

# Plural Verbs, Participant Number, and Agree

Abigail Thornton

## 1. Introduction

In this paper, I argue against word-external suppletive triggers for participant number suppletion (Bobaljik & Harley 2017; Toosarvandani 2016). I show that, cross-linguistically, reduplication and suppletion overlap in their distribution to mark participant number. I argue that this provides evidence for a unified account of participant number where there is a verb-internal node that reflects number. This node is valued by the features of the closest argument and triggers Vocabulary Insertion (VI) of the suppletive root or is realized as a reduplicative affix. My analysis, therefore, expands on current issues of locality. I propose that by examining reduplication and suppletion for participant number, a stricter locality condition can be maintained: the trigger for suppletion is always in the complex  $X^0$ .

## 2. Background

Participant number suppletion marks plurality of the absolutive argument on the verb. Bobaljik & Harley (2017) and Toosarvandani (2016) argue that the argument is able to directly trigger VI of the plural allomorph of the verb. In this section, I briefly describe participant number suppletion and then introduce Bobaljik & Harley's and Toosarvandani's analyses of word-external suppletive triggers.

### 2.1. Participant number suppletion

Participant number suppletion is typically described as marking the absolutive argument on the verb. (1) and (2) are examples of participant number suppletion in Hiaki, a Uto-Aztecan language.

#### (1) *Intransitive Verbs*

a.	Aapo	<b>vuite</b>	b.	Vempo	<b>tenne</b>
	3sg	run.sg		3pl	run.pl
	'S/he is running.'			'They are running.'	

#### (2) *Transitive Verbs*

a.	Aapo/Vempo	<b>uka</b>	koowi-ta	<b>me'a-k</b>
	3sg/3pl	the.sg	pig-acc.sg	kill.sg-prf
	'He/They killed the pig.'			
b.	Aapo/Vempo	<b>ume</b>	kowi-m	<b>sua-k</b>
	3sg/3pl	the.pl	pig-pl	kill.pl-prf
	'He/They killed the pigs.'			

(Bobaljik & Harley 2017)

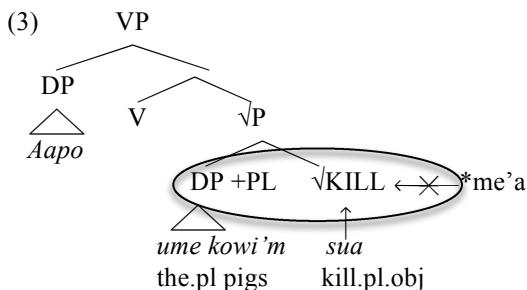
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In (1a), the singular form of the intransitive verb, *vuite* (run.sg), marks the singular subject, and in (1b), the plural allomorph of the verb, *tenne* (run.pl), marks the plural subject. In (2a), the singular form of the transitive verb *me'a* (kill.sg) marks the singular object, and the plural verb, *sua* (kill.pl), marks the plural object (2b).

## 2.2. Word-external suppletive triggers

Bobaljik & Harley (2017) were the first to argue that root suppletion may be triggered outside of the morphological word. After careful investigation, they observe that the Hiaki suppletive intransitive verbs are actually unaccusative verbs. Hence, they argue that it is the internal argument in (1b, 2b) which directly conditions VI of the suppletive form of the root. Since the internal argument and the root are sisters and no phrasal projection intervenes between the two (as in 3), they argue that the internal argument is sufficiently local to trigger root suppletion.



Toosarvandani (2016), however, challenges Bobaljik & Harley (2017) by showing that in Northern Paiute, it is the closest DP with phi features which is able to condition participant number suppletion on the root. He shows that if the patient or theme is not present, the plural applicative argument is able to trigger VI of the suppletive root as in (4). Furthermore, he shows that the agent of an unergative intransitive verb may also condition VI of the plural suppletive root as in (5b).

### (4) Plural Applicative Argument

Su=nana	<b>iwa-ggu</b>	<b>momoko'ni</b>	<b>abbiga-ggi-ti.</b>
NOM=man	many-ACC	<b>women</b>	<b>talk.PL-APPL-TNS</b>
‘This man is talking for many women’			(Toosarvandani 2016: 251)

### (5) Plural Agent

a.	Su=nana	<b>yadu'a</b>	b.	Iwa-'yu	<b>naana</b>	<b>abbika</b>
	NOM=man	<b>talk.IPFV.SG</b>		many-NOM	men	<b>talk.IPV.PL</b>
	‘The man is talking.’			‘Many men are talking.’		
				(Toosarvandani 2016: 249)		

In (5a), the singular agent, *nana*, (man) occurs with the singular intransitive unergative verb, *yadu'a* (talk.IPFV.SG); however, in (5b), when the agent is plural, *naana* (men), the verb appears in its plural suppletive form, *abbika* (talk.IPV.PL).<sup>1</sup> Toosarvandani also argues that VI of this plural verb is conditioned by the plural applicative argument in (4) when the patient or theme is not present.

## 3. The importance of reduplication...

I follow Haji-Abdolhosseini, Massam, & Oda (2002) who argue that in Niuean, reduplication overlaps with suppletion in its distribution to mark participant and event number (i.e. verbal number).

<sup>1</sup> Toosarvandani argues that these verbs are unergative since they can be passivized while the unaccusative verbs cannot. It is important to note these differences in passivization to show the verbs' argument structure. See Bobaljik & Harley (2017) for support from applicatives in Hiaki as evidence for differences in argument structure.

Haji-Abdolhosseini, Massam, & Oda show that Niuean suppletion and reduplication both mark the absolutive argument (i.e. patient/theme). In (6a), *fano* (go.sg) appears in conjunction with the singular intransitive subject, *au* ‘I’, and in (6b), *ō* (go.pl) appears in conjunction with the plural intransitive subject. Furthermore, (7a) shows this same pattern where the intransitive verb, *hoko* (arrive) occurs in its bare form with a singular subject but is reduplicated in the context of the plural intransitive subject (7b), yielding *hohoko*. Finally, the transitive verb, *hala* (cut) is in its unreduplicated form in the context of a singular object (8a), but when the object is plural, the verb is reduplicated as *hahala* (8b).

(6) *Niuean Suppletion*

- |    |     |                |     |    |    |     |                 |     |                |
|----|-----|----------------|-----|----|----|-----|-----------------|-----|----------------|
| a. | To  | <b>fano</b>    | a   | au | b. | To  | <b>ō</b>        | a   | <b>tautolu</b> |
|    | FUT | go             | ABS | I  |    | FUT | go.PL           | ABS | we(incl)       |
|    |     | ‘I will go...’ |     |    |    |     | ‘We will go...’ |     |                |

(7) *Niuean Reduplication*

- |    |      |                             |       |     |             |
|----|------|-----------------------------|-------|-----|-------------|
| a. | Ne   | <b>hoko</b>                 | mai   | a   | Sione       |
|    | PAST | arrive                      | there | ABS | Sione       |
|    |      | ‘Sione arrived/came there.’ |       |     |             |
| b. | Ne   | <b>ho~hoko</b>              | mai   | a   | <b>laua</b> |
|    | PAST | <b>RED~arrive</b>           | there | ABS | they        |
|    |      | ‘They arrived/came there.’  |       |     |             |

- |       |      |                        |     |    |     |            |           |             |
|-------|------|------------------------|-----|----|-----|------------|-----------|-------------|
| (8)a. | Kua  | <b>hala</b>            | e   | ia | e   | lā         | akan      |             |
|       | PERF | cut                    | ERG | he | ABS | branch     | tree      |             |
|       |      | ‘He cut the branch.’   |     |    |     |            |           |             |
| b.    | Kua  | <b>ha~hala</b>         | e   | ia | e   | <b>tau</b> | <b>lā</b> | <b>akau</b> |
|       | PERF | <b>RED~cut</b>         | ERG | he | ABS | PL         | branch    | tree        |
|       |      | ‘He cut the branches.’ |     |    |     |            |           |             |

(Haji-Abdolhosseini, Massam, & Oda 2002:476)

In addition to plural argument marking, Haji-Abdolhosseini, Massam, & Oda (2002) note that reduplication in Niuean also marks iterative aspect. (9) shows that reduplication of the verb, *noko* (knock) yields an iterative or plural event reading even though the subject and the object are singular.

- |     |      |  |     |     |     |          |
|-----|------|--|-----|-----|-----|----------|
| (9) | Ne   | <b>noko~noko</b>                       | e   | ia  | e   | gutuhala |
|     | PAST | <b>RED~knock</b>                       | ABS | she | ABS | door     |
|     |      | ‘She knocked on the door (many times)’ |     |     |     |          |

(HMO 2002: 483)

Haji-Abdolhosseini, Massam, & Oda argue that the lexical aspectual semantics of the verb determines the meaning of verbal reduplication. Since the verb in (9) is a non-affective event, the plural argument is not required or necessitated by reduplication since the plural action is repeated. Hence, the iterative marking by reduplication makes the plural argument interpretations available depending on the lexical aspectual semantics of the verb (Haji-Abdolhosseini, Massam, & Oda 2002: 483). Reduplication in Niuean, then, marks plurality of events, arguments, or both plural arguments and events.

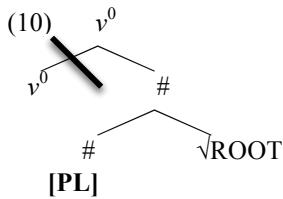
Therefore, it appears that in Niuean, suppletion and reduplication overlap in their distribution. In the next section, I follow Haji-Abdolhosseini, Massam, & Oda’s analysis of Niuean and propose an account which unifies analyses of participant number suppletion and reduplication. I argue for a verb-internal number node which reflects number and may be licensed by the argument.

#### 4. Proposal

Assuming reduplication is an affix (Marantz 1982), I propose that there is a node in the verbal word that reflects number. During VI, this #-node is realized as a reduplicative affix or triggers root suppletion. This allows exploration of the idea that an argument may value the features on the #-node.

#### 4.1. The Number node

In this paper, I argue that there is a verb-internal number node that marks plural arguments and events and triggers VI of the suppletive plural root (10).



In this section, I focus on how the plural features on the #-node proposed in (10) may be licensed by an argument in the syntax and prior to its phonological realization during VI. In the following section, I provide cross-linguistic support for this node

Following Bobaljik (2012), I assume that the trigger and target of suppletion are in the same morphological word – or, the complex  $X^0$ . Furthermore, I assume, following Embick (2010), that the category-defining head (here,  $v^0$ ) defines a domain within the word and triggers VI of its complement. That is, after movement of the root and number to  $v^0$ ,  $v^0$  triggers VI of number and the root, and heads higher than  $v^0$  are unable to phonologically interact with those internal to the category-defining domain since VI has already occurred internal to this domain.<sup>2</sup>

#### 4.2. Valuation of the features on the #-node

As noted in Section 2.2, Toosarvandani (2016) contends that external arguments are able to directly trigger VI of the plural allomorph of the verb in Northern Paiute. He argues that the locality condition of suppletion is relativized where, in Northern Paiute, the form of the verbal root is conditioned by the closest DP with phi-features regardless of the number features of higher arguments. Hence, if the patient/theme is plural, the verb, *koi* (kill) is plural (11a), but if the patient/theme is singular, the verb is ungrammatical as *koi* – even though the applicative argument is plural (11b).

##### (11) Suppletion conditioned by Patient/Theme

- a. Su=nana      ka=mogo`ni      **ka=iwa-ggu**      **tihidda koi-** ggi-ti.  
 NOM=man    ACC=woman      ACC=many-ACC    deer    kill.PL-APPL-TNS.  
 ‘The man killed the many deer for the woman.’
- b. \*Su=nana      ka=**momoko`ni** ka= **tihidda**      **koi-** ggi-ti.  
 NOM=man    ACC=women    ACC=deer      kill.PL-APPL-TNS  
 ‘The man killed the deer for the women’  
 (Toosarvandani 2016: 253)

Furthermore, he shows that the verb is sensitive to the number features of the applicative argument when the patient/theme is not present. That is, when the applicative argument, *momoko`ni* ‘women’ is plural in (12a), the verb, *abbiga*, is plural; but when the applicative argument is singular and the agent is plural, the verb is ungrammatical as *abbiga* (12b).

##### (12) Suppletion conditioned by Applicative Argument

- a. Su=nana      **iwa-ggu**      **momoko`ni**      **abbiga-** ggi-ti.  
 NOM=man    many-ACC    women      talk.PL-APPL-TNS  
 ‘This man is talking for many women.’

<sup>2</sup> Embick (2010) allows for an operation of pruning where a node can be ‘pruned’ from the structure if its exponent is phonologically null. In the cases where this node can be deleted from the structure, heads higher than the category-defining head are able to phonologically interact with those internal to the domain and may condition suppletion of the root (i.e. past tense in English where  $\sqrt{\text{GO}}$  is realized as ‘went’ in the context of T[PAST]).

b. \*Iwa-'yu      nanaana      ka=mogo'ni      **abbiga-**ggi-ti.  
**Many-NOM men**      ACC=woman      **talk.PL-APPL-TNS**  
 Intended: 'Many men are talking for the woman.'      (Toosarvandani 2016: 251)

I contend that the number node may be valued by the argument. I follow Wurmbrand's (2011) *Reverse Agree*, which I provide in (13):

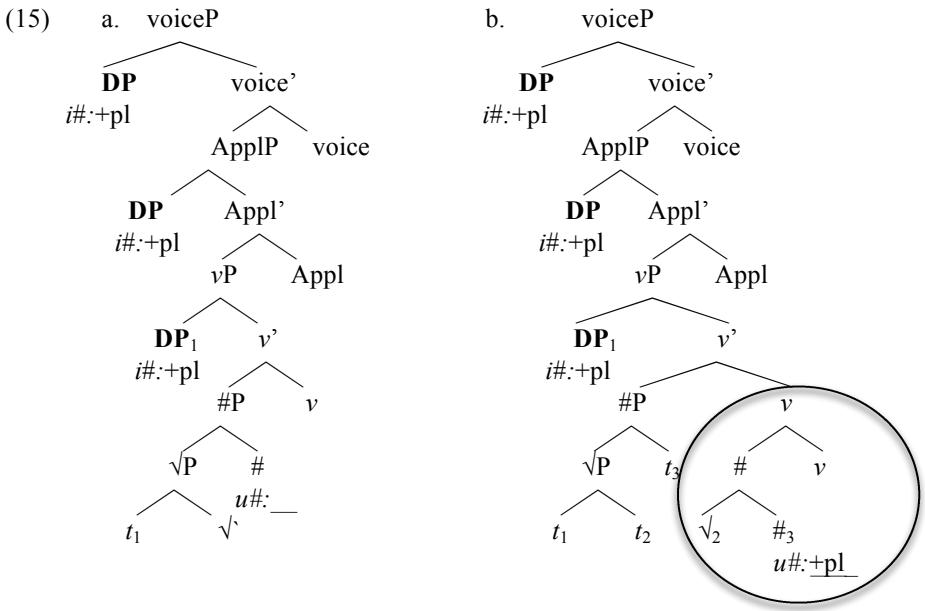
- (13) A Feature F:\_\_\_ on a head  $\alpha$  is valued by a feature F: val on  $\beta$ , iff
- i.  $\beta$  c-commands  $\alpha$
  - ii. There is no  $\gamma$  with a valued interpretable feature F such that  $\gamma$  commands  $\alpha$  and is c-commanded by  $\beta$
  - iii.  $\alpha$  is accessible to  $\beta^3$  (Wurmbrand 2011:3)

Hence, I assume that the closest c-commanding DP licenses the features on number as in (14):

(14) *Agree:u#*\_\_ valued by closest c-commanding DP

The unvalued features on number, therefore, are valued downwardly by the number features on the closest c-commanding DP in the syntax and prior to Vocabulary Insertion. It is these features which condition VI of the plural suppletive root or may be realized as a reduplicative affix.

I provide a maximal structure and derivation in (15). I assume that the syntactic structure is built up, and the closest c-commanding DP values the features on # (15a). After valuation, the root and number combine with the category-defining v, which triggers VI of its complement (15b).



If a [+pl] feature has been valued on number by the closest c-commanding DP, the number node will be realized as either a reduplicative affix or will trigger VI of the suppletive verb (16a), (17a). If a [+pl] feature is not valued on number, the Elsewhere Vocabulary Item will be inserted (16b), (17b).

(16) *Hiaki*  
 a.  $\sqrt{\text{KILL}}$  ---> sua / \_\_\_#[+pl]  
 b.  $\sqrt{\text{KILL}}$  ---> me'a /

(17) *Northern Paiute*  
 a.  $\sqrt{\text{TALK}}$  ---> abbika / \_\_\_#[+pl]  
 b.  $\sqrt{\text{TALK}}$  ---> yadu'a /

<sup>3</sup> Roughly in the same phase. See Wurmbrand (2011:17) for discussion of anaphor binding across a phase.

Under the analysis that I propose here, a number node that (i) marks plural arguments and events and (ii) is internal to the verbal word is able to account for both Hiaki and Northern Paiute root suppletion for plural participant number. This analysis allows for a stricter locality condition on root suppletion where there are no word external triggers since suppletion is triggered by a node internal to the verbal word. The difference between the two languages, therefore, can be accounted for by differences in their locality conditions on *Agree*, which will be discussed more in Section 6. Further discussion of the importance of this analysis on issues of locality will also be discussed in Section 6.

## 5. Morphophonological support

Next, I provide morphophonological support for the number node from languages which mark both participant and event number by suppletion and reduplication. I first focus on reduplication for participant and event number in Hiaki. Then, I discuss morphophonological support from suppletion and reduplication in Koasati, a Muskogean language, and Samoan, an Austronesian language. I conclude with a brief discussion of Northern Paiute reduplication. Importantly, these four languages have participant number suppletion but also mark participants and events by reduplication.

### 5.1. Hiaki reduplication

In Hiaki, there are several forms of reduplication. The reduplication affix copies the initial *CV-*, *CVC-*, *CVCV-*, *CVG-* (GEM of following C), and can copy a consonant internal to the root (medial C GEM, Harley & Leyva 2009). Reduplication in Hiaki marks the habitual, emphasis, progressive, and the plural absolutive argument. According to Harley & Leyva (2009), the form and meaning of reduplication is unpredictable and unique to each root. In (18), medial consonant reduplication marks habitual, plural events – with the exception of (18b), which marks plural arguments.

(18)	a.	hahame	hahhame	‘catch up’	
	b.	koko	kokko	‘dying.PL’	
	c.	kapoonte	kappoonte	‘castrate’	(Harley & Leyva 2009)

Furthermore, Hiaki participant number reduplication follows the same absolutive pattern as participant number suppletion (Harley & Leyva 2009). In (19a), the singular subject occurs with a bare, unreduplicated intransitive verb; however, the plural subject is ungrammatical with the bare root. The plural subject is grammatical when the verb is reduplicated (19b).

#### (19) Hiaki Participant Number Reduplication

a.	Aapo/*Vempo	koche	b.	Vempo	<b>ko</b> ~koche
	3sg/*3pl	sleep		3pl	<b>RED</b> ~sleep
	‘He is sleeping’/	*‘They’re sleeping’		‘They’re sleeping’	
					(Harley & Leyva 2009: 254)

Hence, it seems that Hiaki participant number marking resembles Niuean participant number marking. That is, suppletion overlaps in its distribution with reduplication marking participant and event number since reduplication marks both participant number as in (19) but also marks plural events (18).<sup>4</sup>

### 5.2. Koasati and Samoan suppletion and reduplication

According to Veselinova (2006), both Koasati (Muskogean) and Samoan (Austronesian) mark participant number by suppletion of the verbal root. In addition, I have found that Koasati and Samoan

<sup>4</sup> Like Niuean, Hiaki reduplication can also mark the plural event even if the argument is singular as in (i):

(i)	Nee	hiva	woh	mamnim-po	tukaa-po	<b>kok</b> ~koche
	1sg	always	two	five-at	night-at	red~sleep
	‘I always go to sleep at 10 PM’					(Harley & Leyva 2009: 262)



arguments and events allows for a stricter locality condition where the trigger for suppletion is always in the complex  $X^0$ . By broadening the scope of participant number to include reduplication, participant number suppletion aligns with a larger pattern where the trigger for suppletion is internal to the morphological word. That is, cross-linguistically, the morphosyntactic conditions on suppletion are the same; but it is differences in the domain of agreement which yield differences morphologically.<sup>6</sup>

## 7. Conclusion

In conclusion, I have argued that the trigger for suppletion is always in the morphological word, or complex  $X^0$ . I have argued for a  $\nu$ P-internal number node that marks plural arguments and events and mediates an agreement relationship between the argument and the root. The closest c-commanding DP values the features on number in the syntax, and during Vocabulary Insertion, this node will be realized as a reduplicative affix or will trigger suppletion on the root. Crucially, I have shown that this analysis is supported by cross-linguistic evidence from Hiaki, Koasati, Samoan, and Northern Paiute since participant number suppletion overlaps in its distribution with reduplication for participant and event number. The difference between Hiaki and Northern Paiute root suppletion (as described by Bobaljik & Harley 2017 and Toosarvandani 2016, respectively) for participant number is then reduced to a difference in the locality conditions on agreement between the argument and the number node. Finally, my proposal for participant number suppletion bears on a broader argument regarding the locality of the suppletive trigger, which I argue, is always internal to the morphological word.

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<sup>6</sup> Fenger (To Appear) also argues that person portmanteaux markers are suppletive realizations of an agreement head when the subject and object agreement heads are inside of the same  $X^0$ . She also argues that if there is more than one verb, differences in the domain of agreement will either allow or block VI of the portmanteau marker.

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