A tale of two zeros: Lessons from person indexation in Japhug

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Background It is commonly observed within the DM framework that certain combinations of features within a syntactic node don't correspond to an overt exponent and are realized as *zeros*. Putting aside operations like impoverishment that may lead to the absence of features/nodes, a zero may simply be a phonologically null V(ocabulary)I(tem); for example, in (1a), the feature F under the node H is realized as a phonologically null VI. Alternatively, the vocabulary may simply not include a rule like (1a); since there is no VI rule for F, F is not realized at all (1b):

(1) a. $\{F\}_H$ <=> Ø [phonologically null] b. $\{F\}_H$ <=> ??? [no VI; no insertion]

(2) a. *ɕe-a* go-1SG 'I go' b. *tɯ-ɕe* 2-go 'you go' c. *ɕe* go 'she goes' [Japhug]

Claim While the two ways of treating zeros may be understood as competing views (cf. Trommer 2012, a.o.), I argue that both concepts are needed, by analyzing the agreement system in Japhug (2–3) (Jacques 2021), a Sino-Tibetan language that has escaped attention from generative research. I argue that although in Japhug neither 2nd nor 3rd person is *overtly* realized as a *suffix*, 3rd person involves a Ø-suffix (1a), while 2nd person involves non-insertion in v^0 (1b).

	1O	2O	3O
1S	-	*ta-**ʁndɯ***	***ʁndi**-a*
2S	*kɯ-**ʁndɯ**-a*	-	*tɯ-**ʁndi***
3S	*ɣú-**ʁndɯ**-a*	*tú-wɣ-**ʁndɯ***	***ʁndi*** (3>3')
			*ɣú-**ʁndɯ*** (3'>3)

(3) paradigm of *ʁndɯ* 'hit' (factual non-past)

INFL vs. *v* Consider first the intransitive paradigm (2), where the 1st person *-a* is suffixal while 2nd person is realized by a prefix *tɯ-*. I propose that this positional difference is not just a morphological idiosyncrasy, but reflects a structural difference in syntax, since, in terms of verbal morphology, Japhug is in general head-final within the *v*P domain but is head-initial above *v*P. First, unlike φ-suffixes, *tɯ-* is never used in imperatives, and may occur *inside* the TAM cluster (all Japhug TAM markers are prefixal), i.e., it may precede some but follow other TAM prefixes. Assuming that imperatives carry less structure than declaratives in TP (a typologically common case; Zanuttini 2001, a.o.), the properties of *tɯ-* are captured if it is merged in the middle field, above *v*P. By contrast, the suffix *-a* is the *only* element that triggers vowel harmony of the root in Japhug, which indicates that *-a* is a low element, structurally local to the root (see Gong 2014 for more evidence). Put together, I suggest that the 2nd person *tɯ-* is located at INFL^0, while the 1st person *-a* realizes v^0. Crucially, if agreement is a derivational process that applies cyclically, the probing by *v* must occur *before* INFL probes.

The 3rd person *wɣ/ɣɯ-* Consider now the prefix *wɣ/ɣɯ-* (the two forms are allomorphs) in the transitive paradigm (3). Contrary to Jacques 2010, 2021, I suggest that it featurally marks *3rd person*, as it occurs only when there is a 3rd person argument. However, the presence of a 3rd person is clearly not sufficient for the occurrence of *wɣ/ɣɯ-*, which is absent in (i) intransitives (2), (ii) 1>3 and 2>3 contexts (3), and (iii) 3>3' contexts. In (3), the two forms of 3>3 *ʁndi~ɣú-ʁndɯ* 'she hits her' reflect a *voice* contrast (see Oxford 2023): *ʁndi* without *ɣú-* is used in direct contexts 3>3' (S(ubject) is more topical than O(bject)) and *ɣú-ʁndɯ* is the so-called inverse form 3'>3, where O is more 'prominent' (3' refers to an *obviative* 3). Assuming that *wɣ/ɣɯ-* is also located at INFL^0 (*tú-wɣ-ʁndɯ* 'she hits you' in (3) shows multiple realization of INFL^0; the two affixes must be adjacent), we observe an important difference between 2nd and 3rd person: while 2nd person is *always* realized on INFL^0 (*ta-* and *kɯ-* in (3) are 1>2 and 2>1 portmanteaux, respectively (5a&b)), 3rd person is overtly realized as a prefix only *occasionally*.

Analysis To capture the pattern in (2&3), I suggest that the agreeing head *v* in Japhug is relativized as [Int:φ, Sat:PART], adopting Deal's (2015, 2024) interaction/satisfaction theory of Agree. That is, *v* probes for and interacts with all φ-features in its domain, and it stops probing after *v* finds a goal with [PART] feature (see more on the relativization of *v* below). Furthermore, I identify the VI rules for v^0 and INFL^0 as in (4&5) (1, 2, 3 are short for [PERS, PART, SPKR], [PERS, PART], and [PERS], respectively; cf. Harley & Ritter 2002).

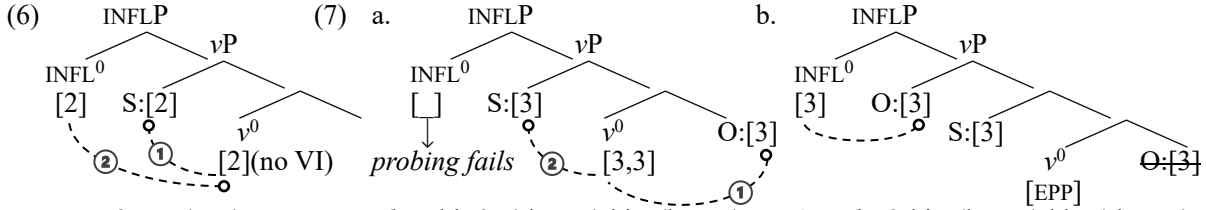
(4) v^0 exponents
a. [1] <=> *-a*
b. [3] <=> *-Ø*
(**c.** [2] <=> ???)

(5) INFL^0 exponents
a. [1+2] <=> *ta-*
b. [2] <=> *kɯ-* / $v_{[1]}$ __
c. [2] <=> *tɯ-*
d. [3] <=> *wɣ/ɣɯ-*

(2a) and (2c) are directly captured by (4). In (2c), since the 3rd person argument is already agreed with *v*, it is not visible to INFL, due to the Activity Condition (Chomsky 2000); (5d) thus doesn't apply. Consider then (2b) *tɯ-ɕe* 'you go'. As in (6), while *v* agrees with 2nd person and copies the [2] features, there is no VI rule listed in (4) to *lexicalize* them (the less specified (4b) doesn't apply, for reasons to be discussed in the talk). As a result, the [2] features on v^0 remain in the representation, and may be agreed with INFL (i.e., step ② in (6)), as a case of *leftover agreement*, à la Bondarenko & Zompì (2024), who argue that *unlexicalized* features remain

syntactically active (note that the [2] on S is no longer active here, due to the Activity Condition):

(6) (7) a. b.



tш-ɕe 2-go '(you) go' *ʁndi-Ø* hit-3 '(she$_{PROX}$) hits (her$_{OBV}$)' *yú-ʁndш* 3-hit '(her$_{OBV}$) hits (she$_{PROX}$)'

For transitives (3), I suggest that *v* agrees first with O; it agrees then with S if it's not satisfied by [PART] from O (see Béjar & Rezac 2009), i.e., *v* agrees with O only if O is 1st/2nd person, but agrees with both arguments if O is 3rd person, which lacks [PART]. For 1>3 *ʁndi-a* 'I hit her', *v* agrees with both O and S, [1] and [3] being lexicalized by (4a) and (4b), respectively (so strictly speaking, the form is *ʁndi-Ø-a*). Since both [1] and [3] are 'used up' within *v*P, they are invisible to INFL—no φ-prefix occurs in this case. By contrast, in 3>1 *yú-ʁndш-a* 'she hits me', *v*'s [Sat:PART] property is fulfilled by [1] from O, so *v* doesn't agree with S. As a result, [3] on S is visible to the higher INFL probe. INFL then agrees with it and lexicalizes [3] as *ɣш-* (5d), as expected. (I will also discuss in the talk how the 1>2 and 2>1 forms are derived, showing that they are directly captured by the VI rules (5a&b) under the current proposal.)

Of particular interests are the two 3>3 forms in (3). First (7a), no overt affix occurs in the direct 3>3' form *ʁndi* 'she$_{PROX}$ hits her$_{OBV}$'. Since [3] on O doesn't satisfy *v*, *v* probes again and agrees with S. I suggest that (4b) applies in this case, 'using up' the [3] features on v^0 from both S and O, resulting in the Ø-suffix. Consequently, INFL finds no φ-features from its domain, and no φ-prefix is inserted. Second (7b), which involves the inverse 3'>3 form *yú-ʁndш*. Following Oxford's (2023) work on Algonquian, I suggest that the direct/inverse contrast is a contrast in voice. Specifically, the inverse involves a non-agreeing *v* with [EPP] as in (7b). It attracts O to Spec*v*P, but doesn't copy features from S/O. Since [3] on O at the *v*P-edge is not deactivated, it is still visible to INFL; (5d) thus applies and the 3rd person *ɣш-* shows up on INFL^0.

More on *v* Note that [3] is not realized *overtly* on v^0. One may wonder if this simply implies that *v* in Japhug doesn't agree with [3], i.e., *v* interacts with [PART], not with φ in general (cf. Preminger 2014), in which case (4b) is unnecessary. However, to capture the distribution of *wɣ*/*ɣш-*, one needs to assume that [3] withing *v*P is sometimes visible to INFL, sometimes not, a pattern nicely accounted for by modeling *v* in Japhug as [Int:φ, Sat:PART]. In addition, the formal distinction between 3>3' (7a) and 3'>3 (7b) is explained by arguing that the other inverse *v* indeed doesn't agree, suggesting that the agreeing/non-agreeing distinction of *v* is crucial.

Moreover, the root *ʁndш* in (3) shows contextual allomorphy. I propose that the allomorph *ʁndi* is used when O is 3rd person and *v* agrees with it—the allomorphy-trigger is in fact **the Ø-suffix (4b)**, which is absent in 3'>3 (7b). Now, if *v* agrees with both [1=PERS, PART, SPKR] and [3=PERS], it clearly must also agree with [2=PERS, PART]. It is thus not Agree itself, but **the lack of VI for [2] on v^0 in (4)** that feeds the presence of the 2rd person prefixes on INFL^0 (5a,b&c).

Extensions To posit that [2] on v^0 involves non-insertion provides a natural account of the distribution of number (#) morphology in Japhug. Notice that that while 3PL is marked by a PL suffix in the 3PL>1SG context (8), overt #-marking of 3PL is blocked by 2SG in 3PL>2SG (9):

(8) *ɣú-mto-a-nш*
3-see-1-PL
'they see me'

(9) *tú-wɣ-mto(*-nш)*
2-3-see(*-PL)
'she/they see you$_{SG}$'

I suggest that #-marking involves Fission of *v* (Noyer 1997). (8) shows that after v^0 is lexicalized as *-a*, #, being unvalued (as *v* agrees with only O here), gets split from *v* and probes again. I follow Halle (2000), who argues that Fission may happen only *after* the first step of insertion. (9) is thus explained: since insertion in v^0 does not happen in the first place, as [2] lacks VI here, # is not projected separately: #-marking is bled.

Conclusion The Japhug data have shown that two zeros need to be distinguished in the theory of morphology: (i) a phonologically null element, and (ii) the entire lack of a VI (i.e., non-insertion). It remains to be seen how this dichotomy fits into the broader cross-linguistic picture. An open question is why 3rd and 2nd person in particular show such a difference in Japhug. A speculation is made here: 3rd person is realized as a Ø-affix because it is *unmarked*, which is often associated with phonological unmarkedness; by contrast, 2nd person is a *marked* category, which, as Calabrese (2011) argues, dislikes idiosyncratic exponence—it hence may lead to the absence of VI. In other words, the two zeros may have two different, in fact opposite, origins.

Sel. Ref. Bondarenko & Zompì 2024. *NLLT* | Calabrese 2011. On markedness | Deal 2024. *LI* | Jacques 2021. *Grammar of Japhug*