

PHRASAL NOUN INCORPORATION IN TONGAN*

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This paper examines the noun incorporation construction in Tongan. Like other Polynesian languages, noun incorporation in Tongan can involve modifiers of the incorporated noun. However, analyses using NP-compounding, VP-remnant movement, or head movement are shown to be inadequate for analyzing this construction. An alternative is proposed whereby the verb and the incorporated noun form a single word, but one that has some of the verb's dependency potential as well as the noun's dependency potential, thus licensing the modifiers.

1. INTRODUCTION

Recent research into the morposyntax of noun incorporation in Polynesian languages – in particular, Niuean (Massam, 2001) and Maori (Chung and Ladusaw, 2004) – has shown that there is more to incorporation constructions in these languages than previously thought (Mithun, 1984; Gerdts, 1998). In these languages, besides just incorporated nouns, the noun incorporation construction can include modifiers that semantically modify the incorporated nouns and are usually string-adjacent to them (cf. also Besnier (2000) for Tuvaluan). Thus, in this paper, I will first show that similar facts hold for Tongan as well.

There have been several proposals for analyzing the configurations of the Polynesian languages' noun incorporation constructions. Some researchers have taken a syntactic approach (Massam (2001) and one proposal of Chung and Ladusaw (2004)), while others have taken a morphological (lexical) approach (the other proposal of Chung and Ladusaw (2004) and Otsuka (2005)). This mirrors the general controversy about the nature of noun incorporation, with some authors arguing that it is syntactic (Baker, 1988, 1996; Sadock, 1980) and others arguing that it is morphological, though with syntactic consequences (Rosen, 1989; Spencer, 1995; van Geenhoven, 1998; Malouf, 1999; Runner and Aranovich, 2003).

In sections 2 and 3, I will consider the previous analyses of Polynesian noun incorporation applied to Tongan and argue that the Tongan data shows that they are inadequate. I will argue that the Tongan data supports the conclusion that the verb and incorporated noun form a single word to the exclusion of the modifiers, which are phrasal elements that are linked syntactically to the verb-noun word. The fourth section will provide a sketch of a proposal for understanding this relationship and several other properties of this construction.

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1.1. Tongan Noun Incorporation Preliminaries

Tongan, like all of its Polynesian relatives, is a head-initial, morphologically isolating language. Its core arguments follow an ergative-absolutive case marking pattern. These features, as well as the alternation between transitive clauses and those with incorporation, are shown in (1) below.

- (1) a. Ordinary Transitive Sentence
 Na'e inu 'a e kavá 'e Sione
 PAST drank ABS DET kava ERG (name)
 'Sione drank the kava.' (Churchward, 1953, 76)
- b. Sentence with Incorporation
 Na'e inu kava 'a Sione.
 PAST drink kava ABS (name)
 'Sione drank kava.' (Churchward, 1953, 76)

The examples in (1) illustrate the three basic properties of noun incorporation in Tongan. First, the verb *inu* and the incorporated noun *kava* are adjacent in the noun incorporation structure; as I will detail in a little more depth further below, their corresponding elements in (1a) need not be. Second, the case markers and determiners – which I will assume are syntactically independent function words that head KPs and DPs, respectively – do not and cannot appear in noun incorporation.¹ Finally, the argument that is not incorporated, the external argument, is marked with the ergative case in the transitive clause, but with the absolutive case in the incorporation construction.

2. TWO MORPHOLOGICAL ANALYSES

2.1. Simple Compound Analysis

Given (1b), a simple analysis of Noun Incorporation would be as in (1), where the verb and the incorporated noun are morphologically compounded to form a complex verb:

- (1) [_v V N] (Otsuka, 2005)

However, (1) by itself² is problematic because, as I mentioned in the introduction, incorporated nouns can be accompanied by various nominal “modifiers.” I will use the term *modifier* in a slightly

¹Note also that the determiner-like definitive accent, represented by the acute accent in (1a), also does not appear in noun incorporation.

²I will consider an augmented version of this analysis further below.

technical sense throughout this article to mean any word or phrase associated with and to the right of the incorporated noun in noun incorporation.

Given below in (2)–(5) is a sample of the kinds of modifiers allowed in Tongan Noun Incorporation.³ Highlighted in italics are the particular modifiers.

- (2) Adjective
 Na‘e tā kītā *fo‘ou* ‘a Sione.
 PAST hit guitar new ABS (name)
 ‘Sione played a new guitar.’
- (3) Noun Conjunct
 Na‘e tō manioke *mo e talo* ‘a Sione.
 PAST plant cassava and taro ABS (name)
 ‘Sione planted cassava and taro.’
- (4) Prepositional Phrase
 Na‘e fakama‘a sea *‘i fale* ‘a Sione.
 PAST clean chair in house ABS (name)
 ‘Sione cleaned chairs in the house.’
- (5) *ke*-clause⁴
 ...ke kumi me‘a *ke nau nonofo ai*.
 SBJV seek thing SBJV 3PL settle there
 ‘...to seek a place to settle.’

I will call the expression consisting of the incorporated noun and its modifiers the *incorporate*.

2.2. Complex Compound Analysis

Given the presence of modifiers, one might try to amend the proposal in (1) to that in (6), where a simplex verb is compounded with an NP to form a complex verb.

- (6) [_V V NP] (Chung and Ladusaw, 2004)

The structure in (6) is a bit unusual, since it seems that morphologies of natural languages do not generally combine words or stems with phrases. Regardless of this anomaly, (6) has an empirical problem with the Tongan nominalization data.

³Unless otherwise noted all examples are from my own fieldwork working with a speaker born in Tonga now living in the San Francisco Bay area.

⁴This incorporate is a kind of less-than-finite relative clause; *ke* is a TAM (Tense-Aspect-Mood) marker, here glossed as subjunctive.

In Tongan, verbs can be nominalized with the suffix -‘*anga*, a place nominalizer, as shown in (7).

- (7) a. nofo-‘anga
 dwell-NMLZ
 ‘dwelling place’ (Churchward, 1953, 238)
- b. pule-‘anga
 rule-NMLZ
 ‘government, kingdom’ (Churchward, 1959, 420)

Verbs and nouns can also be nominalized together, as in (8):

- (8) inu-kava-‘anga
 drink-kava-NMLZ
 ‘place to drink kava’

The analysis in (6) predicts that since the verb and the incorporate are a single lexical item, they, too, should be able to undergo -‘*anga* nominalization. However, the verb and incorporate cannot, as shown in (9):

- (9) a. V-N-Adj-‘anga
 *fakatau-fale-hinehina-‘anga
 transact-house-white-NMLZ
 Intended: ‘place for selling white houses’
- b. V-N-PP-‘anga
 *fakama‘a-sea-‘i-fale-‘anga
 clean-chair-in-house-NMLZ
 Intended: ‘place for cleaning the chairs from inside the house’

Thus, the complex compound analysis, where the verb forms a compound with the incorporate, should be rejected since it overpredicts the extent of the lexicality of this construction.

3. SYNTACTIC ANALYSES

With problems facing the above two morphological analyses, I want to next consider a pair of analyses which treat the incorporate as an independent syntactic phrase. I will first consider an analysis where the incorporate is analyzed as a syntactic NP. The second analysis I will consider is a head movement analysis.

3.1. *The Incorporate as an Adjacent NP*

A third possible analysis is as in (1), where one treats the incorporate as a syntactic phrase, an NP. Under this analysis, this NP forms a syntactic constituent with the verb and is immediately adjacent to it.

- (1) [_{VP} V NP]

This structure corresponds to the PF of the VP-remnant movement analysis of Massam (2001), though it could also conceivably be “based-generated” in a non-derivational approach. This distinction will not make a difference in the following discussion.

Since case markers and determiners cannot appear in incorporates, the phrase must be analyzed as an NP and not a KP. Furthermore, this NP must be restricted to being immediately adjacent to the verb – and not just an NP with an KP-like distribution (akin to the proposal for Danish by (Asudeh and Mikkelsen, 2000)) – because of two additional properties that incorporates exhibit.

The first comes from scrambling. As shown in (2), ordinary full nominal expressions (KPs) can scramble in Tongan:

- (2) a. ABS < ERG
 Na'e tō 'a e manioke 'e Sione.
 PAST plant ABS DET cassava ERG (name)
 'Sione planted the cassava.'
- b. ERG < ABS
 Na'e tō 'e Sione 'a e manioke.
 PAST plant ERG (name) ABS DET cassava
 'Sione planted the cassavas.'

However, incorporates can't scramble, as shown in (3).

- (3) a. Na'e tō *manioke kano lelei* 'a Sione.
 PAST plant cassava good ABS (name)
 'Sione planted good cassava.'
- b. *Na'e tō 'a Sione *manioke kano lelei*.
 PAST plant ABS (name) cassava good

So, the scrambling data shows that incorporates must be treated differently from other nominal arguments: they must be restricted to being verb-adjacent and restricted from having the permutation potential of KPs.

This need for adjacency is also shown from the positioning of a class of words that I will call verbal particles, here exemplified by *nai*. As shown in (4), in ordinary transitive sentences, *nai* goes between the verb and the first nominal argument.

- (4) Na'e kai *nai* 'a e ika 'e Sione?
 PAST eat maybe ABS DET fish ERG (name)
 'Sione ate the fish, didn't he?'

In incorporation, *nai* appears outside the incorporate, as shown in (5).

- (5) Na'e kai ika lahi *nai* 'a Sione?
 PAST eat fish big maybe ABS (name)
 'Sione eats a lot of fish, doesn't he?'

Nai cannot appear anywhere inside the incorporate, as shown in (6).

- (6) a. *Na'e kai *nai* ika lahi 'a Sione
 PAST eat maybe fish big ABS (name)
 b. *Na'e kai ika *nai* lahi 'a Sione
 PAST eat fish maybe big ABS (name)

Thus, the verbal particle data also show that incorporates must be adjacent to the verb, since incorporates must appear to the left of verb particle (adjacent to the verb), while KPs must appear to the right of the verbal particles.

However, despite elegantly capturing the verb-incorporate adjacency, the Incorporate-as-an-Adjacent NP analysis presented in (1) suffers from several empirical problems. The first comes from prenominal adjectives.

In Tongan, most adjectives appear after the noun. However, a few appear before the noun, such as *ki'i* in (7):

- (7) Na'e tō 'e Sione 'ene *ki'i* manioke.
 PAST plant ERG (name) his small cassava
 'Sione planted his small amount of cassava.'

However, an incorporated noun with a prenominal adjective is unacceptable, as shown in (8).

- (8) *Na'e tō ki'i manioke 'a Sione.
 PAST plant small cassava ABS (name)
 Intended: 'Sione planted a small amount of cassava.'

Acceptability returns with the semantically similar – but postnominal – adjective, *iiki*.

- (9) Na'e tō manioke *iiki* 'a Sione.
 PAST plant cassava small ABS (name)
 'Sione planted a small amount of cassava.'

The prenominal adjective data is a problem for the Incorporate-as-an-Adjacent NP analysis because, on the assumption that prenominal adjectives are generated as part of the NP, the analysis overpredicts what can be incorporated.

A second problem comes from nominalization. As mentioned in (8), a verb and noun can be nominalized together, as shown again in (10):

- (10) a. inu-kava-'anga
 drink-kava-NMLZ
 'place to drink kava'
 b. tō-talo-'anga
 plant-taro-NMLZ
 'place to plant taro' (cf. Bauer (1997, 516–517) for Maori)

Assuming that -'anga nominalization is derivational morphology and at least derivational morphology occurs in the lexicon, the verb-noun compound must also be formed in the lexicon, since it "feeds" -'anga nominalization. This is problematic for the Incorporate-as-an-Adjacent NP analysis, because that analysis treats the verb and the incorporated noun as members of different phrases, thus, predicting that nominalizations like in (10) should not be possible.

Finally, the Incorporate-as-an-Adjacent-NP analysis is also problematic in light of the behavior of verbal suffixes in noun incorporation. The verb, like the noun phrase, must also be "bare" in noun incorporation. Although some verbs can take a so-called transitive suffix in ordinary transitive sentences (11a), they cannot take a transitive suffix in incorporation, as (11bc) reveal.

- (11) a. Na'e kaiha'asi 'e Sione 'a e lole.
 PAST steal-TR ERG (name) ABS DET candy
 'Sione stole some candy.'

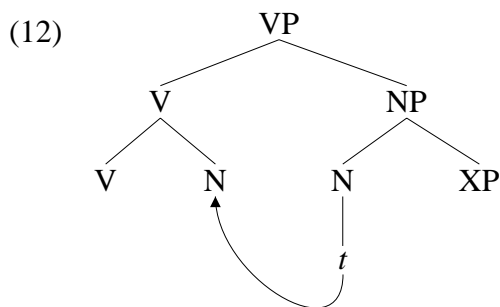
- b. Na'e *kaiha'a lole* 'a Sione.
 PAST steal candy ABS (name)
 'Sione stole candy.'
- c. *Na'e *kaiha'asi lole* 'a'e Sione.
 PAST steal-TR candy ABS/ERG (name)

This morphological behavior is problematic for the Incorporate-as-an-Adjacent-NP analysis, since there is nothing within the analysis that requires the verb to be in any particular form. Furthermore, depending on the analysis of the transitive suffixes, the Incorporate-as-an-Adjacent-NP analysis could predict that the transitive suffixes are required in noun incorporation since there are two nominal arguments – the external argument and the incorporated noun – present.

Returning briefly to some of the phenomena discussed earlier in this section, the scrambling and prenominal adjective data also suggest the verb and the incorporated noun form a word. If the incorporated noun is part of a word, then it is not surprising that incorporates do not scramble, as parts of words are well known not to have the displacement properties of words and phrases. Furthermore, the prohibition of incorporates with prenominal adjectives follows if we adopt a version of the Lexical Integrity Hypothesis (Bresnan and Mchombo, 1995) that bars the insertion of words within other words.

3.2. Head Movement

Finally, I want to turn to a head movement analysis. Such an analysis would move a noun from its original NP and head-adjoint it to the verb, as in (12):



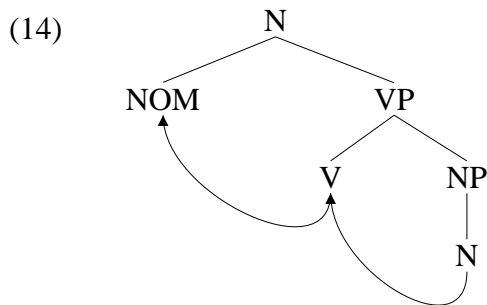
Head movement was originally proposed for noun incorporation by Baker (1988) and proposed for noun incorporation in an Austronesian language (Chamorro) by Chung and Ladusaw (2004).

However, a head movement analysis of Tongan noun incorporation has problems as well. If a base structure like in (12) is assumed, head movement incorrectly predicts that prenominal adjectives should be “stranded;” that is, that examples like (13) should be grammatical.

- (13)*Na'e tō manioke ki'i 'a Sione
 PAST plant cassava small ABS (name)

Furthermore, even if the above problem is avoided, the head movement analysis of Tongan noun incorporation looks like a Kisseberthian conspiracy (Kisseberth, 1970). Under head movement, the NP must be properly “pruned” of its prenominal words *and* situated inside of the verbal particles, all before the head movement actually takes place. Furthermore, the verb must be “pruned” of any affixes or at least derived without them. It would seem far simpler to regard these adjacencies and formal restrictions as constraints on “output” forms.

Additionally, under a Distributed Morphology analysis of the nominalization facts above, there would be yet an additional Kisseberthian conspiracy. Assuming that these nominalizations would derived from the same structure as the syntactic construction and would minimally involve two successive head movements, one merging the noun with the verb, and a second merging the verb-noun node with the nominalizer, such a derivation would be as in (14).



However, such an analysis is subject to two conspiracies. First, the complement of the V must again be “pruned” of its prenominal function words – strikingly, this “pruning” must happen regardless if the noun incorporates into the verb or remains outside the nominalizing affix. Second, the lower NP must be “pruned” of any modifiers, since they don’t incorporate (see (9)) or ‘modify in’ and modify just the noun.⁵ It seems much simpler to regard the -*anga* nominalization as a morphological operation that always acts on verbs within the lexicon, some of them simplex and some of them compound, thus eliminating the “pruning” problem outlined above.

3.3. Preliminary Conclusions

Given the above tour of various theories of Tongan noun incorporation, I have shown that none of the morphological and syntactic theories, by themselves, are empirically adequate to describe the facts associated with Tongan noun incorporation. Given the array of evidence presented above for the wordhood of the verb and incorporated noun, I proposed that these two formed a single

⁵Thanks to Peter Sells for pointing this problem out to me.

word and the modifiers were syntactically-independent phrases. Thus, an instance of the noun incorporation construction with both an incorporated noun and a modifier has the structure of (15):

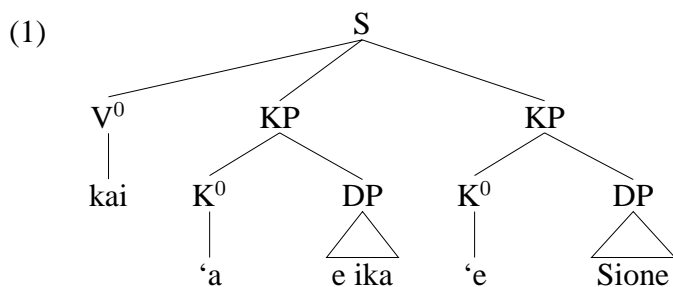
- (15) [_{word} Verb + Incorporated Noun] [_{phrase} Modifier]

Thus, under this view, the noun incorporation construction is neither entirely lexical or entirely syntactic, but a mixture of both. Thus, this raises the question of how this phrase containing the modifiers relates to this word consisting of the verb and incorporated noun (henceforth, the incorporating verb). I turn to this question now.

4. A PROPOSAL

Having rejected several analyses in the above two sections, in this section, I want to sketch a new proposal. However, even within this reduced analytic space, there are still at least three different ways of relating the incorporating verb and the modifiers: as a mismatch between two levels of (morpho)syntactic structure (Bresnan, 2001; Sadock, 1991), as an instance of lexical sharing (Wescoat, 2002), or as a case of argument attraction (Malouf, 1999). The proposal I will make here (without arguing against the other two possibilities, due to space) is a variant of the proposal in Malouf (1999), and will be presented within the framework of HPSG (Pollard and Sag, 1994), although I will keep the formal details to a bare minimum (see Ball (2005) for a full formal analysis). The key idea of this approach is that the noun incorporation construction behaves as a kind of complex predicate and the incorporating verb acquires, to a certain degree, the dependency potentials of both of the base verb and the incorporated noun.

Throughout this section, I will assume a rather minimal syntactic structure for Tongan. Within basic clauses,⁶ I assume a flat structure: in transitive clauses, a verb combines with both arguments simultaneously. However, I assume that these arguments are Case Phrases (KPs), headed by their phrase-initial case markers (K). Thus, for an ordinary transitive sentence, I'm assuming the configuration in (1), a (partial) clause slightly amended from example (4).



⁶Putting aside the clause-initial TAM word, whose syntactic status has no bearing on the issue at hand.

4.1. Creating Incorporating Verbs

First, since noun incorporation in Tongan is reasonably productive, there must be a theoretical device that creates new incorporating verbs. Within the proposal I am presenting here, this is accomplished by a lexical rule (or construction). This rule has several parallel parts. On the morphological side, it allows for a verb stem and a noun stem to form a single word. On the syntactic side,⁷ this rule creates new verbs. However, they are verbs with particular dependency potentials. Given an input of verbs with an actor argument x and an undergoer argument y , the lexical rule creates new incorporating verbs without the y argument as a syntactic argument⁸ (see Runner and Aranovich (2003) for one possible formalization of this). This “removal” of the y argument is behind the change in case marking of the external argument. Since the lexical rule reduces the number of core arguments by one, the external argument of the new incorporating verb is now marked by the absolutive case, like non-derived verbs with single core arguments elsewhere in Tongan.

Additionally, following Malouf (1999), I assume that modifiers should be regarded as syntactic dependents of their heads (though, semantically, they remain functors). I will refer to these nominal dependents by the variable z . Returning to the lexical rule of this proposal, in addition to the removal of the y argument, the lexical rule also allows the verb to acquire any dependents of the noun, z .⁹ Since these modifiers are optional, the z element may be empty.

Thus, the syntactic effects of the rule can be summarized somewhat informally by the diagram in (2), keeping in mind that the variables stand for syntactic arguments, not semantic arguments.

$$(2) \text{ verb } \langle x, y \rangle + \text{ noun } \langle z \rangle \rightarrow \text{ incorporating verb } \langle x, z \rangle$$

4.2. Adding the Modifiers

Taking the resulting verbs from the right hand side of (2), we can build up the noun incorporation structure. In the categorial grammar-like system I’m assuming here, dependents are licensed when an item on head’s list of dependents and the potential phrase match, thus “checking” off that particular dependent. In principle, several dependents could be checked off at once, although to capture the needed verb-incorporate adjacency, this analysis will have the incorporating verb combine with only one dependent at a time.

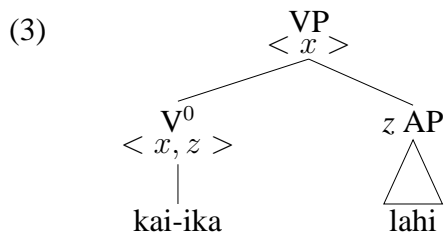
The incorporating verb first combines with modifier(s) – the z argument. Although this follows the convention of combining in the reverse order from list order, this also follows the intuition

⁷Within the framework I’m assuming, there is also a semantic side. One such semantic constraint is that the noun must have a undergoer relationship with the verb. I leave it open what others there might be.

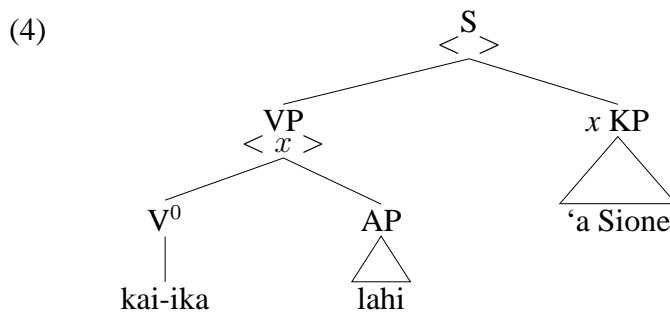
⁸Note that the y argument remains a semantic argument.

⁹Closer examination reveals that this part of the rule, as is, does overgeneralize; however, with some reasonable additional constraints, the non-occurring elements can be ruled out. See Ball (2005) for more details.

that semantically “closer” things combine with the verb first; a modifier of a part of the word being intuitively very semantically close to the word itself. This combination of the verb and the modifier forms a kind of verbal phrase, as shown in (3) with the incorporating verb *kai-ika*, ‘eat fish’ and the modifier *lahi*, ‘big.’ I will label this phrase VP, but it is not to be understood in the traditional sense of a phrase consisting of a verb and its complements.



Continuing on the verb’s list, this verbal phrase created above can then combine with the x argument to form a clause (without the requisite clause-initial TAM element), thus producing the structure in (4):



This S constituent would then combine with the clause-initial TAM element to complete the clause.

This analysis has the virtues of both the morphological analyses and the syntactic analyses, while avoiding their problems. As discussed above, it captures the word-like properties of the verb and the incorporating noun by considering them to be a single word, thus avoiding the “under-lexicalizing” problems of the syntactic analyses and the “over-lexicalizing” of the NP-compounding analysis. Also, by allowing the modifiers to be syntactic phrases, it allows for wide diversity of forms shown in (2)–(5) to be generated in the syntax, where rules to generate them are independently needed. Furthermore, by requiring the modifiers to be adjacent to the incorporating verb, as shown in (3), this recaptures the verb-incorporate adjacency element of the Incorporate-as-an-Adjacent NP analysis.

However, what about the intuition that the incorporate is a constituent, since the modifiers modify the noun and not the whole verb? By building up the semantic structure in parallel with, but

independent of, the syntactic structure, this intuition is still captured, albeit only in the semantics. Recall that there is a split between modifiers of nouns – syntactically, they are dependents of nouns, but semantically, they are still functors. This semantic relationships is preserved as the noun incorporation construction is further built up; thus, the modifiers still semantically modify the noun instead of the whole incorporating verb.

4.3. Additional Points on this Proposal

How is the verbal particle placement data captured under this proposal? Recall that verbal particles precede KPs in ordinary transitive sentences, but they must follow the incorporate in incorporation, as in (5).

- (5) Na‘e kai ika lahi *nai* ‘a Sione?
 PAST eat fish big maybe ABS (name)
 ‘Sione eats a lot of fish, doesn’t he?’ (repeats (5))

The analysis presented above offers a straightforward understanding of where these particles are placed in both kinds of sentences. First, like all kinds of modificational elements in Tongan, the verbal particles follow the head that they modify. In this particular case, the generalization is that the verbal particles appear immediately after the verbal constituent within the constituent labeled S in (4), as shown in the diagram in (6):

- (6) V(P) < verbal particle < X

In ordinary transitive sentences, when verbal particles appear after the verbal element, this verbal constituent is just a single word – the verb – as in (4). However, in the case of noun incorporation, the verbal element is a phrase – the phrase consisting of incorporating verb and the modifiers, as shown above in (5).

Briefly, I want to turn to the issue of subject incorporation. As is apparently true in other Polynesian languages (Chung, 1978), Tongan does not allow any type of subject to incorporate. How might the account sketched here in section 4 be able to capture that? While the constraint on restricting to incorporation to just semantic undergoers mentioned in fn. 6 can capture some of the data, this still does not explain why unaccusative subjects cannot incorporate. A possible solution would be to constrain verbs to have at least one dependent on their list of dependents (cf. The Subject Condition in LFG (Bresnan, 2001, 311)). Thus, while the lexical rule that creates incorporating verbs could hypothetically remove a subject argument, such an operation would not yield an actual possible verb, because this operation would violate this “higher” constraint on verbs, including incorporating verbs, to have at least one dependent.

5. CONCLUSION

This investigation of the Tongan noun incorporation construction has revealed several things. First, Tongan can accept string-adjacent modifiers of incorporated nouns in its incorporation construction, much like its Polynesian relatives.¹⁰ Second, due to the prenominal adjective and nominalization data, neither an analysis which regards the verb and the incorporate as a morphological compound nor as a syntactically formed phrase is adequate to capture the Tongan noun incorporation construction. A head movement analysis is similarly problematic, also due to these above data as well as the several Kissebethian conspiracies that accompany this approach.

In these analyses' steads, I have proposed an alternative analysis, in which the verb and the incorporated noun comprise a single word, and any modifiers form a separate, but related, phrase. I further proposed that this phrase is in fact a syntactic dependent of the incorporating verb; in fact, the incorporating verb inherited the incorporated noun's combinatorial potential in addition to some of the base verb's combinatorial potential. I have shown that this analysis can capture the correct configurational generalizations, as well as accounting for the case marking of the external argument, and the syntax of the so-called "verbal particles."

Under the analysis proposed here, the modifiers are a kind of "stranded" element, though they are a kind of continuous "stranding." Thus, Tongan noun incorporation is similar to noun incorporation in other languages, unlike the general view from the VP-remnant analysis. Furthermore, the analytical technology of argument attraction, whereby incorporating verbs receive the dependencies potentials of both the verb and the noun, offers a new and interesting way to think about noun incorporation, both within the Austronesian family and beyond it.

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¹⁰Indeed, in all cases where there is comparable data available – both internal to the languages and in the literature – it seems that the Tongan noun incorporation facts are the same as the other Polynesian languages

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