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# Diagnosing Predicate Fronting in Samoan

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## Abstract

The Predicate Fronting Hypothesis states that verb-initial (VI) ordering may be derived by raising the VP constituent (or larger) to a specifier position higher than the subject (e.g., Massam’s (2001) analysis of Niuean). For VSO languages, the PFH states that (i) the internal argument raises out of the VP to a position below the subject before (ii) the VP moves to the higher position. This talk builds a comprehensive analysis of VSO order in Samoan, employing the Predicate Fronting analysis, arguing the account does better than competing derivational accounts (e.g., a head movement account). Evidence for this comes from data showing that VP-internal material and VP modifiers must appear adjacent to the verb. I also argue that a constraint against the coordination of unaccusative and unergative intransitive verbs in Samoan is a prediction of the PFH. As the internal argument must move out of the VP before predicate fronting takes place, unaccusative subjects are predicted to bind a VP-internal trace. This blocks coordination with unergative VPs which do not contain a trace (by the Coordinate Structure Constraint).

## 1 Introduction

This paper provides new diagnostics for the VP-movement account of verb-initial (VI) word order and proposes such an account for Samoan (Polynesian), a language with a basic VSO order (1).<sup>1</sup>

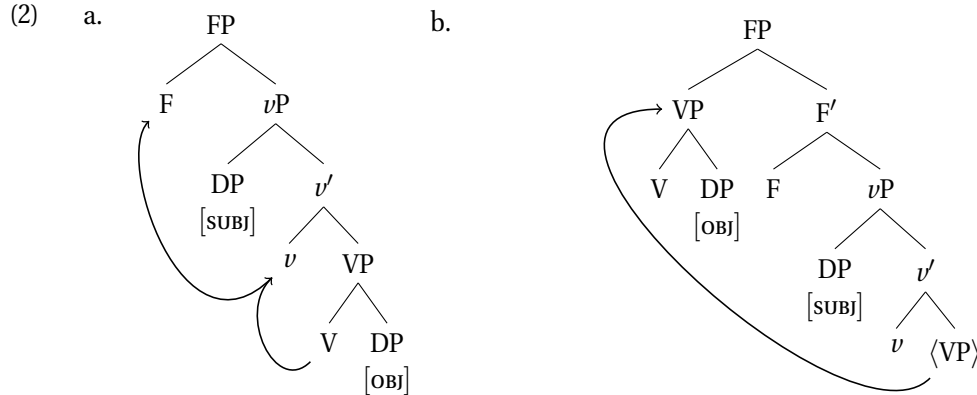
- (1) *‘Ua mele e A’opo le vai.*  
PERF throw.away ERG A’opo the water  
‘A’opo threw away the water.’

Starting from a theoretical perspective which assumes some version of universal clause structure (e.g., Kayne 1994), and in particular assuming the VP-constituent is universal, we find two dominant theories of how VI order is derived via movement of some syntactic item containing the verb to some higher functional projection (given an arbitrary label F throughout).

- a. **V<sup>0</sup>-Movement:** Head movement of the V<sup>0</sup> to a position higher than the subject (2a).
- b. **VP-Movement:** Phrasal movement of the VP to a position higher than the subject (2b).

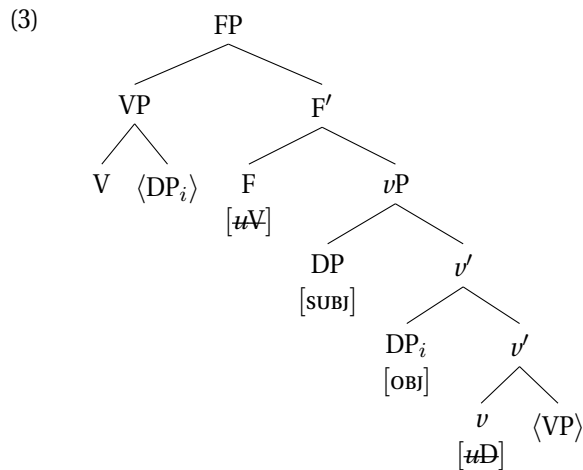
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<sup>1</sup>Abbreviations: ACC accusative, CAUS causative, DAT dative, DAT.PRO dative pronoun, DIR directional particle, DU dual, ERG ergative, ITER iterative, LOC locative, NOM nominative, PERF perfect aspect, PRES present, PL plural, SG singular



Determining which analysis is correct for a given V1 language requires an understanding of the analyses' empirical implications given some fixed assumptions. In particular, if we assume (i) subjects are in specifier positions, (ii) phrasal movement is to specifier positions, and (iii) specifiers branch leftward, the two theories make differing predictions regarding the structural and linear positions of certain items. For example, under the  $V^0$ -movement account, VP-internal material is predicted to occur to the right of the subject, while under the VP-movement account, VP-internal material is brought along with the VP to the left of the subject. Samoan data concerning the pre-subject positioning of VP-internal material, thus supporting a VP-movement account, is presented in Section 2.

Further, given assumptions (i) and (iii), the two theories disagree on whether the object is required to move in sentences with VSO order. Under a  $V^0$ -movement account, VSO order comes free. The object may remain within the (headless) VP after  $V^0$ -movement takes place (2a). Conversely, under the VP-movement account, leaving the object as the complement of V generates [VO]S order (2b). To generate VSO order, the object must vacate the VP before VP-movement takes place to avoid fronting to a position to the left of the subject. Therefore, the VP-movement account employs "remnant" movement, movement of an XP constituent which itself contains the copy (or trace, depending on your theory of movement) of a moved constituent (3).



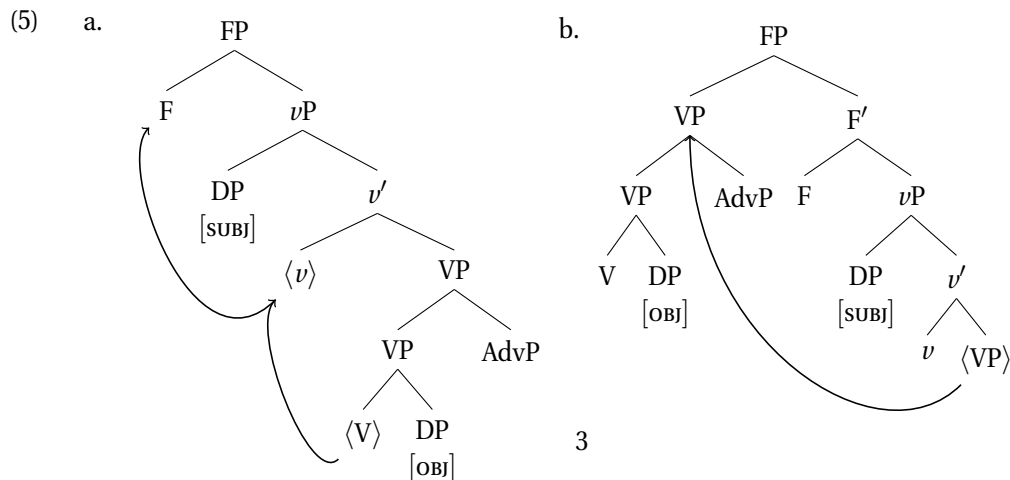
I argue that the object movement required by VP-movement in VSO languages correctly predicts an unusual constraint on the coordination of intransitives in Samoan, which would remain mysterious under a  $V^0$ -movement analysis. Coordination of intransitive predicates in Samoan is licit only when both predicates are unergative (4a), or when both are unaccusative (4b). Coordinating unergative and unaccusative predicates is not allowed (4c).

- (4) a. *Sā ta'alo ma siva Simi.*  
 PAST play and dance Simi  
 'Simi played and danced.' (✓ UNERG + UNERG)
- b. *Sā taunu'u (mai) ma toefoi Simi.*  
 PAST arrive DIR and leave Simi  
 'Simi was arriving and leaving.' (✓ UNACC + UNACC)
- c. \**Sā taunu'u ma siva Simi.*  
 PAST arrive and dance Simi  
 'Simi arrived and danced.' (✗ UNACC + UNERG)

I suggest that the ungrammatical (4c) is ruled out via the Coordinate Structure Constraint (CSC). If unaccusative subjects are underlyingly VP-internal and move to a VP-external position, they should leave a copy inside the VP. This copy should prevent the VP from being conjoined with any VP that doesn't contain a copy (via the CSC), such as VPs headed by unergative verbs. I discuss this data set and analysis in Section 3.

## 2 Fronting of VP-internal material

The competing theories make different predictions for the position of any VP-internal or adjoined material that is not the internal argument (e.g., resultative secondary predicates, directional particles, manner adverbs). The  $V^0$ -movement account predicts that VP-internal or adjoined material should be stranded and appear to the right of the subject ((5a) exemplifies this with a VP-adjunct). The VP-movement account however allows VP-internal or adjoined material to front with the VP. In cases where the undominated VP moves, this material appears to the left of the subject (5b).



In this section, I provide evidence that the fronted constituent in Samoan is larger than just a  $V^0$ . The constituent includes material frequently argued to appear internal to the VP. This section focuses on the linear positions of resultative secondary predicates, directional particles, adverbials, restructuring predicates, and coordination. These data are new kinds of diagnostics for VP-movement.

## 2.1 Resultative secondary predication

By resultative secondary predicates, I mean XPs which denote the eventual state of the internal argument (unaccusative or passive subject or transitive object) as a result of the event denoted by the main predicate.

- (6)
- a. Joe wiped the table<sub>i</sub> clean<sub>i</sub>.
  - b. The table<sub>i</sub> was wiped *t<sub>i</sub>* clean.
  - c. The bottle<sub>i</sub> broke *t<sub>i</sub>* open

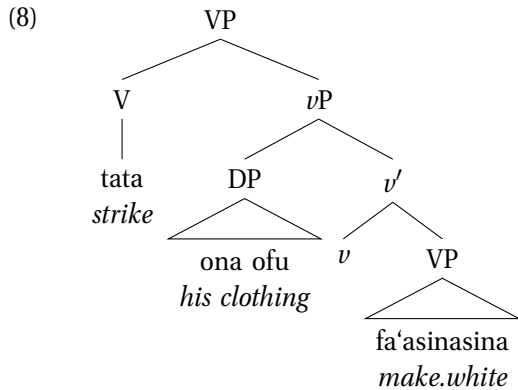
In Samoan, resultative secondary predicates show up adjacent to the verb, giving Aux-V-XP-S-O order, as in (7). The resultative XP may never appear to the right of the post-verbal arguments (7a). Secondary predicates in (7) exhibit the hallmark properties of resultatives, being stage-level predicates, denoting result states directly caused by the event denoted by the main verb (Rappaport Hovav and Levin 2001; Levin and Rappaport Hovav 1995).

- (7)
- a. *sei vagana ai 'ua [tatā fa'asinasina] ona ofu \*(fa'asinasina)*  
only except DAT.PRO PERF strike CAUS.white his.PL clothing CAUS.white  
‘(no man will be saved)...except only he whose clothes are [washed white].’  
(Book of Mormon, Alma 5:21)
  - b. *'ua [efu'efu fa'asamasama] lona fatafata ma lona ua*  
PERF fade CAUS.yellow his chest and his neck  
‘His chest and neck [faded yellow].’  
(Thomas Powell (1886), A Manual of Zoology in the Samoan Dialect: 157)
  - c. *'O se tasi o 'auala e ["fofo" fa'afilēmū] ai, ma [fa'atutupu mai]*  
TOP a one of means PRES heal CAUS.silent DAT.PRO, and CAUS.grow DIR  
*ai ni fautuaga e gafatia*  
DAT.PRO some advice PRES realistic  
‘It is one of the ways such that it [“heals” to calmness] and it [creates forth] realistic proposals.’  
(Petition 2002/44 of Dr George Paterson Barton Vaitoa Sa and 100,000 others: 1.5C)
  - d. *'Ua 'ou va'ai atu 'ua [tatipi fa'alaiti] 'uma o'u ofu aoga*  
PERF 1SG see DIR PERF cut.PL small all my.PL dresses school  
‘I saw that all my school dresses were [cut into small pieces].’  
(Mosel and Hovdhaugen 1992; 398)

- e. *le failele lea e tau [fa'asusu fa'amoemoe] lana pepe*  
 the mother that PRES try CAUS.suck CAUS.sleep her baby  
 'That mother that tries to [breastfeed to sleep] her baby.' (Mosel and Hovdhaugen 1992; 402)

Resultatives cross-linguistically tend to predicate of internal arguments (unaccusative subjects, transitive objects) only (Simpson 1983; Levin and Rappaport Hovav 1995).<sup>2</sup>

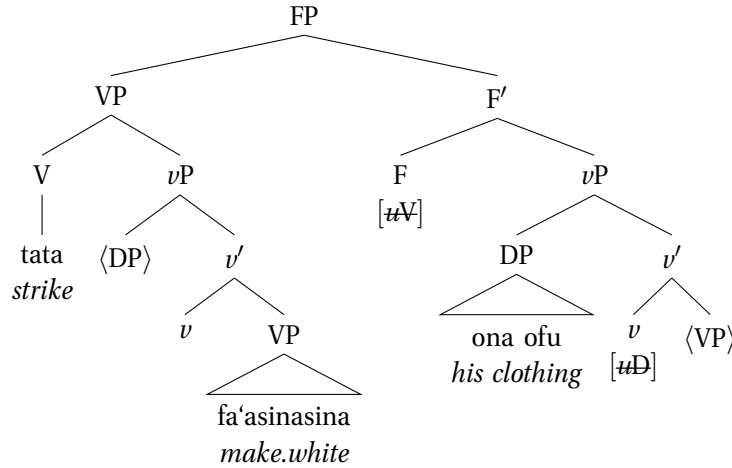
There is converging syntactic evidence that adjectival resultatives occur VP-internally (Carrier and Randall 1992; Roberts 1988; Hoekstra 1988; Levin and Rappaport Hovav 1995), and therefore low enough structurally for the internal argument to saturate the resultative predicate in the compositional semantics. Syntactic analyses differ on the attachment site of the resultative predicate: It has been argued to be embedded within a small clause complement of V (Hoekstra 1988; Hale and Keyser 2002; Kratzer 2005; Son and Svenonius 2008; Levinson 2010), or as a second complement of V in a ternary branching structure (Simpson 1983; Carrier and Randall 1992; Wechsler 1998). The following partial structure for the Samoan sentence (7) assumes the resultative structure is a  $\nu$ P complement to V (though this is not crucial).



The  $V^0$  movement account predicts the  $V^0$  vacates the structure in (8), stranding the resultative in the ungrammatical position in (7a). The VP-movement hypothesis predicts that VP-internal material such as resultative secondary predicates should front along with the verb, as sketched in (9).

<sup>2</sup>see Wechsler (1998), Rappaport Hovav and Levin (2001) for counterexamples to this generalisation.

(9)



The linear placement of resultative predicates in Samoan supports a VP-movement analysis. By importing the same reasoning to other kinds of VP-internal or adjoined material, we arrive at similar conclusions, as we see in the following subsections.

## 2.2 Directional particles

Directional particles have been argued to occur VP-internally cross-linguistically (Emonds 1972; Neeleman and Weerman 1993; Harley and Noyer 1998; Ramchand and Svenonius 2002). As expected by the VP-movement account, directional particles occur to the left of the subject. The  $V^0$ -movement account predicts they should be stranded to the right of the subject, which is impossible (10a).

- (10) a. *Na [maua mai] ai la'u tusi \*(mai) i lo'u tinā \*(mai).*  
 PAST get DIR there my letter DIR from my mother DIR  
 'My letter came forth from my mother.' (Mosel and Hovdhaugen 1992; 332)
- b. *'Ua ['uma lemū atu] le vevesi.*  
 PERF finish calm DIR the quarrel  
 'The quarrel calmly finished.' (Mosel and Hovdhaugen 1992; 332)

## 2.3 Manner adverbs

Manner adverbs occur adjacent to the verb. If manner adverbs are thought of as VP-internal or VP-adjoined, the VP-movement account correctly predicts that they occur to the left of the subject, and never appear after the subject as predicted by the  $V^0$ -movement account.

- (11) a. *'Ua [sau vave] le teine \*(vave).*  
 PERF come quickly the girl quickly  
 'The girl came quickly.' (Milner 1966; 315)

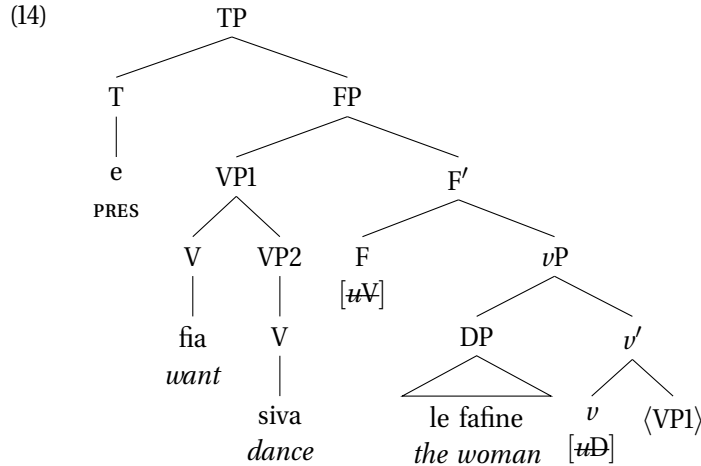
- b. *fa'atonu leoleo o le fale e [leoleo lelei] i lā'ua.*  
 instruct guards of the house to guard well LOC 3DU  
 '(He) instructed the guards of the house to guard those two well.' (Acts 16:23)

## 2.4 Restructuring predicates

A particularly interesting data set involves a set of lexical items in Samoan which occur directly to the left of the verb. Their meanings look very much like the meanings of restructuring predicates (in the sense of Wurmbrand (2001)) cross-linguistically.

- (12) *fia*, 'want'; *tau*, 'try'; *amata*, 'start'; *uma*, 'finish'; *sāga*, 'continue'; *fa'atagā*, 'pretend'
- (13) a. *E lē [fia mafaufau] Elena 'i lona tagi.*  
 PRES not want think Elena DAT her cry  
 'Elena does not want to think of her crying.' (Mosel and Hovdhaugen 1992; 383)
- b. *Na ia [tau fa'ase'e mai] a'u.*  
 PAST 3SG.NOM try flatter DIR 1SG.ACC  
 'He tried to flatter me.' (Milner 1966; 246)

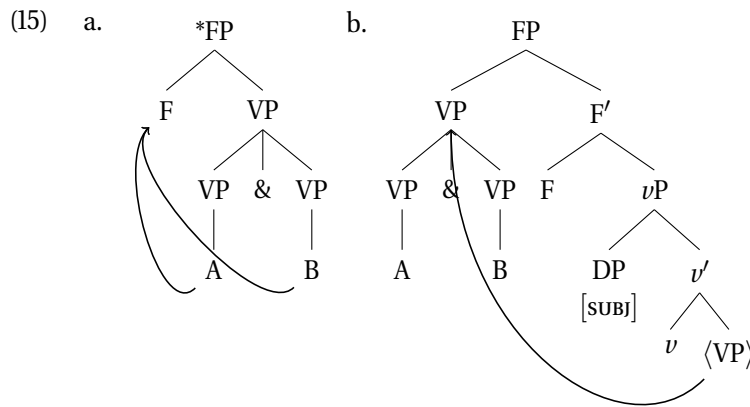
The Wurmbrand (2001) analysis of restructuring predicates takes these predicates to be of category V, embedding a VP in their complement position. The data in (13) are expected under an analysis where these predicates take a VP-complement, and the undominated VP undergoes VP-movement.<sup>3</sup>



<sup>3</sup>Wurmbrand (2013) suggests restructuring predicates in some Austronesian languages select for a *v*P headed by a subjectless *v*. This alternative account can be adopted without any adverse effects for the VP-movement account.

## 2.5 Coordinating verbs

The two theories of V1 order make differing predictions for the coordination of two or more non-identical predicates. The  $V^0$ -movement account predicts that the coordination of non-identical predicates at the VP-level should be impossible: the two predicates are unable to vacate their respective VPs into a single head position, leading to the impossible structure (15a). The VP-movement account, however, predicts that the coordination of distinct predicates at the VP-level should be possible (15b). As for identical predicates, coordination should be permitted under both theories. The head movement structure in (15a) is rescued under the principle of Across-The-Board movement.



The VP-movement account predicts that there should be no impediment to the coordination of VP constituents headed by different lexical items. Predicates in Samoan (along with their modifiers) are able to coordinate at the VP level.

- (16) a. *Sā* *[[auli fa'amafolafola]* *ma* *[gaugau fa'alelei]* *e le tamaloa le tagamea.*  
 PAST iron CAUS.flat and fold.ITER CAUS.good ERG the man the shirt  
 'The man ironed the shirts flat and folded them well..'
- b. *E* *[[aulelei tele]* *ma* *[atamai tele]* *foi le fafine.*  
 PRES beautiful very and intelligent very EMPH the woman  
 'The woman is very beautiful and very intelligent.'

Internally complex predicates such as in (17) are predicted by the VP-movement account, but not predicted by an account in which only the  $V^0$  fronts, leaving the VP-internal material in-situ.

- (17) *Sā* *[tau [[tofi t<sub>i</sub> su'e]* *ma* *[fa'apa'ū t<sub>i</sub> mai]* *vave]* *e Simi le lā'au<sub>i</sub>.*  
 PAST try cleave open and make.fall DIR quickly ERG Simi the tree  
 ÔSimi tried to cut open the tree and make it fall down quickly.Ô



## 2.6 Bare NP objects

Previous VP-movement analyses of V1 order (e.g., Massam 2001; Coon 2010b) discuss constructions in which bare NP objects fail to move out of the VP, fronting along with the predicate, deriving VOS order. Non-specific, bare NP objects are always strictly V-adjacent in Samoan, yielding VOS order. A transitive sentence with an indefinite object (18a), may be roughly paraphrased as in (18b), with a verb-adjacent bare NP object. I propose to analyse this paradigm in the same way as previous VP-movement analyses. An elaboration on this data set and analysis is in Collins 2014b.

- (18) a. *E [su'e] pea e le teine [ni maile ma moa].*  
 PRES search continuously ERG the girl some dog and chicken  
 "The girl continuously searches for some dogs and chickens."  
 b. *E [su'e maile ma moa] pea le teine.*  
 PRES search dog and chicken continuously the girl  
 "The girl continuously searches for dogs and chickens."

## 3 Object movement and the CSC

The VP-movement analysis of VSO ordering necessitates the movement of the object out of the VP (if the object is a full DP). We should therefore find evidence for movement of the object. I suggest that restrictions on the coordination of intransitives in Samoan can be understood as the object movement blocked by the Coordinate Structure Constraint.

Samoan allows the coordination of unergatives with unergatives (19a) and unaccusatives with unaccusatives (19b).

- (19) a. *Sā siva ma ta'alo Simi.*  
 PAST dance and play Simi  
 'Simi was dancing and playing.' (✓ UNERG + UNERG)  
 b. *Sā taunu'u (mai) ma toefoi Simi.*  
 PAST arrive DIR and leave Simi  
 'Simi was arriving and leaving.' (✓ UNACC + UNACC)

Samoan disallows the coordination of unaccusative and unergative predicates.

- (20) a. *\*[sā | na | 'ua] taunu'u (mai) ma siva Simi.*  
 PAST<sub>1</sub>/PAST<sub>2</sub>/PERF arrive DIR and dance Simi  
 'Simi arrived and danced.' (✗ UNACC + UNERG)  
 b. *\*[sā | na | 'ua] siva ma taunu'u (mai) Simi.*  
 PAST<sub>1</sub>/PAST<sub>2</sub>/PERF dance and arrive DIR Simi  
 'Simi danced and arrived.' (✗ UNERG + UNACC)

Speakers paraphrase the ill-formed examples with multiple clauses.

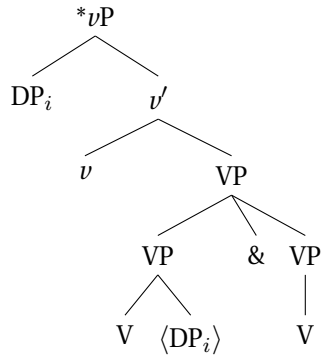
- (21) a. *Sā taunu'u mai Simi ma toe amata 'ona siva.*  
 PAST arrive DIR Simi and then start COMP dance  
 'Simi arrived and started to dance.'
- b. *Na amata mai le siva a Simi i le taimi na taunu'u mai ai.*  
 PAST start DIR the dance of Simi at the time PAST arrive DIR LOC  
 'Simi started to dance at the time that he arrived there.'

We find the same pattern in pairings of multiple other predicates.

- (22) a. *Sā tī ma toe pē le molī.*  
 PAST turn.on and then turn.off the light  
 'The light turned on and turned off.' (✓ UNACC + UNACC)
- b. *\*Sā tī ma toe susulu malosi le molī.*  
 PAST turn.on and then shine strong the light  
 'The light turned on and shined bright.' (✗ UNACC + UNERG)
- (23) a. *Sā fua ma pē le foala'au.*  
 PAST bloom and wilt the flower  
 'The flower bloomed and wilted.' (✓ UNACC + UNACC)
- b. *\*Sā fua ma tete le foala'au.*  
 PAST bloom and tremble the flower  
 'The flower bloomed and trembled.' (✗ UNACC + UNERG)
- (24) a. *E fananau ma toe feoti tagata.*  
 PRES born.PL and then die.PL people  
 'People are born and then die.' (✓ UNACC + UNACC)
- b. *\*Sā mafatua ma oti le toeina.*  
 PAST sneeze and die the old.man  
 'The man sneezed and died.' (✗ UNERG + UNACC)

$V^0$ -movement should rule out any coordination of VPs with non-identical heads, predicting the entire set of data above to be ungrammatical. The VP-movement account, on the other hand, provides a way of accounting for this paradigm. Under a view in which unaccusative subjects originate VP internally, they must raise out of the VP to generate the right word order, binding a VP-internal copy. Therefore, unaccusative VPs (containing a copy left by the A-moved subject) should be unable to coordinate with unergative VPs (not containing a copy) by the Coordinate Structure Constraint (CSC). (25) sketches the  $\nu P$  only, without any higher structure triggering VP movement. The unaccusative subject binds a VP-internal copy, blocking coordination.

(25)



The coordination of intransitives (either unergative or unaccusative transitives) and transitives is also ungrammatical. I take these kinds of examples to be uninformative: this construction can fail for reasons independent of the CSC. One route to the failure of transitive-intransitive coordination is that there is a confound in determining whether the subject gets ergative or absolutive/nominative case (see Collins 2014a for an analysis of the Samoan ergative-aligned morphological case system). Assuming the view of the structural instantiation of clausal transitivity in Legate 2008; Coon 2010a; Deal 2010 etc., another possible confound is uncertainty as to whether the  $\nu$ P is headed by transitive  $\nu$  or intransitive  $\nu$ .

The majority of putative CSC violations observed in the literature are in the A'-movement domain, for example, the original Ross (1967) examples involve A'-dependencies.

- (26)
- a. \*The lute<sub>i</sub> which [Henry plays  $t_i$  and sings madrigals] is warped.
  - b. \*Which trombone<sub>i</sub> did the [nurse polish  $t_i$  and the plumber computed my tax].
  - c. \*The plumber<sub>i</sub> [who the nurse polished her trombone and  $t_i$  computed my tax] was a hefty fellow.

If the CSC is blocking the ill-formed Samoan examples (19)-(24), this is a potential example of the CSC being violated by A-movement. Evidence is needed suggesting that the movement of the unaccusative subject out of the VP is best categorised as A-movement: does it license parasitic gaps? Does it feed binding relations? Is it clause-bounded? I leave these questions for future work, as well as several other question. For example, this paper hedges on the identity of F (projecting the structure hosting the VP). I have also focused on the movement of DPs out of the VP. What analysis is appropriate for CP or PP complements of V? In terms of higher level questions, the derivational approach taken here assumes a universal underlying word order. If we abandon or weaken this assumption, how does the VP-movement analysis empirically differ from a base generated view of V1 ordering?

## 4 Conclusion

The appearance of VP-modifiers to the left of the subject in Samoan indicates that the clause-initial predicate appears within a VP-constituent. This is consistent with the VP-movement account of

verb-initial word order, but not with a  $V^0$ -movement account. I argue that the movement of the object out of the VP (forced by the VP-movement account) is independently motivated by the ban on unergative-unaccusative coordination. I intend the diagnostics presented in this paper to contribute to an inventory of diagnostics for determining the best derivational analysis for a verb-initial language.

## Acknowledgements

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