Constraining Predicate Fronting

Coppe van Urk

Linguistic Inquiry, Volume 55, Number 2, Spring 2024, pp. 327-373
(Article)

Published by The MIT Press

Constraining Predicate Fronting

Coppe van Urk

A number of languages have been argued to establish basic word order by means of VP-fronting (e.g., Kayne 1994, Massam 2001). However, many such analyses overgenerate: some material thought to be VP-internal never appears fronted and must apparently always be stranded (Chung 2005, Massam 2010). Here, I provide novel evidence for VP-fronting in an SVO language, the understudied Polynesian outlier Imere (Vanuatu), motivated by the placement of adverbial particles. But this analysis too faces the stranding problem: VP-fronting cannot drag along any DPs, PPs, or CPs. To solve this issue, I propose that VP-fronting is accompanied by distributed deletion (Fanselow and Ćavar 2001), driven by a constraint that favors realizing only the verb. I extend this analysis to eight other VP-fronting languages, from five language families. In all these languages, what remains in the fronted VP is a structurally reduced dependent, like an adverbial particle or a determinerless object. Building on Clemens 2014, 2019, I adopt a constraint that requires dependents of a head that spell out in the same phase to remain adjacent, thus surviving distributed deletion.

Keywords: word order, predicate fronting, Imere, movement, distributed deletion

1 Introduction

In this article, I address an overgeneration problem in the literature on word order variation. Many contemporary approaches adopt the idea that some languages—particularly OVS and verb-initial languages—employ an operation of VP-fronting to establish basic word order (e.g., Kayne 1994, Pensalfini 1995, Massam 2001, Pearson 2007, Coon 2010b, Kalin 2014). Massam (2001), for example, shows that a VP-fronting analysis accounts for the correlation between VOS/VSO alternations in Niuean and the presence of the absolutive case marker *e*. An object without the case marker appears alongside the verb in VOS order (1a), while an object with absolutive *e* surfaces in VSO order (1b).

(1) *VOS/VSO alternations in Niuean*
a. [$_{VP}$ Takafaga **ika** tūmau nī] a ia.
hunt fish always EMPH ABS he
'He is always fishing.'

I am indebted to Serah Chilia for sharing her language with me. My thanks also to David Adger, Adam Chong, Daniel Harbour, Luisa Martí, Rob Truswell, and everyone in the field methods class LIN312. I am indebted to audiences at CamCoS 7, Leipzig, and Tromsø. The Imere data come from elicitation sessions and LIN312. I largely stick to Imere orthography (*g* = [ŋ], *j* = [tʃ], *k* is variably realized as [ɣ]). Imere glosses: 1/2/3 = 1st/2nd/3rd person, AFF = affectionate, C = complementizer, DEP = dependent clause, DIR.(SP/ADD) = directed toward speaker, addressee, or other, DIST = distal, EXCL = exclusive, FUT = future, HAB = habitual, INCL = inclusive, INDEF = indefinite, LOC = locative, NEG = negation, NFUT = nonfuture, NSG = nonsingular, OBL = oblique, P = preposition, PL = plural, POSS = possessive, SG = singular, TR = transitive.

Linguistic Inquiry, Volume 55, Number 2, Spring 2024
327–373

https://doi.org/10.1162/ling_a_00466

b. [$_{VP}$ Takafaga tūmau nī] e ia [$_{DP}$ **e tau ika**].
hunt always EMPH ERG he ABS PL fish
'He is always fishing.'
(Niuean; Massam 2001:157)

This correlation follows if Niuean employs VP-fronting to establish verb-initial order, but objects may move out of the VP to a Case position before VP-fronting applies.

However, as discussed in particular by Chung (2005) and Massam (2010), this proposal runs into what I refer to as the *stranding problem.* Specifically, VP-fronting does not seem to be capable of dragging along all material that is typically thought of as part of the VP. In Niuean, PPs and CPs must be stranded by VP-fronting (2a–b).

(2) *PP and CP are stranded by VP-fronting in Niuean*
a. Ne [$_{VP}$ tala aga] e ia e tala [$_{PP}$ **ke he tagata**].
PST tell DIR ERG 3SG ABS story GOAL LOC man
'She/He told the story to the man.'
(Massam 2010:274)
b. [$_{VP}$ Gagoa foki nī] a au [$_{CP}$ **he hifo a Maka ki tahi**].
sick also EMPH ABS 1SG C go.down ABS Maka to sea
'I'm also sick of Maka going down to the sea.'
(Massam 1995:86)

Similar issues arise in the VP-fronting analyses of many verb-initial languages, such as Hawaiian, Samoan, Fijian (Oceanic), Ch'ol (Mayan), Gitksan (Tsimshianic), Tenetehára (Tupí-Guaraní), and Santiago Laxopa Zapotec (Zapotec) (e.g., Massam 2001, 2010, Coon 2010b, Duarte 2012, Aranovich 2013, Medeiros 2013, Collins 2017, Adler et al. 2018, Forbes 2018, Van Urk 2020). In all of these languages, a VP-fronting account is motivated by the fact that some dependents of the verb can appear fronted alongside it, but, at the same time, full DP objects as well as PP and CP complements must be stranded. We can stipulate that these elements all move out before VP-fronting applies, but it remains unclear what determines which dependents are stranded.[1]

The first contribution of this article is to present a novel case of the stranding problem, drawn from the understudied Polynesian outlier Imere (Vanuatu). Unlike many other languages for which VP-fronting has been proposed, Imere has SVO word order. I nonetheless argue that Imere's word order is established by VP-movement to a clause-medial position. Like a number of verb-initial Austronesian languages, Imere has a set of adverbial particles that occur immediately after the verb and before objects (3a–c).

(3) *Postverbal adverbial particles in Imere*
a. Ki tee-fano **kee**.
2SG.II FUT-go.SG NEG
'You will not go.'

[1] As a consequence, a number of authors have suggested alternative accounts, without VP-fronting (e.g., Chung 2005, Clemens 2014, Clemens and Coon 2018a).

b. Au fago-na **maruuruu** aia.
1SG wake.up-TR slowly 3SG
'I woke him/her slowly.'
c. Akoe ka k-ounu **nefea** a-vai?
2SG DEP 2SG.NFUT-drink when PL-water
'When did you drink water?'

These adverbial particles occur in inverse order and take scope right to left (Rackowski and Travis 2000, Massam 2010), as in (4).

(4) *Postverbal particles in Imere occur in inverse order*
Mii-nufine rat [$_{VP}$ kai-na **sorookina kee**] oofi.
AFF.PL-woman 3NSG eat-TR all NEG yam
'The women didn't eat all the yams.'

Inverse order in this domain is surprising, because postverbal arguments, including subjects and objects, are organized left to right. I interpret the existence of inverse order before direct order as evidence that Imere establishes word order through phrasal movement of the VP to a clause-medial position. In this view, adverbial particles are right-attached within the fronting constituent, but end up in front of objects because of movement.

This proposal presents another instance of the stranding problem discussed above. Imere VP-fronting must carry along adverbial particles, but leave all objects, PPs, and CPs. But Imere seems to provide no evidence for the vacating movements necessary to motivate a remnant movement analysis. I argue instead that the stranding problem arises because VP-fronting in Imere and in other predicate-fronting languages is accompanied by *distributed deletion* at PF (5a), in the sense of Fanselow and Ćavar (2001).

(5) *Distributed deletion analysis of VP-fronting*
a. au [$_{XP}$ fago-na ~~aia~~ maruuruu] . . . [$_{XP}$ ~~fago-na~~ aia ~~maruuruu~~]
b. Au fago-na maruuruu aia.
1SG wake.up-TR slowly 3SG
'I woke him/her slowly.'

I adopt a model in which the interface between syntax and PF involves an Optimality Theory (OT) calculus, in which syntactic and phonological/prosodic pressures may cause departures from strict isomorphism (see also Clemens 2014, 2019, Bennett, Elfner, and McCloskey 2016). I argue that distributed deletion is driven by a constraint that favors realizing only material in a moved phrase that carries the feature driving movement (see also Fanselow and Ćavar 2001), which I call *REALIZE GOAL*. To satisfy REALIZE GOAL, everything but the verb is usually deleted, if VP-fronting is driven by features of the main predicate (Massam and Smallwood 1997, Coon 2010b, Collins 2017).

To explain why adverbial particles and other material can survive distributed deletion, I examine the stranding problem in eight other VP-fronting languages, from five language families. In all of these languages, dependents that front with the verb are always either a structurally

reduced noun or an adverbial particle, while full DPs, PPs, and CPs are uniformly stranded. Following Clemens (2014, 2019), I propose to understand the difference between fronted and stranded elements as a distinction between phasal and nonphasal dependents of the verb. I adapt a constraint posited by Clemens, which requires that dependents of a head that spell out in the same phase remain adjacent, allowing them to escape the effects of distributed deletion. This analysis provides a straightforward solution to the stranding problem. No vacating movements are necessary, and the placement of objects and modifiers in Imere can be treated just as in other SVO languages. Independent evidence for this approach comes from the scope of postverbal particles. Imere particles have a *discontinuous* scope domain, exactly as distributed deletion predicts: they scope over other particles to the left, but over postverbal arguments and modifiers to the right.

The article is structured as follows. In section 2, I describe word order in the Imere VP and show that adverbial particles diagnose a phrasal constituent before all postverbal objects and modifiers, which I argue is the result of VP-fronting. In section 3, I develop a distributed-deletion analysis of the stranding problem, motivated by the constraint REALIZE GOAL. Additional support for this approach comes from the discontinuous scope domain of postverbal particles, which reveals a familiar underlying order. In section 4, I turn to the question of why some material survives distributed deletion. I compare the stranding problem in eight other VP-fronting analyses, from five language families. Building on Clemens 2014, 2019 (cf. Compton and Pittman 2010), I argue that nonphasal dependents appear next to the verb, because of an additional constraint that requires dependents of a head that spell out in the same phase to be adjacent. Independent evidence for the suggested difference in phasehood comes from Imere prosody and the distribution of a word minimality requirement. At the end of the section, I discuss the implications of this approach for Ā-movement of VPs.

2 Word Order in the Imere Verb Phrase

In this section, I present evidence for VP-fronting in the SVO language Imere. At first glance, word order in the Imere VP is similar to that of familiar SVO languages. However, like a number of verb-initial Austronesian languages, Imere has a set of postverbal particles (e.g., Rackowski and Travis 2000, Lynch, Ross, and Crowley 2002, Massam 2010), which appear immediately after the verb and before objects. I demonstrate that these scope right to left, in inverse order (see also Rackowski and Travis 2000, Massam 2010), and are part of a phrasal constituent, presenting an apparent ordering paradox.

2.1 Arguments and Modifiers in the Imere Verb Phrase

Imere is a Polynesian language spoken in Vanuatu by about 3,500 people. The language has two closely related varieties, one spoken in Mele village and one on Ifira island. *Imere* is the term used by speakers to refer to the Mele variety. Both languages together have been referred to by linguists as Mele-Fila, Fila-Mele, or Ifira-Mele. Speakers do not seem to use these names, so I will use the name Imere throughout. Previous linguistic work on Imere is limited. Some notes,

a short grammar sketch, and a dictionary can be found in Clark 1975, 1998, 2002. All data here come from elicitation sessions with a native speaker and a field methods class.

In many respects, Imere resembles familiar head-initial SVO languages. Neutral word order is strictly SVO, as (6a–c) show. In most sentence types, the only deviations from this order arise through the availability of topicalization (6d).

(6) *Imere is SVO*
- a. To-koori kaara tarimoa.
  SG-dog chase rat
  'The dog chased the rat.'
- b. *Kaara to-koori tarimoa.
  chase SG-dog rat
  'The dog chased the rat.'
- c. *Kaara tarimoa to-koori.
  chase rat SG-dog
  'The dog chased the rat.'
- d. To-koori tarimoa kaara.
  SG-dog rat chase
  'The dog, the rat chased.'

The placement of arguments relative to modifiers is also reminiscent of other SVO systems. Adverbs like *naanafi* 'yesterday' and *saaraleaji* 'always' appear after objects (7a–d).

(7) *Adverbs must follow objects in Imere*
- a. Mii-nufine rat kai-na oofi **naanafi**.
  AFF.PL-woman 3NSG eat-TR yam yesterday
  'The women ate yams yesterday.'
- b. *Mii-nufine rat kai-na **naanafi** oofi.
  AFF.PL-woman 3NSG eat-TR yesterday yam
  'The women ate yams yesterday.'
- c. Mateu ma noko kamo-a mai a-kai **saaraleaji**.
  1EXCL.PL 1EXCL.NSG HAB bring-TR DIR.SP PL-food always
  'We always bring food.'
- d. *Mateu ma noko kamo-a mai **saaraleaji** a-kai.
  1EXCL.PL 1EXCL.NSG HAB bring-TR DIR.SP always PL-food
  'We always bring food.'

Similarly, DP objects appear before PP modifiers or arguments in neutral order (8a–b).[2]

[2] With PPs, an alternative marked order is sometimes permitted (i), presumably reflecting extraposition of the object.

(i) *Extraposition of object across PP*
Au laawa [PP **maaraa ne-aku**] manioka.
1SG grow garden POSS-1SG cassava
'I grow cassava in my garden.'

(8) *PPs follow objects in neutral order*
a. Au laawa manioka [$_{PP}$ **maaraa ne-aku**].
1SG grow cassava garden POSS-1SG
'I grow cassava in my garden.'
b. Au neaga meemea [$_{PP}$ **gaia maaraa nea-ku**].
1SG put flower P garden POSS-1SG
'I put flowers in my garden.'

Such facts suggest that objects reside in the complement position of the verb, with PPs and adverbs right-attached.

When multiple arguments appear after the Imere verb, they are ordered left to right, in direct order. Imere has a ditransitive alternation between a double object construction and a prepositional dative that is much like the English one. In the double object construction, two bare DP objects appear after the verb, goal before theme (9a). In the prepositional dative, a theme DP appears before a goal introduced by the preposition *gaia* 'to' (9b).

(9) *Imere has a ditransitive alternation*
a. Avau nagaia [$_{DP}$ jii-nufine t-akia] [$_{DP}$ atusi].
1SG give AFF.SG-woman SG-some book
'I gave a woman a book.'
b. Au nagaia [$_{DP}$ atusi] [$_{PP}$ gaia jii-nufine t-akia].
1SG give book P AFF.SG-woman SG-some
'I gave a book to a woman.'

Reversing the order of arguments in either the double object construction or the prepositional dative is degraded (10a–b).[3]

(10) *No inverse order in Imere ditransitives*
a. *Avau nagaia [$_{DP}$ atusi] [$_{DP}$ jii-nufine t-akia].
1SG give book AFF.SG-woman SG-some
'I gave a woman a book.'
b. ??Au nagaia [$_{PP}$ gaia jii-nufine t-akia] [$_{DP}$ atusi].
1SG give P AFF.SG-woman SG-some book
'I gave a book to a woman.'

Imere ditransitive constructions also illustrate that objects take scope left to right. I demonstrate with the adjective *pisarasara* 'different'. As Carlson (1987) observes (see also Moltmann 1992, Brasoveanu 2011), *different* can have two different readings. First, it has a "sentence-external" reading—roughly, 'different from some contextually salient entity'. Second, and more important, it has what Carlson calls a "sentence-internal" reading, in which the noun it modifies

[3] Like objects in transitives, objects in ditransitives appear before modifiers. An adverb can marginally appear before a goal PP, but the neutral order is for objects to precede the adverb.

covaries with a distributive quantifier. This sentence-internal reading requires scope. As Brasoveanu notes, we see this in the English double object construction, which only allows surface scope. When *different* is in the scope of *every*, the noun modified by *different* can covary with the quantifier (11a), so that every girl reads a book unique to her. But (11b), in which *every* scopes below *different*, only permits the sentence-external reading, in which I gave every book to a girl who is different from some contextually salient individual.

(11) *Sentence-internal reading of* different *in scope of distributive quantifier*
  a. I gave every girl a different book. (✓sentence-internal)
  b. I gave a different girl every book. (*sentence-internal)

The sentence-internal reading of *different* tracks scope, not just surface order. In the prepositional dative, in which inverse scope is available, *different* can have the sentence-internal reading in both orders (12a–b).

(12) *Sentence-internal reading of* different *in prepositional dative*
  a. I gave every book to a different girl. (✓sentence-internal)
  b. I gave a different book to every girl. (✓sentence-internal)

The Imere adjective *pisarasara* 'different' allows the sentence-internal reading and can be used to diagnose scope. In the double object construction, as in (11a–b), the sentence-internal reading of *pisarasara* is licensed only when the first object is the distributive quantifier and the second contains *pisarasara* (13a–b).

(13) Pisarasara *shows that first object outscopes second*
  a. Au nagaia nufine eweji atusi pisarasara.
    1SG give woman every book different
    'I gave every woman a different book.' (✓sentence-internal)
  b. Au nagaia nufine pisarasara atusi eweji.
    1SG give woman different book every
    (Lit.) 'I gave a different woman every book.' (*sentence-internal)

In the prepositional dative, both scope relations are possible, as in English (14a–b).

(14) *Prepositional dative allows both scopes*
  a. Au nagaia atusi eweji gaia nufine pisarasara.
    1SG give book every P woman different
    'I gave every book to a different woman.' (✓sentence-internal)
  b. Au nagaia atusi pisarasara gaia mii-nufine eweji.
    1SG give book different P AFF.PL-woman every
    'I gave a different book to every woman.' (✓sentence-internal)

Binding diagnostics appear to go in the direction of left-to-right organization as well, but are more limited. A Principle C effect obtains if the first object is a pronoun coreferential with a proper name in the second object (15a), but not vice versa (15b).

(15) *First object c-commands second object*

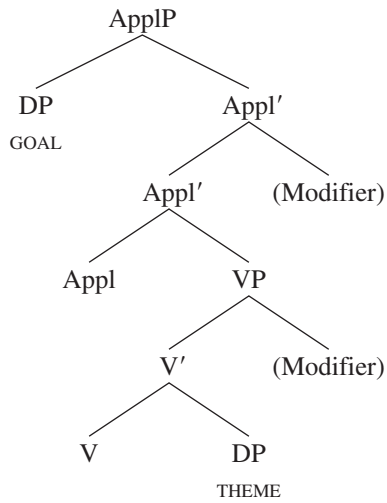
a. Au fari-na **aia$_i$** te-fare fou na **Tourave$_{k/*i}$**.
1SG show-TR 3SG SG-house new POSS Tourave
'I showed her Tourave's new house.'

b. Au fari-na te-fare fou na **Tourave$_i$** gaia **aia$_i$**.
1SG show-TR SG-house new POSS Tourave to 3SG
'I showed Tourave's new house to her.'

However, binding may not be a useful diagnostic for c-command in Imere, since backward coreference seems to be degraded in general.[4]

To account for these facts, I propose that the Imere VP is structured much as in other SVO systems. Modifiers are right-attached, and the ditransitive alternation involves two different base-generated structures in left-to-right order (e.g., Marantz 1993, Harley 1997, 2002, Bruening 2001).[5] For concreteness, I adopt the asymmetric structures proposed by Marantz (1993) and Bruening (2001) for Imere ditransitives, as given in (16) and (17).

(16) *Double object construction*

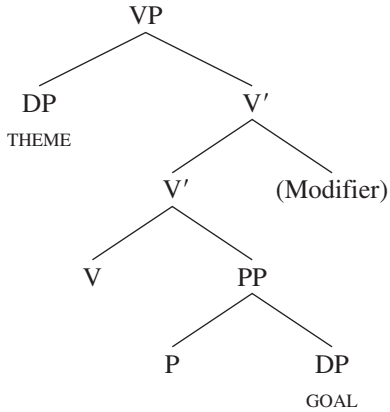


[4] For example, coreference is apparently ruled out even in examples like (i).

(i) *Backward coreference is degraded in Imere*
Mii-taagata [$_{CP}$ lokoro t-aia$_i$] rat mantau Tourave$_{k/*i}$.
AFF.PL-people raise OBL-3SG 3NSG love Tourave
'The people that raised her love Tourave.'

[5] In accordance with the proposed analysis, there are interpretive differences between the two ditransitive structures, similar to those identified by Oehrle (1976). For example, the goal of a double object construction, but not the goal of a prepositional dative, is always animate.

(17) *Prepositional dative construction*



This proposal accounts for left-to-right scope as well as the observation that arguments precede modifiers in the basic order.

More evidence for the idea that postverbal arguments take scope left to right comes from constructions in which Imere permits verb-initial order. Verb-initial word order is found with the existential verb *lakina* and its negative counterpart *saai* (18a–c).

(18) *Existential verb* lakina *and negative* saai *permit preverbal and postverbal subjects*
   a. **Tagata** lakina i-fare.
      person EXIST LOC-house
      'Someone is in the house.'
   b. Lakina **tagata** i-fare.
      EXIST person LOC-house
      'There is someone in the house.'
   c. Saai **tagata** i-fare.
      EXIST.NEG person LOC-house
      'There isn't anyone in the house.'

A postverbal subject appears before any locative predicate or modifier (19a–e).

(19) *Postverbal subject with* lakina *or* saai *appears before locative predicate or modifier*
   a. *Lakina **i-fare** tagata.
      EXIST LOC-house person
      'There is someone in the house.'
   b. *Saai **i-fare** tagata.
      EXIST.NEG LOC-house person
      'There isn't anyone in the house.'
   c. Lakina tagata i-fare **naanafi**.
      EXIST person LOC-house yesterday
      'There was someone in the house yesterday.'

d. Lakina tagata **naanafi** i-fare.
EXIST person yesterday LOC-house
'There was someone in the house yesterday.'
e. *Lakina **naanafi** tagata i-fare.
EXIST yesterday person LOC-house
'There was someone in the house yesterday.'

I propose that postverbal subjects remain in their thematic position, a leftward specifier of Voice, while the verb raises over them. Modifiers follow, since they are right-attached. So far, then, Imere has a familiar SVO system, with arguments in left-to-right order.

2.2 The Problem of Postverbal Particles

Like many verb-initial Austronesian languages (Rackowski and Travis 2000, Massam 2010), Imere also has a set of postverbal adverbial particles. Unlike other modifiers, these particles occur immediately after the verb and appear before all postverbal arguments. Surprisingly, however, these particles are organized in inverse order, as also observed for other Austronesian languages (Milner 1972, Rackowski and Travis 2000, Massam 2010). I interpret the existence of inverse order before direct order as evidence for *VP-fronting.*

Imere particles appear after the verb and contribute a range of adverbial meanings. Examples (20a–c) present three adverbial particles: the directional particle *mai*, the negation particle *kee*, and the manner particle *maruuruu.*

(20) *Imere has postverbal adverbial particles*
a. Au toova **mai** tu-ku-taina.
1SG bring DIR.SP SG-POSS.1SG-brother
'I brought my brother.'
b. Ki tee-fano **kee**.
2SG.II FUT-go.SG NEG
'You will not go.'
c. Au fago-na **maruuruu** aia.
1SG wake.up-TR slowly 3SG
'I woke him/her slowly.'

Some *wh*-adverbs—for example, *nefea* 'when' and *fefea* 'how'—can also appear as particles (21a–b).

(21) Wh-*adverbs may appear as postverbal particles*
a. Akoe ka k-ounu **nefea** a-vai?
2SG DEP 2SG.NFUT-drink when PL-water
'When did you drink water?'
b. Akoe ka k-ounu **fefea** a-vai?
2SG DEP 2SG.NFUT-drink how PL-water
'How do you drink water?'

To distinguish these elements from adverbs like *naanafi* 'yesterday', which appear in different positions, I will refer to them as *adverbial* or *postverbal particles.* My use of this term is purely distributional, since both types of elements contribute adverbial meanings. Additionally, the use of *particle* should not be confused with the verbal particles of Germanic or with discourse particles, since I treat adverbial particles as adverbs structurally.[6]

Postverbal particles precede all postverbal arguments. For example, objects of all types, including pronouns (22a–b) and nonspecific indefinites (22c–d), appear after postverbal particles.

(22) *Objects appear after postverbal particles*

a. Avau toova **mai** akoe gaia kina.
1SG bring DIR.SP 2SG P 3SG.LOC
'I brought you here.'

b. *Avau toova akoe **mai** gaia kina.
1SG bring 2SG DIR.SP P 3SG.LOC
'I brought you here.'

c. Au ounu **ana** a-vai.
1SG drink still PL-water
'I still drink water.'

d. *Au ounu a-vai **ana**.
1SG drink PL-water still
'I still drink water.'

Similarly, when a subject appears after the verb, as with the existential verb *lakina*, postverbal particles precede it (23a–b).

(23) *Postverbal particles appear before postverbal subject*

a. Lakina **kee** tagata i-fare.
be NEG person LOC-house
'There isn't someone in the house.'

b. *Lakina tagata **kee** i-fare.
be person NEG LOC-house
'There isn't someone in the house.'

These facts are at first reminiscent of the French facts described by Pollock (1989), commonly taken to motivate V-to-T movement over material that is left-adjoined to the VP. But Imere postverbal particles do not behave like left-adjoined elements. When multiple postverbal particles appear, they occur in inverse order, taking scope right to left. Similar facts have been documented for postverbal particles in verb-initial Austronesian languages, like Fijian, Malagasy, and Niuean (Milner 1972, Rackowski and Travis 2000, Massam 2010). Examples (24a–c) demonstrate inverse order.

[6] How adverbs and adverbial particles differ is discussed in more detail in section 4.3.

(24) *Adverbial particles in Imere occur in inverse order*
  a. Aia ee-goro **mataakina kee ana**.
     3SG NFUT-sing well NEG still
     'She/He still doesn't sing well.'
  b. Mii-nufine rat kai-na **sorookina kee** oofi.
     AFF.PL-woman 3NSG eat-TR all NEG yam
     'The women didn't eat all the yams.'
  c. Au ounu **tlasia kee** a-vai.
     1SG drink enough NEG PL-water
     'I didn't drink enough water.'

When multiple postverbal particles appear, they are in the mirror order from the unmarked order in languages like English, Dutch, and Italian. Manner adverbs are lower than continuative markers like *ana* 'still' (24a) (Cinque 1999). Similarly, particles that quantify the object, like *sorookina* 'all' and *tlasia* 'enough', should be lower than negation (24b–c). Sentences with postverbal particles in direct order are ungrammatical or degraded (25a–c).

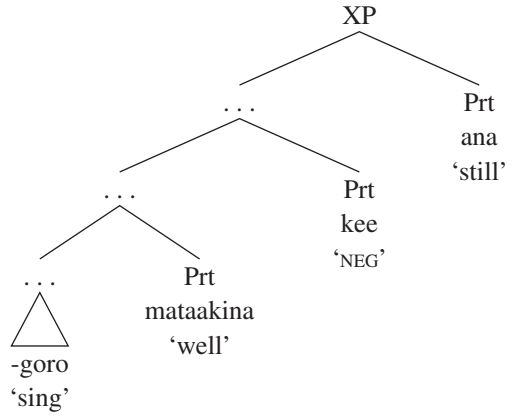
(25) *Direct order of adverbial particles is degraded*
  a. *Aia ee-goro **ana mataakina**.
     3SG NFUT-sing still well
     'She/He still sings well.'
  b. *Mii-nufine rat kai-na **kee sorookina** oofi.
     AFF.PL-woman 3NSG eat-TR NEG all yam
     'The women didn't eat all the yams.'
  c. *Au ounu **kee tlasia** a-vai.
     1SG drink NEG enough PL-water
     'I didn't drink enough water.'

When reordering is possible, the interpretive differences also point to inverse scope. In (26a–b), differential attachment of *maruuruu* 'slowly' interacts predictably with the negation particle *kee*.

(26) *Optional orderings follow right-to-left scope*
  a. Au fago-na **maruuruu kee** aia.
     1SG wake.up-TR slowly NEG 3SG
     'I didn't wake her/him up slowly.' (*maruuruu* 'slowly' modifies the inner event)
  b. Au fago-na **kee maruuruu** aia.
     1SG wake.up-TR NEG slowly 3SG
     'I slowly didn't wake her/him up.' (*maruuruu* 'slowly' modifies the negated event)

These facts are surprising given the facts about the Imere VP outlined in section 2.1. Inverse order suggests an ascending VP, with adverbial particles attaching on the right. This kind of structure is schematized in (27), for example (24a). I abstract away from the question of what phrase different adverbial particles attach to, whether directly to the verb or to specific functional heads in the extended verbal projection.

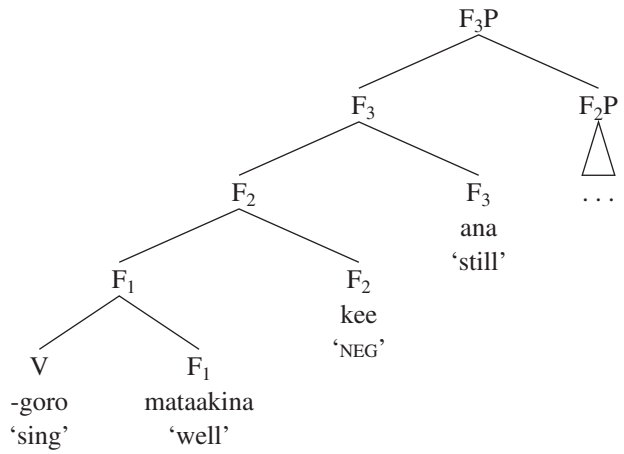
(27)



Right-attachment captures right-to-left scope straightforwardly. However, the proposal in (27) predicts that the Imere VP in general should display inverse order, contrary to what we have seen, because there are no left-attached positions after the verb and its particles.

One solution that can deliver right-attachment is to assume that all postverbal particles are functional heads picked up by successive head movement of V to a clause-medial position (cf. Clemens 2014, 2019). This proposal is schematized in (28).

(28)



A head movement analysis would explain why postverbal particles appear in inverse order, with each head moving to left-adjoin to the next head up. In addition, postverbal arguments can appear in direct order after the position targeted by head movement, in the complement of F_3 in (28). It can be shown, however, that a head movement analysis like (28) is not correct. Morphophonological diagnostics reveal that postverbal particles are not affixes. In addition, adverbial particles can attach to phrases and even modify each other, as a phrasal analysis predicts.

Let me first demonstrate that postverbal particles are not affixes, as predicted, for instance, by a classic head movement analysis (Baker 1988). A number of morphophonological properties

distinguish affixes from particles. Imere has fixed stress on the antepenultimate mora (Clark 2002). Prefixes and suffixes on the verb predictably shift stress, but postverbal particles do not (29a–d).

(29) *Affixes shift stress, particles do not*
  a. Áia **ée-kai**.
     3SG NFUT-eat
     'She/He ate.'
  b. Áia **ée-kai** kee.
     3SG NFUT-eat NEG
     'She/He didn't eat.'
  c. Áia **kái-na** maníoka.
     3SG eat-TR cassava
     'She/He ate cassava.'
  d. Áia **kái-na** kee maníoka.
     3SG eat-TR NEG cassava
     'She/He didn't eat cassava.'

A second piece of evidence that postverbal particles are not affixes comes from a word minimality requirement (see also section 4.3). As Clark (2002) notes, Imere requires prosodic words to be trimoraic. All affixes affect the minimality requirement. The transitive suffix -(*n*)*a*, for instance, bleeds the insertion of the nonfuture prefix *ee-*, which surfaces only to satisfy minimality (30a–b). In contrast, postverbal particles never affect minimality and have no effect on the nonfuture prefix (30b).

(30) *Affixes help a verb satisfy minimality, particles do not*
  a. Aia **kai-na** manioka.
     3SG eat-TR cassava
     'She/He ate cassava.'
  b. Aia **ee-kai** kee.
     3SG NFUT-eat NEG
     'She/He didn't eat.'

Morphophonological diagnostics then make it clear that postverbal particles are not affixes.

We could maintain a head movement analysis by allowing head movement to apply to independent words, but we can show that postverbal particles attach to a phrasal constituent. First, as is true of many verb-initial languages, Imere has constructions in which a nonverbal predicate appears without an auxiliary, with some PP predicates and with predicative possession (31a–b).

(31) *Nonverbal predicates in Imere without auxiliary*
  a. Avau [$_{PP}$ gaia Ifate].
     1SG P Ifate
     'I am from Efate.'

b. Atusi [$_{PP}$ na tagata raa].
book POSS man DIST
'The book is that man's.'

Such predicates can also be followed by adverbial particles, like *ana* 'still' in (32a–b).

(32) *Particles can modify phrasal predicates*
a. Au [$_{PP}$ gaia Ifate] **ana**.
1SG P Ifate still
'I am still from Efate.'
b. Atusi [$_{PP}$ na tagata raa] **ana**.
book POSS man DIST still
'The book is still that man's.'

The constituent that postverbal particles modify can then in principle be complex, and does not need to be a head (see Massam 2001 for a similar argument regarding Niuean).

A similar conclusion comes from constructions in which particles modify each other. Recall that the *wh*-adverb *fefea* 'how' can appear as a particle. This *wh*-particle can modify other adverbial particles, like *mataakina* 'well' or *pelepele* 'fast' (33a–b).[7]

(33) Wh-*particle* fefea *can modify other particles*
a. Ka fee-fe [**pelepele fefea**] atusi?
DEP read-TR fast how book
'How fast did you read the book?'
b. Ka loro [**mataakina fefea**] te-mate?
DEP lock well how SG-door
'How well did you lock the door?'

Particles then can form a phrasal constituent by themselves, a possibility that follows if they are adjoined phrasal elements rather than head-adjoined.

A final argument against treating postverbal particles as functional heads comes from negation. Negation in Imere is usually expressed by the postverbal particle *kee.* Unlike other particles, *kee* is optionally doubled by a prefix on the verb, *s-*, as in (34).

(34) *Negation in Imere can involve both prefix and postverbal particle*
Au **s**-ounu **kee** a-vai.
1SG NEG-drink NEG PL-water
'I am not drinking water.'

[7] To express degree intensification, the adverbial particle can undergo reduplication, a common strategy in Imere. Such examples could also be analyzed as phrasal.

(i) *Adverbial particle can be reduplicated*
Au fago-na [**maruuruu maruuruu**] aia.
1SG wake.up-TR slowly slowly 3SG
'I woke her/him up too slowly.'

We can make sense of this pattern if *s-* is a realization of the functional head Neg, picked up by head movement of the verb. As in analyses of French *ne . . . pas*, we can treat *kee* as a phrasal particle attached to NegP, doubling the Neg head. But this analysis means that the particle *kee* is not a realization of a functional head in the extended verbal projection.

I conclude that the verb and its adverbial particles form a phrasal constituent. A different explanation is necessary to allow inverse order before direct order. In the next section, I argue that Imere makes use of VP-fronting to establish basic word order. A phrasal constituent including the verb and all particles fronts to a clause-medial position, stranding arguments appearing in direct order.

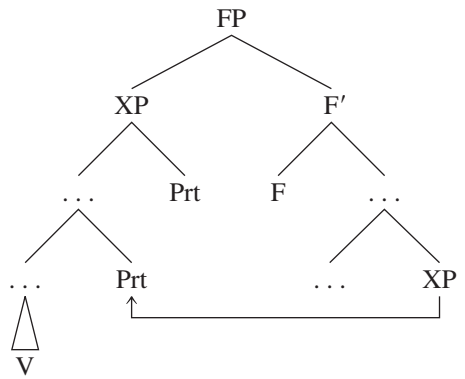
3 A VP-Fronting Analysis of Imere

In this section, I develop a VP-fronting analysis of Imere, which provides a clause-medial constituent within which adverbial particles can right-attach. To deal with the stranding problem, I propose that the fronted VP undergoes distributed deletion, in the sense of Fanselow and Ćavar (2001), driven by a constraint, REALIZE GOAL, that favors only realizing material that bears the movement-driving feature. I present evidence in favor of distributed deletion from the scope of postverbal particles. Finally, I demonstrate that there is no stranding problem internal to nonverbal predicates. I show that this difference between verbal and nonverbal predicates is found across VP-fronting languages, and derive this difference from how the functional head Pred interacts with REALIZE GOAL.

3.1 VP-Fronting and Inverse Order

As argued in section 2.2, the inverse order of postverbal particles cannot be captured through head movement. Instead, I derive the existence of inverse order before direct order from VP-fronting. I propose that a constituent XP containing the verb and adverbial particles moves to a clause-medial position, which I refer to as *Spec,FP* (35).

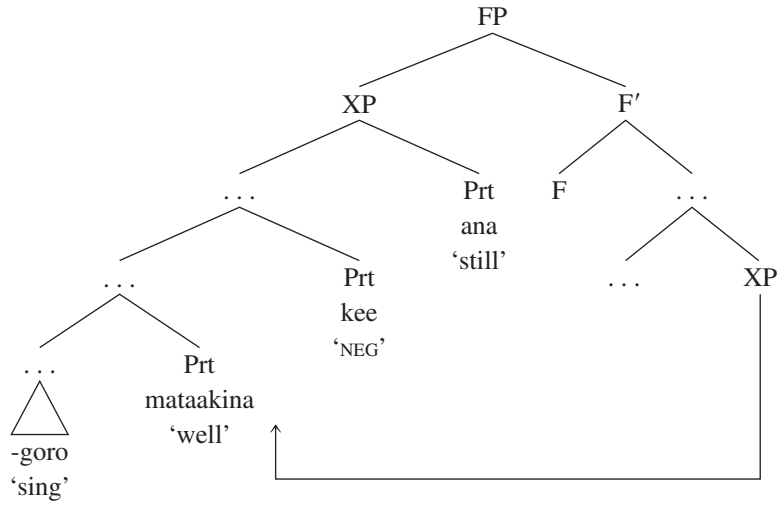
(35)



A VP-fronting analysis explains inverse order in examples like (36), if we assume that postverbal particles right-attach somewhere within XP and so are part of the constituent that fronts. This is schematized in the derivation in (37).

(36) *Imere VP with multiple adverbial particles in inverse order*
Aia ee-goro **mataakina kee ana**.
3SG NFUT-sing well NEG still
'She/He still doesn't sing well.'

(37)



I use the label *XP* here and throughout, because adverbial particles can likely attach at different heights. Indeed, given the double expression of negation discussed in section 2.2, XP must be at least as big as NegP, but may include other functional projections inside the vP as well. In addition, the verb must undergo head movement within XP, at least to Neg, to pick up the prefix *s-*.[8] Note that the position of FP is below the surface position of the subject, which I attribute to leftward movement of the subject (e.g., to Spec,TP).[9]

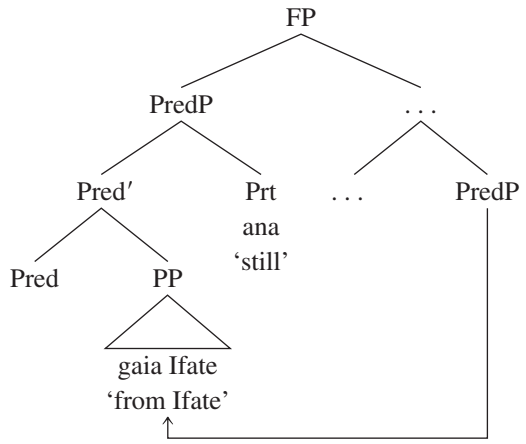
A VP-fronting analysis also extends to examples like (38), on the assumption that nonverbal predicates undergo phrasal fronting too. For these cases, I posit a PredP projection (e.g., Bowers 1993), to provide an attachment site for postpredicate particles (see also section 3.4). This PredP moves to a clause-medial position (39).

(38) *Postverbal particle on phrasal predicate*
Au [$_{PP}$ gaia Ifate] **ana**.
1SG P Ifate still
'I am still from Efate.'

[8] The verb also combines with tense-aspect-mood prefixes like nonfuture *ee-* and the future marker *tee-*, which may precede the negative prefix (Clark 2002). These facts could be evidence that XP is bigger, although some prefixes could attach through an operation of morphological merger (Embick and Noyer 2001, Harley 2013). Unlike with negation, I do not know of evidence from a doubling particle that such prefixes originate within XP.

[9] See footnote 16 for some evidence that the base position of the subject is included in the fronting VP.

(39)



In this way, a VP/PredP-fronting analysis accounts for the placement of postpredicate particles, by providing a clause-medial constituent in which they can occur in inverse order. Imere then supplies new evidence that some languages establish basic word order through VP-fronting (e.g., Kayne 1994, Rackowski and Travis 2000, Massam 2001).[10]

3.2 Distributed Deletion and the Stranding Problem

As in many other VP-fronting analyses (e.g., Massam 2001, Coon 2010b, Medeiros 2013, Collins 2017), a problem that arises for this approach to Imere is how to ensure that the right constituents end up in the fronting VP, but other arguments or adjuncts do not. I call this the *stranding problem* (see also Chung 2005, Massam 2010 for discussion). In Imere, adverbial particles must be part of the VP constituent that fronts, but no DP arguments can be part of it. PP and CP complements similarly follow postverbal particles (40a–d) and so must "vacate" the VP in some fashion before movement.

(40) *PP and CP complements follow postverbal particles*

a. Au fanaga **kee** [$_{PP}$ gaia nuane].
1SG talk NEG P man
'I didn't talk to the man.'

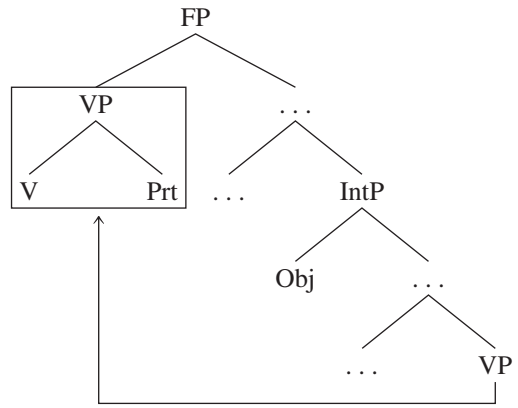
b. *Au fanaga [$_{PP}$ gaia nuane] **kee**.
1SG talk P man NEG
'I didn't talk to the man.'

[10] Note that the presence of VP-fronting in an SVO language provides evidence against the idea that VP-fronting is always linked to verb-initiality. A number of authors working on verb-initial word order have suggested that VP-fronting serves to satisfy the EPP property of T and is in complementary distribution with DP-movement to Spec,TP (e.g., Alexiadou and Anagnostopoulou 2001, Massam 2001, Travis 2005). The Imere data seem to show that, at least sometimes, VP-fronting and DP-movement to Spec,TP can cooccur.

c. Au mantua **kee** [$_{CP}$ ta Touravea kai-na manioka].
1SG think NEG C Touravea eat-TR cassava
'I didn't think that Touravea ate cassava.'
d. *Au mantua [$_{CP}$ ta Touravea kai-na manioka] **kee**.
1SG think C Touravea eat-TR cassava NEG
'I didn't think that Touravea ate cassava.'

Two solutions to the stranding problem have commonly been explored for analyses of VP-fronting: remnant movement and high base-generation. Massam (2010), for example, points out that one way around the stranding problem for objects is to allow some internal arguments to be introduced in a higher position, in the specifier of a dedicated functional head (see also Borer 2005). We could adopt this idea for Imere and say that objects are introduced by a functional head Int, while adverbial particles merge lower (41).

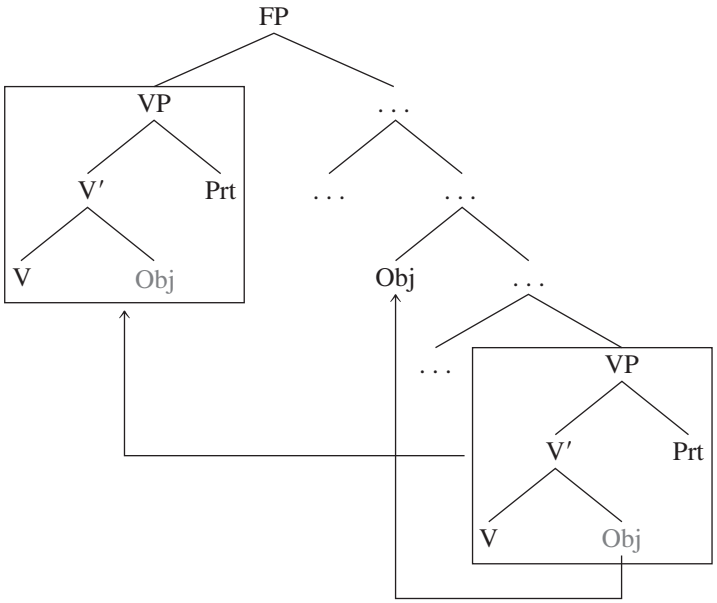
(41)



In this structure, the verb and adverbial particles form a constituent to the exclusion of the object, so that no stranding problem arises. However, this analysis is less attractive for CP and PP modifiers, which may express meanings similar to adverbial particles. It is less clear how to motivate a structure in which these modifiers must be base-generated high. Also, as discussed in section 3.3, a base-generated structure makes the wrong predictions about scope. In Imere, adverbial particles scope over objects and modifiers.

Another common approach to the stranding problem is to adopt remnant movement derivations (e.g., Massam 2001, Coon 2010a, Collins 2017). In this approach, stranded material is generated inside the VP, but moves out of it prior to VP-fronting, as in (42).

(42)

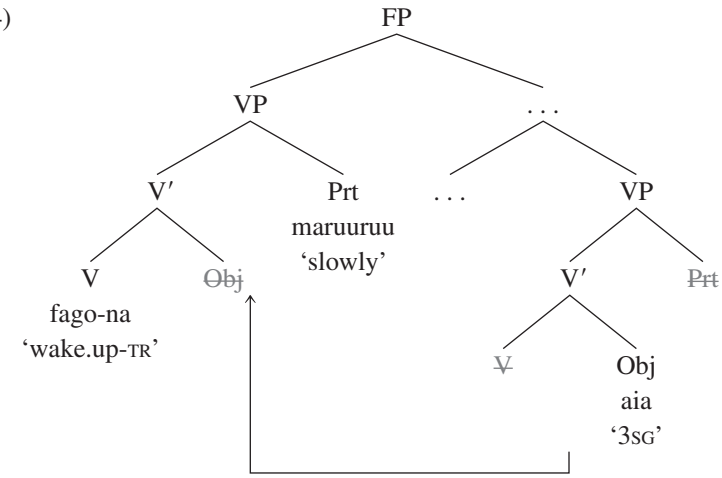


For objects, this vacating movement can be seen as analogous to object shift and could be linked to Case. For PPs and CPs, vacating movement might be equated with extraposition, independently available for such constituents in Imere. However, although movement for Case reasons is often obligatory, extraposition is an optional operation and should give rise to optional stranding. In addition, a remnant movement analysis for Imere becomes quite stipulative in contexts in which multiple phrases are stranded, since vacating movements must preserve neutral word order (objects in a ditransitive cannot be reordered, for example). As shown in section 2.1, the Imere VP looks like a familiar SVO system. Finally, the vacating movements required for remnant movement should make available additional scope relations, but, as we will see in section 3.3, these are not attested.

For these reasons, I pursue a different solution to the stranding problem. It is worth emphasizing, though, that the generalizations about stranding that I defend in the rest of the article are independent of the distributed-deletion analysis. In principle, it may be possible to incorporate the same insights into a properly constrained remnant movement or base-generation approach. However, because Imere provides no evidence of vacating movements or an unorthodox base-generated structure, I propose that VP-fronting in Imere is accompanied by *distributed deletion* (Fanselow and Ćavar 2001), an option in a copy theory of movement. All objects, PPs, and CPs are in fact part of the fronted VP, but are deleted at PF. This approach is schematized in (44), for (43).

(43) *Imere fronted VP with adverbial particle*
Au fago-na maruuruu aia.
1SG wake.up-TR slowly 3SG
'I woke him/her slowly.'

(44)

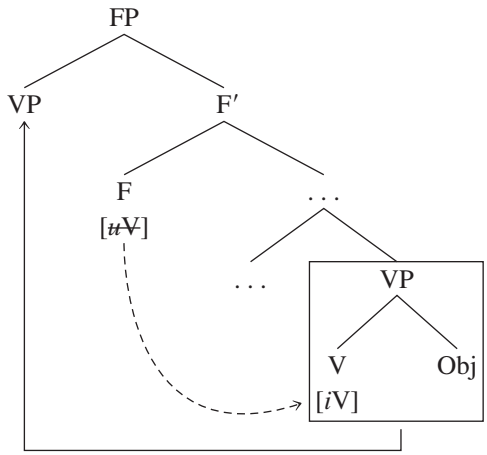


In this tree, the object *aia* is base-generated within the VP and is dragged along by VP-fronting. In a copy theory of movement, we can posit a derivation in which the object *aia* nonetheless surfaces in its base position, because the object is deleted in the higher VP copy, as a result of scattered deletion. This account avoids the stranding problem altogether, because no vacating movements are necessary. Adverbial particles can be right-attached without creating an ordering paradox, because distributed deletion ensures that objects still follow.[11]

An important question that arises in this approach is why VP-fronting in particular should lead to distributed deletion. I attribute the need for distributed deletion in VP-fronting to a pressure to realize only the syntactic element driving movement, the predicate. Following Massam and Smallwood (1997), Coon (2010b), and Collins (2017), I propose that predicate fronting is driven by features of the verb, much like head movement (see also Coon 2010b). Specifically, suppose that the head F that initiates predicate fronting is looking for the closest verbal element and so carries an uninterpretable probe [*u*V]. The verb carries an interpretable feature [*i*V] and is targeted for Agree (45).

[11] I set aside the question of whether DP objects undergo a type of short object movement, as often posited for English (e.g., Johnson 1991, Koizumi 1995). As long as any such movement takes place inside the constituent that fronts, adopting this movement step does not alter the predictions of the account.

(45)



Although the verb carries the relevant feature, I propose that it is a larger phrase that undergoes movement, including objects and modifiers. (I will provide a detailed proposal in section 3.4 for why the verb does not move by itself.)[12] In this view, VP-fronting involves a kind of pied-piping (see also Cinque 2005).

I propose a PF constraint that regulates this type of pied-piping and favors deletion of material in a moved phrase that does not carry the movement-triggering feature, in this case objects and modifiers. I call this constraint *Realize Goal* (see Fanselow and Ćavar 2001 for a similar constraint).

(46) *Realize Goal*
For an instance of movement of the phrase XP triggered by the feature F, spell out only the material in XP that carries the interpretable feature F.

For a derivation like (45), Realize Goal will favor deletion of any objects or modifiers of the verb that are included in the phrase that undergoes fronting, since they do not carry the feature [V]. Effectively then, Realize Goal tries to undo syntactic pied-piping through distributed deletion.

To allow for a constraint like Realize Goal to influence copy deletion, I follow Nunes (1995, 2004) and Landau (2006) in assuming that copy deletion applies at PF, so that constraints like the Stray Affix Filter can lead to multiple spell-out, for example (see also Hein 2018). More specifically, I propose that the interface between syntax and PF involves an OT calculus, in which syntactic and phonological constraints compete and may cause apparent departures from familiar underlying structures (see also, e.g., Clemens 2014, 2019, Bennett, Elfner, and McCloskey 2016). The task of this calculus is to map a hierarchical structure to a PF output in a way that balances the requirement of phonological/prosodic interface constraints with faithfulness to the underlying input tree. It may seem odd to think of Realize Goal as a faithfulness constraint, but I propose

[12] For VP-fronting in Ch'ol, Coon (2010b) proposes that head movement is unavailable in languages with predicate fronting, resulting in movement of a larger phrase. This type of approach suffices for VP-fronting, but will not make the right cut for movement of nonverbal predicates, as discussed in the next section.

to think of faithfulness constraints in this calculus in a slightly different way from those at work in phonological alternations, because, unlike the items related by phonological faithfulness constraints, the input and output they relate to each other do not involve the same types of structures. Mapping a hierarchical structure to a prosodic one necessarily means a simplification of the information present in the input, so that relations such as headedness and Agree are lost. I conceive of faithfulness constraints at PF, then, as constraints that prioritize different syntactic relations for the purposes of linearization. REALIZE GOAL prioritizes the determination of PF position on the basis of Agree relations.[13]

In this theory, REALIZE GOAL can be variably ranked relative to other constraints. I also adopt a faithfulness constraint that penalizes distributed deletion, CONTIGUITY (see also Fanselow and Ćavar 2001, Johnson 2012). This constraint prioritizes a faithful reflection of c-command relations in linear order (47), in the sense of Kayne (1994).

(47) *CONTIGUITY*
All elements in a moved phrase form a contiguous string in the output.

In Imere, the ranking REALIZE GOAL ≫ CONTIGUITY generates distributed deletion.

For a sketch of this approach, consider a fronted VP with an object and an adverbial particle, in the OT tableau in (49). Note that for the moment I am ignoring the adverbial particle and the violation of REALIZE GOAL that it incurs. I turn to the question of why particles survive deletion in section 4.

(48) *Imere VP with adverbial particle before object*
Au fago-na maruuruu aia.
1SG wake.up-TR slowly 3SG
'I woke him/her slowly.'

(49)

Input [V Obj Prt] . . . [V Obj Prt]	REALIZE GOAL	CONTIGUITY
☞ a. [V ~~Obj~~ Prt] . . . [~~V~~ Obj ~~Prt~~]		*
b. [V Obj Prt] . . . [~~V Obj Prt~~]	*!	

Although the whole VP moves, only the verb carries the interpretable feature that drives VP-fronting, the categorial feature [V]. As a result, REALIZE GOAL penalizes candidate (49b), in which VP-fronting is faithfully realized, because the moved phrase contains material without the movement-driving feature. The winning candidate is (49a), with distributed deletion and low realization of the object.

The opposite ranking, CONTIGUITY ≫ REALIZE GOAL, generates languages in which VP-fronting does not run into a stranding problem, but moves all dependents of the verb. I suggest

[13] This constraint could be viewed as a version of Richards's (2016) Probe-Goal Contiguity, except that Probe-Goal Contiguity applies in the course of a derivation in Richards's model.

that this situation is found in VOS Malagasy (e.g., Pearson 1998, Rackowski and Travis 2000), and also in OVS languages like Hixkaryana (e.g., Derbyshire 1979, Kalin 2014). In both, all dependents of the verb seem to be able to appear next to a fronted verb, as shown in (50a–b) and (51a–b).

(50) *Malagasy DPs, PPs, and CPs appear in fronted VP*

a. [$_{VP}$ Namono [$_{DP}$ ny akoho] [$_{PP}$ tamin-'ny antsy]] ny vehivavy.
PST.kill DET chicken PST.with-DET knife DET woman
'The woman killed the chicken(s) with the knife.'

b. [$_{VP}$ Nanantena [$_{CP}$ an'i Noro ho nianatra tsara]] Rakoto.
PST.hope OBL.DET Noro C PST.study well Rakoto
'Rakoto hoped for Noro to study well.'
(Malagasy; Pearson 1998:95, 105)

(51) *PPs and CPs in OVS in Hixkaryana*

a. [$_{VP}$ [$_{PP}$ Honyko heno mitkoso] n-te-ko] Waraka.
peccary herd near.to 3SG-go-RECIP.COMPL Waraka
'Waraka went near to the peccary herd.'

b. [$_{VP}$ [$_{CP}$ Waraka-wya honyko won r] xe] wehxana.
Waraka-by peccary shooting of desire 1SG.AUX
'I want Waraka to shoot peccary.'
(Hixkaryana; Derbyshire 1979:207)

In these languages, no stranding problem arises, because a higher ranking of CONTIGUITY ensures that the outcome of VP-fronting is faithfully realized.

In support of this approach, I demonstrate that it makes the correct predictions for scope relations in Imere, which reveal a familiar underlying structure. Then, I show that a distributed-deletion approach based on REALIZE GOAL captures a crosslinguistic generalization about the distribution of the stranding problem: namely, the fact that fronting of nonverbal predicates is not accompanied by stranding of material inside the predicate.

3.3 Distributed Deletion and the Scope of Postverbal Particles

The distributed-deletion account proposed above maintains a traditional view of VP structure, in which adverbial particles are able to occupy positions above postverbal arguments and modifiers. In this section, I demonstrate that adverbial particles indeed may be associated with a *discontinuous scope domain*, as a distributed-deletion account predicts. Adverbial particles only scope over adverbial particles to their left, but may also scope over postverbal arguments and modifiers to their right. This scope domain follows from the distributed-deletion analysis presented above, because it posits that adverbial particles may be right-attached above objects and modifiers in both VP copies.

To investigate the scope domain of Imere particles, we need to look at particles that can interact scopally with other elements. One such particle is the negative particle *kee.* This particle

takes scope in a position above objects and PP adjuncts, as is evident in the licensing of negative polarity items (NPIs). As Martí (2022) describes, indefinite determiners in Imere are NPIs and require licensing (52a). *Kee* can license an NPI object or PP in its scope (52b–c).[14] This pattern follows if *kee* is right-attached above objects and modifiers, and so c-commands them.

(52) *Imere indefinite articles are licensed by negation*
a. *Au seia **se**-tama.
1SG see INDEF.SG-child
'I saw a child.'
b. Au seia kee **se**-tama.
1SG see NEG INDEF.SG-child
'I didn't see any child.'
c. Au seia kee akoe **se**-fare.
1SG see NEG 2SG INDEF.SG-house
'I didn't see you in any house.'

Another particle that is quantificational is *sorookina* 'all', which acts as a floating quantifier modifying DP arguments, as in (53).[15]

(53) *Postverbal particle* sorookina *acts as floating quantifier*
Au ounu **sorookina** a-vai.
1SG drink all PL-water
'I drank all the water.'

Sorookina requires a plural DP argument in its scope. For example, it cannot be used if no plural DP is present (54a). In addition, *sorookina* must c-command the plural DP. It cannot modify the subject of a transitive (54b).

(54) Sorookina *requires plural DP*
a. *Au seia **sorookina** te-fenu.
1SG see all SG-turtle
'I saw the turtle.'
b. *Mii-nuane seia **sorookina** te-fenu.
AFF.PL-man see all SG-turtle
'The men all saw the turtle.'

[14] Similarly, a quantificational object can scope below the negative particle, as in (i).

(i) *Object can scope below negation*
Au seia kee te-fenu eweji.
1SG see NEG SG-turtle every
'I didn't see every turtle.' ($\neg > \forall$)

The object can also scope above negation, I assume as the result of Quantifier Raising (QR), as discussed below.

[15] See Seiter 1980 and Massam 1998 for discussion of *oti*, a similar particle in Niuean.

Additional evidence that *sorookina* has a c-command requirement comes from unergatives and unaccusatives. *Sorookina* cannot modify the subject of a transitive or the subject of an unergative, like *-moe* 'sleep' or *-tare* 'cough' (55a–b).

(55) Sorookina *cannot modify subject of unergative*
  a. *Mii-nuane rat ee-moe **sorookina**.
     AFF.PL-man 3NSG NFUT-sleep all
     'The men all slept.'
  b. *Mii-nuane rat ee-tare **sorookina**.
     AFF.PL-man 3NSG NFUT-cough all
     'The men all coughed.'

However, *sorookina* can be licensed by a plural subject of an unaccusative verb like *-mate* 'die' or *-melu* 'fall' (56a–b).

(56) Sorookina *can modify subject of unaccusative*
  a. Mii-nuane i-fare rat ee-mate **sorookina**.
     AFF.PL-man LOC-house 3NSG NFUT-die all
     'The men in the house all died.'
  b. Mii-nuane rat ee-melu **sorookina**.
     AFF.PL-man 3NSG NFUT-fall all
     'The men all fell.'

We can capture this difference if the unaccusative object starts out as the complement of V, in the c-command domain of *sorookina.*

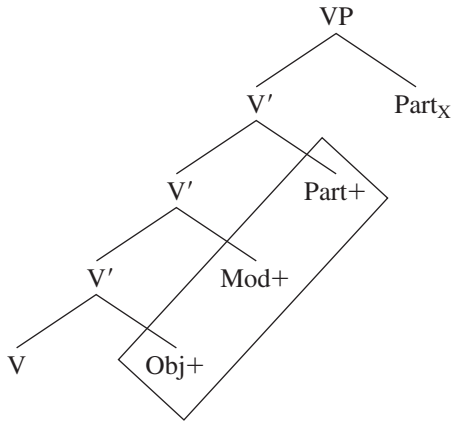
These facts provide evidence that particles scope over postverbal arguments. In other words, adverbial particles have a *discontinuous* scope domain. A particle scopes over all particles to its left and all postverbal arguments and modifiers to its right, but not other particles to the right. This split scope domain is schematized in (57).

(57) *Scope domain of a particle* $Part_X$ *(boxed)*

$$\ldots \boxed{Part_1 \ldots Part_{X-1}} \; \mathbf{Part_X} \; Part+ \; \boxed{Obj+ \; Mod+}$$

A distributed-deletion analysis derives this scopal domain. If the underlying order of the Imere VP involves right-attachment of the adverbial particle above arguments and modifiers, then the boxed domain in (57) is in fact a contiguous domain to the left of the adverbial particle, as in (58).

(58)



What is unusual about the scope of these particles in this analysis is only that some of the material they scope over ends up pronounced in a different copy of the VP.[16]

As discussed above, another common approach to the stranding problem is to assume a remnant movement derivation, in which all stranded material moves out of the VP before VP-fronting. A remnant movement is also compatible with the idea that the underlying order is (58), since particles could merge above the base position of objects and modifiers. But a remnant movement analysis runs into another issue, in that it predicts additional scope relations that are not available. Vacating movements should result in the availability of additional scope positions, providing a higher scope position for all items that are moved out of the VP. But, as already mentioned in the discussion of ditransitives, scopal relations appear to be the same as in other SVO languages, with fixed surface scope in the double object construction.[17]

Distributed deletion then makes the right predictions about scope in Imere. In the next section, I show that this account also captures a crosslinguistic generalization about stranding

[16] A prediction of this analysis is that adverbial particles could take scope in different positions. In fact, the particles *sorookina* and *kee* differ in how they interact with subjects. Although *sorookina* cannot modify a subject, an NPI subject can be licensed by negation (i).

(i) *NPI subject is licensed by* kee
Se-tama seia kee avau.
INDEF.SG-child see NEG 1SG
'No child saw me.'

I propose that the base position of the subject is included in the fronting constituent. The differing scope of *kee* and *sorookina* can then be explained if they attach at different heights, *kee* above the subject and *sorookina* below, interleaving in different ways with the verb's arguments. Note that *sorookina* is indeed ordered inside of *kee* when the two cooccur (24b).

[17] I account for scopal flexibility in the prepositional dative by appealing to QR of the lower object, adopting the idea that QR is restricted in double object constructions (see Bruening 2001). QR is independently necessary to account for the fact that quantificational objects can scope above and below particles, as in (i).

(i) *Object can scope below and above negative particle*
Au seia kee te-fenu eweji.
1SG see NEG SG-turtle every
'I didn't see every turtle.' ($\neg > \forall$; $\forall > \neg$)

with nonverbal predicates, the absence of a stranding problem internal to fronted DP and PP predicates.

3.4 Fronting of Nonverbal Predicates and REALIZE GOAL

In this section, I turn to fronting of nonverbal predicates. At first glance, nonverbal predicates seem to present a problem for the picture sketched above, because they do not display stranding. As discussed previously, Imere allows fronting of nonverbal predicates like DPs and PPs. However, these predicates differ in that they move intact, without stranding. A PP like *gaia Ifate* 'from Efate' moves with its complement DP (59a). In contrast, the same DP is necessarily stranded when it is the object of the verb (59b).

(59) *Object of V, but not P, is stranded in fronting*
  a. Au [$_{PP}$ gaia Ifate] ana.
     1SG P Ifate still
     'I am still from Efate.'
  b. Au [$_{VP}$ sei-a ana] Ifate.
     1SG see-TR still Ifate
     'I still see Efate.'

Similar patterns are found in other predicate-fronting languages. In Niuean, PPs and objects with the absolutive marker *e* are stranded by VP-fronting. However, when the same PPs and DPs are part of a nonverbal predicate, they do front (60a–b).

(60) *PPs and DPs front as nonverbal predicates in Niuean*
  a. [Ko [$_{DP}$ e tau kamuta]] fakamua a lautolu.
     PRED ABS PL carpenter before ABS 3PL
     'They were carpenters before this.'
  b. [Hā [$_{PP}$ he fale gagao]] a ia.
     PRED in house sick ABS 3SG
     'She/He is in the hospital.'
     (Massam 2001:165)

Similarly, in Samoan, PPs are stranded by VP-fronting, but move intact when they act as the main predicate of the clause (61).

(61) *PPs move intact as nonverbal predicates in Samoan*
  Sā [$_{PP}$ i Apia] lo mātou tinā i lea taimi.
  PST LOC Apia our mother LOC that time
  'Our mother was in Apia at that time.'
  (Mosel and Hovdhaugen 1992, cited in Collins 2017:7)

These facts reveal a key generalization about predicate fronting. There do not seem to be cases in which, in analogy with movement of the verb, the preposition or determiner that heads a nonverbal predicate undergoes movement by itself. In other words, there is no stranding problem

in movement of nonverbal predicates. In contrast, full DP objects are routinely stranded across VP-fronting languages.

In some predicate-fronting languages, the way nonverbal predicates are expressed avoids the stranding problem. In Fijian, for instance, a nominal predicate fronts, but a PP predicate is stranded, with the verb *tiko* appearing in initial position (62a–b).[18]

(62) *Fijian nonverbal predicates*
a. E [$_{NP}$ qasenivoli] na marama yaa.
3SG teacher ART.N woman that
'That woman is a teacher.'
b. E [$_{VP}$ tiko] na apolo iloma ni kateni.
3SG stay ART.N apple inside LINK box
'The apple is inside of the box.'

Imere also makes use of these constructions for some predicates, as in (63).

(63) *PP predicate with verb in Imere*
I-Mere **ee-tuu** Vanuatu.
LOC-Mele NFUT-stand Vanuatu
'Mele is in Vanuatu.'

Since this type of construction involves a verb, I suggest it makes use of the same underlying syntax as VP-fronting, with the PP predicate functioning as a syntactic complement.

In Mayan languages like Ch'ol, nominal predicates are only possible with NPs (64a), not with DPs (Armstrong 2009, Coon 2016). In addition, PP predicates are embedded by the stative predicate *añ* (64b).[19]

(64) *Nonverbal predicates in Ch'ol*
a. [$_{NP}$ K-chich] aj-Maria.
A1-older.sister DET-Maria
'Maria is my older sister.'
b. **Añ** tyi otyoty jiñi ts'ì`.
LOC PREP house DET dog
'The dog is in the house.'
(Coon 2010a:29, 203)

These strategies avoid the stranding problem, but are still consistent with the generalization that there is no stranding internal to DP and PP predicates.

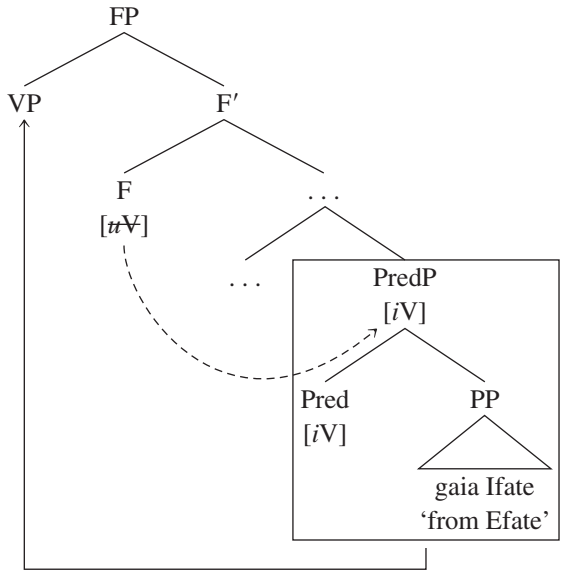
The asymmetry between verbal and nonverbal predicates detailed above is a significant generalization that any theory of the stranding problem should account for. I propose to explain

[18] All Fijian data in this article come from elicitation sessions with two native speakers.
[19] That constructions with *añ* have the syntax of VP-fronting is evident from the fact that a bare object may be fronted alongside *añ*, just as with verbs.

this difference in terms of the locus of the verbal feature driving movement. To start with, this difference in stranding means that it cannot be the case that fronting of a predicate PP or DP involves a fully analogous syntax. I account for the asymmetry through the idea that predicate fronting is fundamentally about moving a *verbal constituent.* To explain why VP-fronting is different from PP- or DP-fronting, I posit that fronting of nonverbal predicates too is driven by a verbal feature. In section 3.1, I proposed that fronting of a PP or DP predicate is fronting of a PredP (Bowers 1993). Pred is a functional head that allows a nonverbal predicate to be embedded in the extended verbal projection, and introduces the verbal feature [*i*V] that drives predicate fronting.

If fronting of a nonverbal predicate is movement of a verbal projection PredP, then we have a way of understanding the difference between verbal and nonverbal predicates, because the movement-driving feature is introduced at a different height. With nonverbal predicates, the feature [*i*V] is introduced *above* the predicate and all of its dependents, as schematized for the PP *gaia Ifate* 'from Efate' in (65).

(65)

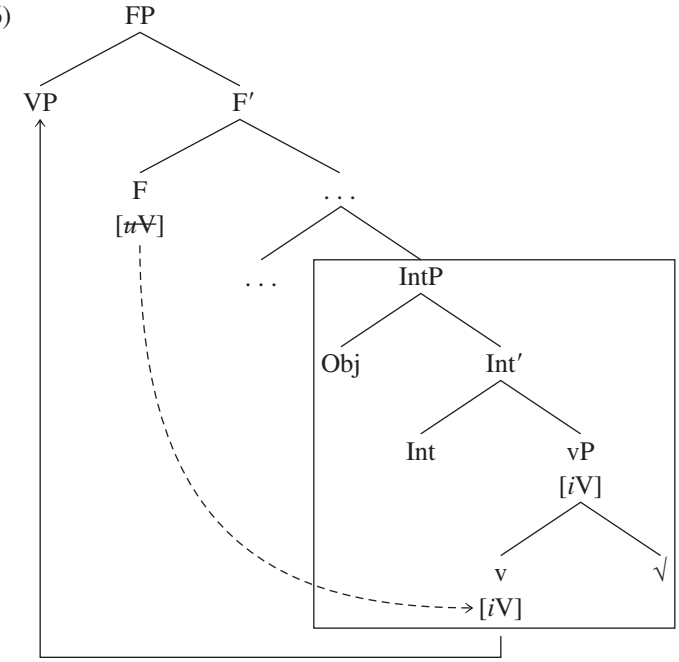


I propose a key revision here to how the constituent relevant to REALIZE GOAL is determined. Suppose that the feature [*i*V] introduced by Pred is present both on Pred and on PredP, a view in which the label of a phrase is equivalent to the head (Chomsky 1994), as in (65). As a result, the whole PredP is treated as the goal in an Agree relation with F, so that REALIZE GOAL does not require any subdeletion within this phrase.

This approach to fronting of nonverbal predicates allows for the differing behavior of verb phases to be captured. Suppose, in particular, that the category feature [*i*V] is introduced *below* all objects and modifiers of the verb. Much recent work explores the idea that a categorizing functional head v is the first item to combine with a syntactically inert root, without category and

without dependents (e.g., Borer 2005, Merchant 2019).[20] If this is correct, objects and modifiers are first merged outside the phrase that introduces a V-feature, such as in the specifier of a dedicated head Int. As a consequence, the phrase that carries [*i*V] in VP-fronting does not contain any objects or modifiers, in contrast to the phrase that carries [*i*V] in fronted nonverbal predicates. This view of VP-fronting is schematized in (66).

(66)



In this proposal, it is important that the goal for Agree need not be identical to the constituent that moves. To account for this pied-piping effect, I propose that heads in an extended projection share features (see Grimshaw 1990, Norris 2014). Every functional head above v inherits the same interpretable V-feature. I posit that, although the biggest constituent carrying the interpretable feature of the goal moves, a constraint such as REALIZE GOAL cares about the realization of the head that *introduces* the movement-driving feature, in this case v.[21] In this way, the locus of the verbal feature relative to the predicate determines the outcome of distributed deletion.

This approach captures the absence of predicate-fronting patterns in which only the preposition or highest nominal head moves, stranding their complements. In support of this view, note

[20] I adopt Merchant's (2019) view that the selectional relationship between an internal argument and a root is mediated by v, but see Borer 2005 for an alternative approach.

[21] It is not necessary to adopt the notion of interpretability to make this cut (see, e.g., Preminger 2014). An alternative is to say that v and Pred introduce the *valued* category feature. If we assume a difference between Agree-Link and Agree-Copy (Arregi and Nevins 2012), so that unvalued features linked in the syntax do not become valued until after copy deletion has occurred, REALIZE GOAL could be restricted to valued features.

that fronted nonverbal predicates may be accompanied by a dedicated morpheme, like *ko* and *hā* in Niuean (67a–b), which I treat as instantiations of Pred.

(67) Ko *and* hā *appear with fronted nonverbal predicates in Niuean*
a. [**Ko** [$_{DP}$ e tau kamuta]] fakamua a lautolu.
PRED ABS PL carpenter before ABS 3PL
'They were carpenters before this.'
b. [**Hā** [$_{PP}$ he fale gagao]] a ia.
PRED in house sick ABS 3SG
'She/He is in the hospital.'
(Massam 2001:165)

A REALIZE GOAL analysis explains an important generalization about stranding in predicate-fronting languages: the absence of stranding inside nonverbal predicates.[22] The key question that remains is how to ensure that some material can survive distributed deletion, even if introduced above the categorizing head v. In the next section, I argue for a constraint that requires structurally reduced dependents of the verb to be realized adjacent to it, building on Clemens 2014, 2019.

4 The Role of Complexity in the Stranding Problem

In this section, I turn to the question of how some dependents of the verb come to be fronted with the verb, escaping the effects of distributed deletion. I point out eight other languages for which VP-fronting analyses have been proposed, from five language families, all of which run into the stranding problem. What fronts with the verb is always either a reduced noun, an adverbial element, or part of a complex predicate, while PPs, CPs, and full DPs are stranded. On this basis, I argue for the generalization that all dependents that front with the verb are structurally less complex than stranded material. I follow Clemens (2014, 2019) in assuming that what is different about fronted dependents is that they are nonphasal. I adopt Clemens's ARGUMENT-ϕ, a constraint that forces elements in a selectional relationship to be adjacent if they are spelled out in the same phase, which allows structurally reduced dependents to escape distributed deletion.

4.1 The Stranding Problem across Languages

VP-fronting has been proposed for a range of languages. But, as mentioned previously, the stranding problem arises in many of these analyses. I have identified at least eight other languages in which the stranding problem can be found: Ch'ol (Mayan); Fijian, Hawaiian, Niuean, and Samoan (Oceanic); Gitksan (Tsimshianic); Santiago Laxopa Zapotec (Zapotec); and Tenetehára (Tupí-Guaraní). In all these languages, a phrase containing the verb and some of its dependents undergoes fronting, motivating a VP-movement analysis. At the same time, some of the verb's

[22] A remnant movement analysis based on REALIZE GOAL could achieve the same results, if vacating movements can be triggered to avoid later violations of REALIZE GOAL.

Table 1
Fronting and stranding across VP-fronting languages

Language family	Language(s)	Fronted material	Stranded material
Mayan	Ch'ol	Adverbial particles, articleless nouns	DPs, PPs, CPs
Oceanic	Fijian	Adverbial particles, pronouns/proper names	DPs, PPs, CPs
	Hawaiian, Niuean, Samoan	Adverbial particles, articleless nouns	DPs, PPs, CPs
Tsimshianic	Gitksan	Adverbial particles	DPs, PPs, CPs
Tupí-Guaraní	Tenetehára	Articleless nouns	DPs, PPs, CPs
Zapotec	Santiago Laxopa Zapotec	Adverbial particles, adjectival predicates	DPs, PPs, CPs

dependents are obligatorily stranded. Table 1 provides an overview of what material is fronted and stranded across these languages. For reasons of space, a fuller discussion of each pattern and the literature on it is relegated to the online appendix (https://doi.org/10.1162/ling_a_00466). But, as is clear from this table, the stranding problem in VP-fronting has a similar profile across languages. What fronts along with the verb is either a reduced noun, an adverbial element, or part of a complex predicate. In contrast, PPs, CPs, or full DPs are always stranded. A generalization about stranding is that material that fronts with the verb is structurally less complex than stranded material. Following Clemens (2014), I argue that this difference in complexity reflects a difference in phasal status.

Let me first briefly describe the findings summarized in table 1 in more detail. First, in all languages in which some nouns move with the fronting VP, there is a correlation between the presence of DP structure and fronting, so that full DPs appear to be stranded. In Niuean, as noted in section 1, nominals without a case marker appear in the fronted VP, but nominals with a case marker are stranded (68a–b).

(68) *Reduced nouns and particles are not stranded in Niuean*
a. [$_{VP}$ Takafaga **ika tūmau nī**] a ia.
hunt fish always EMPH ABS he
'He is always fishing.'
b. [$_{VP}$ Takafaga tūmau nī] e ia [$_{DP}$ **e tau ika**].
hunt always EMPH ERG he ABS PL fish
'He is always fishing.'
(Massam 2001:157)

Similar facts are found in Hawaiian and Samoan (e.g., Medeiros 2013, Collins 2017). In Ch'ol (Coon 2010b; cf. Clemens and Coon 2018a,b) and Tenetehára (Duarte 2012), nominals without a determiner front, but nominals with a determiner are stranded. The same correlation obtains in

Fijian, but in a way that provides key evidence that this generalization is syntactic, not semantic. In Fijian, object pronouns and proper names do not carry their article *ko/o* and they surface in the fronted VP (69a). In contrast, common nouns appear outside the VP with their article *na* (69b) (Alderete 1998, Aranovich 2013, Van Urk 2020).

(69) *Fijian fronted VP contains articleless objects*

a. E a [$_{VP}$ kau-ti **au/Jone** *mai*] ko Eroni.
3SG PST bring-TR.PR 1SG/Jone DIR DET.PR Eroni
'Eroni brought me/Jone.'

b. E a [$_{VP}$ kau-ta *mai*] **na ilokoloko** ko Eroni.
3SG PST bring-TR.N DIR DET.N pillow DET.PR Eroni
'Eroni brought the pillows.'

This pattern demonstrates that whether a noun is fronted is determined not by a semantic property of the object, but by DP structure. In the other fronting patterns, only common nouns appear in the fronted VP, exactly those phrases that are stranded in Fijian.

A second crosslinguistic generalization in table 1 is that fronted VPs contain adverbial elements in many languages, as in Imere. In the other Oceanic languages, these adverbs occur after the verb and any reduced objects, arranged in inverse order (e.g., Alderete 1998, Massam 2010, Aranovich 2013, Clemens 2014). In Ch'ol, Gitksan, and Santiago Laxopa Zapotec, low adverbs also front, but appear before the verb (70a–c).

(70) *Low adverbs before verb in predicate fronting*

a. Tyi k-[$_{VP}$ **wiñ** cha`le soñ].
PRF A1 a.lot do dance
'I danced a lot.'
(Ch'ol; Coon 2010b:373)

b. [$_{VP}$ **T'ek'il suwi** k'eekw] =hl xpts'exw-it hlgu gyet.
curled.up away flee =CN afraid-SX little man
'The frightened little guy took off right away.'
(Gitksan; Forbes 2018:147)

c. [$_{VP}$ **Chintje'** bta] Sonia='n zah.
just stir.COM Sonia=DEF bean
'Sonia just stirred the beans.'
(Santiago Laxopa Zapotec; Adler et al. 2018:39)

A consistent picture of the stranding problem comes out of this crosslinguistic comparison. What fronts with the verb is a reduced noun or an adverbial element, as in Oceanic languages, Ch'ol, and Tenetehára, or a nonverbal element, as in Santiago Laxopa Zapotec. Full DPs, PPs, and CPs are never stranded. Material that moves with the verb is structurally less complex than stranded material. All dependents that front can be realized as a single word, at least sometimes, while all material that is always a phrase is also always stranded. In the next section, I propose that this generalization reflects a difference in phasehood, following Clemens (2014, 2019).

4.2 Phasehood and Stranding

The difference in structural size between fronted and stranded material evident in the previous section cannot be treated as a difference between heads and phrases. It might seem tempting to account for this difference by treating all apparent VP-fronting as head movement, which may pick up other heads and form a complex word. But we have already seen for Imere that the initial VP is a phrasal constituent and not a complex word. Similarly, in Ch'ol, Hawaiian, and Niuean, the reduced noun in the fronted VP can be a phrase, modified by adjectives and other elements (71a–c).

(71) *Reduced noun in Ch'ol, Hawaiian, and Niuean is phrase*

a. Tyi i- [$_{VP}$ tsäñ-s-ä **cha`-kojty kolem wakax**] k-papa.
PRF A3 die-CAUS-TV two-NC.4legs big cow A1-father
'My father killed two big cows.'
(Ch'ol; Coon 2010b:361)

b. [$_{VP}$ Inu **kope hu'ihu'i**] 'o Noelani.
drink coffee cold SUBJ Noelani
'Noelani is drinking cold coffee.'
(Hawaiian; Medeiros 2013:77)

c. Ne [$_{VP}$ kai **sipi mo e ika mitaki**] a Sione.
PST eat chip COM ABS fish good ABS Sione
'Sione ate good fish and chips.'
(Niuean; Massam 2001:158, 160)

The same effect can be found in Fijian. A pronoun or proper name object inside the fronted VP can be part of a complex constituent, like a disjunctive phrase or an appositive construction (72a–b).

(72) *Common noun in disjunct inside fronted VP in Fijian*

a. Iko a [$_{VP}$ rai-ci [**Eroni se na koli**] tiko].
2SG PST see-TR.PR Eroni or ART.N dog PROG
'You were seeing Eroni or the dogs.'

b. E a [$_{VP}$ diri-ki [**rau$_i$ na niu$_i$**]] ko Eroni.
3SG PST crack-TR.PR 3DU ART.N coconut ART.PR Eroni
'Eroni cracked the coconuts (dual).'

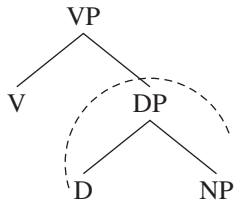
Finally, like Imere, many of these languages allow fronted nonverbal predicates, which may be phrasal and so cannot have undergone head movement. Any structural difference between fronted and stranded material must be about different types of phrases rather than a distinction between phrases and heads.

Following Clemens (2014), I propose to understand the role of structural complexity as a difference in phasehood (Chomsky 2001), so that all stranded material corresponds to a phase and all fronted material is nonphasal. Phasehood is a structural property of phrases that allows us to understand what it means for one type of phrase to be more complex than another. More

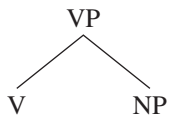
complex phrases are more likely to include a phasal boundary. In addition, DPs, PPs, and CPs are commonly thought to constitute phases. Finally, an approach based on phases may provide an understanding of why some adverbial elements front with the verb in Ch'ol, Fijian, Gitksan, Imere, and Niuean, while other adverbs are stranded, if it is assumed that adverbs too come in phasal and nonphasal variants.

To see how phasehood can play a role in VP-fronting, let me review Clemens's (2014, 2019) account of the correlation between the presence of articles and stranding. As we saw in section 4.1, nominals with articles must be stranded in Ch'ol, Fijian, Hawaiian, Niuean, Samoan, and Tenetehára, while nominals without a DP layer are fronted. Clemens proposes that this correlation reflects a difference in phasehood, on the assumption that the DP layer contributes a phasal boundary (73). Nominals without articles lack a DP layer and are nonphasal (74).

(73)



(74)



The second ingredient of Clemens's account is the constraint ARGUMENT-ϕ, stated in (75), which forces a head and its complement to be adjacent.[23]

(75) *Argument condition on phonological phrasing (ARGUMENT-ϕ)*
A head and its internal argument(s) must be adjacent subconstituents (of a phonological phrase). (Clemens 2014:126, 2019:359)

ARGUMENT-ϕ is a PF constraint, evaluated at Spell-Out. It encodes the intuition that languages generally prefer for elements in a selectional relationship to remain adjacent. ARGUMENT-ϕ also explains why reduced objects should be able to survive distributed deletion, if ARGUMENT-ϕ outranks REALIZE GOAL in such languages. The tableau in (77) illustrates for the Ch'ol VOS example in (76).

(76) *VOS in Ch'ol*
Tyi [$_{VP}$ i-kuch-u **si`**] aj-Maria.
PRF A3-carry-TV wood DET-Maria
'Maria carried wood.'
(Ch'ol; Coon 2010b:355)

[23] Clemens (2014:sec. 4.2.2) notes that ARGUMENT-ϕ is similar to Richards's (2016) Selectional Contiguity.

(77)

Input [V NP_{OBJ}] DP_{SUBJ} [V NP_{OBJ}]	ARG-ϕ	REALIZEG	CONTIGUITY
☞ a. [V NP] DP [~~V NP~~]		*	
b. [V ~~NP~~] DP [~~V~~ NP]	*!		*

By assumption, the object *si*` 'wood' in (76) is an NP, since no determiners are allowed in VOS word order. The candidate (77b) with distributed deletion then violates ARGUMENT-ϕ, because the verb and the object are not adjacent. As a result, despite the violation of REALIZE GOAL incurred by candidate (77a), the VP is faithfully realized.

All else being equal, ARGUMENT-ϕ should have the same effect for DP objects. To understand the role of phasehood, however, Clemens proposes that ARGUMENT-ϕ is only evaluated by phase, on the assumption that every phase triggers Spell-Out. Because a DP object introduces its own phasal boundary, the verb and the DP are not evaluated for ARGUMENT-ϕ in the same phasal domain.[24] As a result, ARGUMENT-ϕ is satisfied vacuously in each phase in which it is evaluated, both the DP and the vP.[25] Concretely, Clemens suggests that the selectional relations visible to ARGUMENT-ϕ are kept track of by looking at syntactic objects that share a categorial feature (on the assumption that selection is featural). Since the selectional features on DP will no longer be accessible in the vP phase, the verb and the DP are treated as if they are not in a selectional relationship. In this architecture, ARGUMENT-ϕ will only enforce adjacency of a head and a nonphasal complement.

I propose to generalize this account to adverbial particles as well, on the assumption that these too are nonphasal dependents of the verb. Clemens's (2014, 2019) constraint is restricted to head-complement structures, but I suggest that the same pressure affects the relationship between a verb and its adjuncts. Specifically, I adopt the idea that adjuncts select for the phrase they attach to (e.g., Ernst 2001), mediated by a featural relationship analogous to the one that holds between a verb and an internal argument. An alternative is Cinque's (1999) cartographic approach to adverbials, in which they are specifiers of dedicated functional heads. In this view, too, adverbial elements are in a selectional relationship with the extended verbal projection. If this is correct, then a constraint like ARGUMENT-ϕ will also apply to this relationship. Note finally that Clemens's constraint is stated in terms of prosodic structure. Clemens (2021) provides an overview of evidence that, in verb-initial languages with predicate fronting, the verb and the fronted dependents indeed form a prosodic constituent. In Imere, too, there is evidence that adverbial particles may be prosodically weak constituents (see section 4.3).

[24] See also Compton and Pittman 2010 on the role of phases in how dependents of the verb are realized.

[25] It is important that Spell-Out of a phasal domain includes the head, so that the entirety of the DP is spelled out in the DP phase, at least for the purposes of realization. See Simpson and Wu 2002, Fox and Pesetsky 2005, and Sato and Dobashi 2016 for discussion.

This account allows us to explain why adverbial particles survive deletion, while objects and modifiers are stranded, as in (78). I propose that Imere has the ranking ARGUMENT-ϕ ≫ REALIZE GOAL ≫ CONTIGUITY, as demonstrated in (79).

(78) *Imere VP with adverbial particle before object*
Au fago-na maruuruu aia.
1SG wake.up-TR slowly 3SG
'I woke him/her slowly.'

(79)

Input [V Obj Prt] . . . [V Obj Prt]	ARG-ϕ	REALIZEG	CONTIGUITY
☞ a. [V ~~Obj~~ Prt] . . . [~~V~~ Obj ~~Prt~~]		*	*
b. [V Obj Prt] . . . [~~V Obj Prt~~]		**!	
c. [V ~~Obj Prt~~] . . . [~~V~~ Obj Prt]	*!		*

Candidate (79b), with faithful realization of the fronted VP, violates REALIZE GOAL, because neither the DP object nor the adverbial particle carries the movement-driving feature. On the assumption that Imere adverbial particles are nonphasal, candidate (79c), with deletion of both the adverbial particle and the object, violates ARGUMENT-ϕ, because the adverbial particle must be realized adjacent to the verbal constituent it selects for. Deletion of the object, however, does not violate ARGUMENT-ϕ, on the assumption that copy deletion is assessed on a phase-by-phase basis. As in Clemens 2014, 2019, the DP object is a phase and so has already undergone Spell-Out.[26] Note that candidates with multiple postverbal particles will work much the same way. The selectional relationship relevant to ARGUMENT-ϕ is the one between the adverbial element and the verbal phrase it attaches to. An adverbial particle must be adjacent merely to the phrase that it merged to, which may include other postverbal particles without violation of ARGUMENT-ϕ.

The fact that bare objects and adverbial particles that front with the verb can be phrasal follows under this approach, as long as the object or particle is not a phase. An interesting property of NP objects that front in some languages, however, is that they can contain material that would otherwise be stranded. In Niuean and Fijian, as noted in section 4.1, a fronted determinerless object can contain an object with an article, in the appositive in (80a) or the comitative construction in (80b).

(80) *Fijian/Niuean articleless objects can be modified by DP*
a. E a [$_{VP}$ diri-ki **[rau$_i$ na niu$_i$]**] ko Eroni.
3SG PST crack-TR.PR 3DU ART.N coconut ART.PR Eroni
'Eroni cracked the coconuts (dual).'
(Fijian)

[26] As in Clemens 2014, 2019, predicate fronting must then not cross a phase boundary.

b. Ne [$_{VP}$ kai **sipi mo e ika mitaki**] a Sione.
PST eat chip COM ABS fish good ABS Sione
'Sione ate good fish and chips.'
(Niuean; Massam 2001:158, 160)

The DPs *na niu* 'the coconuts' and *e ika mitaki* 'good fish' would be stranded if in object position, so that REALIZE GOAL should force deletion of these DPs.

There is evidence that this type of stranding of complex material does occur. Imere adverbs may form a comparative, using the verb *siria* 'exceed' (81).[27]

(81) *Comparative phrase modifying adverb* maruuruu
Au fago-na aia maruuruu **siri-a akoe**.
1SG wake.up-TR 3SG slowly exceed-TR 2SG
'I woke her/him up more slowly than you did.'

When a comparative phrase modifies an adverbial particle, it must be stranded (82a) and cannot appear with the adverbial particle (82b).

(82) *Comparative phrase modifying adverbial particle must be stranded*
a. *Au fago-na maruuruu **siri-a akoe** aia.
1SG wake.up-TR slowly exceed-TR 2SG 3SG
'I woke her/him up more slowly than you did.'
b. Au fago-na maruuruu aia **siri-a akoe**.
1SG wake.up-TR slowly 3SG exceed-TR 2SG
'I woke her/him up more slowly than you did.'

The availability of stranding the comparative follows from distributed deletion. The adverbial particle and the comparative are a constituent, but are pronounced in different copies of the fronting VP, to minimize violations of REALIZE GOAL. To allow for material inside a fronted object to escape stranding, as in (80a–b), I propose that CONTIGUITY constraints can be category-specific. It is then possible to rank a CONTIGUITY constraint specific to NPs (CONTIGUITY-NP) and one for VPs differently. If CONTIGUITY-NP outranks REALIZE GOAL, keeping a determinerless object intact is preferred to stranding.

In this way, an approach that is sensitive to the structural complexity of dependents of the verb accounts for the profile of the stranding problem across VP-fronting languages and explains what type of material can appear fronted alongside the verb.

4.3 Word Minimality and Phasehood in Imere

The account developed here posits a difference in phasehood between an adverbial particle that fronts and an adverb that is stranded. This section presents independent evidence for this differ-

[27] As discussed in section 4.2, *maruuruu* 'slowly' can be an adverbial particle or a stranded adverb.

ence. Although it is difficult to probe this question with syntax-internal diagnostics since we are dealing with small structures, I show that there is morphophonological evidence that adverbial particles are less complex, which I link to phasehood.

Imere words must generally be at least trimoraic (Clark 1975, 2002). Many roots in Imere are CVV or CVCV in shape and so always appear with an affix (83a–b).

(83) *CVV or CVCV roots are affixed*
  a. Au **tee**-kai totea.
     1SG FUT-eat afternoon
     'I will eat in the afternoon.'
  b. Avau rogo-**na** akoe.
     1SG listen-TR 2SG
     'I am listening to you.'

It can be shown that trimoraicity is the result of a minimality requirement because of affixes that only appear when a word would otherwise have fewer than three moras. On verbs, the nonfuture prefix is obligatory on bimoraic verbs (84a–b).

(84) *Nonfuture prefix is obligatory on bimoraic verbs*
  a. Au **wee**-nofo.
     1SG 1SG.NFUT-stay
     'I am staying.'
  b. Mateu mat **ee**-fura gaia te-stoa.
     1EXCL.PL 1EXCL.NSG NFUT-run.NSG P DET.SG-store
     'We (exclusive, plural) ran to the store.'

But verbs with more than three moras, usually due to prior affixation, cannot surface with the prefix (85a–b).

(85) *No nonfuture prefix on verbs with at least three moras*
  a. Avau **rogo-na** akoe.
     1SG listen-TR 2SG
     'I am listening to you.'
  b. Au **torotoro**.
     1SG sweat
     'I sweated.'

The locative prefix *i-* and plural prefix *a-* have the same distribution on nouns.

This minimality requirement provides a way of diagnosing prosodic words. Interestingly, a number of functional items do not need to be trimoraic, like subject clitics and demonstratives. I divide syntactic categories in Imere by word minimality in (86).

(86) *Distribution of word minimality in Imere*

Obligatorily trimoraic	Not obligatorily trimoraic
Verbs	Subject clitics
Nouns/Pronouns	Conjunctions
Adjectives	Demonstratives
Prepositions	Complementizers
Adverbs	Adverbial particles

As evident in this table, of all VP-internal material, only adverbial particles do not need to obey word minimality. A representative sample of adverbial particles is given in (87).

(87) *Imere adverbial particles*

sorookina	'all'	mataakina	'well'	nefea	'when'
mai	DIR.SP	kee	NEG	fefea	'how'
atu	DIR.ADD	age	DIR	pelepele	'fast'
ana	'still'	soina	'also'	fooki	'again'
tlasia	'enough'	maruuruu	'slowly'	faariki	'soon'

Some adverbial particles are longer than three moras, but there are a number of bimoraic particles, such as the negative particle *kee* and the directional particles *mai*, *age*, and *atu.* In contrast, pronouns, nouns, prepositions, and adverbs obey minimality, so that all other dependents of the verb contain at least a trimoraic prosodic word.[28]

I argued previously that adverbial particles are nonphasal, while all other VP-internal material is associated with phasal architecture. I propose to understand the difference in word minimality by linking it to phasehood (see also Piggott 2010). Many researchers have suggested that phases map systematically onto prosodic domains (see Kahnemuyipour 2004, Adger 2007, Ishihara 2007, Kratzer and Selkirk 2007). Suppose that Imere has a constraint requiring that a phase must minimally correspond to a prosodic word (88).

(88) *MATCH-PHASE*
A phase must correspond (at least) to a prosodic word.

The constraint MATCH-PHASE ensures that DPs, PPs, and CPs always contain a prosodic word, a trimoraic word. Adverbial particles are nonphasal, and so may consist of smaller prosodic constituents, like feet. In this view, adverbial particles are associated with two prosodic structures. Bimoraic particles are feet, while larger particles, like *pelepele* 'fast', instantiate prosodic words.

[28] There is one exception in the subject pronouns. The 1SG pronoun surfaces as *avau* and *au.* Since all other pronouns do obey word minimality, I treat *au* as an exceptional form.

Evidence for the suggested relationship between stranding and the word minimality requirement comes from the observation that many trimoraic particles are also capable of being stranded. The manner adverb *maruuruu* 'slowly' can be an adverbial particle, but also a stranded adverb (89a–b).

(89) Maruuruu *can be adverbial particle and stranded adverb*
a. Au fago-na **maruuruu** aia.
1SG wake.up-TR slowly 3SG
'I woke her/him up slowly.'
b. Au fago-na aia **maruuruu**.
1SG wake.up-TR 3SG slowly
'I woke her/him up slowly.'

Similar freedom is observed with other trimoraic particles, such as *fefea* 'how' and *nefea* 'when' (90a–b), as well as *faariki* 'soon', *pelepele* 'fast', and *fooki* 'again'.[29]

(90) *Trimoraic particles can be stranded*
a. Akoe ka k-ounu a-vai **fefea**?
2SG DEP 2SG-drink PL-water how
'How do you drink water?'
b. Akoe ka k-ounu a-vai **nefea**?
2SG DEP 2SG-drink PL-water when
'When did you drink water?'

In contrast, none of the bimoraic particles ever tolerate stranding (91a–b).

(91) *Bimoraic particles cannot be stranded*
a. *Au ounu a-vai **ana**.
1SG drink PL-water still
'I still drink water.'
b. *Avau toova akoe **mai** gaia kina.
1SG bring 2SG DIR.SP P 3SG.LOC
'I brought you here.'

This difference between bimoraic and longer particles follows if an adverb in Imere may optionally be associated with phasal structure (independently necessary for adverbs that must be stranded, like *naanafi* 'yesterday'). Particles that are prosodic words are capable of surfacing in a full phasal structure, because they can satisfy MATCH-PHASE. Bimoraic particles, however, cannot satisfy MATCH-PHASE without violating constraints on word minimality.[30] In this way, Imere morphophonology provides independent evidence for the underlying difference in phasal status proposed here.

[29] The correlation is not perfect, though. *Mataakina* 'well', *sorookina* 'all', and *tlasia* 'enough' resist stranding.

[30] In this view, what I have called adverbial particles and adverbs are all adverbs categorially, but particles appear with less functional structure. A prediction is that there may be adverbial particles that are introduced too high to be in the fronting phrase. Clark (2002) identifies the polar question particle *pe*, which is sentence-final and violates word minimality.

4.4 Ā-Movement of VPs

Before I conclude, let me briefly discuss whether distributed-deletion derivations of the type suggested for predicate fronting here might be expected in other contexts. So far, I have focused on instances of VP-fronting that establish basic word order. However, it is well-known that many languages allow movement of the VP into the left periphery also, with familiar information-structural consequences, as in Hebrew or Limbum (92a–b).

(92) *VP-fronting into left periphery*

a. Liknot et ha-praxim, hi kanta.
buy.INF ACC the-flowers she bought
'As for buying the flowers, she bought them.'
(Hebrew; Landau 2006:37)

b. Á r-[yū msāg] njígwè fɔ̄ bí gī.
FOC 5-buy rice woman DET FUT1 do
'The woman will BUY RICE.'
(Limbum; Hein 2018:3)

Distributed deletion could be available for VP-fronting of this sort as well. However, a key difference between cases like (92a–b) and predicate fronting is that the information-structural effects of VP-fronting are often associated with the whole VP. For example, if focus is taken to be the movement-driving feature in (92b), then that feature is associated with the whole VP. The constraint that achieves distributed deletion in the current proposal, REALIZE GOAL, should not affect such constructions.

Remnant VP-fronting derivations have been proposed for verb-fronting constructions, as in German or Hebrew (93a–b) (e.g., Den Besten and Webelhuth 1990, Müller 1998).

(93) *V-fronting into left periphery*

a. **Lirkod**, Gil lo yirkod ba-xayim.
dance.INF Gil not will.dance in.the-life
'As for dancing, Gil will never dance.'
(Hebrew; Landau 2006:37)

b. **Gelesen** hat das Buch keiner.
read has the book no.one
'As for reading, no one has read the book.'
(German; Müller 1998:1)

A question that arises is whether there are languages in which a reduced object or adverb fronts with the verb in such constructions, when only the verb is associated with the topic/focus interpretation. I offer one explanation for why V-fronting may not involve distributed deletion. A number of authors have argued that constructions like (93a–b) involve long verb movement instead (e.g., Landau 2006, Vicente 2007, Harizanov 2019). Cable (2007, 2010) develops a theory in which all Ā-movement involves Merge of a topic/focus particle with the phrase that undergoes movement, a Q particle. In this view, all Ā-movement is QP-movement, triggered by features of the Q head. This perspective on Ā-dependencies predicts no stranding problem with VP/V-fronting. The

constituent that is merged with a Q particle always moves without violating REALIZE GOAL. In (93a–b), the Q particle would attach directly to the verb, with no intervening material.

There are a number of other questions that I leave for future research, but briefly note here. First, there may be alternations in the DP domain that reflect NP-movement and distributed deletion as well. The mismatches between scope and word order attributed by Belk and Neeleman (2017) to a constraint forcing adjacency of adjectives and nouns look like possible candidates. Another prediction is that distributed deletion when all dependents are phasal could deliver phrasal movement that looks like head movement. Such an account is promising for verb-initial languages like Irish in which only the verb moves, but nonverbal predicates front as phrases (cf. Carnie 1995, Legate 1996).

5 Concluding Remarks

This article has addressed a problem in the literature on crosslinguistic variation in word order: the observation that some VP-internal material cannot be fronted in many VP-fronting languages. I first presented a new case of VP-fronting, in the SVO language Imere, motivated by the placement of adverbial particles. I argued for a distributed-deletion approach to stranding (Fanselow and Ćavar 2001), driven by a constraint that favors realization of the main predicate. This approach explains the stranding problem and derives the generalization that stranding is not found with fronted nonverbal predicates. In addition, this proposal extends to eight other VP-fronting languages and can account for a crosslinguistic correlation between complexity and stranding, building on Clemens 2014, 2019. The account developed here may offer insight into other cases in which surface order conflicts with well-established assumptions about underlying structure.

References

Adger, David. 2007. Stress and phrasal syntax. *Linguistic Analysis* 33:238–266.

Adler, Jeff, Steven Foley, Jed Pizarro-Guevara, Kelsey Sasaki, and Maziar Toosarvandani. 2018. The derivation of verb initiality in Santiago Laxopa Zapotec. In *A reasonable way to proceed: Essays in honor of Jim McCloskey*, ed. by Jason Merchant, Line Mikkelsen, Deniz Rudin, and Kelsey Sasaki, 31–49. https://escholarship.org/uc/item/7z29n70x.

Alderete, John. 1998. Canonical types and noun phrase configuration in Fijian. In *Recent papers in Austronesian linguistics*, ed. by Matt Pearson, 19–44. UCLA Occasional Papers in Linguistics. Los Angeles: UCLA, Department of Linguistics.

Alexiadou, Artemis, and Elena Anagnostopoulou. 2001. The subject-in-situ generalization and the role of Case in driving computations. *Linguistic Inquiry* 32:193–231.

Aranovich, Raúl. 2013. Transitivity and polysynthesis in Fijian. *Language* 89:465–500.

Armstrong, Grant. 2009. Copular sentences in Yucatec Maya. In *Proceedings of CILLA: The Conference on Indigenous Languages of Latin America-IV*. Published online by the University of Texas. https://ailla.utexas.org/islandora/object/ailla%3A280016.

Arregi, Karlos, and Andrew Nevins. 2012. *Morphotactics: Basque auxiliaries and the structure of Spellout.* Dordrecht: Springer.

Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing.* Chicago: University of Chicago Press.

Belk, Zoë, and Ad Neeleman. 2017. AP adjacency as a precedence constraint. *Linguistic Inquiry* 48:1–45.

Bennett, Ryan, Emily Elfner, and Jim McCloskey. 2016. Lightest to the right: An apparently anomalous displacement in Irish. *Linguistic Inquiry* 47:169–234.

Besten, Hans den, and Gert Webelhuth. 1990. Stranding. In *Scrambling and barriers*, ed. by Günther Grewendorf and Wolfgang Sternefeld, 77–92. Amsterdam: John Benjamins.
Borer, Hagit. 2005. *Structuring sense.* Vol. 2: *The normal course of events.* Oxford: Oxford University Press.
Bowers, John. 1993. The syntax of predication. *Linguistic Inquiry* 24:591–656.
Brasoveanu, Adrian. 2011. Sentence-internal different as quantifier-internal anaphora. *Linguistics and Philosophy* 34:93–168.
Bruening, Benjamin. 2001. QR obeys Superiority: Frozen scope and ACD. *Linguistic Inquiry* 32:233–273.
Cable, Seth. 2007. The grammar of Q: Q-particles and the nature of *wh*-fronting, as revealed by the *wh*-questions of Tlingit. Doctoral dissertation, MIT.
Cable, Seth. 2010. *The grammar of Q: Q-particles,* wh-*movement, and pied-piping.* Oxford: Oxford University Press.
Carlson, Greg. 1987. *Same* and *different*: Some consequences for syntax and semantics. *Linguistics and Philosophy* 10:531–565.
Carnie, Andrew. 1995. Non-verbal predication and head movement. Doctoral dissertation, MIT.
Chomsky, Noam. 1994. Bare phrase structure. MIT Occasional Papers in Linguistics 5. Cambridge, MA: MIT, MIT Working Papers in Linguistics.
Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. by Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.
Chung, Sandra. 2005. What fronts? On the VP-raising account of verb-initial order. In *Verb-first: On the ordering of verb-initial languages*, ed. by Andrew Carnie, Heidi Harley, and Sheila Ann Dooley, 9–30. Amsterdam: John Benjamins.
Cinque, Guglielmo. 1999. *Adverbs and functional heads.* Oxford: Oxford University Press.
Cinque, Guglielmo. 2005. Deriving Greenberg's Universal 20 and its exceptions. *Linguistic Inquiry* 36: 315–332.
Clark, Ross. 1975. Mele notes. Working Papers in Anthropology, Archaeology, Linguistics, Maori Studies 40. University of Auckland.
Clark, Ross. 1998. *A dictionary of the Mele language (Atara Imere), Vanuatu.* Canberra: Pacific Linguistics.
Clark, Ross. 2002. Ifira-Mele. In *The Oceanic languages*, ed. by John Lynch, Malcolm Ross, and Terry Crowley, 681–693. London: Curzon Press.
Clemens, Lauren. 2014. Prosodic noun incorporation and verb-initial syntax. Doctoral dissertation, Harvard University.
Clemens, Lauren. 2019. Prosodic noun incorporation: The relationship between prosody and argument structure in Niuean. *Syntax* 22:337–377.
Clemens, Lauren. 2021. The use of prosody as a diagnostic for syntactic structure: The case of verb-initial order. In *Parameters of predicate fronting*, ed. by Vera Lee-Schoenfeld and Dennis Ott, 63–95. Oxford: Oxford University Press.
Clemens, Lauren, and Jessica Coon. 2018a. Deriving verb-initial word order in Mayan. *Language* 94:237–280.
Clemens, Lauren, and Jessica Coon. 2018b. Prosodic constituency of verb-initial clauses in Ch'ol. In *Proceedings of the Workshop on Structure and Constituency in the Languages of the Americas (WSCLA 2016)*, ed. by Megan Keough, Natalie Weber, Andrei Anghelescu, Sihwei Chen, Erin Guntly, Daniel Reisinger, and Oksana Tkachman, 88–100. Vancouver, BC: UBCWPL and PNWLL Press.
Collins, James. 2017. Samoan predicate initial word order and object positions. *Natural Language and Linguistic Theory* 35:1–59.
Compton, Richard, and Christine Pittman. 2010. Word-formation by phase in Inuit. *Lingua* 120:2167–2192.
Coon, Jessica. 2010a. Complementation in Chol (Mayan): A theory of split ergativity. Doctoral dissertation, MIT.
Coon, Jessica. 2010b. VOS as predicate fronting in Chol Mayan. *Lingua* 120:345–378.
Coon, Jessica. 2016. Mayan morphosyntax. *Language and Linguistics Compass* 10:515–550.
Derbyshire, Desmond. 1979. Hixkaryana. Doctoral dissertation, University of London.

Duarte, Fabio Bonfim. 2012. Tenetehára: A predicate-fronting language. *Canadian Journal of Linguistics* 57:359–386.
Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.
Ernst, Thomas. 2001. *The syntax of adjuncts.* Cambridge: Cambridge University Press.
Fanselow, Gisbert, and Damir Ćavar. 2001. Remarks on the economy of pronunciation. In *Competition in syntax*, ed. by Gereon Müller and Wolfgang Sternefeld, 107–150. Berlin: Mouton de Gruyter.
Forbes, Clarissa. 2018. Persistent ergativity: Agreement and splits in Tsimshianic. Doctoral dissertation, University of Toronto.
Fox, Danny, and David Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31:1–45.
Grimshaw, Jane. 1990. *Argument structure.* Cambridge, MA: MIT Press.
Harizanov, Boris. 2019. Head movement to specifier positions. *Glossa* 4. https://doi.org/10.5334/gjgl.871.
Harley, Heidi. 1997. If you have, you can give. In *Proceedings of the 15th West Coast Conference on Formal Linguistics*, ed. by Brian Agbayani and Sze-Wing Tang, 193–207. Stanford, CA: CSLI Publications.
Harley, Heidi. 2002. Possession and the double object construction. *Yearbook of Linguistic Variation* 2: 29–68.
Harley, Heidi. 2013. Getting morphemes in order: Merger, affixation, and head movement. In *Diagnosing syntax*, ed. by Lisa Lai-Shen Cheng and Norbert Corver, 44–74. Oxford: Oxford University Press.
Hein, Johannes. 2018. Verbal fronting: Typology and theory. Doctoral dissertation, Universität Leipzig.
Ishihara, Shinichiro. 2007. Major phrase, focus intonation, multiple spellout. *The Linguistic Review* 24: 137–167.
Johnson, Kyle. 1991. Object positions. *Natural Language and Linguistic Theory* 9:577–636.
Johnson, Kyle. 2012. Towards deriving differences in how *wh* movement and QR are pronounced. *Lingua* 122:529–553.
Kahnemuyipour, Arsalan. 2004. The syntax of sentential stress. Doctoral dissertation, University of Toronto.
Kalin, Laura. 2014. The syntax of OVS word order in Hixkaryana. *Natural Language and Linguistic Theory* 32:1089–1104.
Kayne, Richard. 1994. *The antisymmetry of syntax.* Cambridge, MA: MIT Press.
Koizumi, Masatoshi. 1995. Phrase structure in Minimalist syntax. Doctoral dissertation, MIT.
Kratzer, Angelika, and Elisabeth Selkirk. 2007. Phase theory and prosodic spell-out: The case of verbs. *The Linguistic Review* 24:93–135.
Landau, Idan. 2006. Chain resolution in Hebrew V(P) fronting. *Syntax* 9:32–66.
Legate, Julie Anne. 1996. Non-verbal predication in Irish. *Toronto Working Papers in Linguistics* 15:55–69.
Lynch, John, Malcolm Ross, and Terry Crowley. 2002. *The Oceanic languages.* London: Curzon Press.
Marantz, Alec. 1993. Implications of asymmetries in double object constructions. In *Theoretical aspects of Bantu grammar*, ed. by Sam A. Mchombo, 113–150. Stanford, CA: CSLI Publications.
Martí, Luisa. 2022. *Te*-noun prefixes in Imere. Keynote talk, TripleAFLA, The University of Manchester, June 28.
Massam, Diane. 1995. Clause structure and case in Niuean. In *Toronto working papers in linguistics 14*, ed. by Päivi Koskinen, 83–102. Toronto: University of Toronto, Linguistics Graduate Course Union.
Massam, Diane. 1998. Instrumental *aki* and the nature of Niuean transitivity. *Oceanic Linguistics* 37:12–28.
Massam, Diane. 2001. Pseudo noun incorporation in Niuean. *Natural Language and Linguistic Theory* 19: 153–197.
Massam, Diane. 2010. Deriving inverse order. In *Austronesian and theoretical linguistics*, ed. by Raphael Mercado, Eric Potsdam, and Lisa deMena Travis, 271–296. Amsterdam: John Benjamins.
Massam, Diane, and Carolyn Smallwood. 1997. Essential features of predication in English and Niuean. In *NELS 27*, ed. by Kiyomi Kusumoto, 263–272. Amherst: University of Massachusetts, Graduate Linguistics Students Association.

Medeiros, David. 2013. Hawaiian VP-remnant movement: A cyclic linearization approach. *Lingua* 127: 72–97.
Merchant, Jason. 2019. Roots don't select, categorial heads do: Lexical-selection of PPs may vary by category. *The Linguistic Review* 36:325–341.
Milner, George Bertram. 1972. *Fijian grammar.* Suva: Government Press.
Moltmann, Friederike. 1992. Reciprocals and *same/different*: Towards a semantic analysis. *Linguistics and Philosophy* 15:411–462.
Mosel, Ulrike, and Even Hovdhaugen. 1992. *Samoan reference grammar.* Oslo: Scandinavian University Press.
Müller, Gereon. 1998. *Incomplete category fronting.* Dordrecht: Kluwer.
Norris, Mark. 2014. A theory of nominal concord. Doctoral dissertation, University of California, Santa Cruz.
Nunes, Jairo. 1995. The copy theory of movement and linearization of chains in the Minimalist Program. Doctoral dissertation, University of Maryland.
Nunes, Jairo. 2004. *Linearization of chains and sideward movement.* Cambridge, MA: MIT Press.
Oehrle, Richard. 1976. The syntactic status of the English dative construction. Doctoral dissertation, MIT.
Pearson, Matt. 1998. Predicate raising and "VOS" order in Malagasy. In *The structure of Malagasy: Volume 2*, ed. by Ileana Paul, 94–110. Los Angeles: UCLA, Department of Linguistics.
Pearson, Matt. 2007. Predicate fronting and constituent order. Ms., Reed College.
Pensalfini, Robert. 1995. Malagasy phrase structure and the LCA. In *Papers from the Fifth Annual Meeting of the Southeast Asia Linguistics Society*, ed. by Shobhana L. Chellian and Willem J. De Reuse, 245–260. Tempe: Arizona State University, Program for Southeast Asian Studies.
Piggott, Glyne. 2010. Cyclic spell-out and the typology of word minimality. Ms., McGill University.
Pollock, Jean-Yves. 1989. Verb movement, Universal Grammar, and the structure of IP. *Linguistic Inquiry* 20:365–424.
Preminger, Omer. 2014. *Agreement and its failures.* Cambridge, MA: MIT Press.
Rackowski, Andrea, and Lisa deMena Travis. 2000. V-initial languages: X or XP movement and adverb placement. In *The syntax of verb-initial languages*, ed. by Andrew Carnie and Eithne Guilfoyle, 117–142. Oxford: Oxford University Press.
Richards, Norvin. 2016. *Contiguity Theory.* Cambridge, MA: MIT Press.
Sato, Yosuke, and Yoshihito Dobashi. 2016. Prosodic phrasing and the *that*-trace effect. *Linguistic Inquiry* 47:333–349.
Seiter, William. 1980. *Studies in Niuean syntax.* New York: Garland.
Simpson, Andrew, and Zoe Wu. 2002. IP-raising, tone sandhi and the creation of S-final particles: Evidence for cyclic Spell-Out. *Journal of East Asian Linguistics* 11:67–99.
Travis, Lisa deMena. 2005. VP-, D^0-movement languages. In *Crosslinguistic research in syntax and semantics: Negation, tense, and clausal architecture*, ed. by Raffaella Zanuttini, Héctor Campos, Elena Herburger, and Paul Portner, 127–147. Washington, DC: Georgetown University Press.
van Urk, Coppe. 2020. Object licensing in Fijian and the role of adjacency. *Natural Language and Linguistic Theory* 38:313–364.
Vicente, Luis. 2007. The syntax of heads and phrases: A study of verb (phrase) fronting. Doctoral dissertation, Leiden University.

Coppe van Urk
Department of Linguistics
Queen Mary University of London

c.vanurk@qmul.ac.uk