Deep and surface zeros in Japhug person agreement

Qiūshí Chén
University of Connecticut
qiushi.chen@uconn.edu

Abstract: This paper explores the interaction between the syntax and morphology of agreement, using Japhug (Trans-Himalayan) as a case study. The complex agreement paradigm in Japhug provides evidence that not all non-overt realizations of formal features are equal. Specifically, two types of zeros are needed in morphological theory to account for the paradigm: a surface zero—a phonologically null exponent, and a deep zero—the non-insertion of vocabulary items.

Keywords: *agreement*, *goals*, *inverse*, *Japhug*, *zero exponence*

1 Introduction

It is well attested that certain (combinations of) formal features hosted by a syntactic node in a given language sometimes do not correspond to an overt exponent, i.e., they involve zero exponence. Within a realizational approach to morphology, there are at least two analytic possibilities for zero exponence. First, as in (1a), a zero may be understood as a phonologically null vocabulary item (VI). At PF, the insertion rule (1a) applies to a node H, a bundle of formal features, and m(orphologically)-realizes it as ∅, which I refer to as a *surface zero*. By contrast, a zero may occur in cases where a rule like (1a) simply does not exist in the vocabulary; if no rule successfully applies to H, H will not be m-realized, a case which I call a *deep zero* (1b):

(1) a. $\{F_1, F_2\}_H \Rightarrow \emptyset$ [surface zero] b. $\{F_1, F_2\}_H \rightarrow$??? [deep zero]

While either of the two could conceptually be the sole option (see Trommer 2012), I argue, on empirical grounds, that both are needed in morphological theory. This paper offers a formal analysis of the φ-agreement system in Japhug, a Trans-Himalayan language that has escaped attention almost entirely from generative research,[1] and shows that the complex paradigm

[1]Japhug is a Gyalrong language in the Trans-Himalayan family (more widely known as Sino-Tibetan), spoken by several thousand speakers in the Tibetan areas of Sichuan, China. The Japhug data in this paper are from

presented in Table 1 is correctly derived only if the two zeros in (1) are both posited. Section 2 first describes and discusses several important observations of the Japhug agreement paradigm (Table 1). It will be shown that the paradigm is even more complex than it appears, since it necessarily involves extensive zero exponence not indicated in the table. Section 3 presents the analysis, where I show that the two types of zeros can be teased apart empirically: while a surface zero 'consumes' the corresponding formal features, making them inaccessible to subsequent derivation, a deep zero (as the absolute absence of a VI) does nothing to features, which may thus feed subsequent operations like Agree. Section 4 concludes.

	1OBJ	**2OBJ**	**3OBJ**
1SBJ	-	*ta*-Σ	Σ-*a*
2SBJ	*kɯ*-Σ-*a*	-	*tɯ*-Σ
3SBJ	*ɣú*-Σ-*a*	*tú*-*wɣ*-Σ	Σ (3>3') *ɣú*-Σ (3'>3)
INTR	Σ-*a*	*tɯ*-Σ	Σ

Table 1 Japhug agreement paradigm (factual non-past singular; Jacques 2021: 17–19)

2 The person markers: observations and related issues

We can see in Table 1 the singular forms of the Japhug verb (I will not discuss the plural due to space limitations; see Chén in preparation), where Σ represents the stem. The last row of the table represents the agreement pattern for intransitives. For instance, *tɯ*-Σ in the second column means that if the sole argument of an intransitive verb is second person, the verb is prefixed by *tɯ*-. Above the last row, the columns represent the objects and the rows stand for the subjects of transitive verbs. For example, *kɯ*-Σ-*a* in the 2SBJ>1OBJ cell means that the prefix *kɯ*- and the suffix -*a* occur together when the subject and the object are second and first person, respectively, as further shown in (2a) with the verb *sat*- 'to kill'. (Note that the 1SBJ>1OBJ and 2SBJ>2OBJ cells do not have a corresponding form, as the two are expressed by reflexive constructions, which will not be discussed in this paper. Note further that the 3SBJ>3OBJ combination has two forms (3>3' and 3'>3); see below for relevant discussion.)

(2) a. kɯ-sat-a
2>1-kill-1
'You kill me.'

b. ta-sat
1>2-kill
'I kill you.' (Jacques 2021: 19)

This section identifies the functions and discusses the distribution of the different person markers in Table 1. It will be shown below that although the functions of most of the affixes are relatively clear, their distribution displays a less straightforward pattern. The picture is

Jacques's (2021) comprehensive grammar, whose author has collected in his fieldwork and published most available data of the language.

further complicated in subsection 2.2 by the observation that the affixes occupy three different syntactic positions. However, as discussed in subsection 2.3, because the three positions never get overt exponence in the same clause (as no form in Table 1 has more than two overt affixes), a finite clause in Japhug must always involve morphological zeros in certain nodes.

2.1 Functions of the person markers

Our discussion will follow the order of the three persons. As shown in Table 1, first person is *always* overtly marked in Japhug. In most cases, the first-person marker is *-a* (as in intransitive, 1SBJ>3OBJ, 2SBJ>1OBJ, and 3SBJ>1OBJ contexts). The only exception is 1SBJ>2OBJ, where *-a* is missing and the prefix *ta-* is used (2b). Because *ta-* is only used in this context, it is best treated as a more specified portmanteau prefix expressing 1SBJ>2OBJ (Jacques 2021: 550).[2] Note that the occurrence of *-a* is not associated with the grammatical role of the first-person argument, as it can clearly mark either a 1SBJ or 1OBJ.

Second person is similarly also *always* overtly marked. The prefix *tɯ-* marks second person in intransitive, 2SBJ>3OBJ, and 3SBJ>2OBJ contexts. Notice that like *-a*, *tɯ-* may index either a subject or an object. Notice further that in the local domain (i.e., in contexts where the arguments are either first or second person), two portmanteau prefixes (both mentioned above) are used: *kɯ-* for 2SBJ>1OBJ (2a) and *ta-* for 1SBJ>2OBJ (2b).

Third person involves more complexity in the paradigm. First, as shown in Table 1, in intransitives, a third-person argument is consistently not overtly marked. In transitive contexts, however, third person is marked *occasionally*, by the prefix *wɣ-* (the prefix has two totally regular allomorphs: *ɣú-* occurs word-initially, *wɣ-* elsewhere; Jacques 2021: 558). The prefix occurs in 3SBJ>1OBJ, 3SBJ>2OBJ, and 3'>3 contexts, but is missing in 1SBJ>3OBJ, 2SBJ>3OBJ, and 3>3' contexts. Here, 3 refers to a *proximate* third person, while 3' refers to an *obviative* third person. That is, the 3>3' form is used when the third-person subject is more 'salient' in the discourse than the third-person object (i.e., roughly speaking, when the subject is more animate or more topical than the object; see Jacques 2010; 2021: 564–575 for detailed discussion); otherwise the 3'>3 form is used. Similar 3 vs 3' contrasts are found and well studied Algonquian languages (see, e.g., Rhodes 1990; see fn.14 for further comments).

Descriptively, the prefix *wɣ-* occurs in transitives if (i) there is a third-person argument and (ii) the object outranks the subject in terms of the person hierarchy 1/2>3>3' (i.e., it occurs in typical *inverse* contexts; see DeLancey 1981a; Jacques 2010). I will simply take *wɣ-* to be a third-person marker, although one should keep in mind that its distribution is also conditioned by the person hierarchy, an issue that clearly needs an explanation.[3]

Taken together, the following observations can be made regarding the Japhug paradigm given in Table 1 (some are not addressed above, but can be directly seen from the table):

[2] I will not explore in this short paper the possibility that *ta-* is underlyingly *tɯ-a-* '2-1-'. See fn.13 of Jacques 2010 for discussion of why this decompositional view is undesirable.

[3] The prefix *wɣ-* is related to the third-person possessive marker *ɯ-* (in most other Gyalrong languages, the two are homophonous; Jacques 2021: 113). The prefix is traditionally identified as an inverse marker (as it occurs in contexts where the object outranks the subject on the person hierarchy); taking it to be a third-person marker is at first glance faced with the problem that having a third-person argument in the clause is simply not sufficient for its occurrence (as the person hierarchy also plays a role). However, it will become clear later that the formal derivation to be proposed captures the distribution of *wɣ-* in a concise way.

- First person may be marked by the suffix *-a* (except in 1SBJ>2OBJ).
- Second person may be marked by the prefix *tɯ-* (except in the local domain).
- Third person may be marked by the prefix *wɣ-* (with more restricted distribution).
- In 3SBJ>2OBJ, *tɯ-* and *wɣ-* cooccur, the former linearly preceding the latter (*tɯ́-wɣ-*Σ).
- All three markers, *-a*, *tɯ-*, and *wɣ-*, are able to track both the subject and the object.

The empirical goal of the paper is to capture the distribution of all the person markers used in Table 1. A successful analysis will be able to provide a principled answer to all the observations made in this subsection.

2.2 Positions of the person markers

Notice that the first-person *-a* is a suffix while the second- and the third-person markers *tɯ-* and *wɣ-* are prefixes, and that *tɯ-* must precede *wɣ-* when they both occur. Before spelling out the analysis in section 3, it needs to be pointed out that the positional differences among the three markers are not just a morphological idiosyncrasy, but reflect deeper, structural differences in syntax. Consider the two prefixes first. In Japhug (and in Gyalrong in general), verbal morphology is overwhelmingly prefixing (Jacques 2021: 471). Now, as in (3), *tɯ-* and *wɣ-* follow most TAM markers and precede all voice markers (passive, causative, etc.):

(3) a-mɤ-ɣɯ-nɯ- [tɯ́-wɣ- [z-nɤ-re]]
IRR-NEG-CISL-PFV- 2-3- CAUS-DENOM-laughter
'Don't let him come and make you laugh.' (Jacques 2021: 17)

(4) ɲɯ- [tɯ-ɤ́<wɣ>z- [nɯkʰramba]] (*asɯ-* + *wɣ-* ⟶ *ɤ́wɣz-*)
SENS- 2-<3>PROG- cheat
'He is cheating you.' (Jacques 2021: 1160)

Further, as shown in (4), *tɯ-* precedes the progressive prefix *asɯ-*, while *wɣ-* 'fuses' with it, behaving like an infix. Hence, a rough template of the Japhug verb can be given below (see Jacques 2021: 472):

(5) TAM > *tɯ-* > *wɣ-*/progressive > voice > Σ > *-a*

The null hypothesis following the mirror principle (Baker 1985) is thus that *tɯ-* and *wɣ-* are merged above Voice/v and below INFL/T.

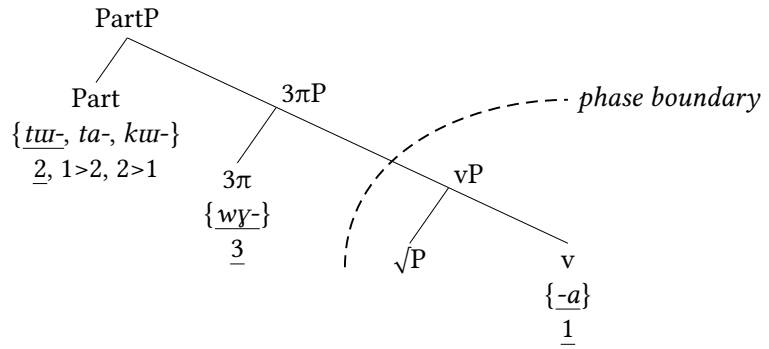
The first-person *-a*, by contrast, is one of the very few verbal suffixes in Japhug, and as in (6), it is in fact the *only* item in Japhug that induces obligatory vowel height harmony:

(6) jɣɤ̱t-a => [jɣa̱ta] (*[jɣɤ̱ta]; ɤ > a / __ C_0a) [obligatory vowel harmony]
return-1
'I will come back.' (Jacques 2021: 528)

Assuming that vowel harmony is in general limited by syntactic domains (e.g., phases; see Fenger, Kouneli & Bobaljik 2025), I take the above facts to mean that *-a* must be structurally local to the root, i.e., they are both contained inside the same syntactic domain relevant for vowel harmony, whereas *tɯ-* and *wɣ-* are outside of it.[4]

I conclude that *tɯ-*, *wɣ-*, and *-a* occupy three distinct positions of different structural heights. This is formulated in (7) (irrelevant projections are ignored):

(7)



For convenience I label the node that hosts *-a* as v, simply implying that it is within the first-phase domain.[5] The two higher heads that may host the two prefixes *tɯ-* and *wɣ-* are labeled as Part(icipant) and 3π, respectively (*ta-* '1>2' and *kɯ-* '2>1'are included for completeness; I will not discuss them in detail in this paper for reasons of space, though see fn. 14). This means that Japhug has two dedicated person-related functional projections in the inflectional domain: PartP hosts the local persons; 3πP hosts third person. Note that similar structures (i.e., a local-person projection above a non-local one) are independently argued for in a number of other languages, e.g., Italian, Kham, Dyirbal, Nez Perce, etc. (see Deal 2016 and references therein). It will become important in the analysis in section 3 that v on the one hand and 3π and Part on the other hand are in two different spell-out domains, as the latter two are above vP/the first phase.

2.3 Raising the issue

It can be seen from (7) that while neither second nor third person is ever overtly marked on v, the two persons differ in their morphology above vP:

- A second-person argument is *always* overtly marked on Part (in 1SBJ>2OBJ and 2SBJ>1OBJ contexts by a portmanteau).
- A third-person argument is *occasionally* overtly marked on 3π (in 3SBJ>1OBJ, 3SBJ>2OBJ, and 3'>3 contexts, but not in 1SBJ>3OBJ, 2SBJ>3SBJ, 3>3', or in intransitives).

It is natural to assume that the structure in (7) does not vary with the person feature of the arguments. Further, we have seen that v, 3π, and Part are all able to track both the subject and

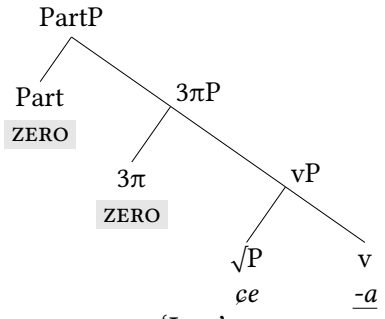
[4]This conclusion can be made for the first-person suffix in Gyalrong languages in general (among which the form of the marker and the morphophonological processes it triggers are diverse). See Gong 2014 for detailed discussion.

[5]Note that v is not necessarily a phasal head by itself, as the voice markers (arguably also first-phase elements) may be merged above it, according to (5). For simplicity, I will not consider voice markers in the paper.

the object. An obvious issue then arises: if v, 3π and Part are *always* syntactically present, and the three are *never* morphologically present at the same time, the forms we have seen so far must all involve morphological zeros.

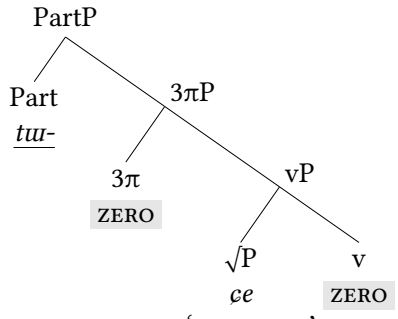
For example, the relevant structures of *ɕe-a* 'I go' and *tɯ-ɕe* 'you$_{SG}$ go' are the following:[6]

(8) a.



ɕe-a 'I go'

b.



tɯ-ɕe 'you$_{SG}$ go'

As any verb form in the Japhug agreement paradigm necessarily involves some morphological zeros (at the extreme, a form like *ɕe* 'she goes' involves three zeros in v, 3π, and Part, respectively), our goal is in fact not only to capture the distribution of the overt φ-affixes, but also that of the zeros. While logically, knowing the distribution of the overt markers *means* knowing the distribution of the zeros (as zeros occur whenever there is no overt morpheme), a satisfactory explanation will also answer *why* a specific node in a certain context is not m-realized as an overt exponent even if there are candidate VIs that would have been suitable. Particularly, the node 3π does not have an overt realization in *ɕe* 'she goes', even though there is a third-person argument in the structure which would have been able to provide the relevant features for 3π, so that the third-person prefix *wɣ-* would be inserted (cf. fn.3). The answer provided in the next section is essentially a syntactic one: because of the cyclic nature of Agree and Spell-Out (and the interaction of the two), the third-person argument in *ɕe* 'she goes' is not an accessible goal for 3π when 3π probes, so an Agree relation between the probe and the argument cannot be established. The details of the analysis are given below, where two types of morphological zeros (1) are crucially needed.

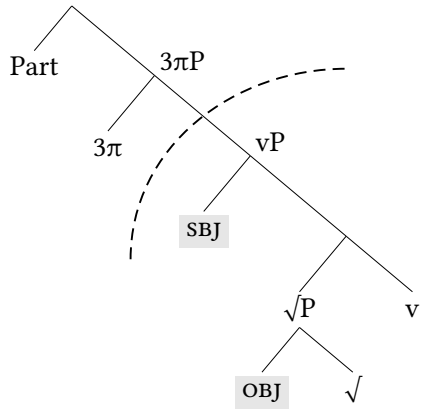
3 Towards a solution

3.1 Some basic components of the analysis

In this section I will show that the φ-agreement paradigm in Japhug is derived correctly if and only if two types of zeros (surface & deep) are employed. As already discussed, the structure in (9) is assumed throughout for the finite verb; the positions of the subject and the object are now added. Note that I follow Harley 2014 in assuming that √ (the verb root) may take a complement (that is, the object). Additionally, based on the discussion so far, the insertion rules in (10–12) are proposed (rules that do not exist in the language are printed in gray).

[6] I use ∅ exclusively for phonologically null VIs (surface zeros; (1a)), and use ZERO for any kinds of zeros.

(9)



(10) v exponents:
  a. [PART, SPKR] ⟹ *-a*
  b. [NONPART] ⟹ -∅ [surface zero]
  c. [PART] ⟶ ??? [deep zero]

(11) 3π exponents:
  a. [NONPART] ⟹ *wɣ-*

(12) Part exponents:
  a. [PART] ⟹ *tɯ-*
  b. [PART] ⟹ *kɯ-* / $v_{[SPKR]}$ __
  c. [PART, SPKR] ⟹ *ta-*

First, the insertion rules for the three non-portmanteau prefixes (*-a*, *wɣ-*, and *tɯ-*) are given in (10a), (11a), and (12a), respectively ([PART, SPKR] = first person, [PART] = second person, [NONPART] = third person).[7] Second, the rules for the two portmanteaux are listed in (12b) and (12c); while for reasons of space they will not be discussed further in this paper, one should soon be able see how they fit into the system provided below (see also fn.14 and Chén in preparation). Third, crucially, I propose that v (10), besides being the locus hosting the first-person *-a*, involves two types of zeros: (i) [NONPART] (i.e., third person) is m-realized as -∅ on v, i.e., a phonologically null VI/surface zero (10b); and (ii) there is no appropriate VI for the second person, which means that if [PART] is the only feature on v, insertion simply does not happen—a deep zero (10c). One should keep in mind that (10c) is not a rule in the vocabulary; it is listed only for ease of exposition, indicating the absence of a rule.

Now, it has been independently proposed by a number of authors that vocabulary insertion rules are *rewrite* rules (Bobaljik 2000, Bondarenko & Zompì 2025, among others). That is, vocabulary insertion 'consumes' the corresponding formal/syntactic features, and replaces them with (morpho-)phonological features; after insertion, the formal features are 'used up' and are no longer visible in the derivation. For the current purposes, this crucially means that (i) when (10b) applies because its condition is met, the surface zero will consume [NONPART], whereas (ii) no such thing happens to [PART], as there is no rule like (10c) that would replace the feature in question. Consequently, in the former case a higher probe will not find [NONPART] on v since (10b) has already applied to v,[8] but in the latter case, the probe will be able to see [PART] on v because no insertion happens on v. I summarize the current reasoning as the following principle:

(13) Vocabulary insertion (on a lower head) blocks Agree (of a higher head).

[7] A number of recent works (e.g., Nevins 2007, Grishin 2023, Arregi & Hewett 2025) argue that third person is featurally not a subset of the local persons. For convenience I assume that third person involves a distinct feature labeled as [NONPART], though a binary feature system would work equally well for current purposes.

[8] Specifically, I assume that (i) a phase is transferred when the next phase head enters the structure (Chomsky 2001), and (ii) probing happens when the phase containing that probe is complete (see Chomsky 2008). It follows that the probing of 3π and Part must happen after the spell-out of vP. Alternatively, one may simply assume that vP is sent to Spell-Out earlier than the merger of 3π and Part; either a phase is transferred as soon as it is built, or is transferred upon the merger of the next higher head (cf. Chomsky 2000). I will not explore whether those possibilities would make different predictions for the current context.

3.2 Deriving 1SBJ>3OBJ and 3SBJ>1OBJ

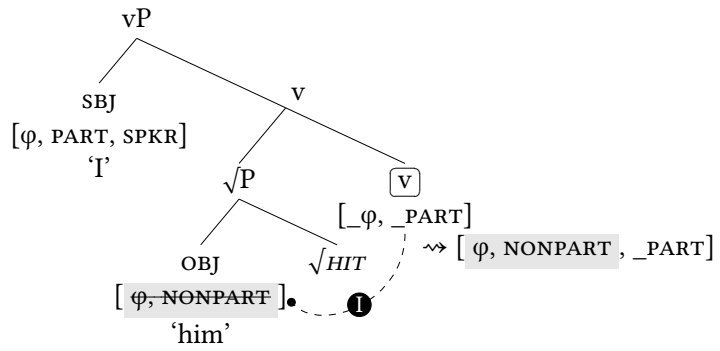
We first discuss the 1SBJ>3OBJ and the 3SBJ>1OBJ forms. The relevant data are given in (14). I also add -∅ to (14a), in accordance with (10b); it will become immediately clear how it plays a role in the derivation:

(14) a. ʁndi-∅-a
hit-3-1
'I hit him.'

b. ɣúː-ʁndɯ-a
3-hit-1
'He hit me.' (Jacques 2021: 20)

Recall that *-a* may index either the subject or the object, and it indeed occurs in both (14a) and (14b). Traditionally, this is taken to be evidence that Japhug demonstrates a 1/2>3 person hierarchy (DeLancey 1981b, Jacques 2010). Now, a well-established way of capturing the hierarchy effect is to propose that the relevant probe is *feature-relativized* (Béjar 2003, Béjar & Řezáč 2009, among many others)—I argue that this is exactly what happens in Japhug v. I start with (14), whose derivation is illustrated in (15–17). As in (15), suppose that Japhug v is relativized as [_φ, _PART], i.e., it carries unvalued φ and PART features. On the assumption that (all and only) unvalued features are probes (see, e.g., Bošković 2011), v must probe its c-commanding domain (i.e., √P); if it finds an element that (perhaps partially) matches the features on v, an Agree relation will be established between v and that element, in the current case the third-person object, and feature copying is triggered. Hence, the valued features on the object, namely [φ, NONPART], are copied onto v, replacing the corresponding [_φ].[9] Note, crucially, that feature-copying is *coarse* (following Deal & Royer 2025), i.e., all φ-features of the goal are copied onto the probe when Agree happens, so [NONPART] is also copied even though v did not bear [_NONPART]:

(15)

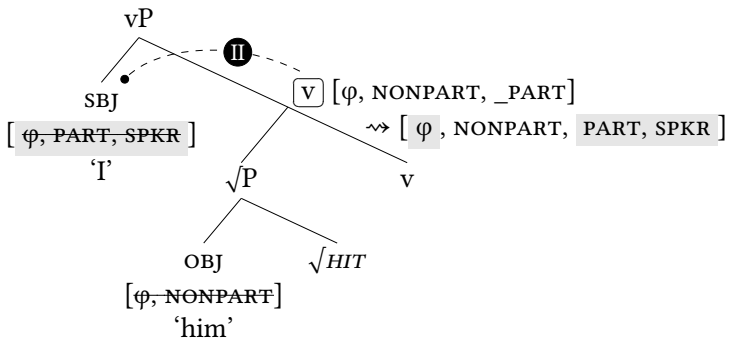


Now, the [_PART] part of v is *not* deleted, as the goal (i.e., the third-person object) does not bear [PART]. Thus, v remains a probe when it projects (as unvalued features are probes). As in (16), v in the next cycle may Agree with the next element that merges with it, which is

[9] The shaded parts in (15) refer to the features involved in Agree in the current step. I also assume that the goal in the current system can only be Agreed with by a single probe, because the φ-features on the goal are deactivated after feature-copying (represented as strike-through), due to something like the Activity Condition (I will not go into this in this short paper).

now the subject (this is exactly the idea of Cyclic Agree; Béjar & Řezáč 2009). All φ-features on the subject are copied onto v, deleting [_PART], yielding v as [φ, NONPART, PART, SPKR]:[10]

(16)



The structure is then sent to PF, where the conditions of (10a) and (10b) are met, so -∅-*a* is inserted accordingly (17). Note that the insertion also results in the deactivation of the corresponding features (recall that insertion rules are rewrite rules). After the spell-out of vP, the two Agreeing heads in the inflectional domain, namely Part and 3π, are merged and probe. However, at this point, no suitable features are accessible to them;[11] Agree thus fails, resulting in zero morphology on both Part and 3π—I follow Preminger 2014 here in assuming that the failure of Agree does not lead to ungrammaticality. However, while Preminger (2014) argues that a node that fails to Agree results in default morphology, I suggest for the current derivation that insertion simply does not happen for Part and 3π (i.e., there is no insertion of a default/elsewhere morpheme)—while rarely explicitly pointed out (see however Ganenkov 2020, Arregi & Hewett 2025), there is simply no reason to believe that every node must have a radically underspecified 'elsewhere' insertion rule.[12] In other words, Part and 3π both involve *deep zeros* in (17), in contrast to the surface zero -∅ inserted on v via (10b). We will shortly see another case in the next subsection, where it is v that involves a deep zero, so the two zeros may form a minimal pair in the same node.

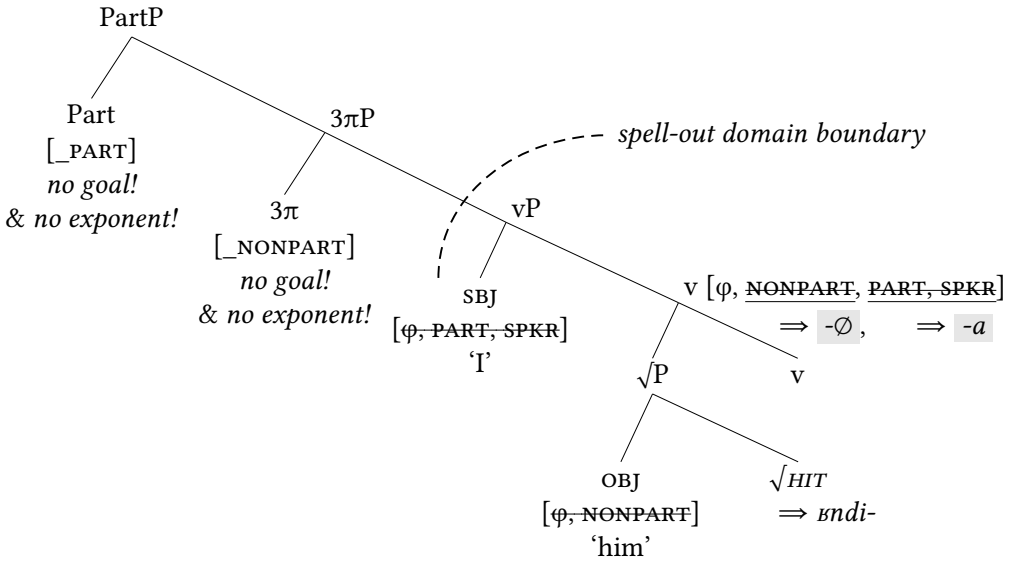
[10]Recall that feature-copying is coarse, so [φ] on the subject should also be copied onto v in (16) (thus the gray color), even though v has already obtained [φ] from the object in the previous cycle. The 'new' [φ] may not be distinguishable from the old one if they are the same element and the features on a node are understood as a set. At any rate, nothing hinges on the status of [φ] here.

[11]For ease of exposition I assume in (17) that Part and 3π are both also relativized, as [_PART] and [_NONPART], respectively. Nothing, however, hinges on this assumption, because the system works equally well if the two nodes simply involve a 'flat' [_φ] probe. The point is that the insertion rules for the two nodes (as they are listed in (12) and (11)) cannot apply in any case under the current context, where all features that may otherwise feed the rules in (11) and (12) are deactivated within vP.

[12]Part and 3π still have unvalued features when they are sent to the interfaces, where they must be ignored (rather than causing ungrammaticality). The following principle could be made to capture the observation that a probing head that fails to Agree results either in a deep zero (as in the text), or in default morphology (in cases where there is an elsewhere form; note that the default may well be -∅):

(i) Vocabulary insertion rules cannot reference unvalued/uninterpretable features.

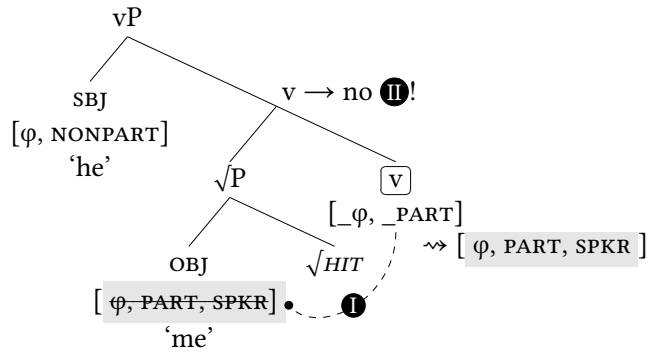
(17)



ʁndi-∅-a 'I hit him.'

We then move on to (14b), whose derivation should now be easy to trace (18–19), as all essential components of the system have been introduced above. As shown in (18), v first Agrees with the object. However, here, the object is first person and can thus value both [_φ] and [_PART]. As a result, v does not probe in the next cycle (as it no longer carries unvalued features and is by definition not a probe), leaving the third-person subject not Agreed with:

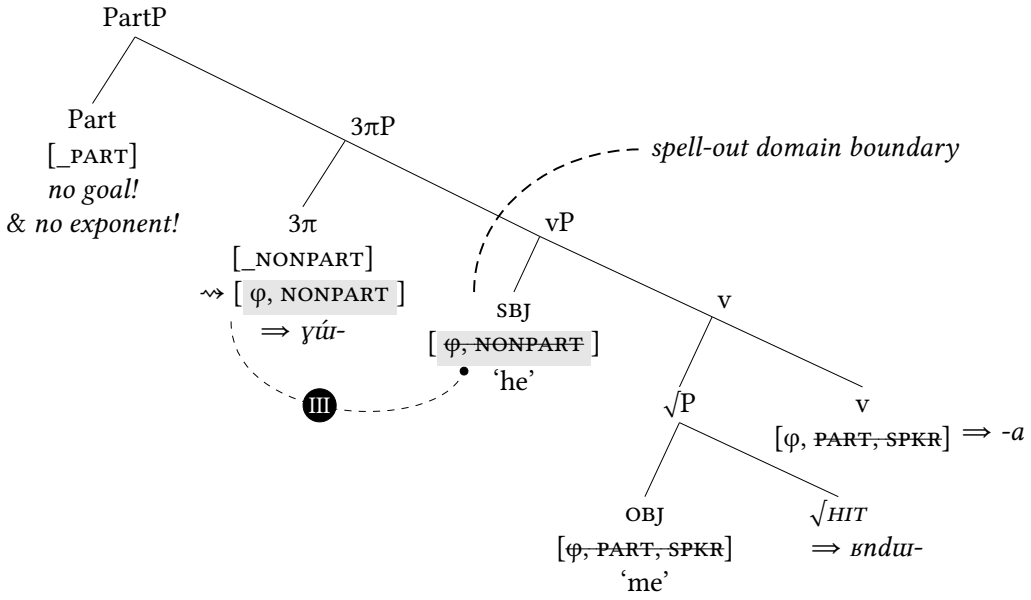
(18)



More generally, the subject is not Agreed with by v if the object is a local person, which would value both [_φ] and [_PART] on v *before* the subject is merged. For the current derivation, this crucially means that the features on the subject are not deactivated, and thus are accessible to a higher probe: as illustrated in (19), 3π probes its c-commanding domain and Agrees with the third-person subject with [NONPART].[13] The feature is copied onto 3π, where (11a) (i.e., the insertion of *wy-*) applies after the structure is sent to Spell-Out, deriving the correct form.

[13] I assume that the φ-features on the subject, if not consumed/deactivated, are visible to higher probes. This may be because the subject in Japhug always moves outside of the first phase (see Chén in preparation for independent evidence), so that it remains accessible, or it is simply because Agree is in general not sensitive to phase/the PIC (see Bošković 2007). I will not discuss this further in this short paper.

(19)



ɣúɯ-ʁndɯ-*a* 'He hit me.'

The above discussion essentially provides a principled way of explaining the distribution of *wɣ-*. Although subsection 2.1 identified it as a third-person marker, it was mysterious that it occurs in inverse (3>1/2) but not in direct (1/2>3) contexts. Positing a third-person -∅ on v captures this immediately. Because Japhug v is a relativized probe that stops probing within vP only after it finds [PART], it would Agree with a third-person argument in direct (1/2>3) but not in inverse (3>1/2) contexts. In the former case [NONPART] on the object and on the v are both consumed within vP (resulting in a surface zero on v), but in the latter case it stays in the derivation, and is then found by and copied onto 3π, where it is m-realized as *wɣ-*. Note, as expected, that *wɣ-* on 3π and -∅ on v are in complementary distribution.

3.3 Deriving 2SBJ>3OBJ and 3SBJ>2OBJ

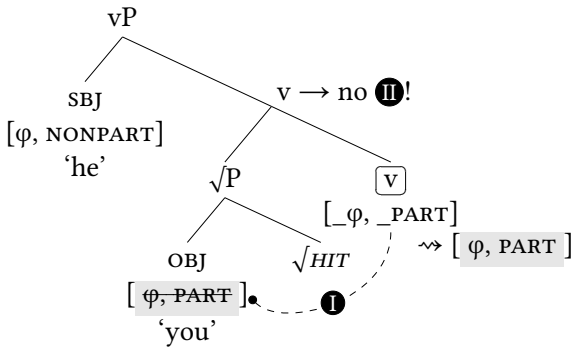
This subsection discusses 2SBJ>3OBJ (20a) and 3SBJ>2OBJ (20b). As stated in (10c), second person involves a deep zero on v. While being the same in surface phonology, a deep zero differs from a surface one in that the former does not involve an insertion rule and thus does not deactivate features. We have seen in the last subsection how deep zeros are involved in cases of *failed agreement*; I now show that a deep zero may simply be a result of accidental gaps in the vocabulary.

(20) a. tɯ-ʁndi-∅
2-hit-3
'You$_{SG}$ hit him.'

b. tɯ́-wɣ-ʁndɯ
2-3-hit
'He hit you$_{SG}$.' (Jacques 2021: 20)

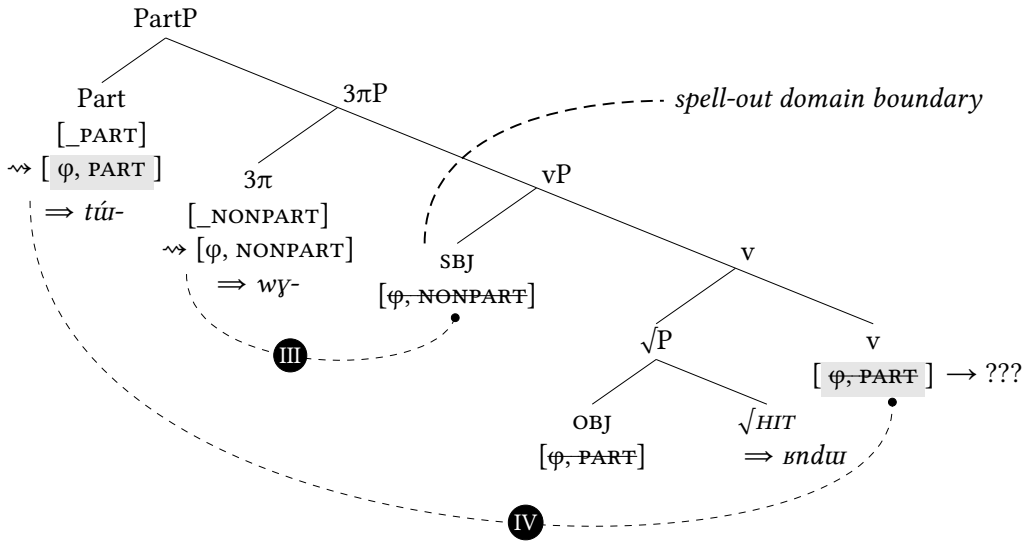
The derivation of the inverse (20b) is represented in (21–22). Consider first (21), which is very similar to (18), since v in the way it is relativized does not discriminate between a first and a second person goal: it Agrees only with the object, after which there are no unvalued features on v, so the probing stops, leaving the subject not Agreed with within vP.

(21)



However, on v, [PART] (i.e., second person) differs from [PART, SPKR] (i.e., first person) *at PF*, in that the former lacks an appropriate VI (10c). Hence, when vP is transferred, vocabulary insertion does not happen to v—a deep zero. As a result, the features on v are not consumed, and thus remain active in the derivation: in particular, because they are now valued features, they may serve as a goal for higher probes (see, e.g., Legate 2005, among many others). In the next cycle, when Part is merged (3π works in the same way as in (19)), it matches with [PART] on v and copies the φ-features from v, eventually resulting in *túɯ-* at PF (22).

(22)



túɯ-wɣ-ʁndɯ 'He hit you$_{SG}$.'

In the 2SBJ>3OBJ form (20a), v Agrees with both arguments, but only m-realizes third person (as -∅); due to the lexical gap (10c), [PART] would not be realized on v but be later 'transferred' to Part, where it is realized as a prefix. In sum, (i) the fact that second person is always overtly marked (in contrast to third person) is captured by relativized probing (which is responsible for the 1/2>3 hierarchy), and (ii) the fact that it is marked by a prefix rather than a suffix (in contrast to first person) is captured by positing a deep zero/gap for [PART] on v.

4 Concluding remarks

By exploring Japhug agreement, I argued that a deep zero (i.e., non-insertion) and a surface zero (i.e., a phonologically null VI) must be distinguished in morphological theory, because

the two have different empirical consequences. While this short paper did not show the derivation of all the forms in Table 1 due to space limitations, it should now be straightforward how the analysis spelled out in section 3 would derive the unaddressed forms correctly (see Chén in preparation for full discussion).[14] To the extent that the study is successful, it can be taken as an argument against a traditional lexicalist view, where the deep vs surface zero distinction is not even statable.

Abbreviations

1 = first person, 2 = second person, 3 = third person, CAUS = causative, CISL = cislocative, DENOM = denominalizer, IRR = irrealis, NEG = negative, NONPART = non-participant, OBJ = object, PART = participant, PFV = perfective, PROG = progressive, SBJ = subject, SENS = sensory, SG = singular, SPKR = speaker.

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References

Arregi, Karlos & Matthew Hewett. 2025. Singular *they* and the syntax of townhouses. In Duygu Demiray, Roger Cheng-yen Liu & Nir Segal (eds.), *NELS 55: Proceedings of the fifty-fifth annual meeting of the North East Linguistic Society, vol. 1*, 1–14. Amherst, MA: GLSA.

Baker, Mark. 1985. The mirror principle and morphosyntactic explanation. *Linguistic Inquiry* 16(3). 373–416.

Béjar, Susana. 2003. Phi-syntax: A theory of agreement. University of Toronto PhD dissertation.

Béjar, Susana & Milan Řezáč. 2009. Cyclic Agree. *Linguistic Inquiry* 40(1). 35–73.

Bobaljik, Jonathan. 2000. The ins and outs of contextual allomorphy. *University of Maryland Working Papers in Linguistics* 10. 35–71.

Bondarenko, Tatiana & Stanislao Zompì. 2025. Leftover agreement. *Natural Language & Linguistic Theory* 43. 1183–1237.

Bošković, Željko. 2007. On the locality and motivation of Move and Agree: an even more minimal theory. *Linguistic Inquiry* 38(4). 589–644.

Bošković, Željko. 2011. On unvalued uninterpretable features. In Suzi Lima, Kevin Mullin & Brian Smith (eds.), *Proceedings of NELS 39*, 109–120. Amherst, MA: GLSA.

[14] Two brief comments are given here. First, v Agrees only with the object in 1SBJ>2OBJ and 2SBJ>1OBJ, leaving the subject to be m-realized in the inflectional domain, further conditioned by contextual allomorphy (12b&12c). Second, the two 3SBJ>3OBJ forms could be captured by Oxford's (2023) study of the inverse voice: (i) the direct 3>3' involves the 'default' Agreeing v (so both third-person arguments are Agreed with within vP), while the inverse 3'>3 involves a non-Agreeing v, making [NONPART] visible to the higher probe 3π, where the feature is m-realized as the third-person *wɣ-*, traditionally viewed as an inverse marker.

Chén, Qiūshí. in preparation. A tale of two zeros: Lessons from Japhug agreement and beyond. Ms. University of Connecticut.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Roger Martin, David Michaels & Juan Uriagereka (eds.), *Step by step: Essays on minimalism in honor of Howard Lasnik*, 89–155. Cambridge: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*, 1–52. Cambridge: MIT Press.

Chomsky, Noam. 2008. On phases. In Robert Freidin, Carlos P. Otero & Maria Luisa Zubizarreta (eds.), *Foundational issues in linguistic theory: essays in honor of jean-roger vergnaud*, 133–165. Cambridge, MA: MIT Press.

Deal, Amy Rose. 2016. Person-based split ergativity in Nez Perce is syntactic. *Journal of Linguistics* 52(3). 533–564.

Deal, Amy Rose & Justin Royer. 2025. Mayan animacy hierarchy effects and the dynamics of agree. *Natural Language & Linguistic Theory* 43. 1607–1663.

DeLancey, Scott. 1981a. An interpretation of split ergativity and related patterns. *Language* 57(3). 626–657.

DeLancey, Scott. 1981b. The category of direction in Tibeto-Burman. *Linguistics of the Tibeto-Burman Area* 6(1). 83–101.

Fenger, Paula, Maria Kouneli & Jonathan David Bobaljik. 2025. Dominant domains in vowel harmony: A structural approach to a linear asymmetry. *Natural Language & Linguistic Theory* 43. 2771–2820.

Ganenkov, Dmitry. 2020. Missing elsewhere: Domain extension in contextual allomorphy. *Linguistic Inquiry* 51(4). 785–798.

Gong, Xun. 2014. The personal agreement system of Zbu Rgyalrong (Ngyaltsu variety). *Transactions of the Philological Society* 112(1). 44–60.

Grishin, Peter. 2023. Omnivorous third person agreement in Algonquian. *Glossa: a journal of general linguistics* 8(1). 1–46. https://doi.org/10.16995/glossa.8874.

Harley, Heidi. 2014. On the identity of roots. *Theoretical Linguistics* 40(3–4). 225–276.

Jacques, Guillaume. 2010. The inverse in Japhug Rgyalrong. *Language and Linguistics* 11(1). 127–157.

Jacques, Guillaume. 2021. *A grammar of Japhug*. Berlin: Language Science Press.

Legate, Julie Anne. 2005. Phases and cyclic agreement. In Martha McGinnis & Norvin Richards (eds.), *Perspectives on phases*, 147–156. Cambridge, MA: MITWPL.

Nevins, Andrew. 2007. The representation of third person and its consequences for person-case effects. *Natural Language & Linguistic Theory* 25. 273–313.

Oxford, Will. 2023. A tale of two inverses. *Syntax* 26. 311–354.

Preminger, Omer. 2014. *Agreement and its failures*. Cambridge: MIT Press.

Rhodes, Richard A. 1990. Obviation, inversion, and topic rank in Ojibwa. In David J. Costa (ed.), *Proceedings of the sixteenth annual meeting of the Berkeley Linguistics Society: Special session on general topics in American Indian linguistics*, 101–115. Berkeley Linguistics Society.

Trommer, Jochen. 2012. ∅-exponence. In Jochen Trommer (ed.), *The morphology and phonology of exponence*, 326–354. Oxford: Oxford University Press.