A CYCLIC LINEARIZATION APPROACH TO POLYNESIAN VP-REMNANT MOVEMENT*

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1. Introduction

This paper proposes a formal analysis of word order patterns in Polynesian, focusing especially on Hawaiian and Niuean. I discuss Massam's (2001) influential VP-remnant movement account of verb-initial word order in the ergative/absolutive Niuean, according to which VP-remnant formation is driven by case. I present several empirical and conceptual problems with Massam's analysis and analyze data from Hawaiian, which patterns with Niuean in many respects, despite having a nom/acc case system. By providing a principled explanation for VP-remnant formation, I maintain a VP-remnant movement analysis for both languages. The primary theoretical contribution of this paper therefore concerns not VP-remnant movement, but VP-remnant formation. I argue that the process of VP-remnant formation is similar in some respects to Scandinavian object shift.

The cyclic linearization algorithm I develop adopts aspects of Fox and Pesetsky's (2005) system and also Müller's (2007) relativized and phase-based adaptation. I depart in some respects from Müller's relativization algorithm and argue that the syntactic representation is spelled-out at each transformational rule application (see e.g. Epstein and Seeley 2002), yielding a highly derivational model of linearization.

This paper is structured as follows. In the following section, I present basic word order facts from Niuean and Hawaiian, establishing that both of these languages are predicate initial, although both VSO and VOS words orders are allowed. In section 3, I discuss Massam's (2001) VP-remnant movement account of Niuean; this is followed by defending an incorporation account (contra Massam) for VOS word order. I argue that while Massam's VP-remnant movement account should be extended to Hawaiian, her analysis of VP-remnant formation, driven by case, faces empirical and theoretical problems. I propose a relativized cyclic linearization algorithm that forces VP-remnant formation in the derivation of VSO word order, divorcing VP-remnant formation from case.

2. Niuean and Hawaiian are Predicate Initial Languages

Massam (2000, 2001) argues that Niuean (1) is best understood as a predicate-initial language, based on data from non-verbal predicates (i.e. null copula, adjective, nominal, and

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prepositional predicates). Hawaiian (2) patterns with Niuean in this respect for these predicate types.

(1)  a. Ko Mele e faiaoga. Niuean
      PRED Mele ABS teacher
      "The teacher is Mele." 

    b. Ha he fale gagao a ia.
      PRED in house sick ABS she
      "She is in the hospital." (Massam 2000)

(2)  a. He kumu kula 'o Noelani.
      a teacher-school SUBJ Noelani
      "Noelani is a teacher."

    b. Ua ha'i 'o Kekoa he kumu kula 'o Noelani.
      PERF say SUBJ Kekoa a teacher-school SUBJ Noelani
      "Kekoa said that Noelani is a teacher."

    c. Hau'oli 'o Kekoa.
      happy SUBJ Kekoa
      "Kekoa is happy." (author field notes, FN)

Although unexpected from the perspective of a predicate initial analysis, the word order typically discussed in descriptions of both languages is VSO, when the main verb is lexical (3,4).

(3)  Ua ku'ai 'o Kekoa i ka i'a. Hawaiian
      PERF buy SUBJ Kekoa OBJ the fish
      "Kekoa bought a fish."

(4)  Takafaga tumau ni e ia e tau ika. Niuean
      hunt always EMPH ERG he ABS PL fish
      "He is always fishing." (Massam 2001, Siter 1980)

However, VOS is also allowed when the object is non-specific (5a). Case markers and articles are excluded with VOS (5a-c). VOS is also allowed in embedded clauses (5d).

(5)  a. Inu *(ana 'o) Noelani i ke kope hu'ihu'i. Hawaiian
      drink DIR SUBJ Noelani OBJ the coffee cold
      "Noelani is drinking cold coffee."

    b. Inu kope hu'ihu'i 'o Noelani.
      drink coffee cold SUBJ Noelani
      "Noelani is drinking cold coffee."

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c. *Inu i ke kope hu’ihu’i ‘o Noelani.
   drink OBJ the coffee cold SUBJ Noelani
   "Noelani is drinking cold coffee."

d. No’ono’o ‘o Kekoa ke ‘ai poi nei ‘o Noelani.
   think SUBJ Kekoa PRES eat poi DIR SUBJ Noelani
   "Kekoa thinks that Noelani is eating poi." (FN)

In Hawaiian, adverbs like mau ‘always', which normally intervene between the verb and subject (6a), follow the V-NP sequence in V-NP_{obj-S} word order (6b), suggesting that the entire predicate has fronted as a single constituent in V-NP_{obj-S} word order.

(6)
   a. Holoholo mau ‘o Kehau ma ke kaona.
      cruise always SUBJ Kehau in the town
      "Kehau always cruises in town." (Cleeland, 1994)

   b. Inu (*i ke) kope mau ‘o Noelani.
      drink coffee always SUBJ Noelani
      "Noelani always drinks coffee."

   c. *Inu mau kope ‘o Noelani.
      drink always coffee SUBJ Noelani
      "Noelani always drinks coffee." (FN)

   While Hawaiian is a nom/acc language, Niuean has erg/abs case marking, and absolutive case appears on the agent in the V-NP_{obj-S} word order (i.e. case marking behaves intransitively for Niuean V-NP_{obj-S}). Niuean is syntactically similar to Hawaiian with respect to adverbials.

(7) Takafaga ika tumau ni a ia.
    fish EMPH ABS he
    "He is always fishing." (Massam, 2001)

   For both languages, tense/aspect marking is accomplished by pre- and post-verbal particles. For V-NP_{obj-S} order, TAM markers cannot intervene between V and O.

(8) E inu kope hu'ihu'i (nei) ‘o Noelani.
    IMPERF drink coffee cold (DIR) SUBJ Noelani
    "Noelani is drinking cold coffee." (FN)

(9) Ne inu kofe kono a Mele.
    PST drink coffee bitter ABS Mele
    "Mary drank bitter coffee." (Massam, 2001)

On an empirical level, these data show that descriptions like VSO and VOS can be misleading. Rather, V-NP_{obj-S} and V-S-DP_{obj} are better (if still superficial) characterizations of these languages.

More importantly for the current paper, the data presented above show that Hawaiian is similar in many respects to the better-studied Niuean. In particular, the word order facts, including the distribution of adverbs and TAM markers in both VSO and VOS constructions, suggests that whatever property accounts for V-NP_{obj-S} and V-S-DP_{obj} word orders in Niuean.
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should also account for the same word order patterns in Hawaiian. In the next section, I present Massam's (2001) influential analysis of Niuean word order, which, I argue, can explain many of the relevant facts for Hawaiian as well. However, Massam's analysis is crucially tied to case properties, arguably the primary locus of morpho-syntactic variation between the two languages. In order to develop a unified analysis of the two languages, I rework Massam's system in section 4 in an analysis that does not make reference to case.

3. **VP-remnant Movement and Subject/Non-Subject Asymmetry**

3.1. **Massam's (2001) Account of the V-NP_{obj}-S/V-S-DP_{obj} Alternation**

Massam (2001) unifies the predicate initial property of Niuean by proposing VP-movement to Spec, TP, the EPP feature of which she specifies as [PREDICATE], not [D]. While I will maintain Massam's VP-(remnant) movement hypothesis, I will reject her analysis of VP-remnant formation. In order to derive V-S-DP_{obj}, Massam proposes VP-remnant movement.² According to Massam, everything but V must vacate VP prior to VP-movement to Spec, IP/TP. Massam ties VP-remnant formation to case; when a DP (not NP) object is generated, it must raise to Spec, AbsP (10).

(10) Niuean Transitive VSO clause (Massam 2001)

![Diagram of VP-remnant Movement](image)

Massam (2010) updates this model, including vP. The details of the remnant formation are similar, with vP raising to Spec, TP (11)

(11) \([CP\ C\ [TP\ [vP\ V\ t_v\ t_j]]\ T\ [ErgP\ S\ Erg\°\ [AbsP\ KP_\ Abs\°\ t_vP]]])\) (Massam, 2010)

Under Massam's analysis, in V-NP_{obj}-S clauses the complement of the verb is not a DP, but rather an NP. Therefore, there is no motivation for the verbal complement to move for case reasons. If an NP is generated, then the entire VP moves to Spec, TP (12).

² Rackowski and Travis (2000) and Massam (2000) also offer VP-remnant accounts of Niuean.
Massam assumes that "agents can be variously generated in Spec of ErgP or Spec of AbsP ... an argument is generated in $v^{\text{Max}}$ (hence ergative) only if (a) it is an agent and (b) absolutive case has been checked" (Massam 2001, footnote 15). Therefore, there is an unexplained co-occurrence pattern between the complement of $V$ and the presence of ErgP (or at least ergative marking on $v$); whenever an NP is generated as the complement of the verb, an ErgP head must not be generated, as no element would be present in the derivation to check the ergative case feature.

Massam terms the $V$-NP$_{\text{obj}}$S construction 'Pseudo-Noun-Incorporation (PNI),' since the $V$-NP$_{\text{obj}}$ sequence has several properties characteristic of incorporation. However, to be clear, PNI is not incorporation for Massam; rather this is VP-movement just in those instances when an NP is generated as the sister of $V$.

Massam's VP-remnant movement hypothesis has been very influential in Polynesian linguistics, since it unifies the predicate initial data seen above. Nevertheless, two of Massam's central claims, (i) that incorporation does not apply, and especially (ii) that VP-remnant formation is driven by case, have been challenged, calling into question the overall analysis. To my knowledge, no formal solution for (ii) has been developed, and this will be my goal in section 4.

3.2. Incorporation in V-NP$_{\text{obj}}$S Word Order

Massam's arguments against incorporation largely follow from theoretical constraints on X-bar theory, many of which have been challenged by Minimalist research (e.g. Chomsky 1995 and much subsequent work). Most importantly, Massam claims that "a head is distinct from a phrase ... and a head cannot contain a phrase." Chung and Ladusaw (2004) take a different approach with respect to V-NP$_{\text{obj}}$S; they discuss the Niuean data and also Maori, which patterns with Niuean in allowing full NPs in the possible incorporation structure (13).

(13) E rukuruku [koura nunui] ana ia.
    TAM dive crayfish big DIR she
    "She is diving for big crayfish." (Bauer 1997)

Because "nothing, not even pro forms" such as ia or tense/directional particles such as ana can separate the verb from the NP object, they argue that Massam's evidence "is consistent with an incorporation analysis...consequently, we believe that Niuean does have incorporation" (Chung and Ladusaw, 2004, original emphasis).

In light of Chung and Ladusaw (2004), I suggest that the argument for 'real' V+NP incorporation in languages such as Niuean, Maori, and Hawaiian is at least as strong as those against incorporation. Putting aside further details regarding how this incorporation takes...
place (see again Chung and Ladusaw (2004) and Massam (2009) for discussion), I suggest that PNI structures in these languages are bona-fide instances of incorporation (i.e. forming a complex V°), possibly as represented in (14).

(14) (Chung 1988)

Furthermore, a structure such as this provides the kind of representation that is justified by the linearization-based account of VP-remnant formation developed below. I will assume that because NP is dominated by an X° element, i.e. 'below' the word level under incorporation and therefore invisible to the linearization process which feeds PF from the syntactic representation.

3.3. The V-NP_{obj}-S/V-S-DP_{obj} and Subject/Non-Subject Asymmetry

If V-NP_{obj}-S involves incorporation, then this is consistent with Chung's (1998) claim (not formalized) that subjects generally precede non-subjects in Maori. For example, Maori (15) and Tongan (16), like Hawaiian and Niuean, also have the V-NP_{obj}-S/V-S-DP_{obj} alternation, suggesting that at least this aspect of the grammar is part of a larger trend within Polynesian.

(15) a. Kei te a Rewi i nga poaka
   IMPERF PERS Rewi OBJ PL pig
   "Rewi is feeding the pigs."

   b. E karanga manuhiri ana ia.
   PRES call visitor DIR she
   "She is welcoming visitors." (Chung and Ladusaw, 2004, citing Waititi 1962 and Bauer 1997)

(16) a. Na'e ma'u 'e Sione 'a e ika.
   PAST get ERG Sione ABS the fish
   "Sione got the fish."

   b. Na'e inu kava malohi 'a e kau siana.
   PAST drink kava strong ABS the PL man
   "The men drank alcohol." (Otsuka 2005)

While there is some debate as to whether V-NP_{obj}-S order is as productive in Tongan as compared to Niuean (Otsuka 2005, Ball 2005), the facts regarding functional marking of the object are the same.

Various additional constructions also support a general subject/non-subject asymmetry, such that subjects precede non-subjects. For example, several researchers have argued that

(17) *I na pua mae e waele ai ke ali'i i ka paka Hawaiian
OBJ PL flower wilt PRES weed RESPRO the chief PREP the park
"The wilted flowers the chief will weed in the park" (Hawkins, 1982)

When an object appears sentence initially, it is part of a clear pseudo-cleft; compare VSO (18a) with (18b), in which the wh-object appears in a pseudo-cleft construction.

(18) a. Ua ku'ai 'o Kekoa i ka i'a.
PERF buy SUBJ Kekoa OBJ the fish.
"Kekoa bought a fish."

b. He aka ka mea a Kekoa i ku'ai ai?
A what the thing POSS Kekoa PERF buy RESPRO
"What is the thing that Kekoa bought?" (FN)

While objects can only appear initially in bi-clausal structures (i.e. pseudo-clefts), subjects can appear sentence-initially in a number of constructions which are not obviously bi-clausal. Some of these have been argued to be clefts, involve raising, or be A-bar movement in various Polynesian languages. While the following constructions may involve clefts (and this is arguably the consensus position, see also Potsdam 2009), the overt evidence is far less clear as compared to the object-fronting examples. First, in Hawaiian, the subject in subject wh-questions can appear sentence initially (19) without clear evidence of a cleft/pseudo-cleft (compare to (18b)).

(19) 'O wai i ku’ai i ka i’a.
SUBJ who PAST buy OBJ the fish
"Who bought a fish?" (FN)

Second, Hawaiian subject pronouns must precede the lexical verb under negation. (20a) shows the baseline sentence and (20b) the sentence including negation.

(20) a. Ua hele 'o-ia
PERF go SUBJ-he
"He has gone."

b. A'ole 'o-ia i hele.
not SUBJ-he PERF go
"He didn't go." (Elbert & Pukui 1979)

Finally, the 'actor emphatic' is another example of subject fronting that is unavailable for objects. According to Hawkins (1979), the fronted element is both semantic agent and syntactic subject.

(21) a. Ua heluhelu ke keiki i ka puke.
PERF read the child OBJ the book
"The child read the book."
b. Na ke keiki i heluhelu i ka puke.
NA the child PERF read OBJ the book
"THE CHILD read the book." (Hawkins 1979)

Independently of whether (19-21) involve cleft structures, the claim that subjects precede objects holds for derivations involving movement. The only superficial exceptions are the cases of object clefts and V-NP incorporation, which do not involve movement of the object over the subject, since the incorporation structure is understood as a complex word and the object pseudo-cleft is likely base-generated. If (19-21) are not clefts, then a subject/non-subject asymmetry holds for an even wider range of constructions. To the extent that a subject/non-subject asymmetry is consistent with the V-NP<sub>obj</sub>-S/V-S-DP<sub>obj</sub> alternation discussed above, a theory of the latter should also explain the former, and the analysis developed in section 4 below can account for both patterns of data.

3.4. Empirical and Conceptual Problems with the VP-remnant Movement Hypothesis

Returning now to Massam's (2001) VP-remnant movement account of Niuean, in this section I present some empirical and conceptual problems with Massam's account. While Massam's claim that VP moves to Spec, TP is attractive, her analysis has been criticized; much of this criticism, however, does not involve VP-remnant movement per se, but rather the formation of the VP-remnant prior to VP-remnant movement. For instance, a well-known (Chung 2005, McCloskey 2005 and others) empirical issue involves sentences in which the verb takes a CP complement. This yields V-S-CP order (22-24), suggesting that CP must vacate VP along the same lines as DP. However, there is no evidence that CP needs case in the relevant languages.

(22) Ne manatu e Mataginifale [ko e mena fai mata-fohi haku hiapo]... Niuean
PST think ABS Mataginifale PRED ABS thing have blade-scaper scratch tapa-plant
"Mataginfale remembered that she had the blade of the tapa plant scraper...
(Niue: 1982, cited by Massam 2001)

(23) Ua no'ono'o 'o Kekoa [ke 'ai nei 'o Noelani i ka poi]. Hawaiian
PERF think SUBJ Kekoa PRES eat DIR SUBJ Noelani OBJ the poi
"Kekoa thought that Noelani is eating poi."

(24) E ninua maila 'o Kekoa [ina 'olelo Hawai'i 'o Noelani].
IMPERF ask DIR SUBJ Kekoa if speak Hawaiian SUBJ Noelani
"Kekoa is asking if Noelani speaks Hawaiian." (FN)

Hawaiian modal (25) and impersonal verbs (26) display a similar pattern.

(25) Pono i ke keiki [ke ha'i mai i ka mo'olelo].
should PREP the child PRES tell DIR OBJ the story
"The child should tell the story." [It is necessary for the child that (he) tell the story.]
(Hawkins, 1979)

(26) Maopopo ia Noelani [e hele mai ana 'o Kekoa].
known to Noelani IMPERF go DIR DIR SUBJ Kekoa
"It is clear to Noelani that Kekoa is coming." (FN)
Double objects (27) and (possible) PP complements (28) also appear after subjects in Hawaiian.

(27) Ua lawe aku 'o Kaipo i ka-na wahine i ka hale ola.
PERF take DIR SUBJ Kaipo OBJ his wife PREP the hospital
"Kaipo took his wife to the hospital." (Hawkins, 1979)

(28) Ke ha'awi aku nei au i keia ipu ia 'oe.
PRES give DIR DIR I OBJ this gourd IN.OBJ you
"I am giving this gourd to you." (Hawkins, 1979)

If CP (22-24) does not need case, then there is no motivation for CP to vacate VP under Massam's analysis, nor is it clear how to extend her analysis to cover (25-28).

There are conceptual problems as well. First, as noted above, there is an unexplained co-occurrence pattern in Massam's system; whenever an NP is a sister to V, ErgP must not be generated. Also, under Chomsky's (2000, 2008) model of long-distance Agree, case and phi-features do not motivate movement. Finally, Hawaiian (and Maori) lack the erg/abs case marking that is at the heart of Massam's analysis. An ad-hoc solution to this problem would be to suggest that object DPs do not get case valued in-situ, but must raise to the specifier of a functional head such as AgrO, although there is no independent evidence for such a projection in Hawaiian. Instead of abandoning the VP-remnant movement hypothesis, I develop a model of VP-remnant formation which does not involve case, allowing a unified analysis for Niuean and Hawaiian.

4. A Relativized Cyclic Linearization Approach

If VP-remnant formation in Polynesian is not case-driven, this movement may be analogous (under at least some analyses) to a much better-studied phenomena, namely Scandinavian object shift. In particular, several researchers have taken a 'shape conservation' approach to Holmberg's Generalization, i.e. that an object of a verb may shift only if that verb undergoes raising. The idea here is that object shift preserves the shape of the predicate only if the verb raises, where 'shape' is often understood to be a property of linear order of some domain.

(29) a. Jag kysste henne inte [vp tv t₀].
I kissed her not
"I didn't kiss her."

b. *Jag har henne inte [vp kysst t₀].
I have her not kissed
"I have not kissed her."

While the object movement in the grammatical (29a) is optional, this may be analogous to the obligatory movement of verbal complements in Polynesian, since (by hypothesis) neither movement is driven by case.

The key for the Hawaiian data will be to develop a model in which subjects and objects maintain their base linear order (assuming underlying SVO), while the verb may raise past the subject; intuitively, V-XP_{comp}-S reverses the underlying word order while V-S-XP_{comp} preserves it. Under such an analysis, verbal complements can only raise past subjects if incorporation has taken place, such that (only) NP complements to V escape the shape conservation effect under incorporation. The proposal I develop here follows the tradition of
Fox and Pesetsky (2005) and Müller (2007), both of whom formalize the shape conservation intuition in terms of cyclic linearization.

Very briefly, Fox and Pesetsky (2005) account for a wide range of movement restrictions in a model in which the syntactic representation undergoes spell-out at CP and VP in Germanic (VP is parameterized with vP in other languages). Ungrammaticality occurs when contradictory statements are generated at different spell-out domains (although these can be deleted, allowing e.g. island amelioration). Under Fox and Pesetsky's system, Holmberg's Generalization is derived; V and O are strictly ordered within VP, such that O may shift only if V also raises.

Müller (2007) claims that Fox and Pesetsky's system is "both too strong ... and too weak," as this makes wrong predictions for a number of constructions while at the same time failing to derive shape conservation effects between subjects and objects in Germanic, which are arguably as strong or stronger than those between objects and verbs (see also responses to Fox and Pesetsky article in *Theoretical Linguistics* 31). Müller therefore proposes that spell-out nodes correspond to Chomsky's phasal nodes CP/vP (strengthening the system by allowing subjects to enter ordering relationships with elements in VP), and also that linearization relationships should be relativized with respect to Merge Status:

(30) **Merge status (Müller 2007), to be amended**

a. A category $\gamma$ in a position P has Merge status [-$\psi$] iff (i) or (ii):
   (i) $\gamma$ is merged in P, and $\gamma$ is required in P by a non-local Merge inducing feature.
   (ii) $\gamma$ is dominated by (a segment of) a category with Merge status [-$\psi$].

b. A category $\gamma$ in a position P has Merge status [+/$\psi$] iff (i) or (ii):
   (i) $\gamma$ is merged in P, and $\gamma$ is not required in P by a non-local Merge inducing feature.
   (ii) $\gamma$ is not dominated by (a segment of) a category with Merge status [-$\psi$].

Merge inducing features include subcategorization features, EPP on T, semantic operators (e.g. wh-feature), etc. In essence, an item is [-$\psi$] if it is in an intermediate landing site. In this system, elements with like Merge Status are relativized with respect to each other; [+/$\psi$] elements create orderings with like elements and likewise for [-$\psi$] elements. Look-ahead is avoided via Phase Balance, which requires derivational access to the lexicon.

I agree with Müller that Fox and Pesetsky's system is both too strong and too weak; however, I reject stipulated spell-out domains like Phases and instead suggest that linearization (and not Phase-based spell-out) occurs with each transformational rule application. I also offer two simplifications of Müller's system. First, I amend Merge Status as follows.

(31) **Merge Status, final version**

A terminal node $\gamma$ in a position P has Merge Status [-$\psi$] if it is required in P by a non-local Merge inducing feature; otherwise it has Merge Status [+/$\psi$].

Additionally, I propose that only elements with [+/$\psi$] status are visible to the linearization process.

(32) **Relativized Linearization**

Linearization generates for categories $x$, $y$ an ordering statement $<x, y>$ iff $x$ and $y$ have [+/$\psi$] Merge status.
4.1. Deriving Obligatory XP-shift in Polynesian

A crucial aspect of the relativization scheme is the notion 'Merge inducing' feature (31). Let’s consider how this concept applies to various elements in different positions for Hawaiian and Niuean, under the assumption that phi- and case-features do not cause movement under Agree.

(33) Merge Status of terminal elements by position in Hawaiian/Niuean

a. XP sister to V: [+ψ], it is required locally by the subcategorization feature of V
b. 'object shifted' XP: [+ψ], it is not required by a non-local feature (i.e. not an 'intermediate' site)
c. V in base position: [-ψ], it is not required by any local syntactic feature
d. v in base position: φ, because v° is null
e. v+V in spec, TP: [+ψ], it is required by EPP
f. S in base position: [+ψ], it does not raise, therefore not required by a non-local feature

Assuming that linear order is related to asymmetric c-command (Kayne, 1994), and that T is null (arguably a set of affixes that undergoes T-C movement, Massam (2010)), the formal burden for this analysis is to show that an ordering contradiction is generated whenever a DP/CP complement of V does not undergo object shift, blocking e.g. the following example (repeated from above).

(34) *Inu i ke kope hu’ihu’i ‘o Noelani.

"Noelani is drinking cold coffee." (FN)

First consider a derivation, like that proposed in Massam (2001), in which VP moves to Spec, TP. Crucially, the subject is [+ψ] in Spec, vP (where it enters the structure), entering an ordering relationship immediately with the [+ψ] XP sister of V (35c). In addition to forcing XP movement to a position outside VP (but lower than Spec, vP), this also derives the subject/non-subject asymmetry discussed in section 3.3 above.

(35) Derivation of *_{TP} [vP V DP/XP] T [vP S ...]: VP moves to Spec, TP

a. [vP V XP] → ⊘ (read 'no ordering,' here due to lack of asymmetry and the presence of only one [+ψ] item in the derivation)

b. [vP V [vP V XP]] → ⊘ (v° is null and therefore not marked for ψ-status)

c. [vP S v [vP V XP]] → S < XP (S and XP share [+ψ] status; S c-commands XP)

[d. [TP T [vP S v [vP V XP]]] → ⊘ (S and XP share [+ψ] status; S c-commands XP)

e. [TP [vP V XP] T [vP S v [tVP]]] → *XP < S (compare to (c); VP asymmetrically c-commands S, forcing XP<S order)
f. *[CP C [TP [VP v XP] T [vP S v [tVP ]]]] → C < V
   [+ψ] [+ψ] [+ψ] [+ψ]

This derivation introduces an ordering contradiction, correctly predicting ungrammaticality. A VP-fronting derivation can then only be grammatical if either XP=NP, such that incorporation occurs, or if XP moves to some position external to VP but lower than S.

Another possible derivation, in which vP moves to Spec, TP, is similarly blocked.

(36) Derivation of *[TP [vP v+V [VP tV DP/XP] T [vP S ...]]: minimal vP dominating v moves to Spec, TP

   a. [vP V XP] → ∅
      [-ψ] [+ψ]
   b. [vP v+V [VP tV X]] → ∅
      [-ψ] [+ψ]
   c. [vP S v+V [VP tV X]] → S < X
      [+ψ] [-ψ] [+ψ]
   d. [TP T [vP S v+V [VP tV X]]] → ∅
      [+ψ] [-ψ] [+ψ]
   e. [TP [vP v+V [VP tV X]] T [vP S tVP]] → *XP < S
      [+ψ] [+ψ] [+ψ]
   f. *[CP C [TP [vP v+V [VP tV X]] T [vP S tVP]]] → C < V
      [+ψ] [+ψ] [+ψ] [+ψ]

Given the linearization model, the structure of a V-S-DPobj/V-S-CP may be broadly as follows.

(37) [CP C [TP [vP v+V [VP tv tXP]] T [vP S XP tVP]]]
   Drinks 'o Noelani i ke kope...
   Inu Noelani the coffee

4.2. Theoretical Advantages of the Proposed System

Given that the most concrete prior proposal in this domain (Massam, 2001) tied VP-remnant formation to case, and also considering that case properties are the primary locus of syntactic variation between Niuean and Hawaiian, this proposal offers a unified analysis of Niuean and Hawaiian (and, I argue, other Polynesian languages such as Maori and Tongan) with respect to VP-remnant formation.

While the proposed system allows movement for case in Niuean as proposed by Massam, it does not require it. Therefore it is possible to eliminate null case heads from the representation of Niuean syntax, while allowing alternative analyses for Niuean case marking (see Legate 2008 for an alternative proposal regarding Niuean case marking). Moreover, DP and CP movement out of VP is accounted for in the same way. In both cases, the inability of VP internal elements to escape VP is derived, due to the [+ψ] property of the subject when in-situ in Spec, vP.
4.3. Extending the Model to Scandinavian Object Shift

In order to extend the model to Scandinavian object shift, consider the \( \psi \)-status of the subject within the verbal domain. Syntactic and semantic evidence suggests that subjects stay in-situ in at least Hawaiian (there is no evidence of raising and subjects are allowed to be indefinite and non-specific). In Germanic, however, one can argue that the subject Merges into Spec, vP primarily in order to satisfy T's EPP feature; i.e. Spec, vP can be (under some analyses) considered a kind of 'intermediate position' for subjects in these languages. If this can be substantiated further, then subjects may be taken to be \([-\psi]\) in their base position in Germanic. Under this account, subjects do enter into ordering relationships with verbs and objects (contra Fox and Pesetsky), but only at a later stage of the derivation (i.e. at Spec, TP) when compared to Polynesian.

Returning to Holmberg's Generalization, the possibility of object shift is straightforwardly derived within the current proposal. (38) shows the relevant derivation.

(38) Grammatical instance of object shift

\begin{itemize}
  \item a. \( [\text{vp } \text{V} \text{ O}] \rightarrow \emptyset \) \(-\psi\) [+\( \psi \)]
  \item b. \( [\text{vp } \text{v}+\text{V} [\text{vp } \text{t}_\text{v} \text{ O}]] \rightarrow \emptyset \) \( (v+V \text{ will undergo further raising, suggesting it is required in this position by a non-local feature}) \)
  \item c. \( [\text{vp } \text{NEG } \text{v}+\text{V} [\text{vp } \text{t}_\text{v} \text{ O}]] \rightarrow \emptyset \)
  \item d. \( [\text{vp } \text{S } [\text{vp } \text{NEG } \text{v}+\text{V} [\text{vp } \text{t}_\text{v} \text{ O}]]] \rightarrow \emptyset \) \( (S \text{ and } v+V \text{ do not order due to } [-\psi] \text{ status}) \)
  \item e. \( [\text{vp } \text{S } [\text{vp } \text{NEG } \text{v}+\text{V} [\text{vp } \text{t}_\text{v} \text{ O}]]] \rightarrow \emptyset \) \( (O \text{ maintains } [+\psi] \text{ status, as this is not an intermediate landing site}) \)
  \item f. \( [\text{TP } \text{S } \text{T} [\text{v}+\text{V} [\text{vp } \text{t}_\text{s} [\text{vp } \text{O} [\text{vp } \text{NEG } \text{t}_v+\text{v} [\text{vp } \text{t}_\text{v} \text{ O}]]]]] \rightarrow \text{S<v+V, v+V<O} \)
\end{itemize}

At this point the object shifts to a position higher than VP (and Neg) but lower than TP. This can be achieved within vP either by 'tucking in,' as shown here or, just as easily, by first moving O before Merge of the subject (somewhat reversing the steps in this derivation).

Note that this model derives grammatical object shift in a rather different way as compared to Fox and Pesetsky. Whereas in their model verb raising after object shift reconstructs the original V<O order, in this model object shift is allowed because V and O never enter an ordering relationship within VP in the first place, due to relativization.

For the ungrammatical case, the lexical verb does not raise, and therefore V will be marked [+\( \psi \)] within vP. (The alternate \( \psi \)-status of V within vP in the two derivations (38) and (39) could be deduced given a feature-based understanding of head movement, such as the one proposed in Matushansky’s (2006), in which head movement is triggered by Agree; examination of the feature content of the relevant heads may then correctly yield the necessary \( \psi \)-status values). This yields a strict V<O ordering early in the derivation.
(39) Relevant steps of an ungrammatical instance of object shift derivation

a. \[ \text{VP V O} \rightarrow \emptyset \]
   \[ [-\psi] \ [+\psi] \]

b. \[ \text{vP v+V [VP tv O]} \rightarrow V < O \]
   \[ [+\psi] \ [+\psi] \]

Due to the nature of the cyclic linearization, (39b) establishes \( V < O \) order that cannot be reversed via object shift. Therefore, object shift is correctly barred when the lexical verb does not raise.

5. Conclusions

I argued that the \( V-\text{NP}_{\text{obj}}-S/V-S-\text{DP}_{\text{obj}} \) alternation in Polynesian can be understood as a type of subject/non-subject asymmetry, when \( V-\text{NP}_{\text{obj}}-S \) is understood as bona-fide incorporation. This is especially true when CP complements of V are considered; for both DP (V-S-\( \text{DP}_{\text{obj}} \)) and CP (V-S-CP), the subject must precede the VP internal material. While VP-remnant movement along the lines of Massam (2001) offers an attractive account of predicate initial structures in several Polynesian languages, VP-remnant formation as understood by Massam's case-based account introduces several empirical and conceptual problems; CPs as well as DPs must vacate VP, and the word order facts are very similar for both nom/acc and erg/abs languages.

I therefore proposed a relativized cyclic linearization algorithm that offers a syntax-phonology interface solution for the problem of VP-remnant formation; this account does not depend on case properties. This model may extend to further subject/object asymmetries in the relevant languages. The relativization algorithm can accommodate cross-linguistic variation allowing a possible extension of the model to Scandinavian object shift.

References


