa  
 throw-    Appl-    1PIObj-    Inv<sub>2</sub>  
 “He threw it to us”

- (82) n-            oqolen-    to-        Go-        wa  
 Antipass-    throw-    Appl-    1PIObj-    Inv<sub>2</sub>  
 “He threw it to us”

However, for 2nd person indirect objects, the antipassive is optional, and its presence carries an incompleted/conative semantics.

- (83) j-            oqole-    ta-        Ga-        wa  
 1Ag-    throw-    Appl-    2Obj-    Inv<sub>2</sub>  
 “I threw it to you”

- (84) i-    n-            oqole-    ta-        Ga-        wa  
 1S-    antipass-    throw-    Appl-    2Obj-    Inv<sub>2</sub>  
 “I threw it to you at a distance”

- (85) oqolen-    ta-        Ga-        wa  
 throw-    Appl-    2Obj-    Inv<sub>2</sub>  
 “He threw it to you”

- (86) n-            oqolen-    ta-        Ga-        wa  
 Antipass-    throw-    Appl-    2Obj-    Inv<sub>2</sub>  
 “He threw it to you (at a distance)”

As these examples show, there is no problem with a 1st person indirect object per se. The problem arises when another direct object remains inside the VP along with the indirect object. Summarizing, 1st person goals trigger obligatory antipassivization of the theme argument in Kadiwéu, a restriction we capture as follows:

(87)  $*[1_{IO} X_{DO}]_{AppIP}$

In prose, the restriction above bans any DP object inside an ApplP when the goal argument is 1st person. We treat (87) as convergent evidence that 1st person is marked in Kadiwéu and thus does not sit comfortably in environments with other DPs.

The filter in (87) is reminiscent of Person-Case Effects that syntactically ban certain combinations of arguments within the same ApplP domain, e.g. Romanian (Farkas and Kazazis 1980; Nevins 2007), where  $3 > 2$  is permitted in within ApplP, but  $3 > 1$  is not.

(88) Maria i- te- a prezentat  
 Maria 3dat 2acc has introduced  
 ‘Maria<sub>m</sub> has introduced you to her<sub>z</sub>.’

(89) \*Maria i- m- a prezentat  
 Maria 3dat 1acc has introduced  
 ‘Maria<sub>m</sub> has introduced me to her<sub>z</sub>.’

It is also reminiscent of the ‘spurious antipassive’ of Chukchee (Bobaljik and Branigan 2006), which is used for purely formal means of avoiding encoding certain argument combinations in verbal agreement morphology. Our specific proposal for Kadiwéu’s obligatory Antipassivization is that the marked 1st Person Dative causes evacuation of the other co-argument from the v’P. While a full account of nature of this process is not our direct focus in this paper, we present it as independent evidence that the marked feature [+author] induces an independent and orthogonal set of unusual morphosyntactic repairs in the grammar of Kadiwéu.

## 8 Unifying the analysis with Georgian prefixal agreement

Having analyzed that Kadiwéu prefixal agreement, whereby 2nd person trumps 1st even when both might be expected by looking at other forms, the next question of interest relates to the generality of this approach to other languages. In this section, we look at prefixal agreement in Georgian, where a “blocking” relation between 2nd person objects and 1st person agents can also be understood in the above terms.

Like Kadiwéu, Georgian has a system of verbal agreement in which prefixal elements realize either external or internal arguments. As (90) illustrates, for example, there is a marker for 1st person agents, while (91) illustrates a marker for 2nd person objects.

(90) v- xatav  
 1Subj- draw  
 I draw him

(91) g- xatav- s  
 2Obj- draw- 3Subj  
 He draws you

One might expect that the free combination of these two prefixal elements would lead to either *g-v-xatav* or *v-g-xatav* for 1st person acting on 2nd. However, the attested form lacks an agreement marker for the 1st person agent altogether:

(92) g- xatav  
 2Obj- draw  
 ‘I draw you’

In a by-now familiar way, we notice that in Georgian, the 1Subj prefix does not appear in the presence of the 2Obj prefix. Anderson (1992) has handled these facts by proposing that the realization rules of *g-* insertion and *v-* belong to the same disjunctive block, and the rule prefixing *g-* is simply ordered ahead of the rule prefixing *v-* by stipulation. A similar proposal with extrinsic ordering of Vocabulary Insertion can be found in Halle and Marantz (1993). However, the account in terms of Coherence and the markedness of [+auth] developed for Kadiwéu readily extends to this case as well:

(93)

Georgian 1sg>2sg: 2 wins

/[-a,+p] <sub>O</sub> , [+a,+p] <sub>A</sub> /	PARSE [+PART]	PARSE[+PL]/[+P]	COHERENCE	*[+AUTH]
a. [+a,+p] <sub>A</sub>				*!
b. <sup>ES</sup> [-a,+p] <sub>O</sub>				
c. [+a,+p] <sub>A</sub> , [-a,+p] <sub>O</sub>			*!	

On the other hand, in Georgian there is no prefix for 2nd person agents:

(94) xatav  
 draw  
 ‘You draw him’

(95) m- xatav  
 1Obj- draw  
 ‘You draw me’

In the combination 2sg > 1sg, shown in the tableau below, candidate (96b), which would realize only the agent, is devoid of exponence, as there are no Vocabulary

Items corresponding to these features. Once again, therefore the inventory of exponents plays a decisive role in the morphotactic optimization: inserting something marked is better than inserting nothing.

(96)

Georgian 2sg > 1sg: 1 wins

/[-a,+p] <sub>O</sub> , [+a,+p] <sub>A</sub> /	PARSE [+PART]	PARSE[+PL]/[+P]	COHERENCE	*[+AUTH]
a. $\text{ქა} [+a,+p]_O$				*
b.	!*			

Comparing Kadiwéu with Georgian leads to the following conclusion. Whatever the merits or weaknesses of the types of solutions for Georgian which simply order the insertion of certain prefixes over others in a disjunctive manner, for Kadiwéu this type of explanation would be even worse, because not only is object *Ga-* ordered before agent *j-*, but also agent *a-* ordered before object *i-*. This would miss the generalization found in both 1Ag > 2Obj and 2Ag > 1Obj combinations: regardless of relative syntactic role, it is always the 1st person (singular) argument that disappears when a markedness overload requires one of the prefixes to go unrealized. Ideally, therefore, a unified account should apply to both Georgian and Kadiwéu. In this case, there is no need to say for Georgian something like “object agreement wins over subject agreement unless the object is third person and the subject is first person”. Rather, two overly expressed prefixes violate a morphotactic on cross-referencing distinct arguments, and when this would arise, the first person loses out. Further research will reveal whether the proposed analysis can be extended to the apparent 2 > 1 effects in Algonquian (see Steele 1995; McGinnis 2005 for discussion).

### 9 Excursus: anti-exhibitionism of featural markedness

Implicational markedness is a matter of abstract rather than concrete marks - Zwicky, *Die Sprache*

Our results in the previous sections, we believe, shed new light on otherwise puzzling facts of prefixal realization in Kadiwéu. Nonetheless, at this point in the discussion we would like to engage with a larger issue, because many discussions of markedness conflate and relate two distinct senses of markedness, assuming that categories which are “marked” (in the adjectival/stative sense of the word, e.g. morphosyntactically complex 1st person) should be “marked” by phonology (in the sense of the participial form indicating a result of the verb to mark, or be exponed). But these are clearly distinct notions, and in fact these two senses of the word have different terms in German. The remarks in the current section are intended to clarify the difference between abstract, morphosyntactic markedness, and material markedness:

The concept of  $\varphi$ -Markedness is the asymmetric grammatical treatment (syncretizational, defectivizational) of one of the values of a binary (or n-ary) opposition:

- (97) *B* is more  $\varphi$ -marked than *A* if *B* consists of more marked  $\varphi$  feature-values than *A*  
(e.g. +Fem, +Pl, +Auth, +Neg)

Material markedness, on the other hand—while never actually formally defined in practice, but “you know it when you see it”, supposedly, is based on the notion of more phonological material:

- (98) *B* is more Materially-marked than *A* if *B* consists of a greater number of (supra)segments/syllables/sonority points than *A*  
(e.g. *zagabla* is more materially-marked than *ko* or  $\emptyset$ )

A principle of iconicity might relate the materially marked to the morphosyntactically marked. However, we know that these two levels of representation and two types of markedness may often diverge. Therefore, we would like to propose that not only *can* these diverge, but that  $\varphi$ -Markedness is often realized by exponents that are **Less Materially-Marked**, guided by the principle that they *should* diverge. In other words, there is a preference to “mark” (expone) marked-features (abstract morphosyntactically complex forms) with less exponence. Calabrese (2009) makes a similar point with respect to the “shyness” of the first person: its abstract markedness leads to less marking of it morphophonologically. Kadiwéu therefore exhibits what we will call an Anti-Exhibitionism principle:  $\varphi$ -Marked features are the first to have their possibilities for exponence taken away when multiple-argument agreement (as the result of free syntactic combination) generates results that violate post-syntactic contextual limits on co-occurrence.

## 10 Conclusion

In this paper we have examined the agreement morphology of Kadiwéu, an ergative language with the potential to agree with either argument. We have argued that although the syntax initiates Multiple Agree with both arguments, combinations of more than one argument cannot surface in the morphology realizing T. Under such circumstances, the morphology enacts a markedness-based deletion operation, one that removes the 1st person argument from eligibility for morphological realization. We argued that the 1st person is targeted in this morphosyntactic dissimilation environment because it bears the greatest constellation of marked features. The deletion, however, is implemented in terms of non-realization as determined by interaction with the constraint Coherence, of Trommer (2008). The resulting pattern is one in which morphosyntactically marked features exhibit “anti-exhibitionism”, being realized by less phonological material than other categories. Interestingly, however, the analysis of Kadiwéu cannot ignore the morphophonology of the markers. While 1st person singular loses to 2nd person (which is always plural in

this language), 1st person plural wins, only when it is an object (and has a portmanteau person-number form). Rather than encoding the preference of object agreement as 2nd trumping 1st directly, the interaction of Vocabulary Items with the Coherence constraint independently derives the morphological realization due to the independent presence of the inverse marker, a [+participant]-agreeing node on *v*. We upheld that the  $2 > 1$  hierarchy effect is to be understood in terms of the greater markedness of the 1st person, a fact we related to crosslinguistic tendencies in argument agreement.

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## References

- Anderson, S. (1992). *A-morphous morphology*. Cambridge: Cambridge University Press.
- Beavers, J. (2006). *Argument/Oblique alternations and the structure of lexical meaning*. Doctoral dissertation, Stanford University.
- Béjar, S., & Rezac, M. (2009). Cyclic agree. *Linguistic Inquiry*, 40(1), 35–73.
- Bobaljik, J., & Branigan, P. (2006). Eccentric agreement and multiple case-checking. In A. Johns, D. Massam & J. Ndayiragije (Eds.), *Ergativity: Emerging issues* (pp. 47–77). Dordrecht: Springer.
- Braggio, S. (1981). *Aspectos fonológicos e morfológicos do Kadiwéu*. Master's thesis, UNICAMP, Brazil.
- Calabrese, A. (2005). On absolute and contextual syncretism: Remarks on the structure of paradigms and how to derive it. In A. Bachrach & A. Nevins (Eds.), *The bases of inflectional identity* (pp. 156–205). New York: Oxford University Press.
- Calabrese, A. (2009). On the shyness of the first person (this volume).
- Cooreman, A. (1994). A functional typology of antipassives. In B. Fox & P. Hopper (Eds.), *Voice: Form and function* (pp. 50–87). Amsterdam: John Benjamins.
- Farkas, D., & Kazazis, K. (1980). Clitic pronouns and topicality in Rumanian. In *Chicago Linguistic Society* (Vol. 16, pp. 75–82). Chicago: Chicago Linguistic Society.
- Hale, K., & Keyser, S. J. (Ed.) (1993). On argument structure and the lexical expression of syntactic relations. In *The view from building 20* (pp. 53–109). Cambridge, MA: MITWPL.
- Halle, M. (1997). Impoverishment and fission. *PF: Papers at the Interface, MITWPL* (Vol. 30, pp. 425–450). Cambridge, MA: MITWPL.
- Halle, M., & Marantz, A. (1993). Distributed morphology and the pieces of inflection. In K. Hale & S. J. Keyser (Eds.), *The view from building 20* (pp. 111–176). Cambridge, MA: MITWPL.
- Halle, M., & Marantz, A. (1994). Some key features of distributed morphology. In *MITWPL 21: Papers on phonology and morphology* (pp. 275–288). Cambridge, MA: MITWPL.
- Harbour, D. (2009). On descriptive and explanatory markedness (this volume).
- Harley, H., & Ritter, E. (2002). Person and number in pronouns: A feature-geometric analysis. *Language*, 78(3), 482–526.
- Hiraiwa, K. (2001). Multiple agree and the defective intervention constraint in Japanese. In *The proceedings of the MIT–Harvard joint conference (HUMIT 2000)*, MITWPL (Vol. 40, pp. 67–80). Cambridge, MA: MITWPL.
- Ito, J., & Mester, A. (2003). *Japanese morphophonemics: Markedness and word structure*. Cambridge, MA: MIT Press.
- Kawasaki, H. (1982). *An acoustic basis for universal constraints on sound sequences*. Doctoral dissertation, UC Berkeley.
- Kibrik, A. (1990). As línguas semanticamente ergativas na perspectiva da Tipologia Sintática (originally Семантические эргативные языки в перспективе Синтаксической Типологии, translation by Lucy Seki). *Cadernos de Estudos Linguísticos*, 18, 15–36.
- Kiparsky, P. (2001). Structural case in Finnish. *Lingua*, 111, 315–376.
- Marantz, A. (1993). Implications of asymmetries in double object constructions. In S. Mchombo (Ed.), *Theoretical aspects of Bantu grammar* (pp. 113–150). Stanford: CSLI Publications.
- McGinnis, M. (2005). On markedness asymmetries in person and number. *Language*, 81(3), 699–718.

- Müller, G. (2006). *Extended exponence by enrichment: Argument encoding in German, Archi, and Timucua*. Paper presented at the Workshop on Theoretical Morphology, Leipzig.
- Nevins, A. (2007). The representation of third person and its consequences for person-case effects. *Natural Language and Linguistic Theory*, 25(2), 273–313.
- Noyer, R. (1992). *Features, positions and affixes in autonomous morphological structure*. Doctoral dissertation, MIT.
- Sandalo, F. (1995). *A grammar of Kadiwéu*. Doctoral dissertation, University of Pittsburgh.
- Sandalo, F. (1997). *A grammar of Kadiwéu with special reference to the polysynthesis parameter*. MITOPL 11, distributed by MIT Working Papers in Linguistics.
- Steele, S. (1995). Towards a theory of morphological information. *Language*, 71(2), 260–309.
- Trommer, J. (2008). Coherence in affix order. *Zeitschrift für Sprachwissenschaft*, 27(1), 99–140.
- Wunderlich, D. (1997). Cause and the structure of verbs. *Linguistic Inquiry*, 28, 27–68.