Some thoughts on VP coordination in Niuean*

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1 Introduction

This squib presents a first consideration of the structure of VP coordination[1] in Niuean, a Polynesian language with VSO word order and ergative case marking. VSO languages have long been a testing ground for configurationality because they do not have a surface VP constituent (Anderson & Chung 1977, McCloskey 1983), which leads to questions about whether and how VP coordination is possible in such languages. In the context of V-fronting, VP-internal subjects, and extended functional projections such as *v* and Voice, the question shifts somewhat, as so-called VP coordination can involve nodes higher than the actual VP, allowing for more analytic options (e.g. Chung 1990, 1998, Davis 2005, McCloskey 1991b,a). Nevertheless, VSO languages still raise particular interesting issues for analyses of coordination.

In this paper, we show that under certain assumptions, standard examples of VP coordination in Niuean cannot be analyzed with an across the board (ATB) movement analysis (VoiceP coordination) or with a low coordination shared subject analysis (*v*P coordination). Instead, it seems that Niuean VP coordination must involve nodes as high as IP, thus requiring a deletion or pro-drop analysis of VP coordination. This does not necessarily mean that there is no VP node in the language, however, as the constraint against VoiceP and *v*P coordination can be attributed to a strict V-initial licensing requirement at PF (as well as LF) in the language. At the end of the paper, we show that in fact low true VP coordination can be said to exist in Niuean, as can VoiceP coordination in gapping constructions.

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1 We use VP coordination as a neutral descriptive term to mean coordination that consists on the surface, of a [VO] second conjunct with a missing subject.

2 Analyses of coordination

Descriptively, in VP coordination structures, we find a missing thematic argument in the second conjunct, which is coreferential with the single overt subject, as shown in (1).

(1) (At the party,) Kyle$_i$ wore a tie and __$_i$ sported a hat.

There are (at least) three broad approaches to the analysis of this missing element (cf. Camacho 2000). First, we might consider the subject in the second conjunct (Sbj2) to be present at Merge, but to be unpronounced at PF, through some process of high coordination along with PF deletion, ellipsis, or PRO DROP (e.g. Van Valin 1986). This is possible if we assume either an IP or VoiceP level coordination, as shown in (2), where we illustrate with a pro-drop analysis.[2]

(2) a. [$_{\text{ConjP}}$ [$_{\text{IP}}$ Kyle [$_{\text{VoiceP}}$ ~~Kyle~~ wore a tie]] and [$_{\text{IP}}$ *pro* [$_{\text{VoiceP}}$ ~~*pro*~~ sported a hat]]]

b. [$_{\text{IP}}$ Kyle [$_{\text{ConjP}}$ [$_{\text{VoiceP}}$ ~~Kyle~~ wore a tie] and [$_{\text{VoiceP}}$ *pro* sported a hat]]]

Second, we might consider Sbj2 to be present at Merge, but to be extracted via ATB MOVEMENT, along with the subject of the first sentence, to a shared IP specifier (e.g. Williams 1978). This necessarily involves a coordination lower than IP, such as VoiceP coordination as in (3).

(3) [$_{\text{IP}}$ Kyle [$_{\text{ConjP}}$ [$_{\text{VoiceP}}$ ~~Kyle~~ wore a tie] and [$_{\text{VoiceP}}$ ~~Kyle~~ sported a hat]]]

Third, we might consider there to be only one subject merged, in a structure that involves *low coordination with a shared subject* (cf. Goodall 1987). This can involve *v*P coordination as in (4a), but VP coordination is also possible here as in (4b), if we allow a single *v* head to check accusative case with two objects, one inside each conjunct.

(4) a. [$_{\text{IP}}$ Kyle [$_{\text{VoiceP}}$ ~~Kyle~~ [$_{\text{ConjP}}$ [$_{v\text{P}}$ wore a tie] and [$_{v\text{P}}$ sported a hat]]]]

b. [$_{\text{IP}}$ Kyle [$_{\text{VoiceP}}$ ~~Kyle~~ [$_{v\text{P}}$ *v* [$_{\text{ConjP}}$ [$_{\text{VP}}$ wore a tie] and [$_{\text{VP}}$ sported a hat]]]]]

Although there are many other variable points within these analyses (e.g. whether objects raise to a position outside VP, whether verbs similarly raise, etc.), the above outline captures in broad strokes the various types of proposals that have been proposed for VP coordination. In the next section we turn to Niuean coordination.

2 It is also possible with CP conjunction but we put this aside. Note we take no position on the internal structure of the Conjunction Phrase (see e.g. Munn 1993, Progovac 1998/2003, Zhang 2010).

3 Niuean VP coordination

We start our discussion of Niuean with the coordinated transitive VP in (5). To ease the discussion, we will shorten this sentence as in (5b), leaving out modifiers and replacing the proper name with a pronoun, and we will present the various proposed syntactic structures using the English glosses, as this will allow for a clearer focus on the abstract syntactic structure of the coordinations.[3]

(5) a. Ne fakatū e Misi Lao e aoga fakaako akoako mo e
PAST start ERG.P Mister Lao ABS.C school train pastor and
fakaako ai e falu a fuata Niue.
teach there ABS.C some LNK youth Niue
'George Lawes started a pastors' training school and taught some Niuean youths.' (Talagi 1982)

b. Ne fakatū e ia e aoga mo e fakaako ai e
PAST start ERG.P 3SG ABS.C school and teach there ABS.C
falu a fuata.
some LNK youth.
'He started a school and taught there some youths.'
(shortened version of (5a))

We analyze VSO order in Niuean as involving remnant movement of VP ([V+t_O]) to the specifier of IP, and we consider that the object is previously extracted out of VP to a specifier of *v*P position where it is licensed with absolutive case (Massam 2000, 2001). Following many (e.g. Aldridge 2004, Legate 2006, 2017, Mahajan 1989, Massam 1998, Sheehan 2017, Woolford 1997, 2006) we assume that ergative case is assigned in situ (i.e. in specifier of VoiceP) to agents of transitive verbs, and that subjects do not move from their merged positions.[4] We consider the preverbal tense particle to be in C, and we will set it aside for the rest of this discussion. The analysis of a transitive sentence is thus as shown in (6) (using English gloss words in place of Niuean words, as noted above).

(6) [$_{IP}$ [$_{VP}$ start ~~school~~] [$_{VoiceP}$ he [$_{vP}$ school [$_{VP}$ ~~start school~~]]]]

How might we analyze the coordinated sentence (5) within the three broad approaches to coordination outlined in Section 2, with these assumptions about Ni-

3 The Niuean word for 'and' is comitative *mo e* (or *mo*, if the following word is a proper noun). See Massam et al. 2016 for general information about Niuean coordination. Abbreviations used in the Niuean glosses are as follows: ABS, absolutive; C, common; DIR3, direction away; ERG, ergative; LNK, linker; P, proper.

4 Note this is very like Johnson's analysis of English (e.g. Johnson 1996/2004, 2009), except that we assume that Niuean subjects do not extract to IP.

uean clause structure? First, the deletion analysis with conjoined IPs, as in (2a), would be as in (7).

(7) [$_{IP}$ [start ~~school~~] [$_{VoiceP}$ he [$_{vP}$ school [$_{VP}$ ~~start~~ ~~school~~]]]] and [$_{IP}$ [teach ~~youth~~] [$_{VoiceP}$ *pro* [$_{vP}$ youth [$_{VP}$ ~~teach~~ ~~youth~~]]]]

This works straightforwardly to derive a so-called VP-coordination structure, especially since Niuean is a (radical) pro-drop language, although notably, it involves the coordination of two IPs, rather than of any level of VP (Chung 1990, 1998, Polinsky 2016: 19).[5]

A deletion analysis with conjoined VoicePs along the lines of (2b) does not work for Niuean, however, as it leaves the verb in the second conjunct in situ, where it presumably cannot be licensed in Niuean, given the universality of V-initial word order in the language. We might here adapt ideas of Fox (2000) (cf. Lin 2002) and claim that the first verb (phrase) reconstructs at LF, allowing for the second verb (phrase) to in turn move to IP for licensing. However, this still yields the wrong word order, since at PF the second object precedes the second verb. Thus, the approach in (2b) with conjunction of VoiceP is ruled out, as shown in (8), with the offending items in bold.

(8) *[$_{IP}$ [start ~~school~~] [$_{ConjP}$ [$_{VoiceP}$ he [$_{vP}$ school [$_{VP}$ ~~start~~ ~~school~~]]] and [$_{VoiceP}$ *pro* [$_{vP}$ **youth** [$_{VP}$ **teach** ~~youth~~]]]]]

The second option outlined above is the ATB movement analysis, as in (3). Such an analysis is also not possible for Niuean, assuming subjects are licensed with ergative case in situ, in specifier of VoiceP, and do not move to IP. There is, simply, nowhere for the subjects (in bold in (9)) to ATB-move to. In addition, the analysis fails because the second VoiceP conjunct is not large enough to allow for verb fronting, yielding the wrong word order, shown in bold, as was the case also in (8).

(9) *[$_{IP}$ [start ~~school~~] [$_{ConjP}$ [$_{VoiceP}$ **he** [$_{vP}$ school [$_{VP}$ ~~start~~ ~~school~~]]] and [$_{VoiceP}$ **he** [$_{vP}$ **youth** [$_{VP}$ **teach** ~~youth~~]]]]]

The third approach is the low coordination analysis with a shared subject as in (4a)/(4b) above for English, where the two *v*P or VP conjuncts are topped with a single shared VoiceP or *v*P respectively. The first of these does not work for Niuean, as shown in (10a), because it yields the wrong word order, similarly to (8) and (9), because the second *v*P conjunct is not large enough to allow for V fronting, as required prior to Spell Out.

5 Chung (1990, 1998) notes that this type of analysis only works if pro is always found as Sbj2 and not Sbj1. This appears to be the case in Niuean (Massam et al. 2016).

(10) a. *[$_{IP}$ [start ~~school~~] [$_{VoiceP}$ he [$_{ConjP}$ [$_{vP}$ school [$_{VP}$ ~~start~~ ~~school~~]] and [$_{vP}$ **youth** [$_{VP}$ **teach** ~~youth~~]]]]]

b. [$_{IP}$ [start ~~school~~] [$_{VoiceP}$ he [$_{vP}$ school [$_{ConjP}$ [$_{VP}$ ~~start~~ ~~school~~] and [$_{VP}$ teach youth]]]]]

In (10b), such an approach is still in the running, as the PF word order is VO in the second conjunct. Here, following Fox (2000), we would assume that the first verb reconstructs at LF, allowing the second verb to move up to be licensed, and the first object reconstructs at LF, allowing the second object to move up to be licensed.

Summing up, for Niuean, VP coordination derived through coordination of IP with Sbj2 as pro is straightforward, while attempts to coordinate VoiceP or *v*P will not work, as they will yield the wrong word order in the second conjunct. In addition, ATB movement of the subject is additionally ruled out, assuming that Niuean subjects are licensed in situ and do not undergo movement to any grammatical subject position.[6]

As noted, it is also possible to derive the VO word order with low VP coordination and a shared subject as in (10b), assuming LF reconstruction as outlined above. A problem arises however, when we consider coordination of VPs other than transitive ones. Taking examples of two unaccusatives as in (11), this type of derivation fails.[7] The reason is that the so-called shared subject here is a derived one, extracted to *v*P from the object position of the unaccusative verbs. Under the low coordination shared subject analysis, the second subject (in bold in (12)) is trapped in the lower VP or *v*P and cannot be shared. (An ATB or a pro solution would fare better in such cases.) The impossible structures are given in (12).[8]

6 Of course, everything depends on our assumptions: e.g. if Niuean subjects do undergo movement to a higher position, an ATB analysis of subject movement is more possible, but there is still the problem of the OV word order. But then, if V-initial order is derived by successive head movement instead of by remnant movement, the options change also, as V could move to Voice to achieve VO order. These options require further research.

7 There are no established tests for unaccusative *vs* unergative verbs in Niuean. We are assuming based on meaning that the verbs here are unaccusative. But note that even if the first verb in (11a) is (plausibly) considered to be unergative, or the second one in (11b) is, the same problem arises, as the unaccusative conjunct would have a derived subject (arguably in specifier of *v*P) and the unergative would presumably not, assuming, as is usual, that unergative subjects are merged in specifier of VcP (but see Massam 2009, Tollan 2016, and Oxford & Tollan 2017; also Polinsky 2016). Thus, an unergative and an unaccusative cannot share a single subject; nor can an unergative and a transitive.

8 Collins (2016) also notes that low coordination of an unergative and an unaccusative is ungrammatical and that high coordination is required in Samoan, a related language which has multiple conjunction types. See also Otsuka 2000 and Tollan & Clemens 2016. Burton & Grimshaw (1992) discuss similar issues in SVO languages.

(11) a. Fina atu ai a ia mo e nofo mau ai.
go DIR3 there ABS.P 3SG and stay permanent there
'He went there and stayed there.' (Talagi 1982)

b. Ati ita e ika mo e fakafualoto.
then jealous ABS.C fish and hurt
'The fish became jealous and hurt.' (Talagi 1982)

(12) a. (Attempt at analysis of low VP and shared subject: two unaccusatives)
*[$_{IP}$ [go ~~he~~] [$_{vP}$ he [$_{ConjP}$ [$_{VP}$ ~~go he~~] and [$_{VP}$ stay **he**]]]]

b. (Attempt at analysis of low VP and shared subject: unergative and unaccusative)[9]
*[$_{IP}$ [go] [$_{VoiceP}$ he [$_{vP}$ [$_{ConjP}$ [$_{VP}$ ~~go~~] and [$_{VP}$ stay **he**]]]]]

In addition, in cases of transitive VPs coordinated with unergative ones, only one of the two conjunct types would license a VoiceP with ergative case, so it is impossible for the two conjuncts to share a single VoiceP. Assuming that Niuean subjects do not raise to a higher position for licensing but are licensed in situ, such an analysis is impossible.

All such sentences, however, are derivable if we assume IP adjunction with a null pro subject in the second conjunct, as in (2a) and (7). This would suggest that there is no coordination of any extension of VP in Niuean for sentences such as (5) and (11) which have apparent VP coordination. Another construction exists, however, which arguably does involve VP coordination, that is, VP, not *v*P or VoiceP, coordination, as in (13). In this sentence, we find an object that has been Pseudo-Noun-Incorporated to the verb (Massam 2001), such that the overt [VO] is coordinated. In such cases, the objects are licensed within VP, thus the entire [VP + VP] coordination can be fronted, with no licensing violations, as objects are licensed within VP and both verbs undergo the required fronting. A somewhat abbreviated analysis is shown in (14).[10]

(13) Fai hoana mo e fai taane oti a lautolu.
have wife and have husband all ABS.P they
'They all have wives or husbands.' (Talagi 1982)

(14) [$_{IP}$ [VP and VP] [$_{VoiceP}$ they [$_{vP}$ [~~VP and VP~~]]]]

Thus, VP coordination does seem possible in Niuean, but only in cases of Pseudo Noun Incorporation (and in cases of apparent [V+V] coordination also, of course), where the verb and the object together undergo fronting.

9 The lower object in (12) could move to vP but this does not help to derive the sentence.

10 *Fai* 'have' is an obligatorily incorporating verb. We assume here that PNI verbs are like unergatives, with the external argument in specifier of a non-ergative assigning VoiceP.

4 Thoughts on gapping

Johnson (2009) argues that gapping is formed through the coordination mechanism of ATB movement (thus explaining why gapping is only possible with coordination). Interestingly, gapping is found in Niuean.[11]

(15) Ne tutuli he kuli e lapiti mo e pusi e kinipiki.
PAST chase ERG.C dog ABS.C rabbit and cat ABS.C guinea-pig
'The dog chased the rabbit and the cat the guinea-pig.'

Gapping might be similarly handled in Niuean as ATB movement of two verbs to IP from conjoined VoicePs, as shown in (16), where the elements undergoing ATB movement are in bold (cf. McCloskey 1991a). A complication is that the shared VP contains the trace of two different objects, as shown in (16a), which is tricky for the Copy Theory of Movement, but an alternative is to allow the second V alone to undergo ATB movement, in which case the copy of *rabbit* alone would appear in specifier of IP as in (16b). In (16) we once again present the data with the English gloss words, to facilitate focus on the structure.

(16) a. [$_{IP}$ [**chase trace**$_{i/j}$] [$_{ConjP}$ [$_{VoiceP}$ dog [$_{vP}$ rabbit$_i$ [$_{VP}$ ~~**chase rabbit**~~]]] and [$_{VoiceP}$ cat [$_{vP}$ guinea pig$_j$ [$_{VP}$ ~~**chase guinea pig**~~]]]]]
b. [$_{IP}$ [**chase** ~~rabbit~~] [$_{ConjP}$ [$_{VoiceP}$ dog [$_{vP}$ rabbit$_i$ [$_{VP}$ ~~**chase**~~ ~~rabbit~~]]] and [$_{VoiceP}$ cat [$_{vP}$ guinea pig$_j$ [$_{VP}$ ~~**chase**~~ ~~guinea pig~~]]]]]

It would seem therefore that conjunction of VoiceP in Niuean might not be ruled out in and of itself, but rather, that it is not generally possible due to the need for every verb to undergo movement to IP for licensing at PF. If a verb can undergo this movement via ATB movement, the structure is grammatical as in (16), but if it cannot, the structure fails as in (9). In addition, an ATB analysis of gapping, unlike an ATB analysis of VP coordination, does not require movement of transitive subjects, which by our assumptions do not undergo movement in Niuean, being licensed in situ in VoiceP with ergative case.

5 Conclusion

This paper presents an initial exploration of VP coordination in the VSO ergative language Niuean. We have argued that, given certain assumptions about V-initial order and ergative case in Niuean, ATB and low coordination shared subject analyses of VP coordination both fail for this language, since they involve conjunction

11 We thank Malotele Kumitau Polata and Rebecca Tollan for this data. Of special interest is that the ergative case marker on Sbj2 is missing, replaced by the non-proper marker *e* which is part of the conjunction word *mo e*. This deserves further study.

of either *v*P or VoiceP, both of which prevent the verb in the second conjunct from moving to IP at PF. Interestingly, true VP coordination does seem possible in cases of Pseudo Noun Incorporation, where objects do not require licensing outside of VP and where both VPs can thus move as a coordinated unit to IP for licensing. In addition, VoiceP coordination is possible in cases of gapping, where the verb in the second conjunct is able to undergo ATB fronting to a matrix IP for licensing along with the verb in the first conjunct. Of course, there remain many questions, and many other avenues to be explored.

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