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Hawaiian *ai* at the Syntax-Phonology Interface

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1 Introduction

This paper examines the Hawaiian particle *ai*, which occurs obligatorily in a number of constructions with non-canonical word order.[1] In particular, *ai* appears in or near the gap position of some moved adjuncts and arguments, including gaps formed by what is presumably null-operator movement. (1) and (2) illustrate the occurrence of *ai* (boldfaced) for adjuncts and arguments, respectively.

(1) a. Ua noho ke kanaka i Hilo.
PERF stay the man at Hilo
The man stayed at Hilo.

b. I Hilo kahi i noho **ai** ke kanaka.
at Hilo where PERF stay ai the man
At Hilo where the man stayed. (Elbert & Pukui 1979)

(2) a. Ua kūʻai ʻo Kekoa i ka iʻa.
PERF buy SUBJ Kekoa OBJ the fish
Kekoa bought a fish.

b. He aka ka mea a Kekoa i kūʻai **ai**.
A what the thing PERS Kekoa PERF buy ai
What is the the thing that Kekoa bought? (Fieldnotes)

[1]I would like to acknowledge Diane Massam, Susana Bejar, Lauren Clemens, and all of the participants associated with the Workshop on Polynesian Syntax. Moreover, I want to recognize the massive impact Diane Massam's work has had for me and for the field of Polynesian linguistics. I also thank two reviewers for their comments on this paper. Further, I thank the two Niʻihau speakers who assisted me with the Hawaiian data, as well as Samuel D. Epstein and Acrisio Pires, who patiently worked with me on preliminary ideas in this paper while I was still learning the basics of syntactic theory.

In (1b), the adjunct *i hilo* is in focus at the front of the construction (Elbert & Pukui 1979, Hawkins 1979), as compared to its non-focused, sentence-final position (1a). Likewise in (2), the psuedo-clefted wh-question (2b) has non-canonical word order as indicated by the placement of the complement *ka iʻa* in the non-question (2a), with *ai* obligatorily occurring in or near the gap position.[2]

The fact that the distribution of *ai* depends upon grammatical factors has intrigued researches for several decades. For example, Chapin (1974) discusses the history of *ai* in Proto-Polynesian and the various cognate forms in the modern Polynesian languages. While *ai* has different grammatical distributions in different Polynesian languages (see e.g. Chung (1978), Chung & Seiter (1980), Massam & Roberge (1997)), this paper is primarily concerned with *ai* in Hawaiian. Nevertheless, I take as a starting place Chapin (1974)'s claim that *ai* should not be understood lexically but only grammatically. In terms of the formal, Minimalist framework adopted here, this means that *ai* does not have specific lexical features, including phi-features (i.e. person, number, gender features). Instead, the distribution of *ai* is completely controlled by syntactic properties, which explains why *ai* is both i) never optional and ii) only occurs in a sub-set of grammatical constructions with non-canonical word order.

In particular, *ai* has been thought to be required whenever a non-subject appears preverbally (Elbert & Pukui 1979), though I discuss some notable exceptions

[2]Most of the data in this paper comes from either Elbert & Pukui's (1979) grammar or the work of Emily Hawkins (1979, 2000). These sources are largely based on Hawaiian as spoken and written prior to the second world war. As such, these sources represent an older form of the language as spoken today, and especially when compared to speakers from the revitalization movement. Hawkins (1982) reports, in fact, that distributional properties of *ai* are quite different between older speakers & texts, on one hand, and those who learned Hawaiian within revitalization programs, on the other. The other main source of data in this paper is the author's fieldnotes, which represent the knowledge of two native speaker consultants from Ni'ihau. While Ni'ihau speakers learn Hawaiian in the home as their first and primary language, the Ni'ihau dialect has always differed from that described by Elbert & Pukui. However, the Ni'ihau speakers who I consulted had strong intuitions regarding the placement of *ai*, which agreed with the pattern described by Elbert & Pukui, Hawkins, and others. Also, in this paper I follow standard conventions and represent the word 'Hawaiʻi' with a glottal stop ('okina) but not the word 'Hawaiian.'

to this generalization below. In addition, I present data here showing that any displaced argument or adjunct triggers the obligatory occurrence of *ai*, with the exclusion of local subjects. Along the same lines, I argue that fronted pre-verbal constituents which do not trigger *ai* are not displaced (i.e. they are based generated in the fronted position), based on independent evidence from complementizer allomorphy.

In other words, subjects undergoing long-distance movement (beyond their own or nearest dominating clause) and all other displaced arguments and adjuncts require *ai*, a distribution essentially identical to that described by McCloskey's Highest Subjects Restriction (McCloskey 1990), which characterizes the behavior of resumptive pronouns in Irish. For this reason, several researchers working on Hawaiian and Māori, in which *ai* appears to have a very similar distribution, have described *ai* as a kind of resumptive particle (see e.g. Bauer (1982) and Hunter (2007) for Māori, and Hawkins (2000) and Medeiros (2010) for Hawaiian). Note, however, that the set of constructions featuring *ai* in Hawaiian is smaller as compared to Māori, where *ai* has been argued to involve aspect distinctions (Hunter 2007) as well as for marking purpose clauses (Pearce & Waite 1997).

Nevertheless, one property of Hawaiian *ai* suggests strongly against an analysis in terms of resumption, namely that *ai* is an invariant form which only appears in displacement structures. This differs from known patterns of resumption cross-linguistically, in which resumption is thought to always feature either standard pronouns or other items with phi-features, such as idioms (McCloskey 2006). It is relevant in this context to consider that Hawaiian has a rich pronominal system, with 11 distinct forms of personal pronouns in the nominative case alone, with all three persons represented, a dual/plural distinction, and inclusive/exclusive distinction in the first person. While Hawaiian does not feature phi-agreement (e.g. no subject-verb agreement nor concord agreement within DPs), current theories of resumption also do not depend upon phi-agreement. Rather, several theories of

resumption account for the feature-rich nature of resumptive elements via base-generation of the resumptive element along with binding (Aoun et al. 2001) or stranding and chain formation (Boeckx 2003). Therefore, developing a resumption analysis of Hawaiian *ai* runs counter not only to cross-linguistic generalizations but also established theoretical accounts of resumption.

As an alternative to a resumption analysis, I propose that *ai* is a repair for an illicit linearization output. Specifically, *ai* is inserted as a last resort mechanism to rescue conflicting linearization instructions at the syntax-phonology interface, where the linearization mechanism is understood along the lines of Müller (2007), which adapts the linearization model proposed by Fox & Pesetsky (2005). Therefore insertion of *ai* is taken to be a repair of an illicit linearization output, in a similar fashion to how Fox & Pesetsky (2005) argue that ellipsis may rescue illicit linearization outputs in English.

The analysis proposed here allows an understanding of *ai* in similar terms to the linearization model of Hawaiian word order presented in Medeiros (2013), which accounts for basic word order facts as well as a general subject/non-subject asymmetry in the grammar. Under the analysis presented here, the similarities between the distribution of *ai* and the distribution of resumptive pronominals, for those languages which have them, follows not from a unified mechanism, but rather by general properties of locality. Specifically, while the mechanisms differ, the same principles and design features of syntax, such as cyclic spell-out domains, apply for both Hawaiian *ai* and for those languages which feature resumption.

The remainder of this paper is structured as follows. First, I will present a brief overview of Hawaiian morpho-syntax, along with some of the formal analyses that account for the word order properties of Hawaiian and related Polynesian languages. Then, I will present a linearization algorithm, based on the analysis in Medeiros (2013), which derives the main clause word order of Hawaiian. The following section will lay out the empirical distribution of *ai* in detail, applying

the linearization algorithm to each set of data which either requires *ai* (relative clauses, focus constructions) or prohibits *ai* (local subject movement, such as subject raising under negation). I therefore argue that the same principle underlying the main clause word order facts can also extend to the facts surrounding the distribution of *ai* in a way that is entirely non-construction specific.

2 Overview of Hawaiian Syntax

Hawaiian, like many other Polynesian languages, has VSO word order, such that not only objects but also verbal complements more generally follow the subject. This is illustrated in (3), in which the bracketed, embedded clause follows the matrix subject, with the embedded clause exhibiting VSO order.

(3) Ua noʻonoʻo ʻo Kekoa [ke ʻai nei ʻo Noelani i ka poi.]
PERF think SUBJ Kekoa [PRES eat DIR SUBJ Noelani OBJ the poi.]
Kekoa thought [that Noelani is eating poi.] (Medeiros 2013)

As visible in (3), tense and aspect are indicated by preverbal particles, with postverbal particles (glossed here as directional particles) contributing for some tenses and aspects. The case alignment in Hawaiian is nominative-accusative, with proper noun nominatives typically preceded by the particle *ʻo* or personal article *a*. Objects are marked with with the particle *i*.

As discussed in Medeiros (2013), Hawaiian allows VOS word order under conditions that appear to apply across many Polynesian languages, and which are discussed in depth by Massam (2001) with respect to Niuean. In particular, the VOS order may obtain, as in (4b), if the verbal complement is indefinite and lacks case marking, both of which are obligatory for VSO (4a). While the impossibility of definite objects in VOS suggests a verb incorporation analysis for this word order, adjectival and other modifiers are allowed in the VOS construction (4c); while I maintain an incorporation analysis of VOS, Massam (2001) cites

the availability of modifiers in VP in the VOS construction as evidence against a verb-incorporation analysis.

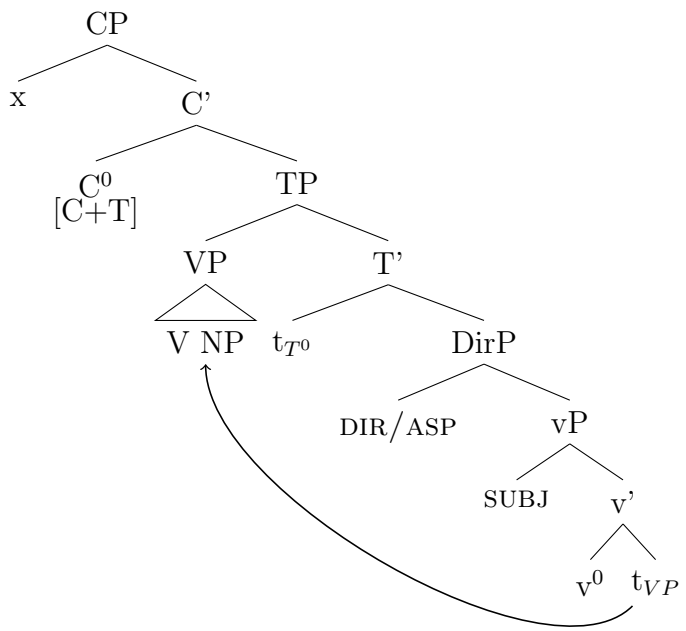
(4) a. E inu ana ‘o Noelani i ke kope.
IMP drink DIR SUBJ Noelani OBJ the coffee
‘Noelani is drinking the coffee.’

b. E inu kope ana ‘o Noelani.
IMP drink coffee DIR SUBJ Noelani
‘Noelani is drinking coffee.’

c. E inu kope hu‘ihu‘i (nei) ‘o Noelani.
IMP drink coffee cold (DIR) SUBJ Noelani
‘Noelani is drinking cold coffee.’ (Medeiros 2013)

Instead of incorporation, Massam (2001) argues that Niuean VOS should be understood in terms of pseudo noun incorporation, such that a complete VP raises to spec, TP for VOS, just in case the object is base-generated as an NP (as opposed to DP). Under Massam’s analysis, a base-generated NP does not need case, and therefore is allowed to remain inside VP, as in (5).

(5)



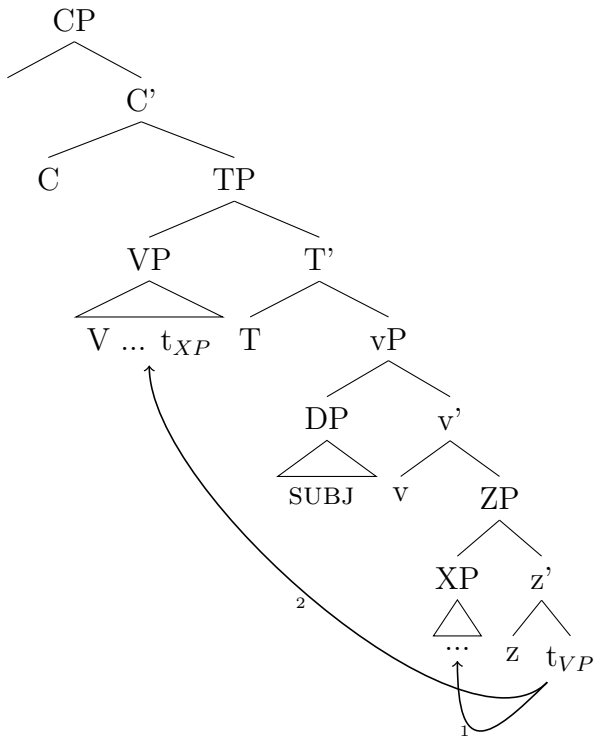
To account for VSO, Massam suggests that VP still raises to spec, TP, but only after the object vacates VP for the purpose of checking case (absolutive case

for Niuean, which exhibits ergative-absolutive case alignment). Therefore, under Massam's analysis, VP raises to spec, TP for both VOS and VSO, thereby unifying these word orders with the general predicate initial nature of Niuean, a property also shared with Hawaiian (6).

(6) He kumu kula 'o Noelani.
a teacher school SUBJ Noelani
'Noelani is a teacher.'

Under the VP-remnant analysis of VSO, verbal complements must raise to some position lower than the subject but above VP, as represented in (7), in which I have labeled the phrase to which the verbal complement raises as ZP (this is represented as AbsP by Massam).

(7)



As discussed in Medeiros (2013), this analysis raises questions about the motivation for VP-remnant formation and the categorical status of ZP, illustrated by the first labeled movement in (7). As Medeiros points out, the fact that even CP complements of V vacate VP prior to VP movement, as exemplified in (3),

suggests that case checking is not the reason for creation of the VP-remnant, a sentiment echoed by Collins (2017), who extends Massam's VP-remnant analysis to Samoan. Further, the status of the VP in VOS order has also been questioned by Chung & Ladusaw (2003) (focusing on Maori) and Medeiros (2013), who argue that the initial VP in VOS examples such as (4b and 4c) do, in fact, represent incorporation. Nevertheless, despite the questions raised by (7) surrounding the formation of VP remnants, Massam's analysis, under which VP movement (and not head movement) gives rise to both VOS and VSO word order, has been widely adopted for a number of Polynesian languages (see Clemens & Polinsky (2017) for review). In the next section, I review and modify the linearization-based analysis of VP-remnant formation described in Medeiros (2013), which will be extended to the distribution of *ai* in section 3.

2.1 Cyclic Linearization Analysis of VP-remnants

Under Massam's (2001) analysis of VSO in Niuean, two movement operations are necessary to derive VSO. First, the object must vacate VP, raising to some position higher than VP but lower than the subject. Second, the VP must raise to a position higher than the subject, presumably spec,TP. These two movement operations and their sequential ordering are illustrated in (7).

As illustrated in (3), the formation of a VP-remmant prior to VP raising applies to both DP direct objects as well as CP complements. In other words, 'VSO' in Hawaiian is really a special case of a more general word order pattern, in which the verb is followed the subject, which is in turn followed by the complement of the verb (DP or CP - see also Medeiros (2013) for additional examples and construction types). Given the longstanding assumption that CPs are not case marked (Davis 1986), Medeiros (2013) suggests that VP-remnant formation in Hawaiian is likely not driven by case properties.

Instead of appealing to agreement (case or otherwise) to drive VP-remnant formation, Medeiros (2013) argues that linearization derives this word order pattern. Here, I present a somewhat modified (arguably simplified) version of the linearization algorithm presented in Medeiros (2013). In this section, I will apply the linearization algorithm to VP-remnant formation, recapitulating the analysis in Medeiros (2013). Then, in section 3, I will apply the same linearization algorithm to data involving *ai*.

The proposed cyclic linearization algorithm adopts the main features of the linearization-based analysis set out by Fox & Pesetsky (2005). The central idea of such an analysis is that the grammar takes a 'snapshot' of the syntactic structure at certain intervals, and that these snapshots are then interpreted at the syntax-phonology interface, via linearization. At the end of each cycle, linear ordering statements are computed via asymmetric c-command, such that x precedes y if x asymmetically c-commands y.

For Fox & Pesetsky (2005), the cyclic nodes are vP and CP; once these domains are constructed, their contents are interpreted by the phonology for linearization and further computation. As the syntactic structure continues to be constructed via applications of Merge, re-arranging previously built structure results in contradictory instructions to the phonology, yielding ungrammaticality, unless in case Merge targets the root node (including re-Merge/Move). Fox & Pesetsky (2005)'s syntax-phonology interface theory is therefore able to characterize the type of cyclicity effects that have been of longstanding concern to formal syntax (Chomsky 1973, Freidin 1978).

Following Fox & Pesetsky (2005)'s work on linearization, Müller (2007) further suggests that the linearization algorithm should be relativized via a visibility condition on linearization in order to capture certain 'shape conservation' effects such as Holmberg's Generalization (Holmberg 1986). The essence of Müller (2007)'s argument is that an item is invisible for linearization if it is in a position (only)

to satisfy a non-local feature. For example, if an XP is in an intermediate landing site for movement at the time a cyclic domain is completed, the 'snapshot' taken by the linearization algorithm will not compute the position of this XP. Under this analysis, Müller (2007) is able to characterize the 'escape hatch' effect of the edges of cyclic domains (i.e. phase edges under Chomsky (2001, 2008)'s phase-based view).

Medeiros (2013) argues that Müller (2007)'s visibility condition is crucial to understanding the Hawaiian data. While Müller (2007) essentially equates invisibility with being in an intermediate landing site for movement, Medeiros (2013) suggests that (in)visibility should be thought of in terms of feature valuation; items are invisible to the linearization algorithm if they bear features which are i) unvalued, and ii) relevant for the phonological representation. Maintaining the general properties of this proposal, let us turn to the status of the EPP in Hawaiian.

First, I adopt Massam (2001)'s analysis of Niuean, according to which the EPP on T satisfied by predicates; in Massam's terms, the EPP on T is [+PRED]. In addition, Medeiros (2013) suggests that subjects in Hawaiian VSO sentences stay in-situ in spec,vP, based on both semantic and syntactic evidence (e.g. adverb placement). Following these proposals, I assume VP raises to T, satisfying the EPP, while subjects are not implicated in the EPP in this language.

Crucially, however, I depart from Medeiros (2013) and follow proposals by Bošković (2007) and Zeijlstra (2012) who offer a feature driven account of the EPP which differs from the analysis developed in Chomsky (2000, 2001). According to Zeijlstra (2012) and especially Bošković (2007), features which drive movement are marked on the *mover*, and not on the target of movement.

Under Bošković's view, EPP effects are driven by some unvalued feature [uF] which needs to move to a c-commanding position in which it can agree with [iF] on some head X; by general properties of locality, the item will move to the closet position in which it c-commands X, namely the specifier of XP. If, as Zeijlstra

(2012) proposes (also following Pesetsky & Torrego (2001)) the EPP on T (e.g. in English) is properly formalized as [uT] on the relevant DP, then EPP effects are explained via an unvalued feature [uT] on D. In this model, a DP with feature [uT] then raises during each cycle until it is in a position where it can c-command T, i.e. the closest Spec, TP. Bošković (2007) and Zeijlstra (2012) are therefore able to derive successive-cyclic movement (both A- and A-bar movement) without lookahead.

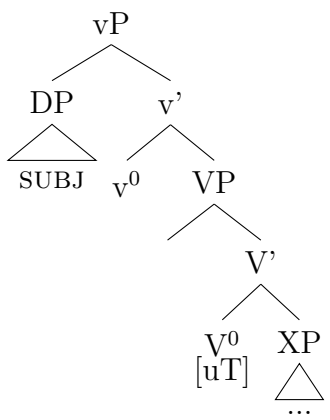
I argue that Müller (2007)'s relativized cyclic linearization model should be understood in terms of feature content; items with relevant unvalued features will be invisible for linearization in a given cycle (until the feature is checked). I assume that the EPP in Niuean, Hawaiian, and other analogous predicate-initial languages should be formalized as [uT] on V or, if V is absent, the relevant head of the predicate XP. Under this view, V (and, by extension, VP) in Hawaiian contains an unvalued feature in its base position, while the subject does not; in fact, the subject need not move, as it can and does case-agree in its base position (Chomsky 2000, 2001). Given this analysis, the Hawaiian VP contains an unvalued feature which is phonologically relevant, while the subject does not. Therefore, under the proposed adaptation of Müller (2007), the subject in Hawaiian is visible for linearization in its base position, while V is not.[3]

At the same time, the complement of VP, whether DP or CP, is, like the subject, also visible for linearization in its base position (as is v). Like the subject, the complement of VP can case agree (if DP) and otherwise satisfy any features on its head via Agree. The result of this analysis is a shape-conservation effect, whereby subjects are linearized 'early' with respect to the complement of VP, deriving the main clause syntax (either V-S-O or V-S-CP) without recourse to

[3]This distinguishes subjects in Hawaiian from those in the German constructions which Müller (2007) analyzes, insofar as subjects (under Bošković (2007)'s account) in German are [uT] at the vP node and are therefore not visible to linearization within vP (i.e. they are subject to further raising and cannot stay in their position in a grammatical derivation).

case-agreement.

(8)



- SUBJ $<$ XP
- SUBJ $<$ v
- v $<$ XP

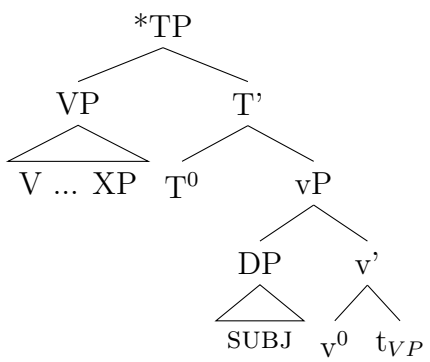
Example (8) illustrates the Hawaiian vP schematically. At this point in the derivation, the syntax interfaces with the phonology in order to linearize the syntactic structure. Unlike in Fox & Pesetsky (2005)'s proposal, however, not every element is visible to the phonological component. The subject is visible, because it has no phonologically relevant feature left unsatisfied (it does not bear [uT], and its case- and phi-features are allowed to be valued in-situ). v is also visible, since it has no relevant features left unsatisfied (it's subcategorization feature for V has been valued). XP is also visible, whether DP or CP (with no EPP feature; the case feature, if DP, does not require movement for valuation).

At the same point in the derivation, no other linearization statements are produced. In particular, V has the [uT] and therefore has an unvalued, phonologically relevant feature. Comparing Hawaiian to, for example, English, the main difference between the two is that the Hawaiian derivation introduces an ordering between the subject and the complement of the verb very early in the derivation, within the vP in which the subject is base-generated. Crucially for Hawaiian, the subject and the complement of V (DP or CP) generates a linear ordering as soon as vP is constructed, while VP does not enter a linear ordering statement at this cycle.

Due to linearization factors, then, the first movement operation in (7), which

forms the VP-remnant prior to VP raising, is forced due to competing properties of the grammar, namely the EPP feature [uT] in VP and the linearization requirements. If VP were to raise prior to remnant formation, then the resultant structure would violate the cyclic linearization algorithm. This ungrammatical derivation is illustrated in (9). For this ungrammatical structure, VP is now visible for linearization at the higher cycle (once CP is complete), creating an ordering contradiction due to XP now preceding the subject, contrary to the instructions at the vP cycle. VP-remnant formation (illustrated by the first movement in (7)) then serves as an escape from conflicting ordering statements. Under this analysis, VP-remnant formation is explained without recourse to case properties.

(9)



With respect to the grammaticality of VOS examples such as (4b), Medeiros (2013) follows Chung & Ladusaw (2003) in supposing, pace Massam (2001), that the verb-NP sequence is, in fact, and example of noun incorporation. In addition to providing semantic arguments for this position, Chung & Ladusaw (2003) suggest that the prohibition on the case marking particle *i* and determiners such as *ke* indicates incorporation, despite the possibility of nominal modifiers (4c). Under such an analysis, adopted here as well, the (incorporated) nominal is, syntactically speaking, part of the verb. More specifically, in the VOS word order, the VP does not have a complement at all, such that the VP only contains the verb itself, though incorporation has applied. Because the incorporated NP only has an independent status below the terminal node level (at the morphological level),

the linearization algorithm developed here does not affect the incorporated NP at all, as NP is properly part of the V, which remains invisible up to the movement when it raises to Spec, TP.

As discussed in this section, the proposed linearization algorithm essentially forces subjects to precede non-subjects throughout a grammatical derivation, effectively maintaining the relative ordering (computed via c-command) of the subject and verbal complement through each cycle. Under this analysis, the subject/non-subject asymmetry that has been noticed for a number of Austronesian languages (see e.g.Chung (1998, 2005), Aldridge (2004), Oda (2005), and Potsdam (2009)) can be understood as a 'shape conservation' effect, not unlike Holmberg's Generalization (Holmberg 1986). The visibility condition on linearization is relevant for the Hawaiian data discussed here, as this fixes the relative order of the subject and verbal complement early in the derivation (they are both visible in their base positions), while VP (but not its complement) is invisible in its base position; VP only becomes visible when it checks [uT], satisfying the EPP.

Having discussed how a relativized algorithm for cyclic linearization can account for the main clause word order of Hawaiian, I now turn to the distribution of *ai*. The goal of the next section is to explain this distribution via the shape conservation effect which is enforced by the cyclic linearization algorithm, therefore extending the linearization analysis to a new domain. Under this view advanced here, insertion of *ai* is another way, along with VP-remnant formation, that the grammar of Hawaiian may deal with conflicting ordering statements (which could be compared to Fox & Pesetsky (2005)'s discussion of ellipsis as a way to ameliorate conflicting ordering statements in English). To the extent that *ai* is a syntax-phonology repair for conflicting linearization statements, the lack of phi-feature content in *ai* is explained.

3 Distribution of *ai*

Elbert & Pukui (1979) describe *ai* as an 'anaphoric linking particle.' However, the distribution of *ai* shows that Elbert & Pukui's analysis is problematic, insofar as *ai* may only occur in very specific, syntactically conditioned environments. Were *ai* actually an anaphoric particle, one might expect that it could freely occur as, perhaps, a type of reflexive, contrary to fact. Instead, *ai* occurs whenever any phrase (argument or adjunct) occurs preverbally due to movement, with the sole exclusion of a subject in its own clause. As mentioned briefly in section 1, this pattern is essentially identical to the Highest Subject Restriction described by McCloskey (1990) for resumptive pronouns in Irish.

Instead of understanding *ai* in terms of resumption, however, the same distributional pattern can be observed for more general restrictions on movement in Polynesian and other Austronesian languages. I show in the next sections that this asymmetry also extends to non-local subjects, which pattern with other non-subjects. The key observation is that all non-subjects are restricted from movement to a position which c-commands the DP subject from their local vP cycle. Subjects have relative freedom to raise, but these are restricted from movement to a position c-commanding a v^0 in a higher clause. In the following sections, I show that all such instances of restricted movement require the insertion of *ai*. The relevant types of data include subject raising, focus movement, and relative clause formation. Before continuing, I reiterate that *ai* is never optional, following Elbert & Pukui (1979) and native speaker judgments; any example from the relevant dialects of Hawaiian which is grammatical with *ai* would be ungrammatical without; likewise, sentences which are grammatical without *ai* would be ungrammatical if *ai* were included.

3.1 Displaced Subjects

The linearization algorithm proposed in section 2 enforces a type of shape conservation, in which asymmetric c-command by subjects into VP-internal constituents at the vP cycle is enforced throughout the derivation. Two contexts in which Hawaiian subjects depart from canonical VSO order include pronoun raising under negation and the 'actor emphatic' construction. While both constructions involve fronted subjects and complementizer alternation (discussed at greater length in the following subsection), *ai* is prohibited in both constructions.

(10) illustrates subject raising under negation, which Elbert & Pukui (1979) report is obligatory for some dialects and optional for others. In (10b), the subject pronoun appears between the negative element *'a'ole* and an allomorph *i* of the perfective marker *ua*; these data illustrate a general pattern of subject fronting in operator contexts, such as under negation. While the more general pattern of subject displacement has not, to my knowledge, been the focus of prior research, this type of subject fronting can be seen in other constructions which trigger preverbal TAM allomorphy, such as (14b, 22b, and 24). The negation context, however, poses the simplest case, since the only non-canonically ordered constituent is the pronominal subject.

(10) a. Ua hele ʻoia.
PERF go he
He has gone.

b. ʻAʻole ʻoia i hele.
NEG he PERF go
He didn't go. (Elbert & Pukui 1979)

The structural analysis of negation and the subject raising observed in (10b) is unclear (the papers by Chung, Otsuka, and Pearce (this volume) all touch on this topic, sometimes with different results). Two structures are likely for this type of example. First, the subject may be actually raising, moving from a lower to higher

position, as in (11), which is arguably the more obvious analysis for these examples from their surface syntax. Alternatively, (10b) could be biclausal, with the lower clause exhibiting null-operator movement (12), a structural analysis which would be more in keeping with other types of dependencies in the grammar, such as relative clause formation. Regardless of the specific analysis, the important point is that a subject to the left of its canonical position is not sufficient to trigger *ai*.

(11) mvmt option: $[_{CP}$ ... [‘a‘ole $[_{CP}$ ‘oia [i $[_{TP}$ hele [t_T $[_{vP}$ $t_{‘oia}$ ...

(12) null-op option: $[_{CP}$ ... [‘a‘ole $[_{CP}$ ‘oia$_i$ [i $[_{TP}$ hele [t_T $[_{vP}$ $\emptyset_i$ ...

Another type of subject fronting is known as the Actor Emphatic construction (13). In this construction, a focused subject appears after the preposition/focus particle *na*. While the Actor Emphatic has not been formally analyzed for Hawaiian, Potsdam & Polinsky (2012) offers a comprehensive analysis for the closely related Tahitian.

(13) a. Ua kākau Pua i ka leka.
PERF write Pua OBJ the letter
Pua wrote the letter.

b. Na Pua i kākau i ka leka.
FOC Pua PERF write OBJ the letter
Pua wrote the letter. [Pua in focus, ‘emphatic’] (Elbert & Pukui 1979)

(13b), in the Actor Emphatic construction, illustrates the non-canonical subject position (to the left of the verb and perfective allomorph) in a sentence also containing a direct object. As with negation, an operator (presumably a topic focus operator) triggers subject fronting. According to the proposed linearization algorithm, (13b) does not produce conflicting linearization statements, as the relative ordering of the subject and object stays the same in (13b) as it would in a standard VSO sentence (13a), i.e. with the subject preceding VP's underlying complement. As with pronominal subjects in a non-canonical position under negation, the key point is that a pre-verbal subject is insufficient to trigger *ai*.

3.2 Focus and Complementizer Alternation

Beyond local subjects, other constituents in Hawaiian may be fronted in a number of different construction types. Some of these constructions also result in complementizer alternations. The data in (14), originally discussed by Hawkins (1979), illustrate the central pattern.

(14) a. Ua pe‘e lākou no ka hele‘ana mai o Lono.
PERF hide they BEN the coming DIR of Lono
They hid because of Lono's coming.

b. No ka hele‘ana mai o Lono lākou i pe‘e **ai**.
BEN the coming DIR of Lono they PERF hide ai.
They hid *because of Lono's coming.* (Hawkins' emphasis)

c. No ka hele‘ana mai o Lono, ua pe‘e lākou.
BEN the coming DIR of Lono PERF hide they.
Because of Lono's coming, they hid. [no focus, 'simple re-ordering']

(Hawkins 1979)

(14a) represents the canonical word order, with no special emphasis (e.g. focus) on any constituent. (14b) illustrates the word order in which the constituent *no ka hele'ana mai o Lono*, 'because of Lono's coming,' is in focus (Hawkins takes the initial preposition in this constituent to be benefactive, as I have glossed it here). In the same example, *ai* is also obligatory. Finally, (14c) illustrates the same word order as (14b), but without the focus interpretation; Hawkins labels this construction as "simple reordering." Crucially, the final example (lacking the focus interpretation), does not exhibit the complementizer alternation found only in the focus example; the preverbal TAM marker is *ua* in both (14a) and (14c), whereas this surfaces as *i* in (14b). Finally, the subject in (14b) occurs prior to the TAM, though the following section shows that a pre-TAM subject does not independently trigger the occurrence of *ai*. The absence of subject fronting in (14c) is arguably related to the fact that no focus operator is present, whereas such an operator triggers subject movement in (14b) as does the operators associated

with negation and the Actor Emphatic.

To summarize the data in (14), then, three interrelated factors are involved. These include the constituent order, the presence of a focus interpretation, and the presence of an alternate complementizer. *Ai* is obligatory (and otherwise prohibited) only in the example in which movement has taken place, the complementizer appears in an alternative form, and a focus interpretation obtains. I will argue here that these factors are interrelated, though only the movement of a vP internal item across the subject triggers *ai*. The focus interpretation and complementizer alternation are, I argue, diagnostic of movement, whereas the lack of focus interpretation and complementizer alternation indicate base generation of the sentence-initial adjunct. Given the relevance of the complementizer alternation for these data, I now turn to some specific properties of complementizers in Hawaiian.

Complementizers in the several Polynesian languages are known to have syntactically conditioned allomorphs. For example, the perfective aspect is expressed via a preverbal TAM marker, as described in (15). However, in a relative clause, an allomorph surfaces, as in (16), where I have maintained Hawkins' original gloss of *ai* as a resumptive pronoun.

(15) a. perfective particle, dictionary entry = ua

b. perfective particle, allomorph = i

(16) a. *Ua* kōkua ka mākaʻi i ke keiki.
PAST help the officer OBJ the child
The police officer helped the child.

b. Ke keiki *i* kōkua ai ka mākaʻi
the child PAST help RESPRO the officer
The child whom the police officer helped (Hawkins (original gloss), 1982)

The conditioning factor for these two allomorphs has generally been taken to

be independent or main clause (selecting *ua*) versus subordinate clause (selecting *i*). However, Medeiros (2013) points out that, for Hawaiian, an analysis of TAM allomorphy in terms of main and subordinate clauses makes a wrong prediction when sentential embedding under verbs of saying and thinking are considered, as in (18), which includes an example with perfective marking as well as with present tense marking, which is expressed with pre- and post-verbal TAM markers.

(17) a. perfective allomorphs = ua, i

b. present tense allomorphs = ke VERB (nei), e VERB (nei)

(18) a. Ua ha‘i mai ke haumana ua/*i hala ka manawa.
PAST tell DIR/ASP the student PAST pass the time
The student said that the time had passed. (Hawkins, 1979)

b. Ua no‘ono‘o ‘o Kekoa ke/*e ‘ai nei ‘o Noelani i ka poi.
PERF think SUBJ Kekoa PRES eat DIR/ASP SUBJ Noelani OBJ the poi.
Kekoa thought that Noelani is eating poi. (FN)

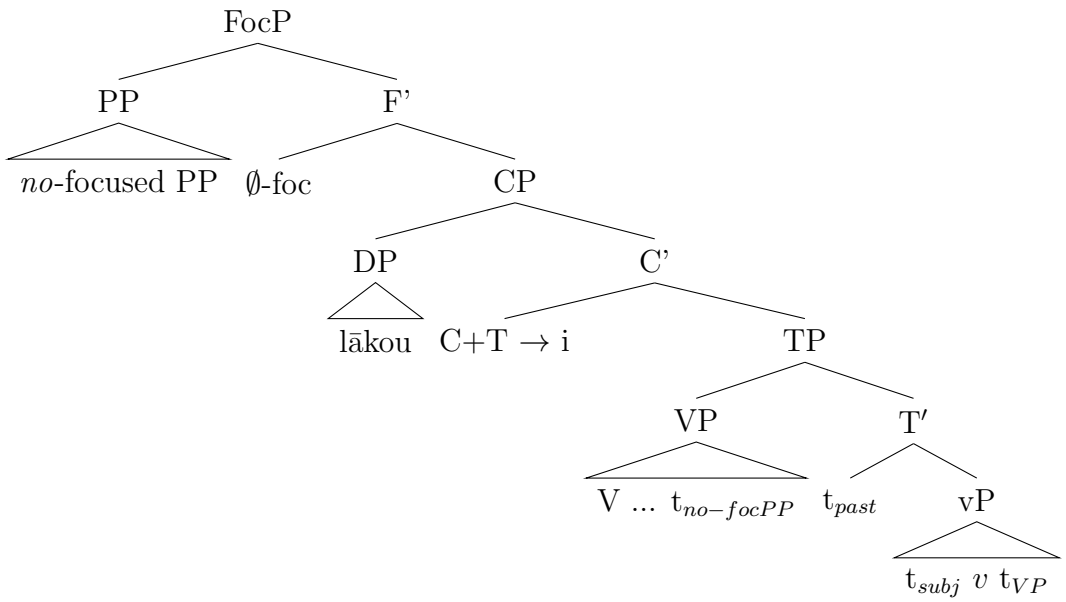
These data support the analysis of preverbal complementizers articulated by Massam (2010) with respect to a similar pattern of data in Niuean, namely that these are portmanteau morphemes which encode several properties. In particular, these preverbal TAMs are the result of T to C head movement, and therefore they encode both the complementizer and the tense property of the clause according to Massam's analysis. More importantly, Massam argues that the complementizer alternation is due to the presence of a null operator in the CP domain. A null operator in this context could range from a moved operator in a relative clause to a negation element that scopes over the local CP; for this reason, the purportedly embedded allomorphs do occur in a several embedded contexts, but not all, such as the sentence embedding illustrated in (18). According to this analysis, any clause with such an operator in the CP domain should feature the relevant allomorphs.

With this analysis of complementizers in mind, the fronting data in (14) become

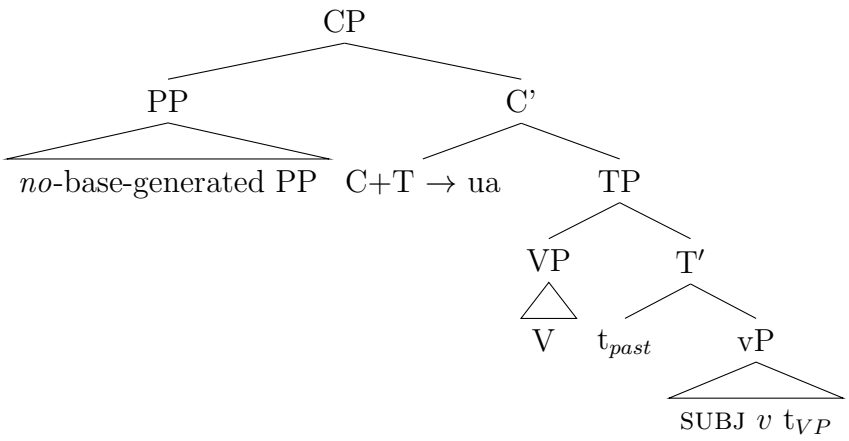
more clear. According to Hawkins (1979), while both (14b) and (14c) feature DP fronting, only (14b) has a focus interpretation. Likewise, only (14b) has the null operator conditioned allomorph, suggesting that (14b) and (14c) differ with respect to the presence of a focus operator in the left periphery.

In order to understand these data from a Minimalist perspective, I suggest that the fronted PP in (14b) undergoes Agree with a focus operator in the left periphery. Under this analysis, (14b) has the structural analysis in (19); this example also features pronoun raising to CP, discussed above. In the absence of any such operator in (14c), I assume that the fronted PP is base generated in its surface position, and has the structural analysis in (20), with no trace of movement in the VP which has itself raised to spec,TP.

(19)



(20)



These data have a natural interpretation in terms of the cyclic linearization approach developed in section 2. According to the linearization algorithm, base generation of the (non-focused) PP in (14c/20) does not conflict with the linear ordering of the subject, as this PP was base-generated in a position c-commanding the subject and it continues to c-command the subject in the linearized representation.

However, the PP which is in focus in (14b/19) had its linear order computed relative to the subject at the vP cycle. After movement to the focus position, the focused PP now asymmetrically c-commands, and therefore precedes, the subject at the CP cycle. At this point, the grammar is in a position in which conflicting ordering statements are present at the syntax-phonology interface. Instead of crashing the derivation, I suggest that Hawaiian employs a repair strategy at the syntax-phonology interface, in the form of (21).

(21) *Hawaiian* ai *insertion rule* (to be revised): If movement of a constituent X violates linear ordering statements, insert *ai* into the linear representation within the offending cycle

The principle in (21) acts as a rescue for contradictory linearization insofar as the insertion of *ai* allows a word (*ai*) to be pronounced in the cycle where indicated by linear order statements. In effect, (and to borrow terminology from

the Government & Binding theory), *ai* behaves almost like a pronounced trace, but only when cyclicity is violated.

Unlike pronunciation in the position of initial Merge, however, (21) is formulated to account for the fact that *ai* only occurs within the offending cycle, and not (necessarily) in the specific base position of the displaced element. Consider that linear ordering statements as envisaged by Fox & Pesetsky (2005) do not specify exact linear positions, but only a set of precedence relations. When no contradictory statements occur, these linear ordering statements create a total linear ordering. But, in the event of ordering contradiction, *ai* is inserted in the offending cycle.

In fact, *ai* typically appears either to the right of the verb or, if present, the post-verbal TAM. This can be seen in (22) and (22b) in particular, in which *ai* occurs adjacent to the verb, not in the base position of the fronted wh-adjunct, which presumably follows the subject. (23) (repeated from (1)) illustrates the same property, in which *ai* appears between the verb *noho* and the subject *ke kanaka*, but not in the presumable position of initial merge of the displaced element, as indicated by the canonical order in (23a).

(22) a. Āhea e ho‘i **ai** ‘o Aka?
when PRES return ai SUBJ Aka
When will Aka return?

b. ‘Apōpō ‘o ia e ho‘i **ai**.
tomorrow SUBJ he PRES return ai
He’ll return tomorrow. (Hawkins 1982)

(23) a. Ua noho ke kanaka i Hilo.
PERF stay the man at Hilo
The man stayed at Hilo.

b. I Hilo kahi i noho **ai** ke kanaka.
at Hilo where PERF stay ai the man
At Hilo where the man stayed. (Elbert & Pukui 1979)

Data in which in *ai* occurs to the right of post-verbal TAM markers such as

(24), discussed further in connection with relative clauses in section 3.3, suggest that the *ai* is inserted at the (linear) beginning of the cycle defined by vP.[4] In (24), *ai* occurs immediately after the directional particle *mai*. As at least some uses of directional particles are typically understood as part of the TAM marking system in Hawaiian (Elbert & Pukui 1979, p.57-61), some instances of directional particles are arguably above vP in the syntactic structure. If this is the case for (24), then *ai* is inserted right at the beginning of the vP cycle in which the linearization statement which is later contradicted (in a higher cycle) occurs.

The distribution of *ai* in (25) further illustrates this point, as *ai* is obligatory in both of the clauses following what is arguably across-the-board movement. Here, *ai* occurs right after the verb in the higher clause, and between the verb and subject in the lower clause. Descriptively, *ai* appears prior to subjects (if not itself moved) and after verbs plus any associated directional particles. From this perspective, I revise the *ai* insertion rule as in (26).

(24) mapopo ia Noelani i ta wā hea ʻo Kekoa e hele mai **ai**.
known to Noelani at the time when SUBJ Kekoa PRES come here ai
Noelani knows when Kekoa is coming. (fieldnotes)

(25) No wai i ʻeha **ai** ā i make **ai** ʻo Jesu-Kristo?
BEN who PERF hurt ai and PERF die ai SUBJ Jesus-Christ
Who did Christ suffer and die for? (Elbert & Pukui 1979)

(26) *Hawaiian* ai *insertion rule*: If movement of a constituent X violates a previously given linear ordering statement associated with cycle α, insert *ai* at the linear beginning of α

This section has dealt with focus and other adjunct fronting examples, which represent a core set of data for Hawaiian *ai*. Under the analysis proposed here, movement of some vP internal constituent across a subject violates the shape-conserving linearization algorithm and tiggers *ai* as a repair at the syntax-phonology

[4]Note that this example was elicited from a Ni'ihau speaker as evidenced by the presence of [t] in (24), which is a characteristic sound of the Ni'ihau dialect (Elbert & Pukui 1979).

interface. Non-subject constituents at the front of a sentence are insufficient to trigger *ai* if they are in their position due to base generation.

3.3 Relative Clauses

This section examines the other core set of data with *ai* (in addition to adjunct/focus fronting), namely relative clauses. Because most subject and object wh-questions in Hawaiian can be analyzed as clefts or pseudo-clefts (Potsdam 2009, Potsdam & Polinsky 2011), these wh-questions are really just a special case of the more general pattern of relative clauses. In this section, the patterns observed above are extended, insofar as subject relative clauses prohibit *ai*, which is obligatory for non-subject relative clauses.

The subject/non-subject asymmetry with respect to *ai* insertion is evident when examining (27). Here, as with displaced subjects, a subject relative clause (27a) disallows *ai*. Yet, non-subject relative clauses require *ai*, whether these are adjuncts (27b) or arguments such as direct objects (27c, 27d).

(27) a. ka poʻe i hele mai e ʻike iā-ia
the people PERF come DIR to see OBJ-HIM
the people who came to see him

b. ka wā i hoʻi **ai** lākou nei
the time PERF return ai they DIR
the time when they returned

c. kāna mea i makemake **ai** i ia wā
his thing PERF want ai at that time
the thing that he wanted at that time (Hawkins 2000)

d. ka palaoa i ʻai **ai** ke keiki
the bread PERF eat ai the child
the bread that the child ate (Akaemakamae 2012)

Adopting a null operator analysis of relative clauses, the representations in (28) show that, considering the relative positions of the null operators to other constituents, subject relative clauses maintain the SUBJ > OBJ ordering within

the relative clause (28a). With the object relative clause (28b), though, the null operator object reverses its relative order with the subject. In (28b), the trace of the null operator object in vP represents the position from which this object moved to from VP – forming a VP-remnant – prior to VP raising to spec,TP. From its derived position inside vP, the null operator object moves to spec,CP, crossing the subject and triggering *ai*.

(28) a. ka po‘e i hele mai e ‘ike iā-ia
the people PERF come DIR to see OBJ-HIM
the people who came to see him

[[ka po'e]$_i$ [$_{CP}$ $\emptyset_i$ [i [$_{TP}$ [$_{VP}$ hele] [t$_T$ [mai [t$_i$ ...]]]]]]]

b. ka palaoa i ‘ai **ai** ke keiki
the bread PERF eat ai the child
the bread that the child ate

[[ka palaoa]$_i$ [$_{CP}$ $\emptyset_i$ [i [$_{TP}$ [$_{VP}$ 'ai t$_i$] [t$_T$ [$_{vP}$ ke keiki ... t$_i$ ...]]]]]]

Adopting a linearization analysis of *ai* for relative clauses raises a question as to the linearization status of null operators. According for the analysis presented here to make sense within a cyclic linearization proposal, null operators must be relevant for the syntax-phonology interface, despite being null. Some evidence that null operators are indeed visible to the syntax-phonology interface can be found in English subjacency effects. As Haegeman (1994) points out in her discussion of empty categories, null operator movement is subject to subjacency (29). In (29a), the null operator crosses a Complex NP-island as it moves from its intermediate position to its final position (the first movement to the intermediate position does not violate any grammatical principle). Likewise in (29b), the movement of the null operator crosses a Wh-island (Haegeman marks the Wh-island violating example as '?', given that Wh-island violating sentences are generally considered more acceptable than Complex-NP island violating sentences).

(29) a. *This is the man$_i$ [$\emptyset_i$ that [John made the claim [t$_i$ that he will invite t$_i$]]]

b. ?This is the man$_i$ [$\emptyset_i$ that [John wondered when he will invite t$_i$]]
(Haegeman 1994)

According to numerous researchers in generative syntax, subjacency is typically construed as an S-Structure constraint (in Government & Binding theory see e.g. Huang (1982)) or, similarly, as a constraint on either the derivation or representation of PF-legible structures (see e.g. Richards (2001)). That null operators are apparently constrained by subjacency leads me to conclude that null operators are indeed relevant for the syntax-phonology interface.

Continuing now with null operators constructions, most wh-questions in Eastern Polynesian languages such as Hawaiian have a transparent cleft or pseudo-cleft structure. Here, exactly the same pattern is observed as with stand-alone relative clauses. For example, the subject wh-question (30a) involves either movement of the subject directly or null operator movement along the lines of (28a) and disallows *ai*, as subject fronting alone is insufficient to trigger *ai*. (30b) (which is clearly bi-clausal) has the wh-question word in the main clause, followed by an object relative clause which presumably exhibits null operator movement. Just like with the stand-alone object relative clause, this sentence requires *ai*, as the null operator crosses the subject as it moves to Spec, CP, as in the relative clause example (28b).

Likewise, (30c), repeated from (24) above, involves a pseudo-clefted question, which itself is embedded under the verb *mapopo* 'think.' In the first level of embedding, the wh-element *i ta wa hea* 'at what time' is followed by an adjunct relative clause. Because the null operator movement within the final clause reverses the relative order of the subject with the null operator adjunct, the obligatory presence of *ai* is triggered.

(30) a. ʻO wai i kūʻai i ka iʻa?
SUBJ who PERF buy OBJ the fish
Who bought a fish?

b. He akā ka mea Kekoa i kūʻai **ai**?
a what the thing Kekoa PERF buy ai
What is the thing that Kekoa bought?

c. mapopo ia Noelani i ta wā hea ʻo Kekoa e hele mai
known to Noelani at the time when SUBJ Kekoa PRES come here
ai.
ai
Noelani knows when Kekoa is coming. (fieldnotes)

A final example from the domain of pseudo-clefted wh-questions concerns long-distance subject movement. In (31), the similarity between the distribution of *ai* and resumptive pronouns comes into its sharpest relief, insofar as the subject movement does indeed trigger *ai*, but only when it moves out of both its own clause and a higher clause, which calls to mind McCloskey's Highest Subjects Restriction on resumption (McCloskey 1990).

In (31), the main clause subject *ʻo wai* 'who' agrees with a null operator which moves from the most embedded clause (*i kūʻai ka iʻa*) into the intermediate clause (*a Kekoa e ʻolelo*). In doing so, the subject crosses the intermediate clause v^0, which, as discussed in section 2, is visible for linearization in its own clause. This creates an ordering contradiction at the intermediate vP cycle but not the most embedded CP cycle. As such, *ai* appears between the intermediate and most embedded clause as a repair for this violation of cyclicity. This pattern of *ai* insertion differs from long distance resumption in Irish, as the resumptive pronoun in (32) occurs in the lowest clause (resumptive pronoun boldfaced), unlike Hawaiian where *ai* occurs in the intermediate clause. Presumably this is because it is only in the intermediate clause where linearization is violated for the Hawaiian example.

(31) ʻO wai ka mea a Kekoa e ʻōlelo **ai** i kūʻai ka iʻa.
SUBJ who the thing PERS Kekoa PRES say ai PERF buy the fish.
Who did Kekoa say bought the fish? (fieldnotes)

(32) an fear ar shíl mé go raibh **sé** breoite
the man AN thought I GO was he ill

the man that I thought was ill (McCloskey 1990)

The relative clause data in this section shows that the distribution of *ai* obeys a general subject/object asymmetry, such that non-canonical word orders featuring the subject disallow *ai*, whereas objects and adjuncts in non-canonical order require *ai*. In this section, I argued that these differences should be understood in terms of a null operator analysis of relative clauses, such that the null operators are sensitive to the the cyclic linearization algorithm. The one exception to the subject/object asymmetry involves long-distance subject extraction. Apparently, the asymmetry only holds when local subject movement is considered, because long distance subject movement in non-canonical order triggers *ai*. The exceptional nature of long distance subject extraction follows from the linearization algorithm; as soon as the null operator subject is dominated by a higher cycle, it's position becomes fixed relative to the items in the higher cycle. As soon as the null operator subject crosses material in the higher domains, an illicit linearization statement is generated and *ai* is inserted as a repair.

4 Conclusion

The discussion of *ai* in this paper sheds light on Hawaiian grammar as well as the nature of locality in syntax more generally. First, the data in this paper show that Elbert & Pukui (1979)'s characterization of *ai* as an 'anaphoric linking particle' is inadequate. The 'linking particle' analysis does not explain why *ai* only appears in a subset of non-canonical word orders, including fronted adjuncts, objects, and also long-distant subject extraction. The fact that *ai* is required only in this set of constructions and appears nowhere else supports Chapin (1974)'s view that *ai* is to be understood grammatically and not lexically.

The same absence of lexical features militates against an analysis in which *ai* is a resumptive pronoun. Hawaiian *ai* is neither a pronoun nor does it participate

in any lexically specified construction outside of the displacement structures discussed here. Most languages which feature resumption, by contrast, resume the relevant gaps with an actual pronoun (thus the name 'resumptive pronoun') or some other item with lexically relevant features (McCloskey 2006). Given that theories of resumption (e.g. base generation or stranding) seek to explain the lexical nature of resumptive pronouns, it goes beyond stipulation to suggest that Hawaiian *ai* is a resumptive pronoun. Rather, an analysis of *ai* as a resumptive element, as attractive as it may be, would actually require significant theory construction from the perspective of resumption in order to explain why resumption in only this and related languages involves a form (*ai*) unique to the construction.

Instead of pursuing a resumption analysis, then, a cyclic linearization analysis was adopted to explain the distribution of *ai*. The same linearization analysis is also taken to account for properties of the main-clause syntax, namely the creation of VP-remnants, a movement operation which is hard to motivate on the basis of feature agreement (a problem pointed out by McCloskey (2005) with respect to the analysis verb initiality of Irish). To the extent that the cyclic linearization account is on track, *ai* is a repair for contradictory linearization statements at the syntax-phonology interface. The repair analysis of *ai* fully explains its lack of lexical content (not unlike supportive 'do' in English).

Given broader consideration of the grammar as a whole, Hawaiian appears to employ two strategies in the face of potentially conflicting linearization statements, including avoiding conflicting linearization statements via VP-remnant formation for main clause word order and also *ai* insertion for actual conflicting statements. Arguably *ai* insertion obtains when conflicting linearization statements cannot be avoided due the fact that *ai* is typically implicated in constructions which feature movement (including null operator movement) to Spec, CP. Alternatively, VP-remnant formation simply requires that the potentially offending XP be moved to a position outside VP but below the subject.

From the perspective of Hawaiian grammar, it appears that cyclicity is violated only when it needs to be. These violations result from differing needs of the grammar. For example, T requires a VP in its specifier, but the subject is fixed as preceding the object; this results in VP-remnant formation. Or, a focus feature needs a constituent in its specifier in the left-periphery, but again this may, if not a local subject, violate the shape conservation effect of the linearization algorithm; this would result in PF rescue via *ai*.

Finally, and again comparing the distribution of *ai* to resumption, the fact that *ai* behaves so much like resumption (except in the crucial domain of lexical features) should, I think, not be a cause of concern. Rather, I would suggest that the distributions of resumptive pronouns and Hawaiian *ai* are so similar because these both touch on language-general properties of locality.

References

Aldridge, E. (2004), Ergativity and word order in Austronesian languages, PhD thesis, Cornell University.

Aoun, J., Choueiri, L. & Hornstein, N. (2001), 'Resumption, movement, and derivational economy', *Linguistic Inquiry* **32**(3), 371–403.

Bauer, W. A. (1982), Aspects of the grammar of Maori, PhD thesis, The University of Edinburgh.

Boeckx, C. (2003), *Islands and Chains: Resumption as Stranding*, John Benjamins Publishing, Amsterdam.

Bošković, Ž. (2007), 'On the locality and motivation of move and agree: An even more minimal theory', *Linguistic inquiry* **38**(4), 589–644.

Chapin, P. G. (1974), 'Proto-polynesian* ai', *The Journal of the Polynesian Society* **83**(3), 259–307.

Chomsky, N. (1973), Conditions on transformations, *in* S. R. Anderson & P. Kiparsky, eds, 'A Festschrift for Morris Halle', Holt, New York, pp. 232–286.

Chomsky, N. (2000), Minimalist inquiries: The framework, *in* D. M. Roger Martin & J. Uriagereka, eds, 'Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik', MIT press, Cambridge, MA, pp. 89–155.

Chomsky, N. (2001), Derivation by phase, *in* M. Kenstowicz, ed., 'Ken Hale: A Life in Language', MIT Press, Cambridge, MA, pp. 1–52.

Chomsky, N. (2008), 'On phases', *Current Studies in Linguistics Series* **45**, 133.

Chung, S. (1978), *Case Marking and Grammatical Relations in Polynesian*, University of Texas Press, Austin.

Chung, S. (1998), *The Design of Agreement: Evidence from Chamorro*, University of Chicago Press, Chicago.

Chung, S. (2005), What fronts, *in* A. Carnie, H. Harley & S. A. Dooley, eds, 'Verb first: on the syntax of verb-initial languages', John Benjamins, Amsterdam, pp. 9–29.

Chung, S. & Ladusaw, W. A. (2003), *Restriction and Saturation*, Vol. 42, MIT press, Cambridge, MA.

Chung, S. & Seiter, W. J. (1980), 'The history of raising and relativization in Polynesian', *Language* pp. 622–638.

Clemens, L. E. & Polinsky, M. (2017), Verb-initial word orders (primarily in Austronesian and Mayan languages), *in* M. Everaert & H. Riemsdijk, eds, 'The Wiley Blackwell Companion to Syntax, Second Edition', Wiley, Oxford, pp. 1–50.

Collins, J. N. (2017), 'Samoan predicate initial word order and object positions', *Natural Language & Linguistic Theory* **35**(1), 1–59.

Davis, L. J. (1986), 'Remarks on the θ-criterion and case', *Linguistic Inquiry* **17**, 564–568.

Elbert, S. H. & Pukui, M. K. (1979), *Hawaiian Grammar*, University of Hawaii Press, Honolulu.

Fox, D. & Pesetsky, D. (2005), 'Cyclic linearization of syntactic structure', *Theoretical Linguistics* **31**(1-2), 1–45.

Freidin, R. (1978), 'Cyclicity and the theory of grammar', *Linguistic Inquiry* **9**(4), 519–549.

Haegeman, L. (1994), *Introduction to Government and Binding Theory*, Blackwell, Oxford.

Hawkins, E. (1979), *Hawaiian Sentence Structures*, Department of Linguistics, Research School of Pacific Studies, The Australian National University.

Hawkins, E. (2000), Relative clauses in hawaiian, *in* S. Fischer & W. Sperlich, eds, 'Leo Pasifika: Proceedings of the Fourth International Conference on Oceanic Linguistics', Auckland, pp. 127–141.

Holmberg, A. (1986), Word order and syntactic features in the Scandinavian languages and English, PhD thesis, Department of General Linguistics, University of Stockholm.

Huang, C. J. (1982), 'Move *wh* in a language without *wh* movement', *The Linguistic Review* **1**(4), 369–416.

Hunter, I. M. (2007), The particle ai in New Zealand Māori, PhD thesis, University of Auckland.

Massam, D. (2001), 'Pseudo noun incorporation in niuean', *Natural Language & Linguistic Theory* **19**(1), 153–197.

Massam, D. (2010), 'V1 or v2?: On the left in niuean', *Lingua* **120**(2), 284–302.

Massam, D. & Roberge, Y. (1997), Operator bound clitics and niuean ai, *in* J. Black & V. Motapanyane, eds, 'Clitics, Checking, and Movement', John Benjamins, Amsterdam, pp. 273–299.

McCloskey, J. (1990), 'Resumptive pronouns, a-bar binding and levels of representation in Irish', *Syntax and Semantics* **23**, 199–248.

McCloskey, J. (2005), A note on predicates and heads in irish clausal syntax,

in A. Carnie, H. Harley & S. A. Dooley, eds, 'Verb First: On the Syntax of Verb-Initial Languages', John Benjamins, Amsterdam, pp. 155–174.

McCloskey, J. (2006), Resumption, *in* M. Everaert & H. van Riemsdijk, eds, 'The Blackwell Companion to Syntax', Blackwell, Oxford, pp. 94–117.

Medeiros, D. J. (2010), Asymmetric resumption, extension, and the derivation of Hawaiian VSO, *in* 'LSA Annual Meeting Extended Abstracts', Vol. 1, pp. 4–1.

Medeiros, D. J. (2013), 'Hawaiian vp-remnant movement: A cyclic linearization approach', *Lingua* **127**, 72–97.

Müller, G. (2007), Towards a relativized concept of cyclic linearization, *in* U. Sauerland & H.-M. Gärtner, eds, 'Interfaces+ recursion= language?', Mouton de Gruyter, Berlin, pp. 61–114.

Oda, K. (2005), V1 and wh-questions: a typology, *in* A. Carnie, H. Harley & S. A. Dooley, eds, 'Verb First: On the Syntax of Verb-Initial Languages', John Benjamins, Amsterdam, pp. 107–134.

Pearce, E. & Waite, J. (1997), 'Kia and ki te complementation in maori: An unaccusative analysis', *Te Reo* **40**, 45–75.

Pesetsky, D. & Torrego, E. (2001), T-to-C movement: Causes and consequences, *in* M. Kenstowicz, ed., 'Ken Hale: A Life in Language', MIT Press, Cambridge, MA, pp. 355–426.

Potsdam, E. (2009), 'Austronesian verb-initial languages and wh-question strategies', *Natural Language & Linguistic Theory* **27**(4), 737.

Potsdam, E. & Polinsky, M. (2011), Questions and word order in Polynesian, *in* C. Moyse-Faurie & J. Sabel, eds, 'Topics in Oceanic Morphosyntax', Mouton de Gruyter, Berlin, pp. 121–153.

Potsdam, E. & Polinsky, M. (2012), 'The syntax of the Tahitian actor emphatic construction', *Oceanic Linguistics* pp. 58–85.

Richards, N. (2001), *Movement in Language: Interactions and Architectures*, Oxford University Press, Oxford.

Zeijlstra, H. (2012), 'There is only one way to Agree', *The Linguistic Review* **29**(3), 491–553.